UMD’s Municipal Separate Storm Sewer System (MS4) Permit

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Why so much stormwater?

PRE-DEVELOPMENT

- Evapotranspiration (~40%)
- Canopy Interception (~30%)
- Surface Runoff (~10%)
- Interflow (~50%)
- Baseflow (~35%)

POST-DEVELOPMENT

- Evapotranspiration (~35%)
- Surface Runoff (~30%)
- Interflow (~35%)
- Baseflow (~35%)

Adopted from MDE
Storm Drain System

Series of **inlets**, **pipes**, and **outfalls** to collect and efficiently convey stormwater away for buildings, streets, parking lots, etc. On UMD, outfalls end at a **waterbody**, sometimes without any treatment.

Untreated Runoff

Treated Runoff
Watershed Approach

Chesapeake Bay Watershed
64,000 square miles

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Stormwater

- **Quality**
  - Road oil, grit, fertilizers (N&P), pesticides
    - River that caught fire (Cuyahoga River)
    - Fish kills
    - Drinking water advisories

- **Quantity**
  - Too much too fast
    - Urban flooding
    - Urban stream blowout
    - Localized erosion due to poor vegetation cover
Stormwater Sources

- **Point Source Pollution**
  - A single, identifiable source of pollution from which pollutants (including stormwater) is discharged
    - Pipe, ditch, etc.

- **Nonpoint Source Pollution**
  - Pollution from diffuse sources
    - Overland runoff
How do we control and treat it?

- Best Management Practices (BMPs)
  - Physical devices or processes designed to treat runoff.

- Physical Devices: Stormwater management facilities

Processes: Street sweeping, maintaining forested buffers, proper turf maintenance
Stormwater Management

Physical Devices:
- Sand Filters
- Bioretention and rain gardens
- SW Ponds
<table>
<thead>
<tr>
<th>ESD</th>
<th>Conventional SWM</th>
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</thead>
<tbody>
<tr>
<td>Small treatment areas (&lt;0.5 ac)</td>
<td>Large treatment areas</td>
</tr>
<tr>
<td>Relies on natural treatment processes—mimics nature</td>
<td>Don’t usually provide adequate treatment</td>
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<tr>
<td>More aesthetically pleasing</td>
<td>Doesn’t blend well into the landscape</td>
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<tr>
<td>Good water quality treatment (N &amp; P)</td>
<td>Poor water quality treatment (N &amp; P)</td>
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<tr>
<td>More landscape maintenance</td>
<td>More structural maintenance</td>
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</tbody>
</table>
Which is easier to regulate?

Point Source Pollution

OR

Nonpoint Source Pollution
Clean Water Act

National Pollutant Discharge Elimination System (NPDES) Program

TMDL

Animal Feeding Operations
Aquaculture
Combined Sewer Overflows
Pesticide Applications
Pretreatment
Sanitary Sewer Overflows and Peak Flows

Stormwater

MS4

Construction Activities
Industrial Activities
Vessel Discharges

Sanitary Sewer Overflows and Peak Flows

Construction Activities
Industrial Activities
Vessel Discharges

Sanitary Sewer Overflows and Peak Flows
MS4 Permit
(Municipal Separate Storm Sewer System)

- Phase I MS4 Permit: Population over 100,000
  - Montgomery County, Prince Georges County

- Phase II MS4 Permit
  - Small Municipalities
  - State and Federal Agencies (e.g., USM Institutions)
MS4 Permit

- MS4 Six Minimum Control Measures (MCMs)
  - Personnel Education and Outreach
  - Public Involvement and Participation
  - Illicit Discharge Detection and Elimination Program
  - Construction Site Stormwater Runoff Control
  - Post Construction Stormwater Management
  - Pollution Prevention and Good Housekeeping

In addition, there is a 20% impervious area retrofit requirement.
Personnel Education and Outreach

- Develop and distribute education materials
- Develop a hotline for public to report water quality complaints
- Develop annual employee training programs

- Quantify and report results
  - # of fliers handed out
  - # of people that attended/completed training
  - # of reported incidents
Public Involvement and Participation

- Conduct public participation events
  - Tree plantings, stream cleanups, storm drain stenciling, and Earth Day
  - Events must be quantified and reported
- Provide public access to all progress reports

- Quantify and report results
  - # of events held
  - # of people at each event
Illicit Discharge Detection and Elimination (IDDE) Program

- Establish a policy or directive that prohibits illicit discharges
- Develop a map of ALL storm drain infrastructure
- Establish procedures to monitor/screen outfalls
  - At least 50% of all outfalls must be screened each year (depending on campus size)
- Develop a hotline/reporting mechanism for public to report illicit discharges
- Coordinate with adjacent MS4 jurisdictions if MS4 connect
- Quantify and report results
Construction Site Stormwater Runoff Control

• Construction projects shall comply with MDE E&SC guidelines
  • Usually addressed through the construction permitting process
  • MDE usually already has authority

• Develop process to receive & investigate construction runoff complaints

• Ensure appropriate staff are trained
• Quantify and report results
Post Construction Stormwater Management

- All new projects must comply with the MDE SWM manual
- Ensure staff are properly trained on design and maintenance
- Develop a GIS-based Urban BMP database
- Quantify and report results
  - # of facilities planned or built
  - Summary of maintenance actions performed with detailed records to support
  - Submit Urban BMP database
Pollution Prevention and Good Housekeeping

- Develop pollution prevention plans/measures aimed at reducing pollution
  - Look at maintenance yards, fleet operations, building operations, spill control, parking lots, etc.
  - Reduce pesticide/fertilizer use
  - Winter road (salt/sand) treatment practices
- Mandatory annual training
- Ensure facilities as proper coverage under other NPDES permits if necessary
  - E.g., 12-SW permit for Industrial Activities
- Quantify and report results
Restoration Retrofit Requirements

• Must retrofit 20% of untreated impervious areas—projected completion by 2025
• Conduct a baseline assessment in the coming year to determine “treated” vs “untreated” areas
• Restoration credits can be obtained by building new SWM facilities or implementing alternative practices
Restoration Retrofit Goals

- Alternate Methods for Getting Retrofit Credits
  - Tree Planting (especially over ex. impervious areas)
  - Street Sweeping
  - Stream Restoration
  - Catch Basin Cleaning/Storm Drain Vacuuming
  - Outfall Stabilization

Refer to: Accounting for Stormwater Wasteload Allocations and Impervious Acres Treated (MDE, 2014)
Major MS4 Permit Requirements and Due Dates

Fall 2018: Responsible Person sign and submit Notice of Intent (NOI)

Fall 2019: Complete baseline assessment and Urban BMP Database

Fall 2020: Complete 20% restoration plan

Fall 2023: Submit final 20% restoration plan

2025: Projected completion of 20% restoration
MS4 Permit “Responsible Person”

- The NOI, all annual reports, and other significant findings must be submitted to MDE by the “Responsible Person”
- Per COMAR 26.08.04.01-1 and 40CFR 122.22, signatories shall be:
  - Principal executive officer, ranking elected official, or other duly authorized employee
- “Responsible Person” vs. “Technical Contact”
  - Overall program responsibility vs. day-to-day lead
MS4 Permit Penalties

- MS4 program is authorized under the Clean Water Act (CWA) as well as various Federal and State policies and guidelines
- Permittee can be subject to concurrent penalties under the CWA and MD’s Environmental Articles
  - Civil and criminal penalties including up to $50,000 per violation and two years of imprisonment
- University-wide failure to implement can result in penalties and fines
  - For example, Montgomery County just entered into a Consent Decree with MDE for failure to fully implement their permit
What should I be doing now?

- Figure out who the “Responsible Person” is
- Start you FY19 Required MS4 Activities!
  - Map storm drain system
  - BMP inspections and inventory
- Start having those budget conversations
  - Immediate funding for FY19 activities
  - Future budgeting for retrofit implementation
- Figure out your team/partners
  - Internal team
  - External partners
Conservation is a state of harmony between men and land.

Aldo Leopold

Questions?