Overview

- Chesapeake Bay TMDL
- Post Development Stormwater Program
- MS4 TMDL requirements
- Verification
64,000 sq miles

- New York
- Pennsylvania
- Maryland
- DC
- West Virginia
- Delaware
- Virginia
Chesapeake Bay TMDL

- Approved December 29, 2010
- Reductions required for nitrogen, phosphorus, and sediment
- Various source sectors identified
  - Wastewater
  - Agriculture
  - Forest
  - Urban Stormwater
  - Septic
  - Air sources
- Load contribution for urban and suburban SW
  - 8% Nitrogen
  - 15% Phosphorus
  - 16% Sediment
Chesapeake Bay TMDL

- Nutrient *neutral* development standards
- Redevelopment standards
- Retrofits on existing developed lands
- NMP for application of fertilizers on non-ag lands
  - State owned lands
  - Municipal owned lands
  - Golf courses
Chesapeake Bay TMDL

- Construction and Post-Construction Loads:
  - Erosion and Sediment Control Program
  - Post Development Stormwater Management
  - Chesapeake Bay Preservation Act

- Existing Loads:
  - MS4 retrofits

- Provide reasonable assurance that pollutant reductions necessary to meet TMDL will be achieved by MS4s
Post Development Stormwater Management

- Virginia Stormwater Management Program (VSMP)
- Mandatory statewide since 2011; revised 2014
- Administered by DEQ
- MS4 permittees required to implement VSMP on behalf of Commonwealth jurisdiction wide
  - Demonstrates compliance with MCM 4 and 5
- Other localities can opt-in
- Runoff reduction methods
- SWM plan review tied to CGP coverage
Post Development Stormwater Management

- Water quantity technical criteria
  - Channel and downstream flood protection
- Water quality technical criteria
  - Total Phosphorus as keystone pollutant
  - New development: 0.41 lb/acre/year
  - Redevelopment: Reduction in pre-development TP load
    - Projects < 1 acre: 10% reduction
    - Projects >/= 1 acre: 20% reduction
Post Development Stormwater Management

- Water Quality Compliance Options
  - BMP Clearinghouse
    - 15 non-proprietary
      - Traditional SW BMPs (ponds, infiltration, LID, etc.)
      - Design specifications
    - Several proprietary (manufactured treatment devices)
    - Assigned pollutant reduction efficiencies
    - Inspection and maintenance requirements
Post Development Stormwater Management

- Water Quality Compliance Options (cont.)
  - Offsite BMPs (including credit purchases)
    - Less than 5 acres and less than 10 lbs TP
    - >5 acre or > 10 lbs TP: 75% of reductions achieved onsite
  - Long term operation & maintenance requirements
    - Signed agreements between VSMP authority and owner
    - Recorded in the local land records
Post Development Stormwater Management

- VSMP authority inspection requirements
  - Once per 5 years
- DEQ compliance review of local VSMPs
  - Once per 5 years
MS4 Chesapeake Bay TMDL Requirements

- 11 Large and Medium MS4s, 77 Small MS4s
- Existing source reductions

<table>
<thead>
<tr>
<th>Pollutant</th>
<th>Impervious</th>
<th>Pervious</th>
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<tbody>
<tr>
<td>Total Nitrogen</td>
<td>9%</td>
<td>6%</td>
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<tr>
<td>Total Phosphorus</td>
<td>16%</td>
<td>7.25%</td>
</tr>
<tr>
<td>Total Sediment</td>
<td>20%</td>
<td>8.75%</td>
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- 3 permit 5 year permit cycles terms to achieve
MS4 Chesapeake Bay TMDL Requirements

- Loading rates based on model dropped in permit
  - River basin dependent
- Permittee calculates “WLAs” based on regulated service area
- TMDL Action Plans developed that show
  - Wasteload calculations
  - BMP identification
  - Reduction calculations
MS4 Chesapeake Bay TMDL Requirements

- Compliance options
  - Virginia’s Stormwater BMP Clearinghouse
  - Chesapeake Bay Program approved BMPs
    - Some same as Virginia’s stormwater BMP design specification but differing reduction efficiencies
    - Retrofit curves
    - Some annual practices (street sweeping, NMPs)
  - Nutrient credits
What does all of this mean?

Both Virginia’s Post Development Stormwater Program and MS4 TMDL requirements result in A LOT of regulated water quality BMPS!
BMP Data Collection and Reporting

- Construction Stormwater General Permit Database
- MS4 annual reports
- BMP Warehouse
  - Comprehensive collection across all sectors
  - Collect info for reporting to EPA NEIEN and CBP
  - Loaded into the CB Watershed Model
  - Credit distributed in model based on location – could indicated whether or not an MS4 permittee is “demonstrating compliance” with WLA
BMPs are plugged into the Chesapeake Bay Watershed Model to predict reductions of pollutant and assess progress

- Structural BMPs assigned “duration”
  - Practice based BMPs rely on annual reporting

- Credits only “renewed” if verified to still be functioning

- Need all the credit we can get!
What is Verification?

Chesapeake Bay Program defines as:

The Process through which agency partners ensure practices, treatments and technologies resulting in reductions of nitrogen, phosphorus, and/or sediment pollutant locates are implemented and operating correctly.
Why is Verification important?

BMPs with no documented inspection, maintenance, or spot check to confirm continued function are dropped out of the record a the end of their credit duration.
Verification challenges

- Stormwater BMP monitoring is expensive!
  - $$$ better used for implementation and installation
- Not enough DEQ staff resources to inspect at a frequency necessary to physically verify every BMP
  - ~ 40 Stormwater plan reviewers and inspectors
  - Main focus CGP inspections and initial post development BMP installation
- Program funded based on application fees and annual maintenance fees
Verification

- Programmatic approach as opposed to individual inspections
- VSMP inspections
  - Once per 5 years
- DEQ – VSMP Program Review
  - Once per 5 years
- MS4 BMP inspection requirement in permit
  - Publicly owned: Once per year
  - Privately owned: Once per 5 years
- Plan is to assume # of BMPs “renewed” based on program compliance rates
  - May need to adjust
  - Will require data manipulation of inspection dates that may not be accurate
  - May upset some more conscientious permittees
- DEQ MS4 Compliance Inspections & Desktop Audits
  - Once per 5 years
Questions?

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