Stormwater at the Edge of Town: Urban BMPs in a Sharing Economy

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Views and opinions expressed are solely those of the Chesapeake Stormwater Network. memo to be revised based on comments received by **February 9.**

Presentation Outline

- The Nature of the Problem
- Challenges Small Communities Face in Bay Restoration
- Alternative Strategies
  - Rapid Municipal Assessments for Non-Regulated Communities
  - An EZ-PRP Option for Small MS4s
  - Inter-Sector BMP "Trading" Between Small and Large Communities
- Next Steps

Percent of Developed Land in Chesapeake Bay Watershed By Regulatory Category [1]						
Bay State	*Non-Regulated [2]*		*MS4 Permittees [3]*		*Combined Sewer [4]*	
	%TC [5]	%IC [6]	%TC	%IC	%TC	%IC
DE	63	26	7	4	0	0
DC	5	6	22	30	8	27
MD	18	7	47	29	>1	>1
NY	54	32	6	5	1	1
PA	52	21	13	9	2	3
VA	48	22	16	15	>1	>1
WV	54	17	18	9	1	1
BAY Average	42%	18%	18%	14%	2%	5%

Challenges: Pollutant Reduction Mandate?	
Small MS4 Communities	*Non-Regulated Communities*
Only two Bay states (PA/VA) have established numeric pollutant reduction requirements for existing development in Phase 2 MS4 permits to date (MD has them pending)	No legal requirement to compel them to reduce loads from existing development or operate a local stormwater program to reduce loads from new development

Challenges: State Stormwater Regulations	
Small MS4 Communities	*Non-Regulated Communities*
Need to operate a local post-construction stormwater program, but few specific requirements on how to inspect or maintain local BMPs	ESC and SWM may be required by state law or general permit, but locality generally has no authority to review or approve stormwater BMPs for new development

Challenges: Stormwater BMP Reporting	
Small MS4 Communities	*Non-Regulated Communities*
Usually through annual MS4 reports, although some states have reporting databases that localities can submit data to. Usually a voluntary option.	No local requirement to report the BMPs that are implemented (by others) within their jurisdiction, nor an easy mechanism to do so, even if they wanted to

Challenges: Stormwater BMP Tracking	
Small MS4 Communities	*Non-Regulated Communities*
May have a storm drain map and local BMP inventory, but lack the budget to track local BMPs in their community. May have limited GIS mapping capability	Tracking BMPs is not currently considered a standard DPW function. May consist of paper files only. Some tracking may be done by soil conservation districts or others

Challenges: Urban BMP Verification	
Small MS4 Communities	*Non-Regulated Communities*
Most are not aware of CBP BMP verification requirements and lack internal capacity to inspect or enforce maintenance at privately-owned BMPs	State stormwater agencies have authority to inspect and verify BMPs, but lack staff resources to do so in small communities. Many legacy BMPs will be dropped because they cannot be verified

Challenges: Available Staff Resources	
Small MS4 Communities	*Non-Regulated Communities*
Rarely more than 1 FT or PT staff are available to administer the MS4 stormwater permit.	Unstaffed function. Most municipal staff struggle to support basic public works functions.

Challenges: Local Restoration Contractor Skills
Small MS4 Communities and Un-Regulated Communities
• Small local market for contractors with expertise to design, construct, maintain, verify or retrofit BMPs. • Most small communities lack the budget to hire larger private sector firms that do have the expertise

Challenges: Understanding of Nutrient Accounting	
Small MS4 Communities	*Un-Regulated Communities*
Very limited understanding of technical tools and BMP removal rates Need intensive training and Help Desk	Most staff don't have the time or the motive to learn these new skills to do their job

Challenges: Availability of Local Watershed Data
Small MS4 Communities and Un-Regulated Communities
• Local data on land use, loads, BMPs and Bay delivery ratios may be available from CAST -- but localities find it hard to extract

Challenges: Ability to Prepare and Execute a PRP?	
Small MS4 Communities	*Un-Regulated Communities*
Plan? Limited ability , w/o better guidance and some outside help *Implementation?* Need some outside support to get it done	*Plan?* None: need a simpler approach to make better local BMP decisions *Implementation?* Need external staffing and financing to get much done

Key Findings

- Hi Prevalence of small MS4s and non-regulated areas in the Bay watershed
- Combined with the severe restoration challenges they face
- M*ake it difficult, if not impossible, for many Bay states to install enough BMPs to meet their current nutrient reduction goals for the urban sector.*
- New BMP implementation strategies are needed to support restoration capacity for smaller communities.

Proposed Approaches to Solve the Problem

- Rapid Municipal Assessments for Non-Regulated Communities
- An EZ-PRP Option for Small MS4s
- Inter-Sector BMP "Trading" Between Small and Large Communities

Rapid Municipal Assessment

- Rapid desktop assessment of:
  - local land development regulations,
  - municipal operations and
  - public land management

- to determine if they generate "creditable" BMPs, and helps:

  - Organize a community to clean up local waters and restore the Bay,
  - Serve as a "prospectus" for larger communities to decide whether there are advantageous BMP investments to be made in the smaller community.

EZ-Pollutant Reduction Protocol

- The simplified protocol has four primary elements:
  - Simple Pollutant Load Analysis
  - Desktop Evaluation of Past and Current BMP Generation
  - Field Evaluation of Tree Planting, Retrofit and Stream Restoration Opportunities on Public Lands
  - Internal Procedures for Local BMP Tracking, Reporting and Verification

Simple Pollutant Load Analysis

Answers watershed scoping questions in a community:

- What is the current land use and land cover in my jurisdiction and where can I quickly access this data?
- How do I find specific growth projections for various 2025 development scenarios for my community?
- How much is our community expected to grow over the next decade and do I need to offset this growth with additional pollutant reductions?
- How much sediment or phosphorus load is our community committed to reduce in the next ten years?
- How much of this reduction is voluntary and how much is mandated under our local MS4 stormwater permit?

Simple Pollutant Load Analysis (cont)

- How much pollutant reduction do we achieve each year with BMPs generated under our current and past MS4 stormwater permits?
- Can we earn additional pollutant reduction credits due to our local planning and zoning efforts and land development regulations?
- Going forward, how much additional pollutant load will my community need to reduce from existing lands to meet our final goals?
- What does this reduction translate in terms of my communities "treatment footprint"? (i.e., approximately how many acres of urban land cover will I need to treat with some form of urban BMP?)

CBP “Help Desk”

- Small communities can request initial answers to preceding questions in the form of a short CBP data report.

- Step by step guidance documents (and associated training) to help small communities get the answers they need to manage their local watersheds.

Desktop BMP Evaluation

- Focuses on how to find current and past BMP credits that a small community is already earning through:
  - Past stormwater BMP implementation due to local land development, stream buffer and land conservation regulations.
  - BMPs implemented under existing MS4 permit conditions and minimum management measures
  - Ongoing municipal operations that can reduce pollution, such as:
    - Roadside ditch management
    - Street cleaning
    - Fall leaf pick-up
    - Urban nutrient management plans on public lands
    - Municipal good housekeeping practices

Internal BMP Quality Control

- Ensure BMPs are accurately reported, tracked and verified in the community over time, by
- Identify staff responsible for reporting BMP data to the local MS4 permit manager each year (and the specific contacts at state agencies to send it to).
- Create internal BMP reporting spreadsheets and databases which are compatible with existing municipal information networks and state BMP reporting databases.
- Appoint a local liaison to interact with state BMP reporting agencies and other communities who are interested in possible BMP trades.

"Air-BMP": Concept for Inter-sector BMP Trading

Both regulated and non-regulated communities have strong incentives to trade or share the rights to install, inspect, maintain and verify local BMPs. In concept, the market would work as follows:

- Un-regulated communities are the BMP "sellers" in the market place.
- Regulated communities are the primary BMP credit "buyers" in the market.
- Foundations are essentially the market "creators"
- Technical service providers are independent and can craft the specific "rules" for BMP crediting and trading and act as the market "referee"
- State and federal regulators sanction and endorse a pilot inter-sector BMP trading market.
- Private sector consultants are hired by do most of the actual BMP implementation work

Inter-sector BMP trading (or sharing)

- Inter-sector BMP trading meets economic criteria for a successful and efficient market in the real world:
- The BMP trades cover several phases of BMP implementation -- initial credits for BMP construction, credits for ongoing BMP maintenance and credits for inspections to verify BMP to extend credit duration.
- BMP trades are eligible between non-regulated and regulated communities (or their designated private sector P3 firms), and between Phase 1 and Phase 2 MS4 communities)
- BMP trades can be in cash for construction, or more commonly, as contributed staff or contracting services that larger communities provide to small communities
- BMP trades can only occur within a small geographically-defined market -- the land river segment boundaries established by the CBP for the Phase 6 Watershed Model.

More on Inter-Sector BMP Trading

- The BMP trades occur within the urban sector and follow common rules for urban BMP crediting previously approved by the CBP partnership (i.e., definitions, qualifying conditions, delivered loads, protocols to define removal rates, credit duration and BMP verification procedures).

- Most communities already engage in inter-municipal legal arrangements that allow them to collaborate to build and maintain restoration projects that are eligible for BMP trades.

- Most trading schemes that are proposed founder on the rocks of watershed equity, but this should not be a major issue for inter-sector BMP trades.

- If equity concerns are still a problem, the simple solution would be to establish a BMP trading cap within a regulated community. This would ensure a minimum percentage of all BMPs are installed locally (e.g., no more than 25% of local load reduction allocation can be traded out of the municipality).

Next Steps

- USWG Discussion
- Feb 9 Comment Deadline
- More Discussion w/ Other Stormwater Stakeholders