

TECHNICAL MEMO

Date: April 2, 2018

To: Water Quality Goal Implementation Team

From: Tom Schueler
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Re: The Phase 3 WIP Challenge: The extent of unregulated urban land and small MS4s in the Chesapeake Bay watershed makes urban load reduction problematic

1. Nature of the Problem

A majority of the developed land in the Chesapeake Bay watershed is located in small communities that are regulated by Phase 2 MS4 permits or not regulated at all (see Table 1). Projections of future growth in the watershed indicate that this kind of low density, exurban development will continue in most Bay states through 2025.

Table 1: Percent of Developed Land in Chesapeake Bay Watershed By Regulatory Category ¹						
Bay State	<i>Non-Regulated ²</i>		<i>MS4 Permittees ³</i>		<i>Combined Sewer ⁴</i>	
	%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 ⁷	42%	18%	18%	14%	2%	5%

Notes:

¹ Based on Phase 6 Model. 2013 progress runs, as derived from CAST, percentages may not sum to 100% due to rounding errors

² Defined as a community that is not dense enough to be regulated by a Phase 2 stormwater permits

³ Includes large communities regulated under Phase 1 Ms4 permits (pop <100,000) and smaller communities regulated under Phase 2 MS4 permit (pop <10 to 25K). Area split is roughly 50:50

⁴ Areas of older cities that are regulated as combined sewer overflow systems

⁵ Turf cover includes turf and tree canopy over turf

⁶ Impervious cover includes buildings and other IC, roads, tree canopy over IC and construction

⁷ arithmetic average

These smaller communities (population 25,000 or less) often lack staff capacity, financial resources and technical understanding to develop pollutant reduction plans to restore local streams and help meet the Chesapeake Bay TMDL. In many cases, small communities do not even know how to report BMPs built within their jurisdiction to

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earn nutrient reduction credit. Table 2 outlines some of the many challenges that small communities face when it comes to doing their part to restore the Chesapeake Bay.

Table 2: Bay Restoration Challenges Faced by Small Communities		
<i>Challenge</i>	<i>Small MS4 Communities</i>	<i>Un-Regulated Communities</i>
Pollutant Reduction Mandate for Existing Development?	3 Bay states have numeric reduction requirements	No legal requirement to reduce loads
Stormwater Regulation for New Development?	Yes, must operate a post-construction stormwater program	Required by state, but locality has no review authority
Stormwater BMP Reporting to State?	Yes, thru annual MS4 reports	No. Lack a mechanism to do so
Stormwater BMP Tracking?	May track local BMP inventory, but not always up to date	Not a local function, although tracking may be done by soil conservation districts or others
Urban BMP Verification?	Not aware of current BMP verification requirements and lack staff to implement them	No local capacity, so very likely BMPs will be dropped because they cannot be verified after 5 to 10 years
Available Staff Resources?	Usually one PT staff	Un-staffed function.
Local Contractor Skills ?	Few local contractors have expertise in BMP design, construction, inspection and maintenance	
Understanding of Nutrient Accounting?	Very limited understanding	No need to understand
Ability to Prepare a PRP?	Limited	None
<i>While the entries in this table are generally accurate, they do not include the efforts of several small communities that have chosen to go above and beyond the minimum requirements.</i>		

2. Key Implications for Bay Managers

Many of the Bay states have recently adopted Phase 1 and Phase 2 MS4 permits that include numeric load reduction targets for existing development within their jurisdictions (MD/VA/PA). While these permits have been very effective in triggering BMP implementation in regulated communities, they are insufficient to meet state goals for load reduction from the urban sector because of the large expanse of unregulated land across the state.

This problem was recently documented by an extensive analysis of BMP implementation in regulated and non-regulated communities in the commonwealth of Pennsylvania

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(Johnston, 2018). The analysis found that the state could only meet about 10% of its intended urban sector goals, even after all of the BMPs are installed under the pollutant reduction plans required by small MS4 permits in the watershed. The major reason for the shortfall was the large amount of unregulated land that did not require any BMP implementation, followed by the challenges in BMP delivery capacity faced by small communities. This problem is likely to be acute in DE, NY, VA and WV which also have large percentages of un-regulated urban land within their jurisdiction (see Table 1).

The second key challenge is that many small communities lack the internal capacity to report, inspect, maintain and verify the urban BMPs that have installed over the past decade. Consequently, many existing BMPs will be dropped in the coming years because they cannot be properly verified.

The bottom line: The extent of non-regulated areas in the Bay watershed combined with the capacity challenges faced by small MS4 *may make it difficult, if not impossible, for many Bay states to install enough BMPs to meet their current nutrient reduction goals for the urban sector. As they prepare for their Phase 3 WIPs, Bay states will need to specifically account for how urban BMPs will be delivered by unregulated communities and small MS4s.*

3. Potential Management Solutions

Clearly, new and creative strategies are needed to meet the unique needs of small communities when it comes to implementing BMPs to protect local streams and help restore the Bay. It also evident that the traditional model for pollutant reduction planning developed for larger Phase 1 MS4 communities needs to be adapted and re-tooled for small communities. The current planning process is simply too difficult, complex, time-consuming and expensive for most small communities to follow.

These strategies could conceivably include:

Simplified Tools for Restoration Planning

- Rapid municipal restoration assessment guide for non-regulated communities*
- Simplified template for small MS4 pollutant reduction plans*
- CAST "How to" guide*

Capacity Building for Small Communities

- Increased outreach and training*
- Streamlined platforms for BMP reporting and verification
- Direct technical assistance (e.g., BMP help desk)*
- Access to onsite support form technical service providers*

Greater Inter-Municipal Coordination

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- Inter-municipal agreements (Lancaster PA)
- Inter-municipal staff sharing
- Intra-sector BMP sharing
- Intra-sector BMP trading (beyond MS4 treatment baseline)
- Enhanced role for soil conservation district staff

Individual states will need to critically assess which strategies will be the most effective for the small communities within their jurisdiction, and how to leverage existing resources to implement them. Some strategies may be amenable to a Bay-wide solution (as denoted with asterisk above) using existing and new CBP resources and support from CSN and the USWG. Feedback is requested from CBP partners on whether they would support further scoping work on implementing these strategies.

4. Designing a Pilot Program in a Test Region of the Bay Watershed

The solution to the problem will likely require new regional partnerships among a diverse group of urban and rural stakeholders. One potential approach is to work with one or more willing states to test out the small community engagement strategies in a defined land-river segment. These regional partnerships would likely involve:

- State stormwater agency
- All of the regulated and un-regulated communities within the defined geographic area
- Regional planning authority
- Various technical service providers (both NGOs and private sector)
- CBP technical staff
- Soil conservation district staff
- Other regional partners
- A group to coordinate partnership efforts (e.g., CSN)

The basic idea would be to intensively work in the test region for several years using a combination of strategies described in Section 3. The impact of the effort would be measured by the rate of small community BMP implementation over time compared to a control region in the state without the small community engagement.

Once again, feedback is requested from CBP partners on whether this approach has merit and should be pursued further and whether they might be willing to participate in a pilot project. CSN has some limited funding in its cooperative agreement to work on this issue in the coming months.