PENNSYLVANIA PHASE III WIP STORMWATER WORKGROUP RECOMMENDATIONS

SUMMARY

Pennsylvania's Phase III Watershed Implementation Plan (WIP) Stormwater Workgroup (Workgroup) recommends that the WIP document include the following scenarios and strategies to assist Pennsylvania in meeting its pollutant load reduction obligations under the Chesapeake Bay TMDL by 2025.

BMP Scenario / Recommendation	Description	2025 Load Reduction (lbs)		
		TN	TP	TSS
1. Current MS4 Permit Term	BMPs expected from MS4s in the Chesapeake Bay watershed by 2023 under MS4 NPDES permits through implementation of PRPs.	172,340	15,919	83,905,157
2. New Riparian Forest Buffers	Buffers to be installed voluntarily in developed areas in addition to what is implemented by MS4 permittees under PRPs and TMDL Plans.	7,741	16,424	987,550
3. IDD&E Controls	Credit for controls over pool water discharges and vehicle wash water in MS4 NPDES permits.	2,831	3,664	271,540
4. Next Industrial Stormwater Permit Term	Require permittees with NPDES permit coverage for stormwater associated with industrial activities to reduce existing pollutant loads.	1,996	24	988,379
5. Fertilizer Legislation	Anticipated legislation that would reduce the application of TN and TP.	187,901	220,923	-
6. Next MS4 Permit Term	Improvements recommended for next permit term beginning in 2023.	-	-	-
a. Use NLCD Developed Lands in Lieu of or in Addition to UA	Use National Land Cover Database (NLCD) developed lands instead of or in addition to urbanized areas to better target load reductions and increase load reductions.	583,159 to 973,308 (see next page)	42,863 to 71,483 (see next page)	179,857,746 to 299,759,781 (see next page)
b. County or Regional MS4 Permitting	Require counties to be co-permittees with municipalities, necessitating collaboration and reducing administrative burdens.			
c. Emphasis on GI	The next permit term should focus on TN removal as well as TP and TSS through vegetated BMPs and "green infrastructure" (GI).			
d. Orphan BMPs	Promote effective use of existing BMPs that current owners are not maintaining.	Not calculated	Not calculated	Not calculated
e. Private Property Easements	Provide funding to facilitate BMP installation and O&M on private land.	Not calculated	Not calculated	Not calculated

BMP Scenario / Recommendation	Description	2025 Load Reduction (lbs)		
		TN	TP	TSS
f. MS4 Outreach	Fund and manage staff to provide technical assistance to MS4s.	Not calculated	Not calculated	Not calculated
BMP Scenario 6, Alternative 1	5% reduction in TN required for NLCD developed land & UA, no offsetting	971,922	71,483	299,759,781
BMP Scenario 6, Alternative 2	5% reduction in TN required for NLCD developed land & UA, of which up to 50% can be accomplished on agricultural lands (offsetting)	973,308	43,520	164,947,851
BMP Scenario 6, Alternative 3	3% reduction in TN required for NLCD developed land & UA, no offsetting	583,159	42,863	179,857,746
BMP Scenario 6, Alternative 4	3% reduction in TN required for NLCD developed land & UA, of which up to 50% can be accomplished on agricultural lands (offsetting)	584,918	25,913	98,587,964
7. Non-MS4 Data Collection	Survey non-MS4 municipalities to identify unknown BMPs (if BMP Scenario 6 is not implemented).	10,180	1,230	3,949,535
8. Chapter 102 and Act 167 Improvements	Improvements recommended for Chapter 102 permitting and Act 167 implementation.	Not calculated	Not calculated	Not calculated
a. Pre- to Post-Water Quality Analysis	Verification that the net change in pollutant loads will be “managed” is expected to encourage more vegetated BMPs with higher removal efficiencies.	Not calculated	Not calculated	Not calculated
b. Meet Load Allocations for TMDLs	Where a load allocation exists for land within a TMDL watershed, DEP would ensure that the load allocation is achieved.	Not calculated	Not calculated	Not calculated
c. Improve Chapter 102 BMP Inventory	Improve how PCSM BMPs are collected for use in the Bay model.	Not calculated	Not calculated	Not calculated
d. Enforce Stormwater Management Act (Act 167)	Require updated Act 167 plans and ordinances.	Not calculated	Not calculated	Not calculated

PENNSYLVANIA PHASE III WIP STORMWATER WORKGROUP RECOMMENDATIONS

DETAILED DESCRIPTIONS

1. Current MS4 Permit Term

DEP randomly selected 50 PRPs and TMDL Plans submitted by MS4s as part of their NOIs or applications for new or renewed NPDES permit coverage for the 2018-2023 permit term, and reported the list of BMPs proposed in these plans for MS4s to achieve pollutant load objectives under the permit (i.e., typically a 10% sediment reduction). The Chesapeake Bay Office then extrapolated the list of BMPs to activities within the entire portion of the Chesapeake Bay watershed in Pennsylvania, which is documented in the table below.

Recommendation – The Workgroup recommends that the BMPs in Table 1 below (as updated for the latest developed land cover information) be included in scenario evaluations for the Chesapeake Bay Model and in the Phase III WIP. The Workgroup recognizes that actual BMPs implemented by MS4s during the permit term will differ from the table below, and could be greater than or less than the estimated BMP extents shown in the table. Actual BMPs that are implemented will be reported to DEP through MS4 Annual Status Reports and DEP will report these BMPs to EPA.

Table 1: Anticipated BMPs to be Established During Current MS4 Permit Term.

BMP	BMP Extent	Units
Advanced Sweeping Technology - 1 pass/2 weeks	195	Acres
Advanced Sweeping Technology - 1 pass/week	311	Acres
Advanced Sweeping Technology - fall 1 pass/1-2 weeks else monthly	51	Acres
Bioretention/raingardens - A/B soils, no underdrain	272	Acres
Bioretention/raingardens - A/B soils, underdrain	455	Acres
Bioretention/raingardens - C/D soils, underdrain	452	Acres
Bioswale	6,455	Acres
Dry Detention Ponds and Hydrodynamic Structures	1,778	Acres
Dry Extended Detention Ponds	1,405	Acres
Filtering Practices	638	Acres
Forest Buffer	151	Acres
Infiltration Practices w/ Sand, Veg. - A/B soils, no underdrain	195	Acres
Infiltration Practices w/o Sand, Veg. - A/B soils, no underdrain	220	Acres
Mechanical Broom Technology - 1 pass/4 weeks	36	Acres
Mechanical Broom Technology - 1 pass/week	191	Acres
Urban Stream Restoration	129,378	Feet
Vegetated Open Channels - C/D soils, no underdrain	1,784	Acres
Wet Ponds and Wetlands	1,348	Acres
Storm Drain Cleaning	137,145	lbs Sediment

2. New Riparian Forest Buffers

The Chesapeake Bay Program has estimated that there are approximately 310,000 acres of developed land cover in Pennsylvania's portion of the Chesapeake Bay watershed available for riparian forest buffers (approximately 100-foot buffers from surface waters), and that approximately 31,000 acres of new riparian forest buffers could be planted in those areas at maximum implementation levels.

Recommendations –

1. Incentives for establishing new riparian forest buffers in developed areas outside the current UA should be provided in the subsequent MS4 NPDES permit process.
2. It may be assumed that a certain amount of new buffer establishment in developed areas may be accomplished by 2025 through voluntary efforts and during the initial years of the next NPDES permit term. The workgroup estimates that 450 acres of new riparian forest buffers and 50 acres of new tree canopy cover will be established in developed areas by 2025 and recommends that these new acres be included in scenario evaluations for the Chesapeake Bay Model and in the Phase III WIP.

3. IDD&E Controls

The current PAG-13 General Permit eliminates, in comparison to prior versions of PAG-13, an authorization to discharge pool water and residential vehicle wash water containing soaps or other substances to MS4s. These discharges are now considered illicit under an MS4's Illicit Discharge Detection and Elimination (IDD&E) program. Municipal MS4s have until 2022 to update ordinances authorizing these types of discharges and some have already done so. DEP estimates that this action will reduce the following pollutant loads annually:

Total Nitrogen: 2,831 lbs/yr
Total Phosphorus: 3,664 lbs/yr
Sediment: 271,540 lbs/yr

Recommendation – The Workgroup recommends that these IDD&E load reductions be included in scenario evaluations for the Chesapeake Bay Model and in the Phase III WIP.

4. Industrial Stormwater NPDES Permit Requirements

Over 1,000 industrial facilities in Pennsylvania's portion of the Chesapeake Bay watershed are required under federal regulations to obtain NPDES permit coverage for stormwater discharges, either under the PAG-03 General Permit or an individual permit. To date industrial stormwater dischargers in the Chesapeake Bay watershed have not been required to take new measures to reduce the loading of pollutants of concern under the Chesapeake Bay TMDL. The PAG-03 General Permit will come up for reissuance in 2021.

Recommendations –

1. The Workgroup recommends that DEP should require industrial stormwater dischargers to contribute to the efforts undertaken by MS4s and other sectors to curb pollutant loading to impaired waters, including the Chesapeake Bay. Industrial stormwater dischargers should either 1) implement BMPs on their own sites or 2) contribute to efforts off-site such as those undertaken by MS4s, if applicable.
2. DEP estimates that there are at least 5,000 acres of impervious surface at industrial facilities in the Chesapeake Bay watershed that are regulated under the NPDES program. Although a plan has not yet been developed for the reduction of Bay pollutants of concern for the next PAG-03 General

Permit term, DEP estimates that the BMPs that will be implemented on these sites by 2025 will be equivalent to a reduction in impervious surface of 5%, or 250 acres. The Workgroup recommends that the conversion of 250 acres of industrial impervious surface to pervious cover be represented in scenario evaluations for the Chesapeake Bay Model and in the Phase III WIP.

5. Fertilizer Legislation

Proposed legislation (SB762) that would, among other things, place restrictions on the application of TN in commercial fertilizer and, in many situations, ban the application of TP is under consideration by the Pennsylvania House Agriculture & Rural Affairs Committee. The Chesapeake Bay Program has estimated that if the legislation as written is signed into law, overall reductions of 10% and 70% for Total Nitrogen and Total Phosphorus, respectively, to turf lands will occur that will result in 0.5% and 30% reductions in Total Nitrogen and Total Phosphorus, respectively, across all pervious lands. In addition, it may be assumed that 10% of all turfgrass acres in developed land will receive urban nutrient management plans.

Recommendation – The Workgroup recommends that the assumption should be made that the legislation will be signed into law before 2025, and the assumptions for pollutant load reductions proposed by the Chesapeake Bay Program should be applied.

6. Next MS4 Permit Term

a. Use NLCD Developed Lands in Lieu of or in Addition to UA

The 2018-2023 MS4 permit uses federal Bureau of the Census “urbanized area” (UA) to trigger MS4 regulation of municipalities and to establish the area regulated under the permit. The problem with using UA is that in some cases it includes land that is not developed, and in some cases, it fails to include land that is developed.

An alternative to UA is the National Land Cover Database (NLCD). NLCD is a Landsat-based, 30-meter resolution land-cover database for the nation. It provides spatial reference and descriptive data for characteristics of the land surface. Of relevance to MS4, it identifies “Developed Open-Space,” Developed Low intensity,” Developed Medium Intensity,” and “Developed High Intensity.” It is the basic source of land cover information for Geographic Information Systems (GIS). It is managed by the U.S. Geologic Survey and is periodically updated. As such it is a far more appropriate tool for urban stormwater regulation than UA.

The use of UA (440,690 acres) captures only 34% of the NLCD Developed Lands (1,296,105 acres) in the Chesapeake Bay watershed. Using UA also stimulates regulation of huge amounts of undeveloped lands (284,539 acres, or 39% of the UA). By failing to regulate so much developed land and by regulating so much undeveloped land, the use of “urbanized area” substantially misdirects the MS4 program in the Chesapeake Bay drainage area in Pennsylvania.

The Workgroup considered whether there is value in MS4 regulation of undeveloped land, in particular, farmland, but concluded that the value is minimal, because farm regulation is done in accordance with state regulations, not local ordinance.

An alternative to using NLCD is to mirror the National Agricultural Imagery Program (NAIP) used by EPA in the Chesapeake Bay Program. NAIP mapping would result in regulation of 1,681,280 acres in the Chesapeake Bay drainage area (26% more than NLCD). The Workgroup does not recommend use of NAIP because it would regulate more than is needed, and because it is not available statewide.

The Workgroup believes the current MS4 program reliance on UA creates a major flaw. MS4s are frustrated; they see some municipalities with UA loopholes and waivers. The program does not seem consistent or fair. It is hard to take it seriously given those flaws. Major changes are needed, such as use of NLCD.

Recommendation – The Workgroup recommends the following:

1. DEP should pursue regulation of MS4s based on NLCD developed lands. If UA must continue to be used due to federal regulations, both developed lands and UA should be regulated. With respect to the UA, EPA should be requested to interpret their regulations to allow the substitution of NLCD for UA, and if such an interpretation is not forthcoming, to seek a regulatory deviation from EPA HQ.

2. DEP should recognize the difficulty that would be imposed on permittees and DEP in the event that Recommendation 6.a was implemented without 6.b. Unless significant additional resources could be provided, the regulated area should not be substantially increased without the leadership that would be provided through County or Regional MS4 Permitting.

b. County or Regional MS4 Permitting

Pennsylvania leads the nation with over 1,100 municipalities and other entities designated as regulated small MS4s. The NPDES permit process and compliance is a significant challenge for both MS4s and DEP. DEP has encouraged voluntary collaborative efforts for PRP and TMDL Plan development and implementation, and collaboration is authorized for basic permit compliance under the federal regulations. Numerous MS4s have embraced collaboration as an effective means to reduce compliance costs. DEP observes that not only does DEP have insufficient resources to adequately administer the program, but when operating as separate municipalities, many do not have sufficient resources to implement an effective MS4 program. The biggest hurdle to collaboration is often intermunicipal relations. This may be overcome by DEP requiring collaboration (i.e., co-permittees). The requirement would allow counties the flexibility to assign roles on a watershed or other basis to authorities, county conservation districts or others.

Recommendation – The Workgroup recommends that DEP develop a county or regional permitting approach for future MS4 permits. Counties would need support. In addition, the approach would need to include substantial flexibility; for example, counties would need the ability to continue the role of municipal stormwater authorities, and/or assign roles to their County Conservation District and/or other mechanisms. Municipalities would be encouraged to participate through the provision of financial incentives as well as the ability to rely on centralized responsibility for Minimum Control Measures #1 and #2 (and other) MS4 activities.

c. Emphasis on GI (Green Infrastructure)

The 2018-2023 MS4 permit allows MS4 permittees to use any BMP(s) it chooses to meet pollutant load reduction objectives. Since the focus of this permit is on achieving sediment load reductions, many permittees have proposed projects that will cost effectively remove high levels of sediment. However, these BMPs may not remove appreciable amounts of nutrients, particularly TN. The vast majority of TN load delivered to the Bay from Pennsylvania is through agricultural lands. Nevertheless, the urban stormwater sector could achieve higher TN reductions if the implementation of green infrastructure (GI) such as rain gardens, bioswales, conservation landscaping and reductions in impervious surfaces was the focus of subsequent permit cycles.

Recommendation – The Workgroup recommends that the subsequent MS4 permit term focus on the implementation of BMPs to reduce both nutrients and sediment for water quality control, along with rate and volume control. Assuming Recommendations 6.a and/or 6.b are adopted, there would be greater opportunities for GI BMPs to be implemented throughout a county or watershed.

One way to accomplish the above is to change the MS4 permit structure. The current MS4 permit requires MS4s to reduce the sediment load from their UA regardless of whether they have any sediment-impaired local waters. Most MS4s have sediment-impaired waters downstream of developed areas, but some do not, or in some cases only part of the developed area drains to locally sediment-impaired waters.

Local sediment BMPs which address developed-area impairments would also control some TN, and that reduction could also be credited to the Bay-required TN removal. In recognition of this fact MS4s would be incentivized to select BMPs with relatively higher TN reduction in addition to sediment reduction.

The workgroup felt that MS4s should be required to reduce sediment to some degree, but less than 10%, even if there are no local sediment-impaired waters.

d. Orphan BMPs

It is common for the maintenance of older Chapter 102 BMPs to have been made the responsibility of the developer, rather than a homeowner association or other party. It is not uncommon for the result to be that the developer is responsible in perpetuity. Some developers walk away from that responsibility. They may not have been built to current standards, and may be in disrepair. Their future use may however be a far more cost-effective choice than alternatives in the municipality. Municipalities could assume ownership of such BMPs. Current owners may be willing to donate them for the benefit reduced taxes, or an arrangement with a future sharing of responsibility between the owner and the municipality could be pursued.

Recommendation – The Workgroup recommends the following:

1. The Chapter 102 permitting process be revised to create an option that would credit the upgrade of older BMPs toward the required pollutant reductions for a proposed development site.

2. DEP should perform a legal review of state law that controls the creation and operation of Homeowner Associations (HOAs) to see if there is a legal ability to require HOAs to take responsibility for orphan BMPs in their area.

e. Private Property Easements

MS4s relied heavily on BMP installations on publicly-owned property in the 2018-2023 PRPs. The use of privately-owned property was encouraged, but realities of expense and future control caused it be a less-desired option. The Workgroup suggests that private owners would be more willing to allow use of their land if they could be paid (even if it would be less than market value of the land). One method to pay would be for the municipality to purchase an easement from the landowner. An additional benefit of the easement is that the municipality would have improved assurance of continued use of the site for stormwater management. The issue was referred to the funding workgroup. A second method of paying the landowner would be through reductions in local taxes.

Recommendation – The Workgroup recommends the following:

1. DEP should work with PENNVEST to create a special financing program in which counties could create a revolving fund which would allow the county to offer very low interest loans to municipalities. Limiting it to easements for BMPs would make for simple administrative processing.

2. County and local governments be encouraged to grant tax reductions to landowners which provide easements on their property to the municipality for stormwater management.

f. MS4 Outreach

The MS4 program has matured significantly in Pennsylvania since the original PAG-13 General Permit was issued in 2003; however, the program is complex and it is clear that the regulated community needs ongoing education.

Recommendations – DEP and/or its contractors or partners should begin or continue to:

1. Provide training on asset management and fiscal sustainability for stormwater management.
2. Develop educational materials geared toward local elected officials.
3. Promote collaboration with funding, if possible, and highlight success stories.
4. Improve technical capabilities of permittees and their consultants and continue providing foundational training on basic MS4 compliance.
5. Streamline government assistance to municipalities (e.g., have a one stop shop for local governments for grants, assistance and partnering opportunities).
6. Develop guidelines for the selection of BMPs based on cost per pound of reduction and other factors.

BMP Scenario 6 Alternatives

The Workgroup believes that the recommendations in 6.a through 6.f should be implemented for the next MS4 NPDES permit term. In order to translate these reforms into pollutant load reductions, the next MS4 NPDES permit will need to include load reduction objectives. The Chesapeake Bay Program Office evaluated several alternatives. All of the alternatives focus on TN reductions within NLCD developed lands and UA lands, with offsetting considered on agricultural lands. The use of TN as the focus of pollutant reductions will drive the selection of vegetated infiltration BMPs (which are also efficient at removing TP and TSS). The alternatives evaluated by the Chesapeake Bay Program Office are as follows:

- ***Alternative 1*** – A 5% TN reduction across all NLCD developed and UA lands, without an allowance to take credit for reductions made on agricultural lands (i.e., offsetting).
- ***Alternative 2*** – A 5% TN reduction across all NLCD developed and UA lands, with an allowance for offsetting. Offsetting may comprise up to 50% of TN reductions.
- ***Alternative 3*** – A 3% TN reduction across all NLCD developed and UA lands, without an allowance for offsetting.
- ***Alternative 4*** – A 3% TN reduction across all NLCD developed and UA lands, with an allowance for offsetting. Offsetting may comprise up to 50% of TN reductions.

7. Non-MS4 Data Collection

In the event that Recommendation 6 is not implemented, as an alternative a data collection effort may be pursued for non-regulated lands. If Recommendation 6 is implemented, this alternative is not considered necessary.

DEP will be collecting stormwater BMP data from MS4 municipalities through an electronic annual reporting system. This will provide an accounting of stormwater BMPs within less than 25% of the developed land in the Bay watershed in PA. For the other 75%, DEP could mail a survey out to non-MS4 municipalities asking them to report any stormwater BMPs they are aware of or are completing, and whether those BMPs are or are not being implemented as part of a Chapter 102 project. For example, many municipalities conduct street sweeping but DEP has reported essentially no street sweeping activities to the Bay Model. A similar survey was sent to thousands of small farms in the watershed by Penn State, yielding thousands of unreported agricultural BMPs for PA credit in the Bay Model. This survey could be done perhaps every few years.

In addition, such a survey could capture BMPs that are implemented outside of urbanized areas for development involving earth disturbance under one acre. Several municipalities require PCSM BMPs under ordinances for projects under one acre.

Recommendation – The Workgroup recommends that, if Recommendation 6 is not implemented, DEP collect BMP information from non-MS4s that are not already captured by the Chapter 102 program. Such BMPs exist but are not currently accounted for in the Chesapeake Bay Model. For the purpose of projecting pollutant loads resulting from this effort, the Workgroup estimates that the BMPs identified in Table 2 below will be identified if this recommendation is implemented:

Table 2: Estimated BMPs Existing Outside of UAs within Developed Lands.

BMP[1]	BMP Extent	Units
Bioretention/raingardens - A/B soils, no underdrain[2]	27	Acres
Bioretention/raingardens - A/B soils, underdrain[2]	45	Acres
Bioretention/raingardens - C/D soils, underdrain[2]	45	Acres
Bioswale[2]	645	Acres
Dry Detention Ponds and Hydrodynamic Structures[2]	178	Acres
Dry Extended Detention Ponds[2]	140	Acres
Filtering Practices[2]	64	Acres
Infiltration Practices w/ Sand, Veg. - A/B soils, no underdrain[2]	20	Acres
Infiltration Practices w/o Sand, Veg. - A/B soils, no underdrain[2]	22	Acres
Mechanical Broom Technology - 1 pass/4 weeks[3]	137	Acres
Urban Stream Restoration[2]	12,938	Feet
Vegetated Open Channels - C/D soils, no underdrain[2]	178	Acres
Wet Ponds and Wetlands[2]	135	Acres
Storm Drain Cleaning[4]	137,145	lbs Sediment

1 Only those BMPs that 1) are likely to exist outside of urbanized areas but within areas considered developed lands by the Chesapeake Bay model (1,240,590 acres), and 2) do not represent land use changes are presented.

2 It is likely that the BMP has been implemented on developed lands outside of UAs through voluntary efforts or through local ordinance requirements. It is assumed that the BMP extent for the BMP is 10% of the values reported in Table 1.

3 According to research conducted by the Chesapeake Bay Program, 70% of public streets are swept at least 1/year. Of these streets, 85% are swept more than 1/year. Only 27% of streets are swept using efficient sweeping technology. The mechanical broom technology (1 pass/4 weeks) BMP was used as a surrogate for all street sweeping occurring outside UAs. The BMP extent is 3.8 times the BMP extent reported in Table 1 (1,681,280 developed acres / 440,690 UA acres).

4 According to research conducted by the Chesapeake Bay Program, 75% of communities clean out storm drains at least once every two years. It is estimated that a similar amount of sediment is being removed from storm drains outside of UAs as within UAs (per Table 1).

8. Chapter 102 and Act 167 Improvements

These recommendations would not necessarily result in new BMPs to reduce runoff and treat stormwater on existing lands. However, these recommendations would reduce the impact of further

development and help "stop the bleeding," as Pennsylvania is losing ground in the Chesapeake Bay model due to net increases in pollutant loads as a result of land use changes.

a. Pre- to Post-Water Quality Analysis

The current approach for evaluating the water quality impacts of earth disturbance projects greater than or equal to one acre is largely presumptive. Under the existing Pennsylvania Stormwater BMP Manual, if the net increase in stormwater runoff from the 2-year storm will be "managed" and at least 90% of the disturbed area will be "controlled" by a BMP, it is presumed that water quality requirements for sediment and TP will be met. There is currently no pre- to post-water quality analysis which is required under the regulations (§ 102.8(g)(2)) and under the PAG-02 General Permit for discharges to impaired waters. The Chesapeake Bay Model is demonstrating that Pennsylvania is "losing ground" with respect to land use changes. In particular, when forested or hay/pasture lands are converted to impervious surfaces, there are no BMPs that are capable of reducing pollutants loads following construction to pre-construction levels, although vegetated BMPs with infiltration provide the greatest benefit.

The Stormwater BMP Manual is currently undergoing revisions, and it is expected that a pre- to post-water quality analysis will be incorporated into the revised Manual. In addition, the Stormwater BMP Manual provides little to no credit for evapotranspiration (ET) within vegetated BMPs, although there is a significant amount of research suggesting that ET plays a major role in managing stormwater.

Recommendations –

1. DEP should revise the Stormwater BMP Manual and the Chapter 102 NPDES permitting process to require a pre- to post-water quality analysis to demonstrate quantitatively that there will be no net increase in pollutant loads as a result of the new land use, with BMPs. Where this cannot be demonstrated (i.e., primarily for forested and hay/pasture lands that are converted), the use of vegetated BMPs with infiltration should be required to the maximum extent practicable.
2. DEP should recognize in its review of PCSM plans the role of ET in managing stormwater runoff to levels indicated by current research.
3. DEP should require no net increase in pollutant loads for individual permit projects that discharge to special protection waters and waters impaired for nutrients or sediment, to the maximum extent practicable.

b. Meet Load Allocations for TMDLs

There is a pollutant loading rate associated with all land uses, reflecting non-point source pollution. When a TMDL is developed, reductions in pollutant loads from non-point sources are typically prescribed (along with reductions from point sources) in order to achieve the maximum load or concentration of a pollutant in an impaired surface water to achieve water quality standards. The target loads for non-point sources are termed "load allocations," which apply to both existing and future non-point sources as well as natural background.

For example, it may be estimated in a TMDL that hay fields within an impaired watershed contribute 100,000 lbs/year of a pollutant, and in order for the water to achieve water quality standards, there needs to be a pollutant load reduction of 50% from the hay fields.

When DEP issues a permit that authorizes a new discharge to waters with a TMDL, DEP must ensure under federal regulations (40 CFR 122.44(d)(1)(vii)(B)) that the permit is consistent with all assumptions and requirements of the approved TMDL. This applies to both TMDLs for local waters and to the Chesapeake Bay.

This means if a person proposes to convert a hay field into a shopping mall, the developer of the shopping mall would need to ensure that proposed BMPs would not only reduce pollutant loading to the same levels as the existing hay field, but also achieve the load allocation (50% reduction) that is applied to the hay field in the TMDL.

Recommendation – The Workgroup recommends that the Chapter 102 permitting process be revised for new development projects to require applicants to demonstrate that an applicable load allocation for nutrients or sediment will be achieved following construction. Where an applicant demonstrates this is not feasible, provide an alternative approach that may involve off-site reductions.

c. Improve Chapter 102 BMP Inventory

DEP's existing methods of collecting PCSM BMP data for Chapter 102 earth disturbance projects is outdated and may be inaccurate. BMPs proposed by applicants as part of an NOI or application are keyed into a database as resources allow. However, these BMPs have not been verified as being implemented. In addition, periodic inspections should be undertaken to assure that the BMPs remain functional and that operation and maintenance (O&M) is conducted by the owners of the BMPs, which is important for ongoing credit in the Chesapeake Bay Model.

Recommendations –

1. Improve Chapter 102 BMP data collection by having verified BMPs entered into a common database by county conservation districts (CCDs) upon the final inspection of a project site, following receipt of a Notice of Termination (NOT).
2. NOTs are often not submitted by permittees; provide incentives for the submission of NOTs such as the avoidance of fees.
3. Have CCDs or other partners conduct Chapter 102 BMP inspections at a routine frequency (e.g., 5 years) following approval of NOTs.
4. Consider permitting mechanisms that would require long-term BMP reporting by owners.

d. Enforce Stormwater Management Act (Act 167)

DEP has generally not enforced the requirements of Act 167 for many years due to limited resources and other reasons. Act 167 is the primary means by which stormwater management may be implemented in non-MS4 municipalities. There remain many counties across Pennsylvania that have not developed a stormwater management plan although the requirement has been in effect since 1978. Those counties that have developed plans have often not completed the 5-year review/revision required by the Act.

Recommendations –

1. DEP should resume enforcing the provisions of Act 167. This would lend support to County/Regional MS4 Permitting, and promote collaboration with counties and neighboring municipalities on stormwater management.
2. DEP should review the status of the adoption of stormwater ordinances, with a focus on non-MS4 municipalities with high percentages of impervious surfaces. DEP should, as resources allow, ensure that non-MS4 municipalities in counties with Act 167 plans have adopted ordinances that address water quality in addition to rate and volume control.

These recommendations would be facilitated if Recommendations 6.a and 6.b were implemented.