



# CHESAPEAKE BAY FOUNDATION

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## *Saving a National Treasure*

8 November 2010

Via email

Pennsylvania Department of Environmental Protection  
Rachel Carson State Office Building  
Water Planning Office  
P. O. Box 2063  
Harrisburg, PA 17105-2063

**RE: Comments regarding Pennsylvania's draft Chesapeake Watershed Implementation Plan (WIP); September 2010**

Dear Department of Environmental Protection:

The Chesapeake Bay Foundation (CBF), and its more than 200,000 members, thank the Department of Environmental Protection (DEP) for developing and implementing a thorough and open stakeholder process for constructing the Watershed Implementation Plan (WIP). We look forward to a finalized WIP that includes the Best Management Practices (BMPs) necessary to meet the reduction requirements, but also includes the implementation capacity to assure that those BMPs are put "on the ground." It must equitably require nutrient and sediment reductions from across all sectors. The WIP must outline the mechanisms, and commit programmatic and financial resources to meet the goals, to provide reasonable assurance that the WIP can be implemented, and to restore Pennsylvania's waters and the Chesapeake Bay.

As you know, the process of developing the Bay-wide Total Maximum Daily Load (TMDL) actually began over a decade ago with a series of federal judicial consent decrees and settlement agreements over impaired water listings for many watershed states. *See American Littoral Society v. EPA, Case No. 96-489 (E.D. PA April 9, 1997); American Canoe v. EPA, 54 F. Supp. 2d 621 (E.D. Va. 1999)*. On June 28, 2000, the governors of Virginia, Maryland, and Pennsylvania, the chair of the

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Chesapeake Bay Commission, and the Mayor of the District of Columbia responded to the various decrees and agreements by signing, with the EPA Administrator, Carol Browner, the *Chesapeake 2000 Agreement* which, among other things, committed to reduce nitrogen, phosphorus, and sediment sufficiently to remove the Bay and its tidal tributaries from the impaired waters lists by 2010.

In December 2003, the EPA, Pennsylvania, and the other Bay jurisdictions agreed to the nitrogen, phosphorus and sediment allocations that became the basis for “tributary strategies,” designed to remove the Bay and its tidal tributaries from the impaired waters lists by 2010. Pennsylvania completed their plan in 2004.<sup>1</sup> The failure to achieve the goal triggered the need to develop the Bay TMDL – a process in which Pennsylvania has been a full and cooperative participant.

Consistent with EPA’s letters to the Principals’ Staff Committee of September 11, 2008, November 4, 2009, and April 2, 2010, we strongly encourage the state to provide the necessary details in their WIP for how they will achieve the necessary reductions.

While Pennsylvania has made significant progress on some specific BMPs, the Commonwealth has demonstrated an inability to deliver on core programmatic items that are critical to meeting our water quality goals. This WIP is Pennsylvania’s final opportunity to create a strategy for implementing the TMDL that is built by Pennsylvanians, for Pennsylvania, and utilizes the details and efficiencies that are specific to the Commonwealth. CBF urges you to consider the following recommendations to construct a credible strategy to accomplish the necessary reductions. Otherwise, the Federal Government will use its Clean Water Act authorities to attempt to accomplish those reductions in Pennsylvania. The outcomes of that approach will be for more difficult and less efficient for the Commonwealth and its citizens.

EPA’s assessment of the Pennsylvania WIP was not good. The agency cited numerous “significant deficiencies” that if not corrected would result in EPA invoking—under existing Clean Water Act authority—several “backstop” measures.<sup>2</sup>

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<sup>1</sup> Pennsylvania’s Chesapeake Bay Tributary Strategy. Prepared by the Pennsylvania Department of Environmental Protection. December 2004.

<sup>2</sup> EPA Comments on the Pennsylvania Draft Phase I Watershed Implementation Plan, September 27, 2010. [http://www.epa.gov/reg3wapd/pdf/pdf\\_chesbay/WIPEVALUATIONS/PortfolioOfDraftWIPs.pdf](http://www.epa.gov/reg3wapd/pdf/pdf_chesbay/WIPEVALUATIONS/PortfolioOfDraftWIPs.pdf)

A central criticism by EPA was the conclusion that Pennsylvania did not develop a credible and justifiable plan to reduce pollution from farms and urban and suburban developments. Without meaningful reductions from these sectors, Pennsylvania will not achieve the pollution reductions required by the TMDL.

The ramifications of failure, and the implementation of the “backstop” measures and the other consequences, detailed in EPA’s December 29, 2009 letter to the Bay states, threaten to profoundly impact Pennsylvania communities, farmers, and businesses in many significant ways.

In order to avoid EPA imposing the TMDL “backstops” and the other consequences, we strongly encourage DEP to fully integrate our comments and suggestions into the draft Phase I WIP.

Also, we incorporate by reference the comments submitted by CBF and the Choose Clean Water Coalition and Donald Boesch, et al. to Administrator Jackson on November 8, 2010, Docket no. EPA-R03-OW-2010-0736.

## **Key Recommended Improvements**

Detailed in our comments herein are numerous recommendations for improving the draft WIP, particularly as it pertains to the reasonable assurance EPA seeks. In summary, we believe that the draft WIP should incorporate the following:

### **Agriculture**

- Describe a strategic plan containing binding commitments for the state that reasonably achieves agriculture’s load allocation within the TMDL’s timeline and which includes sufficient contingencies if specific program elements cannot be implemented.
- Inform all producers of regulatory and TMDL-related requirements.
- Implement outreach, financial assistance, and enforcement activities to assure widespread compliance.
- Identify overall funding need, and remaining funding gaps that must be filled by the Commonwealth.

- Pursue core conservation measures first on farms that have not yet participated; “the basics” provide cost effective nutrient reductions.
- Integrate state efforts on alternative manure technologies with compliance efforts on small and medium farms, especially dairies.
- Invest state and federal funds in forested buffers of at least 35 feet; narrower or grass buffers should not be a subsidized priority.
- Maximize landowners’ use of CREP for buffers to stretch other limited cost share programs farther.
- Advocate to restore and grow the REAP tax credit program.
- Advocate to restore and rebuild conservation district capacity.
- Develop a comprehensive methodology to track voluntary BMPs that reduce nutrient and sediment loads, as well activities (by all sectors) that increase nutrient and sediment loads.
- Commit to timeline for establishing criteria for TMDL level compliance and “Safe Harbor.”
- Commit to timeline for establishing a plan for achieving phosphorus balance over the long term and that is sufficiently protective of water quality.
- Strengthen the private sector’s role in providing planning and design services to producers.
- Coordinate efforts effectively to ensure all cooperating agencies and organizations are working on goals that are consistent with the WIP.

### **Urban/Suburban Stormwater**

- Abandon the proposed MS4 methodology in favor of the approach employed in the Christina River Basin Watershed Stormwater Source TMDL.

- Revise permit requirements so as to incorporate no net increase provisions for new or expanded discharges of construction, post-construction stormwater runoff.
- Revise Act 167 to fully incorporate stormwater-related LA and WLA allocations and reduction goals and practices.
- Revise Pennsylvania's Stormwater Best Management Practices Manual so as to incorporate the small storm hydrology management approach.
- Develop and advocate for innovative, but scientifically justifiable, approaches to address and fund stormwater retrofits and impervious surface reductions in existing urban and suburban areas, including the examination of an offsets program.
- Develop a meaningful MS4 permitting program which requires the adoption of low impact development (LID) requirements, tree and urban/suburban woodland protection ordinances, and retrofitting programs, amongst other improvements.
- Advocate for a ban on the sale of phosphorus-based fertilizers intended for use by homeowners, except under certain conditions.

### **Resource Extraction**

- Develop a process to track and quantify the impact of land-based Marcellus Shale-related drilling activities (e.g., pads, roads, clearing of forest, etc) and incorporate into the WIP.
- Revise permit requirements to incorporate no net increase provisions for new or expanded discharges of construction, post-construction stormwater runoff from extractive industries, including Marcellus Shale.

### **Onsite Wastewater**

- Close the septic system “loop hole” regarding no net increases in pollutant loads from new or expanded sewage discharges and institute an offsets program.

## **Sector Specific Comments**

Throughout various sections of the draft WIP, numerous aspects of DEP’s programs, permits, and methodologies for incorporation into the TMDL and WIP are presented. This presentation approach makes it difficult to provide meaningful comment via a sequential approach. Therefore, for ease of presentation we provide our comments below on a per sector basis and not sequentially as presented in the draft WIP.

However, in general, the issues and concerns we raised in our August 12, 2010 letter to the Pennsylvania WIP team members remain (Attachment A). Specific comments for each sector are below.

### ***Agriculture***

CBF supports DEP’s commitment to reducing pollution from agriculture in ways that strengthen the sector overall, and helping individual producers maintain or regain profitability in the process. A robust agricultural sector in Pennsylvania is critical to PA watersheds and the Bay. That developed land is the only sector still increasing pollution loads underscores the fact that farms and forests are much preferable to development, especially the highly land-consumptive growth that has occurred in the region over the past several decades.

DEP and other Pennsylvania agencies and partners have developed and pursued creative approaches to achieving agricultural nutrient reductions to augment ongoing efforts. These initiatives include nutrient credit trading, state enhancements to CREP, innovative manure technologies, REAP transferrable tax credits, ARRA and PENNVEST nonpoint source projects, county assessments of voluntary BMPs, and others. We are hopeful that a new tracking program for voluntary BMPs will reveal more progress made by producers that has not yet been credited to the agricultural community.

Nevertheless, PA farms continue to generate substantial nutrient and sediment loads, and sufficiently reducing this sector’s loads is the most critical aspect of Pennsylvania’s WIP. The final WIP must clearly outline a strategic plan for agriculture that includes specific commitments of technical and financial

resources with measurable goals and timelines. The draft WIP for agriculture did not contain sufficient detail to provide reasonable assurance to EPA that necessary agricultural reductions will be achieved, nor did it give PA policymakers a clear roadmap for funding and program needs. The Chesapeake Bay Foundation agrees with EPA's assessment of serious deficiencies and we provide the following recommendations to correct these deficiencies.

### **Achieve widespread compliance with state and federal requirements in a timely fashion**

The final WIP Agricultural Compliance Plan must identify the process, resources and timelines necessary to inform and assist producers who do not have required plans and BMPs.

Pennsylvania has a solid foundation upon which to work with small and medium-sized farms that are not required to have certified nutrient management plans or Concentrated Animal Feeding Operation permits. DEP deserves much credit for its efforts to revise Chapter 102 regulations on erosion and sedimentation control and the Field Application of Manure Supplement to the Manure Management Manual. Once the latter is completed, producers will have clearer guidance on required planning and implementation measures for both sediment and nutrient control, setting a "level playing field" for the majority of producers and giving DEP an excellent context for gaining additional nutrient reductions from farms that may have considerable work yet to do.

The draft WIP relies heavily on new BMPs derived from farms developing and implementing required Erosion and Sediment Control Plans and Manure or Nutrient Management Plans. CBF supports this approach as fair and cost effective. It will focus pre-2017 efforts on implementing "core BMPs" (nutrient management planning, cover crops, riparian buffers, no-till or low-till cultivation) on farms that previously had not established necessary conservation practices, versus enhanced BMPs on farms already achieving high standards.

However, regulations mean little if compliance with those regulations continues to lag. Pennsylvania has required conservation and manure plans for almost 40 years, and many farmers are still unaware of these regulations. Indeed, a great number of PA farmers are unfamiliar with these requirements for the very reasons that EPA has criticized PA's draft WIP: DEP has never led, and has still neither described nor committed to, a comprehensive and proactive compliance

effort. The failure of the Commonwealth, through DEP, the Department of Agriculture, Conservation Districts, and others to clearly educate and inform the agriculture sector about compliance has left the Commonwealth's farms vulnerable under state laws to administrative enforcement and citizen action.

While Pennsylvania has no comprehensive database on farm plans, discussions with county and state conservation agency staff suggest that at least half of Pennsylvania farms do not have required erosion control or manure management plans, and the number could be much higher. Recent inspections by EPA in the Watson Run watershed in Lancaster County found that only three of the twenty four farms in the watershed had conservation plans.<sup>3</sup> A comprehensive assessment of farming practices in the Chesapeake Bay watershed found that about 26% of cultivated cropland acres across the watershed still need additional erosion control practices and about 81% of these acres require additional nutrient management practices.<sup>4</sup> Past and current DEP regulatory programs do not appear to be a significant factor in planning decisions for most producers.

The updated requirements for these plans, coupled with the expectations of the TMDL, will require a comprehensive outreach, education and enforcement strategy that details the steps DEP and partners will take to assure that the approximately 40,000 farms in the Chesapeake Bay watershed develop or update these plans and are on implementation schedules for meeting necessary standards for water quality. The final WIP must move beyond what appears to be largely a recitation of existing programs with modest funding and staffing enhancements.

Implementation of the revised Manure Management Manual will lead to significant nutrient reductions, but possibly not sufficient to meet the TMDL goals. If the Manure Management Manual does not yield the performance needed, then DEP must require a higher level, such as certified nutrient management plans on all farms producing livestock.

The draft WIP acknowledges that staff resources are insufficient to assure compliance, but does not provide any meaningful solutions to address this shortage. It proposes to support four new staff positions, that "once fully trained,

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<sup>3</sup> Crable, Ad, Lancaster Intelligencer Journal and New Era, EPA Discusses Farm Inspections, January 26, 2010

<sup>4</sup> Natural Resources Conservation Service-USDA, Assessment of the Effects of Conservation Practices on Cultivated Cropland in the Chesapeake Bay Watershed, Review Draft, October 2010.



are expected to result in an increase of 450 agricultural inspections annually, as well as 50 stormwater inspections and 100 compliance actions per year."<sup>5</sup>. At that rate, it would take 89 years after their training to reach all of the approximately 40,000 farms in the watershed. The final WIP needs to provide a strategy for either reaching these 40,000 farms with existing resources as soon as possible, or securing new resources for this purpose.

The final WIP must commit to ensuring that sufficient resources for technical and financial assistance will be available so that necessary plans will be developed for the estimated 18,000 livestock farms in the Chesapeake Bay watershed by 2015, and all remaining crop farms by 2018. We provide the following analysis on the necessary staffing resources for planning and outreach. Whether or not the final WIP uses a similar analysis, it must describe in detail how Pennsylvania will provide assurance that needed conservation and manure/nutrient management plans will be done on a timeline that is consistent with TMDL milestones.

### **Staffing Needs for Compliance Outreach and Assurance – An Analysis**

About 2,000 livestock operations already have Nutrient Management Plans, so the remaining 16,000 farms require Manure Management Plans. The Lower Susquehanna Watershed should see the most emphasis initially, because this area contributes both the greatest nutrient and sediment loads to the Chesapeake Bay and has greater staff resources. The Lower Susquehanna Watershed contains about 21,000 farms, approximately 10,000 of which have livestock.

Some farms will require only verification that they have current Erosion and Sediment Control or Conservation Plans and Manure Management Plans that are being implemented on schedule. Other farms will require only modest updates to their plans to address water quality concerns. A third set of farms will require far more assistance in developing and implementing plans where none currently exist. Anecdotal information suggests that about approximately one third of farms are in each of the three above groups. We estimate that an average (across the various situations described above) of 2.5 days of technical assistance staff time per farm are needed to develop a basic Erosion and Sediment Control plan with a Manure Management Plan in the case of livestock operations.

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<sup>5</sup> Pennsylvania Department of Environmental Protection, Pennsylvania Chesapeake Watershed Implementation Plan, September 2010, page 81.

CBF's assessment of technical resources assumes that agency and private sector employees must reach about 5,000 farms each year, so that developing the necessary plans for all farms in the Chesapeake Bay watershed is achieved within eight years. Eight years to develop the needed plans would provide the framework to establish 60% of the necessary BMPs by 2017 as required by EPA. One staff person (with vacations, holidays, sick time, and training time) could assist about 90 farms annually. This would require 56 full-time staff people, working exclusively on planning assistance to farms in the Chesapeake Bay watershed.

An alternative approach would be to shift priorities of existing staff, with some sacrifices to other programs or priorities. An estimate of the needs under this approach includes:

- 62 Chesapeake Bay Technicians in Conservation Districts, that could spend about 2/3 of their time (140 days/year) on outreach and plan development, with an average of 2.5 days per farm. At this rate, they could develop 3430 plans annually.
- About 50 Nutrient Management Technicians, Erosion and Sediment Control Technicians and other Conservation District staff, that could spend 10% of their time, or about 21 days/year to develop 420 plans per year.
- USDA Natural Resources Conservation Service assistance with approximately 500 plans per year through various programs, such as the Environmental Quality Incentives Program and the Conservation Stewardship Program.
- Eight Department of Environmental Protection regional staff encouraging the most problematic farms to develop the necessary plans immediately, through the private sector if Conservation District staff unavailable. They could reach about 50 farms per year per person, or about 400 total plans per year.
- The private sector's development of an additional 250 plans in the initial year, and more in the future. This sector must play a significant role in plan development and implementation, and their ranks would likely expand with demand, as farms see stronger regulatory requirements or nutrient credit trading opportunities.

- Farms in geographic proximity could be grouped together (possibly with Conservation District assistance) to obtain lower cost bids for planning.
- Additional funding from EPA could support private sector plan development.
- Farms that pollute Pennsylvania’s waters should be required to develop and implement the necessary plans immediately, and many will need to rely on private sector planners, or face enforcement actions.

According to these estimates of combined technical resources of the public and private sector, about 5,000 farms in the Chesapeake Bay Watershed would have plans each year. Initial efforts should be targeted to livestock operations currently lacking plans. All livestock operations in the Lower Susquehanna watershed should have plans by the third year, and by the fifth year in the rest of the watershed. By the eighth year, all Chesapeake Bay Watershed farms should have an Erosion and Sediment Control plan with a Manure Management Plan when needed, although some may need adjustments. We propose the following timeframe for plan development:

	<b>Lower Susquehanna Watershed</b>		<b>Remaining Chesapeake Watershed</b>		
	<i>Livestock farms</i>	<i>Crop farms</i>	<i>Livestock farms</i>	<i>Crop farms</i>	Total
<i>2011</i>	4,000		1,000		5,000
<i>2012</i>	4,000		1,000		5,000
<i>2013</i>	2,000	1,000	2,000		5,000
<i>2014</i>		2,000	3,000		5,000
<i>2015</i>		2,000	1,000	2,000	5,000
<i>2016</i>		3,000		2,000	5,000
<i>2017</i>		3,000		2,000	5,000
<i>2018</i>				5,000	5,000
<b>Total</b>	10,000	11,000	8,000	11,000	40,000

Once farms develop the necessary erosion and sediment control and manure management plans, additional work will be needed to ensure that plans are being implemented, soil erosion is limited to “T” over a rotation, animal concentration areas are correctly managed, buffers are established and maintained, cover crops are planted early enough each year, and other practices are successfully established and maintained. Plan development is just the first step in the process.

### Enforcement

The draft WIP describes the planned “Targeted Watershed Approach” which will guide the department’s compliance and enforcement efforts. This approach has many advantages, particularly given limited staffing resources. CBF recommends, however, that the final WIP include a compliance and enforcement strategy that extends beyond targeted watersheds and response to complaints. The final WIP needs to outline a process that will result in all farms complying with state and federal requirements on a timeline consistent with the TMDL.

Thus, in addition to DEP’s efforts in targeted watersheds, the initiative should focus enforcement on farms with obvious and serious water quality problems first. Complaint-driven enforcement of environmental regulations is inadequate because it drives regulatory action to the farms where there are observant neighbors, not necessarily where the greatest pollution risks exist. Throughout the watershed, there are farms that have not participated in voluntary technical and financial assistance, and some of these operations contribute to serious water quality problems. Many of these problems – such as direct barnyard runoff and unmanaged Animal Concentration Areas (ACA’s) near streams - are clearly evident from public roadways. Publicized enforcement on these farms would serve as an incentive to many others to quickly develop the plans and establish the conservation practices needed on their farms to avoid similar regulatory action. EPA’s recent enforcement action on a facility in Manheim, PA illustrates this approach.<sup>6</sup> Many voices from within agriculture have supported fair but firm enforcement of the state’s Clean Streams Law focused on bad actors first.

CBF supports an emphasis on targeting ag-impaired streams as described in DEP’s draft Agricultural Water Quality Initiative<sup>7</sup>. But we believe that a targeted watershed approach alone will not be sufficient to ensure adequate compliance

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<sup>6</sup> Crable, Ad, Lancaster Intelligencer Journal and New Era, Feds Hit Farm for Pollution, June 2, 2010

<sup>7</sup> Department of Environmental Protection, Pennsylvania’s Proposed Chesapeake Bay Agricultural Water Quality Initiative, October 1, 2009.

throughout Pennsylvania's Chesapeake Bay watershed. We believe a multi-pronged approach would be most successful, comprised of:

- Inspections of farms in targeted watersheds
- Enforcement on farms with significant pollution problems, regardless of location or broader watershed impairment, especially where the operator has failed to take corrective actions in the past a timely manner
- Randomized compliance visits to a small percentage of farms throughout Pennsylvania each year

Close coordination with conservation districts on these efforts will be necessary. The WIP should describe programmatic options DEP will pursue to encourage and enable individual conservation districts to take a more active role in compliance assurance (versus providing only technical assistance to producers).

#### Addressing the Funding Gap

A significant challenge not resolved in the draft WIP is how PA will commit to a level of resources, particularly for agricultural financial assistance, that is on par with the need. While the federal government has increased conservation funding through Farm Bill programs, farmer demand for financial assistance consistently and substantially exceeds available funding. On average, about two-thirds of Pennsylvania farmers' applications for Natural Resources Conservation Service (NRCS) financial assistance programs have remained unfunded in recent years. About 2000 Environmental Quality Incentives Program applications were unfunded last year, due to funding shortfalls.<sup>8</sup> While the state faces historic financial constraints, this does not relieve the state of its obligations under the Clean Water Act. Pennsylvania policymakers did not make sufficient investments in agricultural nonpoint source programs during times of surplus; these were legislative and executive choices that make the current situation all the more difficult. The WIP must describe how this historic funding gap that continues to this day will be corrected.

The final WIP should specify the level of financial and technical assistance needed and what funding streams will be secured, leveraged or appropriated and at what levels. The final WIP must estimate the total expenditure (public and private) necessary for planning and for implementing all the remaining BMPs that will be

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<sup>8</sup> Natural Resources Conservation Service staff, State Technical Committee meeting, June 1, 2010.

required to get all farms into compliance and to achieve agriculture's portion of the TMDL. This analysis would logically assume shared contributions from the federal government, the state, and producers themselves. PA's earlier tributary strategy estimated that need at roughly \$215 million dollars per year, for at least seven years. Unfortunately total annual spending on agricultural BMPs never came close to this figure. The final WIP needs to identify the approximate funding need now through at least 2017. Without a clear funding requirement spelled out in the WIP coupled with specific funding streams meeting that level, a key element of reasonable assurance will not be satisfied.

Indeed, the draft WIP reviews past and current expenditures but fails to mention imminent shortfalls and reductions and what steps will be taken to replace lost funding. For example, the draft WIP's section on Growing Greener does not mention that the current round of this foundational funding program is coming to an end just as the Bay TMDL is getting underway nor does it recommend any new funding. The section on the REAP tax credit program states that the program was cut in half with no discussion of restoring or increasing funding for the program.

#### Funding for County Conservation Districts and Core Conservation

While CBF supports DEP's efforts to fund alternative technologies and manure-to-energy systems, we are concerned that this focus may distract the DEP from ensuring that "the basics" are tended to first, meaning cover crops, buffers, fencing, barnyard treatments, and other BMPs needed for soil and nutrient plan implementation. It is from these practices that PA will derive the lion's share of reductions at the lowest cost. The draft WIP relies heavily on Conservation Districts for delivery of core conservation practices, and places additional responsibilities on staff, without providing additional resources. The final WIP should estimate the additional staffing and resources for the conservation districts to implement the additional outreach, compliance and technical assistance necessary for implementation of the Agricultural portion of the Bay TMDL and provide the necessary increase in future budgets beginning in the 2011-2012 budget. The Pennsylvania Association of Conservation District's budget request for Fiscal Year 2010/2011 of \$10 million is a minimum of the annual allocation needed to provide the staff resources needed to meet the expanding requirements in the draft WIP.<sup>9</sup>

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<sup>9</sup> Pennsylvania Association of Conservation Districts, Inc., "Budget Requests for Conservation Districts, Fiscal Year (FY) 2010/11," submitted to the Pennsylvania General Assembly.

### Restoring Funds to the Resource Enhancement and Protection (REAP) tax credit program

This efficient and over-subscribed tax credit program has established a tremendous track record of matching tax credits with private resources to achieve conservation goals. In spite of its effectiveness at supporting conservation goals and leveraging private funds, the allocation to REAP has been cut in half.

While most state programs have seen cuts in the last two budgets, the final WIP must reconcile this reality with the imperatives of the TMDL. Seeing the growing need for agricultural financial assistance, in April of 2008 the PA Fair Share Clean Water Coalition called on the General Assembly and Governor Rendell to invest \$50 million annually in agricultural assistance (split between \$35 million in REAP and \$15 million in new cost share grants).<sup>10</sup>

While committing Pennsylvania to \$50 million in new funding in 2011 may not be realistic for the final WIP, it needs to describe a strategy of “scaling up” state funding for agricultural BMPs between now and 2017. CBF recommends that the allocation for the Resource Enhancement and Protection (REAP) tax credit program be restored to at least \$10 million in FY 2010-11 and increased by \$10 million per year thereafter until unmet demand for financial assistance comes into line with available funding from all sources, and milestones for BMP implementation are being consistently met. It is critical that the Commonwealth maintain consistent funds for the program so that producers can make investments in new BMPs with greater confidence that tax credits will be available when they need them.

### Total Maximum Daily Load Compliance and Nutrient Credit Trading

While producers may partially or fully reach TMDL compliance with Nutrient or Manure Management Plans and Erosion and Sediment Control plans, it is currently unclear how close compliance with state regulations will bring a farm to TMDL compliance. The final WIP should establish, or commit Pennsylvania to establishing within six months or less, the criteria all farms must meet to achieve compliance with the Bay TMDL as well as adequate protection for local water quality. These criteria would constitute “baseline” after which an operation can generate offset or trading credits. DEP should consider establishing these criteria

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<sup>10</sup> Coalition Proposes Fair Share Funding Plan to Address Chesapeake Bay and Statewide Water Quality Mandates, By coalition members: Chesapeake Bay Foundation, PA Farm Bureau, PA Municipal Authorities Association, PA Association of Conservation Districts, Pennsylvania Builders Association. April 2010

in such a way that enables producers to select from a suite of options based on the type of operation and relevant local conditions.

Clearly specifying criteria for TMDL compliance will be important for planners providing technical assistance to producers. To the greatest extent possible, planners and producers should design Manure Management Plans and Erosion and Sediment Control Plans, and their associated conservation practices, in order to maximize nutrient and sediment reductions. Individual plans designed only to meet state and federal regulatory requirements could be insufficient to cumulatively reduce nutrient and sediment pollution under the TMDL. For example, a farm with contour strips and manure application setbacks from streams may satisfy regulatory requirements, but the addition or substitution of no-till practices, cover crops and riparian buffers may be needed to address water quality goals. Planners will provide a better service to producers if they include these practices at the outset (some of which may be optional for state regulatory compliance) so that farms are not faced with multiple plan revisions at a later date.

Moreover, clear guidance on TMDL compliance for farms will enable DEP to establish standards for “safe harbor” for producers, which we recommend be completed within one year of the final Phase 1 WIP. With safe harbor, producers who achieve an established level of environmental performance and/or BMP implementation would be protected from further requirements for a set period of time, such as three to five years.

Pennsylvania’s current trading policy system of utilizing a subwatershed tradeable load cap does not meet EPA’s trading policy guidelines. The following problems preclude Pennsylvania’s trading program from effectively meeting the reduction goals.

First, the lack of a requirement to meet TMDL compliance prior to trading would likely preclude credit generators in Pennsylvania from participating in multi-state trading, which represents potentially a very profitable scenario for generators.

Second, there is no strategy, resources, or clearly stated requirement for NPS credit generators to come into TMDL compliance after they have reached the current threshold for trading. Moreover, when some operations in a subwatershed have utilized the available credits under the cap – there is no plan



for obtaining the additional reductions from the remaining operations. Will regulatory authority be utilized? Will resources be made available?

Third, there will be problems of inequity if some farms, achieving the same level of compliance, are allowed to trade, and others are not (because the tradeable load cap has been reached in that subwatershed). A related issue is that after the tradeable load cap has been met, farms may have to implement more expensive BMPs, at their own expense, after selling more inexpensive credits to buyers. Again, will regulatory authority be used? Will resources be made available?

### Phosphorus Management

The current Phosphorus Index allows phosphorus to accumulate in some soils beyond crop needs, and therefore will not adequately protect water quality over the long term. Therefore, the WIP must outline a strategy to revise phosphorus management standards that will be implemented over time to address the problem of excessive phosphorus accumulation. Elements of this strategy may include:

- Revision of nutrient management planning requirements to prevent oversaturation of soil phosphorus, such as by reducing the P Index scores where P may not be applied or may be applied at reduced rates, within one year.
- A limit on P application to the rate needed for crop production, based on soil tests and realistic yields, over a specific timeline. For example, these standards could be implemented by 2017 for Concentrated Animal Operations (CAOs) and Concentrated Animal Feeding Operations (CAFOs), and for all farms by 2025.
- Development of new strategies to correct the regional imbalance of phosphorus that results in a heavy influx of this mineral that is a finite natural resource. Pennsylvania must reduce the flow of phosphorus in livestock feeds into the region, and/or develop new strategies to cost-effectively transfer it to locations that need it.

### Concentrated Animal Feeding Operations

The proposed plan includes working with EPA Region 3 to improve the CAFO program. The Chesapeake Bay Foundation strongly recommends that the program designate AFOs with discharges as CAFOs, as specified in the federal

CAFO rule. The farms should have an opportunity within a reasonable timeframe to correct the discharges before designation. The goal should be to remove the discharges, rather than expand the number of farms under the CAFO program.

Farms' efforts to prevent CAFO designation would be a valuable tool to address problems such as: livestock directly depositing manure in streams, stormwater flowing from manure management facilities, and other sources of stream degradation. CAFO designation would provide a regulatory tool to address some of the most significant sources of pollution to the Commonwealth's waters.

In Pennsylvania, requiring farms to eliminate discharges or face enforcement proceedings as CAFOs is likely to be a more effective tool to improve water quality than lowering the threshold of animal numbers to include more farms as CAFOs.

#### USDA Technical Service Provider Program

The Commonwealth should work with the USDA NRCS to develop a broader, more flexible TSP to enable greater private sector delivery of critical conservation programs such as the Environmental Quality Incentives Program (EQIP) and the Chesapeake Bay Watershed Initiative (CBWI). Pennsylvania's private sector agricultural groups should be enabled to play a greater role in providing the critical technical assistance necessary to implement the federal agriculture program dollars.

#### Improved tracking of all BMPs

DEP does not effectively track nor, therefore, report and model most Best Management Practices (BMPs) that are privately funded and not part of an organized program. Thus, many of these key BMPs are dramatically under-reported. Pennsylvania must incorporate Census of Agriculture data, satellite images (such as for cover crops), and other broad data collection methods with efforts to assure that practices are established according to standards and are being correctly maintained.

- Identifying untracked BMPs could "open the door" to education and outreach on necessary compliance efforts. People trying to assess the untracked BMPs may also provide information about requirements facing farms and refer them to sources of technical and financial assistance.

- Identified farms with superb conservation efforts could be provided information about nutrient credit trading opportunities.

At the same time, Pennsylvania's efforts to better track voluntary Best Management Practices must also track activities from agriculture and all other sectors that *increase* nutrient and/or sediment loads, such as new and expanding livestock operations. For example, the explosive growth in gas development in the Marcellus Shale formation has resulted in loss of forest acreage in northern tier counties. In another example, Amtrak has been clear cutting trees along a 29-mile stretch of the Susquehanna River for electric line maintenance, with no plans for reforestation.<sup>11</sup> These losses directly offset gains for two modeled BMPs – tree planting and riparian forested buffers - and must be accounted for in the model.

### Innovative Technologies

The draft WIP promotes regional digesters and other technologies, without detailing how they will be financially viable, the fate of nutrients, and how they may be structured and managed. The Chesapeake Bay Foundation supports the development of innovative technologies that hold potential for significant, cost-effective nutrient reductions, but also recommends strong emphasis on “tried and true” cost-effective nutrient reduction methods, with testing of promising new innovations. Moreover, the need for alternative uses for excess manure is most urgent for small dairies with high animal density. DEP's program for innovative technologies should focus research and assistance to this sector.

### Conservation Reserve Enhancement Program (CREP) as the First Choice for Building Buffers

As the WIP states, Pennsylvania leads the nation in CREP enrollment, bringing with it substantial water quality benefits. With a broad CREP partnership and continued robust resources available through CREP for future enrollment, PA has a terrific base upon which to achieve further implementation of additional riparian forested buffer acreage. Indeed, the WIP should stress the importance of CREP to PA's buffer goals for agriculture (as well as non-agricultural landowners) and propose new strategies to boost enrollment. Instead, the WIP recites statistics about the program with little attention to its future. The benefits of CREP and CREP buffers are many:

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<sup>11</sup> Brubaker, Jack, Lancaster Sunday News, Unkind Cuts, October 31, 2010.

- CREP provides substantial non-state funding to implement riparian forested buffers to meet PA's milestone goals and financially benefit landowners.
- Riparian Forested Buffers, once successfully established after three to four years of careful management, require significantly less maintenance for proper BMP effectiveness compared to many other BMPs. Indeed, forested buffers continue to provide benefits for decades or longer. Many other agricultural BMPs have lifespans of only 5-15 years.
- Riparian Forested Buffers provide significant habitat value and local water quality and stream ecosystem services in addition to nutrient reductions to the Bay.
- Plentiful CREP resources can be used for many pasture-related agricultural BMPs, such as stabilized crossings and alternative livestock watering systems, thus freeing up limited cost share funding of other programs like EQIP, literally stretching financial assistance funding to serve more farmers and deliver more practices.
- CREP typically pays at least 100% of project installation costs, designed and implemented by experienced professionals. CREP typically yields profits of \$2000-\$4000 or more per acre over a 15-year contract, with an opportunity to re-enroll for an additional contract another \$2000-\$4000 or more per acre. In addition, CREP pays for post-planting care of buffers that is critical to their success.
- Forested riparian buffers provide greater opportunities for nutrient credit trading or carbon credit trading.
- Research from the Stroud Water Research Center has documented that forested streams may reduce 2-8 times more nitrogen than same-width grass buffers via in-stream processes.<sup>12</sup>
- Buffer maintenance is often more difficult for narrow than wider buffers. Streams with actively moving banks may undercut fence posts. Fences nearer to streams often catch more flood debris.

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<sup>12</sup> Sweeney, B. W, T. L. Bott, J. Jackson, L. Kaplan, J. D. Newbold, L. Standley, W. C. Hession, and R. Horwitz, "Riparian deforestation, stream narrowing, and loss of stream ecosystem services," PNAS, September 2004; 101: 14132-14137.

Wherever Pennsylvania fails to get pollution reductions from a particular site that forested buffers can provide (all paid for by CREP at a profit to landowner), there will need to be additional reductions from other practices for which funding is limited. The alternative methods/practices needed to reach the required reductions might present more challenges to farm management than adopting forested buffers.

Thus, the WIP should identify specific programmatic opportunities that DEP and partners can pursue to maximize CREP's contribution to Pennsylvania's nutrient reduction efforts. These may include:

- DEP should continue to give a clear preference to the establishment of 35-foot wide forested buffers over grass buffers.
- DEP should continue to offer its conditional cost-share reimbursement for the Riparian Forest Buffer Practice (CP-22) to ensure that enrollments continue to meet future milestones for buffers.
- DEP should convene the Pennsylvania CREP Partnership to discuss options for accelerating enrollment in CREP for buffers and commit to implementing the best options in the Phase II WIP.
- FSA and NRCS, with input from other partners, should consider modifications to EQIP and CBWI that incentivize the use of CREP instead of other Farm Bill funds for the construction of buffers and associated practices for livestock operations. For example, EQIP ranking criteria could give preference to proposed projects that include CREP buffers.

Much speculation has been made about farmers' unwillingness to enroll in a program that requires 35-foot minimum buffers. While buffer width is certainly a barrier for some producers, our experience suggests that many will adopt buffers and enroll in CREP when a clear vision of how forested buffers can play a valuable, profitable role in meeting pressing needs facing PA agriculture.

To illustrate, CBF's initial proposal to PENNVEST for ARRA funds included 120 farms asking for \$28 million for various agricultural BMPs. Eligibility for these funds required: 1) a Chapter 102 compliant conservation plan 2) elimination of runoff from ACA's or barnyards 3) elimination of milk house wastewater pollution and 4) 35' forested buffers on all areas of all streams (including existing buffers counted and use of CREP for new buffers). Out of 120 farms, only two declined

due to the buffer requirement. Our final proposal included 45 farms for \$14 million, and all agreed to the above terms including buffers of at least 35 feet.

### Coordination among All Organizations and Agencies

The effort to assure that all farms in the Chesapeake Bay watershed are developing and implementing the necessary conservation and manure management plans will require collaboration among all parties working with farmers, not just conservation districts and DEP. The WIP should recommend roles and an on-going planning process bringing together DEP, USDA Natural Resources Conservation Service, Penn State Cooperative Extension, Pennsylvania Department of Agriculture, State Conservation Commission, PennAg Industries Association, Pennsylvania Farm Bureau, Pennsylvania Association for Sustainable Agriculture, Chesapeake Bay Foundation, PennFuture, private sector technical assistance providers, agribusinesses, and many other public agencies, agricultural and conservation organizations. A coordinated effort could advance innovative approaches that have not been employed in the past; for example:

- Conservation plans developed by NRCS to enable a farm's participation in cost-share programs should address all water quality problems on the farm and ensure that the farm will meet TMDL requirements.
- Agricultural lenders should be verifying that their clients are implementing the necessary plans, to reduce the financial risks of farms with serious pollution problems.
- Insurance providers could verify the implementation of plans, as a way to reduce their liability.
- When Penn State University's PaOneStop program to develop conservation plans is finalized, technologically-savvy youth could help farmers develop a conservation plan.
- The Food Alliance is now partnering with the PA Association for Sustainable Agriculture to deliver third-party certification of farms, food packers, and other agricultural entities that meet environmental and other standards.
- Milk inspectors could inform farms of their requirements, as a way to ensure that the farms remain in production and, in some cases, produce

higher quality milk, such as when cows are no longer standing in muddy animal concentration areas that contribute runoff to local streams.

- Municipal governments could ensure that farms are meeting all state and federal requirements, such as when farms need building permits. An even better approach would be a comprehensive strategy to ensure that all farms are meeting requirements, such as that used by Warwick Township in Lancaster County.
- Farms with the most significant pollution problems should be required to immediately develop plans, regardless of whether conservation district or other public sector technical service providers are available. They could be linked with private sector conservation and nutrient management planners to develop plans quickly, at the farm's expense.
- County tax offices could verify that farms receiving preferential tax assessments under the Clean and Green program have and are following the required soil erosion control and manure management plans.

The Chesapeake Bay TMDL and state WIP will require public and private entities, and thousands of Pennsylvania citizens, to make changes – some large and some small – in how they conduct their lives, properties, and businesses. DEP needs to lead and coordinate this effort so that everyone is pulling together.

### ***Urban/Suburban Stormwater***

In the draft WIP, DEP provides an excellent summary of existing stormwater-related programs, staffing, regulations, and permit structure. However, we have numerous concerns regarding the sufficiency of these and as well as the solutions for urban/suburban pollutant loads that are relied upon by DEP.

Projected reductions represent a reduced rate of increased load, not a true trend toward achieving cap loads.

DEP's proposed approach to addressing loads from the urban/suburban sector relies almost exclusively on efforts that minimize the increase in loads from land conversion activities. The approaches in the draft WIP offer little or no solutions to addressing existing loads from previously developed urban/suburban lands.

For example, consider a new residential development in a green field setting that must acquire a Chapter 102 permit. In this case, the reduction in pollutant loads via the new erosion and sedimentation control standards in Chapter 102 represent a decrease in the net increase in load during construction. As a result, no progress towards meeting the TMDL caps has been made but simply a reduction in the rate in which loads have increased, albeit temporarily in this case.

A similar argument can be made for the post-construction scenario. DEP's approach relies heavily on Pennsylvania's Stormwater Management Act 167. The Act 167 plans have traditionally focused on developing a plan that minimizes the impact of new sources of stormwater rate and, recently, volume on a watershed or county-basis. While in recent years such planning efforts have in some cases identified stormwater retrofit opportunities to address existing stormwater concerns, there is no requirement or reasonable assurance that such projects will be implemented. More discussion of the sufficiency of the current Act 167 program and requirements is provided below.

Finally, DEP contends that achieving the control guidance and guidelines for a 2-year 24 hour storm, as detailed in DEP's stormwater BMP Manual,<sup>13</sup> results in a no net increase in pollutant loads. However, the control guidance only suggests a planning requirement of reducing post-construction loads by 85 percent reduction in post-development total suspended solids (TSS) and total phosphorus loads and a 50 percent reduction in post-development solute (as nitrate nitrogen). Furthermore, some studies have indicated that the 2-year 24 hour design storm may cause excessive erosive streambank flows to receiving streams. Under either scenario, this does not equate to a no net increase. These concerns are explained further under the Urban/Suburban Stormwater, Accounting for Growth section of our comments.

#### Methodology for Developing Current Loads: MS4 Runoff

We have and continue to contend that the MS4 Sector Methodology (page 34 of draft WIP) is fundamentally flawed by being non-reflective of real world conditions and contrary to the purpose and intent of the federal MS4 program.

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<sup>13</sup> Pennsylvania Department of Environmental Protection. 2006. Pennsylvania Stormwater Best Management Practices Manual. Document number: 363-0300-002.  
<http://www.eibrary.dep.state.pa.us/dsweb/View/Collection-8305>



Essentially, using the approach described in the draft WIP would be equating the publicly owned roads as equivalent of the MS4 drainage network. Under this methodology, the land area contributing to the MS4 would not be calculated as part of the load. For instance, in a residential development in which the downspouts are connected to the stormwater system or drain to the system via overland flow, DEP's methodology ignores the loads associated from these contributing areas and instead pretends that only the streets generate and contribute point source pollutant loads to the MS4 system. As the adage goes, possession is nine tenths of the law and it is simply scientifically unjustifiable to contend that those areas contributing to the MS4 should not be considered as part of the MS4, despite Pennsylvania's unique local governmental framework and inability to require retrofits or new stormwater BMPs on grandfathered private land.

The reasons why the proposed approach is scientifically questionable are clear. In brief, however, this methodology threatens to significantly under-represent the pollution load from MS4 service areas. In turn, it will result in inappropriately depressed responsibilities for load reductions from MS4 sources areas.

Interestingly, by employing such a limited definition of the MS4 area, DEP has put MS4 communities in a very difficult position to achieve assigned TMDL WLA cap loads. The approach would actually severely limit the suite of potential load reduction BMPs available to MS4s to those that are only applicable on or alongside roadways--street sweeping, catch basin inserts, and vegetated swales to name a few. If pollutant load reductions are not achieved or maintained with such BMPs, MS4 communities may be faced with being out of compliance with the TMDL WLAs and with limited options to address it.

In 2007, EPA issued a document that examines how TMDLs with storm water sources were created in 17 watersheds.<sup>14</sup> None of the methodologies approved in these 17 examples appears to be in any way similar to Pennsylvania's methodology.

In our research, we have not found another instance where EPA has approved the use of this type of an approach for the calculation of MS4 loads and associated

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<sup>14</sup> USEPA. *Total Maximum Daily Loads with Stormwater Sources: A Summary of 17 TMDLs*. July 2007 EPA 841-R-07-002. [http://www.epa.gov/owow/tmdl/17\\_TMDLs\\_Stormwater\\_Sources.pdf](http://www.epa.gov/owow/tmdl/17_TMDLs_Stormwater_Sources.pdf).

load reductions as part of a TMDL; we believe that is because its use or approval would effectively undermine MS4 permitting programs across the country.

However, we understand and appreciate the unique difficulties Pennsylvania's fragmented local governmental system present in instituting an MS4 program, particularly a program which achieves quantifiable reductions in stormwater load. These issues are especially evident in the context of a TMDL.

#### Adopt the Christina River Basin Watershed Stormwater Source TMDL as the MS4 Load Methodology in the draft WIP

An interesting and appropriate solution to this problem may be the methodology employed in The Christina River Basin Watershed Stormwater Source TMDL (2006)<sup>15</sup>, which included all or parts of MS4 communities in Pennsylvania, Delaware, and Maryland.

The Christina TMDL acknowledges that for the actual waste load allocation (WLA) neither "the PA nor the DE MS4 permits identify the boundaries of the stormwater collection system contributing areas within each municipality. Therefore, it is not possible to assign a WLA specific to the storm sewer collection areas within each MS4 municipality. Because these systems have not yet been delineated, the TMDL includes nonpoint source loadings in the WLA portion of the TMDL. It is anticipated that the state's stormwater program will revise the WLA into the appropriate WLA and load allocation (LA) as part of the stormwater permit reissuance; however, the overall reductions in the TMDL will not change."

The Christina TMDL MS4 WLA methodology could be employed as the stormwater load calculation approach in the phase 1 WIP with the requirement that all new and reissued MS4 permits contain requirements for delineating the drainage areas of each outfall within the MS4 in order to more precisely determine the WLA versus LA loads within each urbanized area.

In summary, we strongly believe that DEP's proposed MS4 methodology is inconsistent with the MS4 permitting program and real world conditions. We recognize, however, Pennsylvania's unique local governmental structure and the difficulty it presents in dealing with this issue. To that end, we believe the approach employed in the Christina TMDL represents the most readily

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<sup>15</sup> USEPA. *Total Maximum Daily Loads with Stormwater Sources: A Summary of 17 TMDLs*. July 2007 EPA 841-R-07-002. [http://www.epa.gov/owow/tmdl/17\\_TMDLs\\_Stormwater\\_Sources.pdf](http://www.epa.gov/owow/tmdl/17_TMDLs_Stormwater_Sources.pdf).

employable and justifiable solution and strongly urge DEP to undertake this alternative.

We have provided our position in a letter dated August 12, 2010 letter to EPA Region 3 Water Protection Division Director, Jon Capacasa. This letter can be found in Attachment B.

#### Methodology for Developing Current Loads: Industrial Stormwater

The narrative describing how industrial stormwater loads were derived should be expanded to include several key areas currently not discussed.

For instance, the area loads per land use in EPA's Chesapeake Bay Model appears not to contain an explicit industrial land use category. Given such, it is imperative that DEP present what the employed pollutant load (lbs/ac/yr) was for the industrial sector.

Secondly, DEP states that for consistency with other Pennsylvania TMDLs, a 1 acre drainage area per outfall was assumed. No information pertaining to how this assumption was derived in this or in previous TMDLs is presented in the draft WIP.

#### Methodology for Developing Current Loads: Construction Stormwater

The description of the method employed to calculate loads from construction activities is difficult to fully comprehend.

Under the approach, DEP assumes that the 10 year average rate of construction acreage will represent future activity, at least until 2025, it would appear not to be reasonable to occur in perpetuity as eventually all developable land will be developed. To rectify this issue, it may be necessary for DEP to determine the remaining developable land per county and subtract that value by the 10 year average acres to determine the remaining number of years the average rate of construction can continue within the county. Clearly, Pennsylvania's woeful state of land use planning makes such an analysis difficult.

Another issue is if construction activity increases above the 10 year average. If this were to occur, it would represent a load not accounted for in the model and could result in exceeding the cap loads assigned to the sector and the overall TMDL. To avoid such a circumstance will require careful accounting by DEP and raises several difficult questions if such an event occurred. For instance, would

DEP cease approving construction permits if the 10 year average for the county would be exceeded by the approval? Or, would DEP require that all construction sites that represent acreage above the 10 year average have a "no net increase" of pollutant loads provision in their NPDES permits?

DEP states that for construction acres they employed the average loading rates associated with high intensity urban land. However, an open construction site, even with erosion and sedimentation controls, is fundamentally different than an urban site under post-development conditions. Simply stated, a construction site often has little or no vegetation or other soil stabilization; thus, rain events can easily mobilize soil particles of all sizes. A high intensity urban landscape is highly impervious and although that also causes water quality concerns, it typically does not represent excessive erosion of the developed land. A study by U.S. Geological Survey concluded that managed construction sites can contribute 16 times more sediment load on a per acre basis than developed urban land<sup>16</sup>.

The use of the high intensity urban land load called into question further given that the Bay Model includes a Pennsylvania land use category for construction. The barren/construction land use category indicates a nitrogen load (lbs/acre) of 27.7, a phosphorus load of 3.86, and a sediment load of 3.64 (t/acre). The high intensity urban pervious and imperious loads employed by the Bay Model are notably less than these values.

Finally, it is unclear whether DEP has considered under the construction source sector Oil and Gas extraction activities (i.e., pads and infrastructure) as part of the construction category. Given the magnitude of the industry and the amount that may be under construction for the foreseeable future, it would appear to be a vital oversight if such activities were not appropriately accounted for.

#### Methodology for Developing Current Loads: Urban/Suburban Runoff-Non MS4

DEP states that the non-MS4 load was determined by subtracting out regulated point source and other "developed" land loads from the total urban/suburban load. While the total non-MS4 load can be obtained from such an analysis, under this approach a more nuanced and comprehensive understanding of the urban/suburban load is not obtained.

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<sup>16</sup> David W. Owens, Peter Jopke, David W. Hall, Jeremy Balousek, and Aicardo Roa. 2000. Soil Erosion from Two Small Construction Sites, Dane County, Wisconsin. USGS Fact Sheet FS-109-00. U.S. Geological Survey, Middleton, WI.

A more accurate approach to determining the non-MS4 load would be to determine the urban/suburban load based on land use intensity (e.g., high or low) and the proportion of pervious and impervious fractions. Under this approach, developed land totals could be determined for each county and further segmented based on the level of intensity. Based on observational data or best professional judgment, the impervious to pervious fractions per land intensity would be calculated.

#### MS4 Program (sufficiency and compliance)

The current state of the MS4 program is widely acknowledged as being inefficient and largely ineffectual in achieving quantifiable reductions in stormwater-related pollution from urbanized areas. Difficulties with funding and oversight, Pennsylvania's governmental framework, and the limited nature of the Six Minimum Control Measures, amongst other factors, have restricted the permit's overall effectiveness. Compliance issues that have resulted in nearly 100 municipalities recently being cited by EPA for failure to adhere to the permit requirements further illustrates the difficulties the program has encountered.

To that end, we find it perplexing that in the draft WIP DEP presents the MS4 permit as being highly effective and efficient and achieving quantifiable and sustainable reductions in stormwater pollutant load. While improvements in the permit may yield such, we do not believe that in its current or recently proposed form it can be reliable approach to mitigating this source sector. This proposed change significantly reduces the reasonable assurance that the non-point source stormwater load will be reduced.

We recommend that DEP fully incorporated into Pennsylvania's MS4 permit for those draining to the Bay watershed the recommendations we detail in our July 9, 2010 letter to DEP Stormwater Planning and Management Chief, Barry Newman. A copy of that letter can be found in Attachment C.

#### Pennsylvania's Stormwater Management Act 167

When passed in 1978, Act 167 was a unique and progressive step towards better stormwater management. But, in many ways, the Act has out lasted its usefulness and needs to be updated to reflect today's regulatory realities. With updates that require preventing new sources of stormwater pollution and addressing problems from existing development, Act 167 could once again serve

as the framework for planning and implementing stormwater management relevant to the challenges of today.

In the draft WIP, Pennsylvania accurately notes the required nature of Act 167 planning and adoption of local ordinances. However, the reality of the program is such that it is considered a voluntary planning program not undertaken by counties or local governments without cost-share funding from DEP. As a result, the development and updating of such plans has been in some cases been extremely protracted. More importantly, information presented by DEP indicates that in some cases municipal adoption of Act 167 ordinances has been woefully inadequate.

DEP data indicates that of 2,566 municipalities in the Commonwealth, as of 2008 only 911 had at least one approved Act 167 plan. This equates to roughly only 36 percent of local governments. Of those, approximately 359 have failed to adhere to the Act and have past-due enactments<sup>17</sup>.

Act 167 could be used as the fundamental tool to achieve compliance with the stormwater-related requirements of the Chesapeake Bay TMDL, as well as local TMDLs. But in order for it to function in such a fashion, the Act should be revised so that requirements for such plans and ordinances explicitly and quantitatively integrate achieving and maintaining TMDL WLA and LA allocations for stormwater.

Funding assistance for Act 167 planning, which has been eliminated in recent Pennsylvania budgets, must be restored.

### Accounting for Growth

Whether within or outside an MS4, new rural, suburban, and urban growth threatens to outstrip nutrient and sediment load reductions achieved from other sources. Given that new greenfield development rarely, if ever, occurs in isolation and often causes a “train” of development and services that follow, the

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<sup>17</sup> Newman, B. 2008. Planning to Protect Water Resources: Managing Stormwater Locally. Susquehanna River Basin Commission Workshop: Managing Stormwater Locally Workshop. October 29, 2008. Wildwood Conference Center, Harrisburg Area Community College, Harrisburg, PA.

cumulative impacts of these development patterns far outweigh the impacts on a per site basis.

In the draft WIP, DEP states that a no net increase in pollutant loads is achieved by managing for the 2-year 24 hour storm event. Under this option, it was conventional thinking that if flows were held below the two-year level that erosion would be minimized. However, some research has indicated that this criterion frequently does not protect channels from downstream erosion and may actually exacerbate erosion since banks are exposed to a longer duration of erosive bankfull and sub-bankfull events.<sup>18,19,20,21</sup> And, as development continues within a watershed that is managed under 2-year 24 hour storm event criteria, the bankfull event that causes streambed and bank erosion actually can decrease below the 2-year threshold.<sup>19</sup> If such is the case, then a no net increase is not achieved due to erosive flows causing increased sediment and phosphorus loads downstream.

Furthermore, in section 3.5 of DEP's stormwater BMP Manual<sup>22</sup> a control guideline for total water quality of an 85 percent reduction in post-development total suspended solids (TSS) and total phosphorus loads and a 50 percent reduction in post-development solute (as nitrate nitrogen) is recommended, but not required. Under such a design approach, each new development which meets the control guidance and guidelines established in the Manual represents an allowable 15 percent increase in TSS and total phosphorus load and a 50 percent increase in nitrate nitrogen load. This does not equate to a no net

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<sup>18</sup> MacRae, C. 1993. An alternate design approach for the control of instream erosion potential in urbanizing watersheds. pp. 1086-1091. In proceedings of the Sixth International Conference on Urban Storm Drainage. Niagra Falls, Ontario. Marsalek and Torno (eds.)

<sup>19</sup> MacRae, C. 1996. Experience from morphological research on Canadian streams: is control of the two-year frequency runoff event the best basis for stream channel protection? In *Effects of Watershed development and Management on Aquatic Systems*. L. Roesner (ed.) Engineering Foundation Conference. Proceedings. Snowbird, UT. August 4-9, 1996. pp. 144-160.

<sup>20</sup> McCuen R. and G. Moglen. 1988. Multicriterion stormwater management methods. *Journal of Water Resources Planning and Management*. (114) 4.

<sup>21</sup> Brown, T and D. Caraco. 2001. Channel Protection. *Water Resources IMPACT*. American Water Resources Association, Volume 3, Number 6, pp 16-19.

<sup>22</sup> Pennsylvania Department of Environmental Protection. 2006. Pennsylvania Stormwater Best Management Practices Manual. Document number: 363-0300-002.  
<http://www.elibrary.dep.state.pa.us/dsweb/View/Collection-8305>

increase. In actuality, it represents a decrease in the increase of pollutant loads from new development.

To ameliorate this significant deficiency, we strongly recommend Pennsylvania's draft WIP include an offsets provision similar to that described in Chapter 3 of Maryland's draft WIP.<sup>23</sup> Under Maryland's proposed approach future loads from development would use different degrees of offsets in three different types of places. Areas with high loads per capita would need to offset loads to a higher degree than areas with low loads per capita. A third category would fall in between. Areas with sewer service and higher density of homes and jobs, served by state of the art sewage treatment, will tend to have lower per capita loads. Areas with low density development on well and septic systems would tend to have higher per capita loads.

Regardless of whether a modified version of Maryland's approach is acceptable, it is imperative that given the sprawling trend of land development in Pennsylvania over the last several decades, that a full cost accounting and offsetting of new stormwater loads be fully negated through a program which addresses post-construction stormwater management loads. Such a program should also abandon the "meadow or better" baseline condition to a more appropriate for the watershed baseline—forest.

#### Lawn Fertilizer –A lawn fertilizer restriction law should be enacted

The draft WIP only briefly mentions the potential consideration the development of an Urban Nutrient Management program. The precise nature of such a program is undefined.

Recent research has indicated that turf cover ranges from 2.1 to 3.8 million acres, or 5.3 percent to 9.5 percent of total Bay watershed area. Approximately 75 percent of current turf cover is potentially devoted to home lawns. In Pennsylvania, lawns cover an estimated 1,059,015 acres—most of which occurs in south-central part of the Commonwealth<sup>24</sup>. Although precise data on

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<sup>23</sup> Maryland Department of the Environment. 2010. Draft Maryland Watershed Implementation Plan for the Chesapeake Bay Watershed. [http://www.mde.maryland.gov/programs/Water/TMDL/Pages/Programs/WaterPrograms/tmdl/cb\\_tmdl/tmdl\\_bay\\_wip\\_process.aspx](http://www.mde.maryland.gov/programs/Water/TMDL/Pages/Programs/WaterPrograms/tmdl/cb_tmdl/tmdl_bay_wip_process.aspx)

<sup>24</sup> Chesapeake Stormwater Network. 2010. CSN TECHNICAL BULLETIN No. 8 The Clipping Point: Turf Cover Estimates for the Chesapeake Bay. Baltimore, MD.



management techniques does not exist, the potential implications to local and Bay water quality is large and should be a primary focus.

Although numerous programs attempting to limit the impact of fertilizers on water quality have been developed and implemented across the United States in recent decades, given the size and magnitude of the Bay effort in Pennsylvania, the most readily implementable approach could be to simply limit the sale of phosphorus-based lawn fertilizer in the Commonwealth.

A recent study released by Virginia Tech supports the concept of prohibitions of fertilizer applications, with exemptions for nutrient deficient soils or new seedings, as one of the most effective approaches to address this issue with the Bay watershed. Researchers at Virginia Tech estimated that a potential 25 to 50 percent reduction in total phosphorus loading to stormwater could result within several years of the prohibition. The study also concluded that the prohibition achieved an estimated 10 to 20 percent reduction in total nitrogen loads to stormwater runoff.<sup>25</sup>

Given the clear benefit such an approach would yield at relatively low cost, through legislation Pennsylvania should enact a lawn fertilizer restriction law which would ban the sale of all fertilizers designed for turf lands that contain phosphorus and those that contain less than 25 percent slow release nitrogen. Further, by law, prohibit the application of fertilizer that contains nitrogen to turf lands more than once a year unless required by a valid soil test. Applications of fertilizers should be allowed for new seedings on construction and reconstruction sites and for areas where soil test indicate a nutrient deficiency. A multi-year citizen education program will need to accompany the effort so as to ensure homeowner compliance.

Alternatively, the passage of a local municipal ordinance which affectively achieves the same outcome could be an explicit requirement of all reissued and new MS4 permits could be considered. However, this approach may prove unwieldy to manage and code enforcement officers within the municipalities, many of which are already dealing with numerous issues, may not be willing to serve as an enforcement agency.

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<sup>25</sup> Daniels, W.L., M. Goatly, R. Maguire, D. Sample. 2010. Effects of Fertilizer Management Practices on Urban Runoff Water Quality. Virginia Polytechnic Institute and State University, Blacksburg, VA.

### Establish a Series of Comprehensive Stormwater Pollution Planning and BMP Demonstrations

While moving forward with permits that meet the pollution reduction requirements of the Federal MS4 program and the Chesapeake Bay and local TMDLs, the draft WIP should propose a series of demonstrations to implement full scale on-ground installation of new and retrofitted stormwater practices designed to quantitatively achieve WLAs for stormwater pollutant loads within currently suburbanized/urbanized areas. The demonstrations should be sufficiently detailed so as to identify “critical sources areas” of stormwater load within the pertinent area and the most cost-effective solutions available to address these areas. Such an effort will provide valuable lessons learned as to how local implementation can occur and be integrated comprehensively into latter phases of the WIPs.

### Develop a Stormwater Pollutant Offset Program for Existing Developed Areas.

In some areas, it may make sense to achieve load reductions through an offset program to be consistent with local targets and the cap allocation in the TMDL. A program that is designed at the appropriate spatial scale (e.g., county or watershed) that allows local governments to purchase pollution, but not volume or rate, offsets in lieu of on-the-ground practices should be considered. Such an effort, however, should not relinquish local entities from not achieving an appropriate baseline and threshold prior to being able to offset remaining loads.

### Funding

Although DEP has risen NPDES permit fees recently and that will offer the program more funds towards technical review by staff, a significant deficiency in funds going towards implementation of stormwater-related planning and projects has and continues to exist.

A sustainable source of funding would not only facilitate Act 167 planning but also support local implementation of new and the retrofitting of existing stormwater practices and initiatives. Through legislation, regulation, or policy establish the framework for the creation and operation of local Authorities, Utilities, or Management Districts and/or other sustainable funding sources that enable entities to collect fees and generate revenues dedicated to planning, constructing,

monitoring, maintaining, improving, expanding, operating, inspecting and repairing public and private stormwater management infrastructure.

In addition, in order to facilitate the redevelopment and reduction of impervious surfaces in existing urban corridors, we recommend a law establishing a state incentive program for such activities. Incentives could include tax reductions/credits, density bonuses, parking waivers, fee reductions, and rapid project approval. Some local governments already provide a mix of incentives for certain actions. Incentives should only apply to projects that are either in US census-designated urbanized, consistent with the local comprehensive plans, and include specific sound land use elements, such as supporting higher density, compact development, transit-oriented design, multiple uses, increased open space/buffers/tree canopy, and onsite capture and water reuse.

## ***Forests***

### Methodology for Developing Current Loads: Forest

Section 4.7.3 of the draft TMDL and page 114 of the draft WIP presents a detailed description of the forested load within the watershed. In particular, the narrative describes the proportion of the forest load that can be attributed to atmospheric deposition, harvesting, and background conditions.

In the draft WIP, DEP contends that the Bay Model is “fundamentally flawed” because of the assumptions it uses in estimating pollutant loads from harvested acres. While DEP’s arguments regarding the fact that most harvested areas have some level of BMP implementation and that such sites are rarely completely denuded of vegetation, we believe an additional factor should be considered when estimating the potential pollutant load from harvest forest land—slope and slope length.

If harvesting of forest acres occurs on landscapes that are moderately to steeply sloped or in areas with conducive slope lengths, the pollutant load potential for such areas is higher than those in less sloped areas. In such instances, the presence of vegetative debris could easily be overwhelmed. As a result, it is important to understand the spatial specifics of the location of the harvesting activities, along with any BMPs that may be employed.

### Accounting for Growth

In DEP's analysis of the current forest-land cover in the state and subsequent presentation of loss and gain information (page 117), it is interesting and important to note that while the overall forest cover acreage has remained relatively consistent since 1989, the loss of forest land and the pollutant removal efficiency they provide (overland flow interception and in-stream processing) has been largely concentrated in the central and south-central portions of PA's Bay watershed. These areas also have the highest pollutant delivery ratios and therefore represent a critical loss of pollutant removal capability. To that end, programs, initiatives, and regulations which protect and restore rural, suburban, and urban tree canopy cover should be prioritized to these areas.

### Gap Analysis

As noted above, because forest losses since 1989 appear to have been concentrated in areas with the highest delivery ratios, emphasis should be on these locations. DEP states that 10 communities are partaking in an effort to analyze and possibly enhance urban tree canopy but those communities are not listed.

In addition, we believe DEP should consider requiring the adoption of a tree and woodland protection ordinance as part of an MS4 permit. Ordinances of this type provide a basic level of protection to existing tree canopies and remaining woodlands in urbanized areas. When used in conjunction with programs that enhance canopy cover, such as TreeVitalize, they can provide a quantifiable and stable source of pollutant reductions from the urbanized landscape. Numerous communities across the nation have adopted such ordinances and several models exist. A basic construct can be found at:

<http://conservationtools.org/tools/general/show/37> and  
[http://www.scenic.org/tree/model\\_ordinance](http://www.scenic.org/tree/model_ordinance)

We commend DEP for their emphasis and exceedance of the 2010 forested riparian buffer goal of 3,300 miles. As one of the most cost-effective BMPs, forested buffers offer numerous ecological benefits and can be applied ubiquitously regardless of adjacent land use. Emphasis should continue on expanding the amount of forested buffers within the watershed via incentive and regulatory-based efforts, such as the new Chapter 102 requirements in HQ/EV watersheds.

## ***Resource Extraction***

Resource extraction activities provide a notable proportion of the total pollutant load from Pennsylvania, particularly in the Susquehanna River Basin. And according to the tables presented in page 23 through 28 or the B2 tables in Appendix 4, resource extraction is capped at 2009 levels.

Although the traditional mining common in the past is not expected to increase dramatically in the coming years, the oil and gas development industry related to Marcellus Shale drilling represents a potentially significant new source of pollutant loads from extraction-based activities. We believe that this activity represents an unaccounted for new source that must be incorporated into the Bay Model and given cap loads for construction and post-construction stormwater loads, as other sectors have. To neglect this new source may render Pennsylvania unable to achieve TMDL cap loads, despite full implementation of BMPs, and therefore unfairly shifts the burden of reductions to accommodate this industry to other source sectors, like agriculture.

Similar to the construction permits for erosion and sedimentation control, DEP's permit structure does not call for a no net increase in pollutant loads. As such, even well managed sites fully compliant with permit requirements can result in incremental increases in pollutant loads to local receiving waters and the Bay. Whether it's the BAT limits for sediment in coal mining-related permits or the narrative standards for oil and gas activities, each new permit represents a potential increase in pollutant load that must be accurately accounted for and offset.

## ***Wastewater***

CBF has and continues to fully support the implementation of the Point Source Allocation Strategy of 2007 which sets equitable nutrient limits via NPDES discharge permits for significant and non-significant sewage treatment facilities. Based on our analysis of the draft WIP, a few issues did emerge however. The aspects pertaining to the data presented in Table B2 and on page 23 through 28 are detailed in our Miscellaneous comments section. In addition to those,

Accounting for discharges less than 0.002 mgd may be necessary.

As noted by EPA in recent wastewater WIP meetings, although it is very unlikely that discharges less than 0.002 have or will have a notable impact on Pennsylvania's ability to achieve the TMDL load caps, establishing a system of documentation of these dischargers so provide an accurate tracking and accounting mechanism of these systems currently and overtime.

An accounting system would likely require the coordination of local Sewage Enforcement Officers and DEP staff so as to properly account for existing and newly built systems. The system should be established so that it can recognize when or if such systems may interfere with the Commonwealth's ability to achieve and/or maintain the cap loads established in the TMDL. In the event that this were to occur, a mechanism to incorporate nutrient limits and the no net increase sewage discharge policy will be necessary. Although unlikely, at least in the near term, developing the details regarding such a safeguard should be committed to in the Phase 1 WIP and finalized in a subsequent Phase.

### ***Onsite Wastewater***

Regardless of whether the septic system load represents roughly 4 or 30 percent of the nitrogen load delivered to the Bay from Pennsylvania, DEP's proposed approach for this sector is inappropriate.

#### **Close Septic System No Net Increase Loop Hole**

New or expanded discharges from sewage treatment plants must achieve a no net increase in pollutant loads according to DEP policy; yet, septic systems do not have to achieve this standard and are essentially given a free ride in terms of addressing the pollutant load from these systems.

For instance, a new residential development that can either hook up to an existing sewer line may be required to pay the local authority a fee to offset increase nutrient loads or provide offsets in the form of credits. Alternatively, the development could build a "package" plant to provide sewage treatment if conditions were appropriate. In this case, the no net increase provision applies and credits or appropriate treatment such as spray irrigation would need to be obtained or employed. However, if septic systems are to be employed as the sewage treatment technology the developer and those that live there have no

obligation to address nutrient loads from the systems. Such a situation may result in incentivizing septic systems over other treatment options.

To ameliorate this issue, DEP should close the loop hole available for septic systems and require new or reconstructed septic systems to also achieve a no net increase in nutrient loads. We concur, however, with DEP that reliable and affordable technology that addresses nitrogen loads from septic systems are not available on the marketplace. Yet, other options to address future and existing loads from this source are available.

To address such loads, we propose the creation of a fixed price offset requirement for new or reconstructed septic systems. Under such a requirement, the EPA load assumptions per system per household would be used to calculate the total anticipated load over the course of the expected lifespan of the system (e.g., 30 years) and a fixed price per pound of nutrient (e.g., \$5/lbs.) would be applied to determine the total cost of offsets required for the system. The cost of the offset would simply be added to the total cost of construction or reconstruction. Funds generated by the offsets would go into a newly established revolving fund that would assure that BMPs would be implemented to completely offset loads from the systems. Individual homeowners, developers, or contractors would not have to seek out and acquire individual contracts for offsets under this system. They would simply pay a onetime fee into an established fund.

## **Miscellaneous Suggestions**

Throughout the document, summarizations of and citations for reports, articles, and data are not presented as there are no footnotes or bibliography as part of the draft WIP.

For instance, in the conclusion of the Executive Summary DEP cites the results of the Susquehanna River Basin Commission's (SRBC) monitoring stations for the period of 1985-2008. No citation to the dataset(s) or to any of SRBC's reports is given. In many other occasions reports are cited or discussed in the text but are not included in a bibliography. For instance, on page 10 several reports are noted (Smith et al. 1992; Kemp et al. 2000; Dennison et al. 1993; Kemp et al. 2004 and Gallegos 2001). On page 115 a report by "Edwards and Willard" is discussed but no information pertaining to it, such as year or title is given. Similarly, on

page 129 there is a reference for a 2008 Walter and Merritts paper but again there is no footnote or bibliography detailing common information such as the title of the paper or publisher.

In each of these cases, the lack of appropriate referencing of the cited documents makes it difficult to obtain and review the information cited by DEP. The final WIP should correct this issue throughout the document. PA may be required to defend its WIP in court and a complete administrative record is imperative

DEP does not present a map or other information regarding of the four major basins/watersheds discussed in the draft WIP.

The draft WIP relies heavily on presenting the loads and subsequent Load Allocations (LA) and Wasteload Allocations (WLA) for the Susquehanna and Potomac River Basins along with the Eastern and Western Shore Watersheds. Yet, there is no presentation of geographical boundaries of these watersheds. There is also no discussion regarding the size of each watershed (e.g., square miles) or the general land use (past, present, and predicted future)--all of which are vitally important in the examination of the assigned WLAs and LAs. It also is important for citizens and the regulated community to comprehend precisely in which basin/watershed they lay for regulatory and programmatic considerations.

DEP should address the oversight by including such information in the final WIP.

DEP should present the area loads per land use along with the best management practice (BMP) efficiencies in an additional Appendix.

Although this information is available from the EPA Chesapeake Bay Program, it can be difficult and time-consuming to locate. Reviewers of the draft WIP who do not have the time seek this information but do have an interest in it, would benefit from its presentation in the draft WIP.

The Susquehanna River trend data presents an incomplete summary of SRBC's monitoring study results and should be expanded upon to reflect a holistic analysis of the data.

SRBC's report<sup>26</sup> presents the most recent summary of the water quality monitoring trends within key locations of the Basin. Although the data indicate improvement, particularly in total nitrogen load reductions, context is important.

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<sup>26</sup> Susquehanna River Basin Commission. *Nutrients and Suspended Sediment Transported in the Susquehanna River Basin, 2008, and Trends, January 1985 Through December 2008*. Pub. 267. Harrisburg, PA, 2009.



When one is orders of magnitude above a sustainable load (i.e., loads needed to achieve the TMDL), a decrease from the long term mean load doesn't really validate significant progress.

Several parameters (particularly several phosphorus species) have rather large errors/uncertainty reported for the 2008 value. In many cases, if one considers that the true value is within the range then there is little or no statistical reduction and, in some cases, possibly an increase in load. Even with the error/uncertainty around a 2008 value, several phosphorus species, particularly the dissolved and dissolved orthophosphorus, are notably higher than in previous years. Total phosphorus is within the mean or slightly higher in 3 out of 6 sites; thus indicating no real trend. Exceptions are the Conestoga and Marietta sites.

Nitrogen and associated species appear to have decreased in 2008 versus the long-term mean, while flow remained at or very near the average for most sites. Errors/uncertainty around nitrogen species are not very large and when considered do indicate a true reduction in most cases.

Sediment fate and transport is complex, a year's worth or several years' worth of reductions may not necessarily reflect a decrease at the edge-of-stream. Reporting on the fine and sand sediment fractions of sediment, along with total suspended sediment, would yield additional insight into the sediment issue.

In short, the data does appear to indicate that, generally, 2008 nitrogen loads saw a decrease from the long-term mean. However, the analysis does not put that decrease into the perspective that given the significant amount of work required to reach TMDL cap loads, this represents a small fraction of the overall necessary reductions. Furthermore, even if the reported reductions hold, the rate of reduction is still relatively slow and would not be expected to achieve a TMDL cap in a timely manner. Additionally, the phosphorus data is concerning and could have a dramatic affect on local water quality as well as the Bay. Why the reversal to an upward trend in phosphorus (continuation of the "banana" plots)<sup>27</sup>, particularly the dissolved and ortho fractions, is speculative but important.

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<sup>27</sup> Langland, M.J., D. Moyer, and J. Blomquist. 2007. *Changes in Streamflow, Concentrations, and Loads in Selected Nontidal Basins in the Chesapeake Bay Watershed, 1985-2006*. Open File Report 2007-1372. U.S. Department of the Interior: U.S. Geological Survey, Reston, Virginia.

The "Pennsylvania 2009 Nutrient and Sediment Loads..." are notably different than those presented in EPA's draft TMDL.

On page 13 of the draft WIP, the sector loads from the phase 5.3 watershed model are presented as numerical values. However, when converted to percentage of total load, these percentages are vastly different than those in Table 4.1 and 4.2 of the draft TMDL (page 4-6), except for agriculture. For instance, in the on page 13 of the draft WIP urban/developed load is stated to deliver 6,704,000 lbs of TN/yr. This represents 6 percent of the total load of 106,413,000 lbs of TN/yr. In table 4.1 of the TMDL, "stormwater" is credited for 33 percent of the total load. Septic systems are documented with delivering 3,290,000 lbs/yr in the draft WIP, which is approximately 4 percent of the total load. The draft TMDL assigns septic systems a current load of 30% of the nitrogen. Similar discrepancies can be found for the other source sectors.

The "Projected Sector Loads..." and tables in Appendix 4, are fundamentally different and therefore cannot be appropriately examined.

The "Projected Sector Loads" tables presented in page 23 through 28 of the draft WIP attempts to summarize pollutant load data for each basin/watershed along with percent of total, reductions, total allocation, LAs and WLAs. In numerous instances, these numbers are vastly different than those in Appendix 4.

For example, the Susquehanna CAFO nitrogen data on page 23 indicates that no information regarding 2009 loads is available but that a WLA of 870,000 is set. The nitrogen B2 table indicates that the 2009 CAFO load is 1,222,439 lbs/yr. In the same table, the MS4 load is presented as 805,923 lbs/yr with a 2025 cap load of 542,475 lbs/yr. In the table on page 23, the 2009 MS4 load is presented as the B2 2025 cap load of roughly 542,000 lbs/yr. This table also presents this as the final WLA; therefore indicating no load reductions called for from MS4. Similar discrepancies are present for each basin/watershed in each of the pollutant tables in Appendix 4.

Interestingly, no WLA reductions are called for from the construction, mining, and industrial stormwater sectors under the data presented in pages 23 through 28. According to the tables in Appendix 4, this is not the case. If this is accurate, however, it represents a disturbing lack of responsibility by these sectors and a disproportionate shouldering of the reduction burden to others, such as agriculture. It also apparently establishes an equability issue in that it that DEP

appears to be proposing that construction activities which cumulatively do not cause an exceedance of the WLA will have a lesser set of erosion and sedimentation control requirements than those that would. Presumably, any permitted construction activity which would result in the construction WLA being exceeded would need either be denied a permit or required to achieve a no net increase offset. Whereas, construction loads that would not cause the WLA to be exceeded would have no such requirements.

Curiously, the total nitrogen point source data for the Potomac Basin indicates that an additional 335,000 lbs/yr of nitrogen compared to the 2009 load is allocated. The B2 data for this sector does not appear to support the increase presented in the table on page 23; yet, if it is correct, it appears to violate the "no net increase" requirement for new or expanded loads from sewage treatment facilities.

The Point Source total sediment load data for the Eastern Shore watershed in "Pennsylvania 2009 Nutrient and Sediment Loads..." tables indicates a disproportional sediment load.

On page 28 of the draft WIP, the 2009 and WLA Eastern Shore Watershed point source sediment load is presented as 52,300 million lbs/yr. Comparatively, the Susquehanna Basin is cited as having a point source sediment load of 16.1 million lbs/yr; 0.36 million lbs/yr for the Potomac, and 0.0 million lbs/yr for the Western Shore. The TSS data presented for point sources of all types in Table B2 does not support this information

The Point Source total sediment load data in Table B2 indicates a notable sediment load from this sector, contrary to previous information and the underpinnings of the Point Source Allocation Strategy developed under the Tributary Strategy.

Divergent from the data presented in page 23 through 28, TSS data in Table B2 indicates a notable of sediment from point sources. For instance, in the Susquehanna Basin the 2009 significant municipal wastewater load is presented as 19,344,917 lbs/yr. This presumes the subtotal title is incorrect in referencing nitrogen and that the table title is correct. Although this is substantially less than the load attributed to agriculture and urban/suburban stormwater, it nonetheless represents a load that was not considered under the Point Source Allocation Strategy. Notably, Table B2 does not call for any reductions below the 2009 load

while other sectors must reduce loads substantially. For instance, agriculture is tasked with reducing sediment by 166,600,699 lbs/yr by 2025. This disproportionally shifts the burden of achieving TSS reductions to the other sectors.

Given the magnitude of the point source sediment load and the lack of consideration of such loads in the permitting process previously developed, it appears necessary to re-examine the Point Source Allocation Strategy to include TSS limits and reductions in existing and future NPDES permits.

## Conclusion

The TMDL is real. The ramifications of failure are real.

We appreciate DEP's candor and acknowledgement that improvements to their first draft of the WIP are necessary. We encourage EPA and DEP to continue to develop mechanisms and funding to strengthen the WIP, with special emphasis on achieving reasonable assurance. Achieving non-point source compliance and quantifiable stormwater improvements for our communities, supporting our County Conservation Districts, and providing funding for nonpoint source improvements are key elements of the WIP

Pennsylvania must ensure that all stakeholders work together to ensure that the necessary components of funding, staffing, technical assistance, enforcement, and regulations—are sufficient enough to achieve our pollution reduction goals.

We believe that the recommendations we have made would meet and exceed the thresholds for reasonable assurance established by EPA and encourage DEP to undertake serious consideration of them.

Sincerely,

A handwritten signature in black ink, appearing to read "Matthew J. Ehrhart", with a long horizontal line extending to the right.

Matthew J. Ehrhart, Pennsylvania Executive Director

# **ATTACHMENT A**



# CHESAPEAKE BAY FOUNDATION

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## *Saving a National Treasure*

17 August 2010

Pennsylvania Watershed Implementation Team Members

Dear Watershed Implementation Plan Team Member:

I want to personally thank each of you for the time, effort, and resources you and your organizations have committed to the Watershed Implementation Plan (WIP) process. The Chesapeake Bay Foundation (CBF) also acknowledges and thanks the Department of Environmental Protection (DEP) for developing and implementing a thorough and open stakeholder process for constructing the WIPs.

In order to construct a WIP that not only contains proposed BMPs to meet the modeled reduction requirements, but includes the implementation capacity to assure that those BMPs are put “on the ground”, we have prepared a look at the 2008-2009 implementation progress to compare with the current milestone commitments. This is instructive in seeing where we have the resources or capability to succeed, and where we must place increased emphasis.

### **Methodology**

As you know, two years ago the federal and state governments determined that shorter-term milestones would improve accountability, accelerate pollution reductions, and increase the likelihood of meeting pollution reduction targets for the Chesapeake Bay and its Tidal Tributaries. The jurisdictions announced their first milestones in May 2009 and laid out plans to meet these commitments over the three years between January 1, 2009 and December 31, 2011. A copy of Pennsylvania’s first milestone commitment is provided as Enclosure A for your convenience.

For comparison, we have obtained from EPA Pennsylvania’s reported BMP implementation levels from the 2008 and 2009 bay model runs (v. 4.3). This information and the milestone commitment levels for the pertinent BMPs are presented as Enclosure B. Additionally, we calculated the percentage of the three year milestone which has been achieved in the first year. While not every BMP would be on a linear trajectory, this does give some indication of whether we are progressing at a rate that will result in PA meeting our 2011 milestone commitments.

**INFORMING • ENGAGING • EMPOWERING**

As you evaluate and comment on the draft Phase I WIP, we ask that you consider the enclosed information and comments that we believe are critical creating a Plan that will meet the requirements of the TMDL and avoid Pennsylvania being faced with a “Backstop WIP” from EPA or other consequences from the EPA letter.

## Results

While assessing the practices and implementation numbers in Enclosure B, several things are apparent. The first is that we are doing very well in some areas and lagging substantially in others. The second interesting observation is that the areas where PA is doing well can be grouped into three categories:

1. Practices that have broad acceptance and are part of accepted, profitable practice, such as poultry phytase, cover crops and no-till farming.
2. Practices that are supported by robust federal programs, such as animal waste systems and forest buffers.
3. Practices that are required by regulatory programs with oversight capacity such as wastewater treatment plant upgrades.

A third notable observation is that is that, due to inadequate tracking of BMPs installed with private resources, PA is dramatically under-reporting some BMPs, such as cover crops and no-till acres. Numerous other BMPs are also likely under-represented to a lesser extent.

The fourth item, and the one of great concern with respect to crafting the WIP, is that the area’s where we a dramatically behind on BMP implementation are those where we have acknowledged inadequacies in programs or funding. Nutrient management plan and Conservation Plan targets in the milestone are far behind schedule. These plans set up the implementation demand for many other BMPs in future years. The gap in this area is largely the result of a lack of compliance, outreach and technical assistance. Our state budgets have not addressed the funding and staffing needs of the County Conservation Districts, who are the front line for doing this work. Another gap is the lack of progress on addressing stormwater runoff from our urban/suburban centers. As has been discussed the Stormwater WIP team, PA continues to struggle with developing a clear strategy and has yet to commit the necessary resources to implement improvements in this area.

## Wastewater Treatment

Pennsylvania’s strategy<sup>28</sup> with regard to permitting for wastewater treatment facilities appears to be on track. For all phase 1 facilities, cap loads based on concentrations of 6.0 mg/l TN and 0.8 mg/l TP at design annual average daily flow have been placed in permits and will become effective on 10/01/2010. Permits for phase 2 facilities will be effective

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<sup>28</sup> Pennsylvania’s Chesapeake Bay Tributary Strategy Implementation Plan for NPDES Permitting. PADEP. April 24, 2007. [http://www.portal.state.pa.us/portal/server.pt/community/chesapeake\\_bay\\_program/10513](http://www.portal.state.pa.us/portal/server.pt/community/chesapeake_bay_program/10513)

10/01/2011; and phase 3 facilities on 10/01/2012. Permit limits will be achieved through capital upgrades, nutrient trading, or combinations of both.

We continue to support DEP's wastewater treatment strategy as the most cost-effective and equitable approach towards achieving this sectors cap load allocation; however, we remain concerned that financing through grants and loans remains limited, particularly in comparison to Maryland and Virginia. Given the current economic conditions, prioritizing existing statewide water infrastructure funding towards project with the Bay watershed that facilitate achieving this sectors cap load should be explicitly integrated into the decision-making criteria of PENNVEST and other state financing sources.

## **Agriculture**

Pennsylvania's progress on the Ag milestones has been a mixed bag. As noted earlier we are on or ahead of implementation schedule for a number of key BMPs, including buffers, cover crops, and no-till. We also know that we are substantially underreporting some BMPs, including cover crops and no-till. According to recent estimates from evaluations in Bradford and Lancaster counties, we are under-reporting by as much as 40 to 80 percent.

The problematic issue for the agricultural sector is the degree to which we are behind in developing nutrient management plans and conservation plans. This reality is consistent with the compliance problem facing PA's agricultural sector, as an estimated 50-60% of farms do not have the required conservation plan, consistent with PA Chapter 102, and manure management plan. These plans serve as the conservation and compliance road maps for farms and drive the future implementation of many BMPs.

The grave concern about PA's performance in these areas is threefold:

1. It translates to a continued problem with compliance, leaving water quality unaddressed, and farms subject to enforcement.
2. It may lead to greater difficulties in meeting the implementation goals for other BMPs in future years.
3. Our ability to meet these targets is predicated on the availability of technical assistance.

The technical assistance necessary to develop conservation plans and nutrient management & manure management plans has primarily come from the USDA NRCS and our County Conservation Districts. State funding for conservation districts has been steadily declining, not increasing as will be necessary to reverse the current trend. NRCS staffing has also been declining, while their project funding has increased – creating a growing bottleneck. Further, preparation of these plans by private sector agricultural consultants has been hampered by the substantial reduction of the Resource Enhancement And Protection (REAP) tax credit, the lack a robust, streamlined Technical Service Provider (TSP) scenario with USDA, and the lack of compliance outreach and enforcement.



The Phase I WIP must address the issues of compliance, an increase in technical assistance availability, and resource availability. CBF recommends that the WIP Team and the Commonwealth consider incorporating the following concepts in the WIP:

- **Develop an Agricultural Compliance Plan which identifies the process, resources and timelines necessary to achieve compliance with state and federal requirements.** Enclosure C is a copy of CBF's comments on PA DEP's draft Ag. Water Quality Initiative.
- **Increase funding for the Resource Enhancement And Protection (REAP) tax credit to \$20 million per year.** This efficient and over subscribed tax credit program has established a tremendous track record of matching tax credits with private resources to achieve conservation goals.
- **The Commonwealth should work with the USDA NRCS to develop a broader, more flexible TSP to enable greater private sector delivery of critical conservation programs such as EQIP and CBWI.** PA's private sector agricultural groups should be enabled to play a greater role in providing the critical technical assistance necessary to implement the federal agriculture program dollars.
- **Increase the state funding to County Conservation Districts.** The WIP should estimate the additional staffing and resources for the conservation districts to implement the additional outreach, compliance and technical assistance necessary for implementation of the Agricultural portion of the Bay TMDL and provide the necessary increase in future budgets beginning in the 2011-2012 budget.
- **Improve Phosphorus Management.** The current Phosphorus Index allows phosphorus to accumulate in some soils, and therefore does not adequately protect water quality. Nutrient management planning requirements should be revised to prevent over-saturation of soil phosphorus, such as by incorporating P Saturation into the P Index, without losing the protection that the P Index provides to steep slopes and areas near streams.
- **Develop a system for tracking all BMPs.** As noted above, we do not effectively track nor, therefore, report and model most BMPs that are privately funded and not part of an organized program. CBF agrees with many other partners that we are dramatically under-reporting numerous key BMP's and that accurately tracking those BMPs is critical.

## **Stormwater**

Pennsylvania's decentralized and fragmented local governmental system presents a particular conundrum in addressing pollutant loads from urban and suburban runoff. As evidenced by the extensive discussions within the stormwater WIP workgroup,

achieving and maintaining the necessary reductions from this sector under our current framework is unlikely, if not impossible, and certainly very costly.

In order to circumvent such challenges, we believe that the following recommendations should be undertaken by DEP and, where appropriate, the legislature:

- **Employ a scientifically justifiable and accurate methodology to determine the MS4 pollutant load.** Pennsylvania's currently-proposed methodology equates the publicly owned roads with the MS4 drainage network. Under this methodology, the land area contributing to the MS4 would not be calculated as part of the load. This approach is inadequate and scientifically unjustifiable and, if implemented, could result in other sectors shouldering the burden for a large percentage of the urban stormwater load. And, as noted in EPA's July 9, 2010 letter to DEP, the methodology is inconsistent with the Clean Water Act and MS4 permitting program. However, we understand and appreciate the unique difficulties Pennsylvania's fragmented local governmental system present in instituting an MS4 program, particularly a program which achieves quantifiable reductions in stormwater load. These issues are especially evident in the context of a TMDL. We recommend that DEP consider employing the methodology used in The Christina River Basin Watershed Stormwater Source TMDL (2006)<sup>29</sup>, which included all or parts of MS4 communities in Pennsylvania, Delaware, and Maryland. The Christina TMDL MS4 WLA methodology could be employed as the stormwater load calculation approach in the Phase I WIP with the requirement that all new and reissued MS4 permits contain requirements for delineating the drainage areas of each outfall within the MS4 in order to more precisely determine the WLA versus LA loads within each urbanized area.
- **Revise Act 167 requirements to explicitly and quantitatively integrate achieving and maintaining TMDL WLA and LA allocations for stormwater.** When passed in 1978, Act 167 was a unique and progressive step towards better stormwater management. But, in many ways, the Act has outlasted its usefulness and needs to be updated to reflect today's regulatory realities. With updates that require preventing new sources of stormwater pollution and addressing problems from existing development, Act 167 could once again serve as the framework for planning and implementing stormwater management relevant to the challenges of today. As a result, Act 167 could be used as the fundamental tool to achieve compliance with the stormwater-related requirements of the Chesapeake Bay TMDL, as well as local TMDLs.
- **Prioritize passage of House Bill 1390, commonly referred to as the Integrated Water Resources Act.** HB 1390 would set a framework for a more consistent, coordinated, and comprehensive county-based approach to stormwater management in the Commonwealth.

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<sup>29</sup> This document can be found at: [http://www.epa.gov/reg3wapd/tmdl/pa\\_tmdl/ChristinaMeetingTMDL/index.htm](http://www.epa.gov/reg3wapd/tmdl/pa_tmdl/ChristinaMeetingTMDL/index.htm)

- **Establish a sustainable source of funding to support local implementation of new and the retrofitting of existing stormwater practices and initiatives.** Through legislation, regulation, or policy establish the framework for the creation and operation of local Authorities, Utilities, or Management Districts and/or other sustainable funding sources that enable entities to collect fees and generate revenues dedicated to planning, constructing, monitoring, maintaining, improving, expanding, operating, inspecting and repairing public and private stormwater management infrastructure.
- **Establish through regulation or policy a pollution offset program for all new or increased permitted discharges.** President Obama's Executive Order and the Chesapeake Bay Foundation's settlement agreement with EPA commits requires that states must offset all new nitrogen, phosphorus and sediment loads by reducing them from another source, including new or increased permitted discharges. This requirement includes new or increased permitted discharges from construction and post-construction stormwater. It should be noted that this is not an endorsement of the concept of offsetting volume from new development which is entirely different.
- **Through legislation, consider a statewide lawn fertilizer restriction.** By law, ban the sale of all fertilizers designed for turf lands that contain phosphorus and those that contain less than 25 percent slow release nitrogen. Further, by law, prohibit the application of fertilizer that contains nitrogen to turf lands more than once a year unless required by a valid soil test. Citizen education programs will be needed to ensure homeowner compliance with the once-a-year nitrogen application rate. Alternatively, the passage of a local municipal ordinance which affectively achieves the same outcome could be an explicit requirement of all reissued and new MS4 permits could be considered.
- **Create by law a state incentive program for the redevelopment and reduction of impervious surfaces in existing urban corridors.** Incentives could include tax reductions/credits, density bonuses, parking waivers, fee reductions, and rapid project approval. Some local governments already provide a mix of incentives for certain actions. Incentives should only apply to projects that are either in US census-designated urbanized, consistent with the local comprehensive plans, and include specific sound land use elements, such as supporting higher density, compact development, transit-oriented design, multiple uses, increased open space/buffers/tree canopy, and onsite capture and water reuse.
- **Close the "no net increase" sewage treatment loophole for new septic systems.** Unlike new or expanded sources of sewage discharges, under current Pennsylvania policy septic systems are not required to acquire offsets for nutrient loads. Through regulation or policy, all new or rehabilitated septic systems should be required to either install nutrient-reduction technology or purchase offsets equivalent for the expected life of the system.

- **Establish of a series of urban stormwater pollution reduction demonstrations.** While moving forward with permits that meet the pollution reduction requirements of the Federal MS4 program and the Chesapeake Bay and local TMDLs, prioritize and implement a series of demonstrations to implement on-ground installation of new and retrofitted stormwater practices designed to quantitatively reduce stormwater pollutant loads within currently suburbanized/urbanized areas. The demonstrations should be sufficiently detailed so as to identify “critical sources areas” of stormwater load within the pertinent area and the most cost-effective solutions available to address these areas. Such an effort will provide valuable lessons learned as to how local implementation can occur and be integrated comprehensively into latter phases of the WIPs.
- **Develop a stormwater pollutant offset program for existing developed areas.** In some areas, it may make sense to achieve load reductions through an offset program to be consistent with local targets and the cap allocation in the TMDL. A program that is designed at the appropriate spatial scale (e.g., county) that allows local governments to purchase pollution offsets in lieu of on-the-ground practices should be considered. Such an effort, however, should not relinquish local entities from not achieving an appropriate baseline and threshold prior to being able to offset remaining loads.

## Conclusions

CBF strongly supports the milestone approach to restoring the Chesapeake Bay. The use of short-term targets should, in theory, provide for greater accountability and accelerate pollution reductions and more responsive adaptive management. While Pennsylvania has made significant, accelerated progress on some specific BMPs, the Commonwealth has demonstrated an inability to deliver on core programmatic items that are critical to achieving the milestone and the longer term goals of TMDL implementation. The new WIP must contain programmatic and resource commitments necessary meet all the milestone commitments and to accelerate nutrient pollution reductions.

The WIP is Pennsylvania’s final opportunity to create a strategy for implementing the TMDL that is built by PA, for PA, and utilizes the details and efficiencies that are specific to the Commonwealth. Integration of the necessary resources and implementation strategies to achieve the reduction goals is critical to the success of the WIP and its acceptability to EPA. CBF urges you to consider the recommendations contained in this letter and to develop similar recommendations for consideration by the WIP Teams and the Commonwealth. If we do not construct a strategy that that is credible for accomplishing the necessary reductions, the Federal Government will use the authorities and digression at its disposal to attempt to accomplish those reductions in Pennsylvania. The outcomes of that approach will be for more difficult and less efficient for the stakeholders and the Commonwealth.

I urge you to consider the recommendations enclosed, the ramifications of inaction or insufficient action, and the opportunities that we have to create a strategy that creates clean water for the Chesapeake watershed and the rivers and streams of Pennsylvania.

If you have any questions regarding our information or recommendations, please contact me at (717) 234 5550. Thank you for your time and consideration.

Sincerely,

A handwritten signature in black ink, appearing to read "Matthew J. Ehrhart", with a long horizontal line extending to the right.

Matthew J. Ehrhart  
Pennsylvania Executive Director


Enclosure A: Pennsylvania's First Milestone Commitment

Enclosure B: Pennsylvania BMP Implementation Levels

Enclosure C: CBF's Comments on PA DEP's Draft Agricultural Water Quality Initiative


Cc: John Hanger, Secretary, PA Department of Environmental Protection  
Russell C. Redding, Secretary, PA Department of Agriculture

## Enclosure A: Pennsylvania's First Milestone Commitment



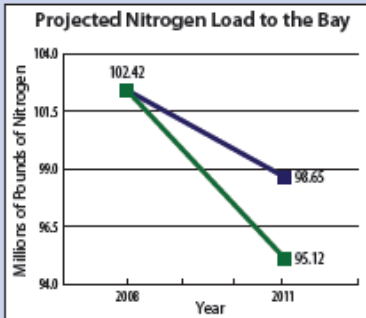
# Pennsylvania

*2011 Milestones to Reduce Nitrogen and Phosphorus*



Chesapeake Bay Program  
*A Watershed Partnership*

### Nitrogen Reduction Milestone

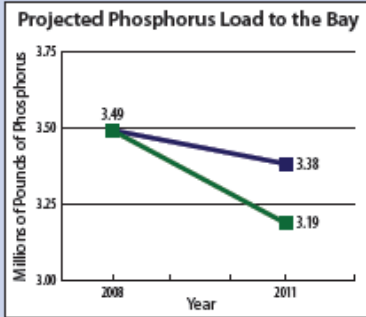


Pennsylvania's 2011 milestone commitment is to reduce nitrogen by 7.3 million pounds over the three year period (2009-2011).

	<b>Projected*</b>
Reduction at Previous Rate of Progress	3.78M
<b>Pollution Load after Previous Rate of Progress</b>	<b>98.65M</b>
Reduction at Milestone Rate of Progress	7.30M
<b>Pollution Load after Milestone Rate of Progress</b>	<b>95.12M</b>
Increase in Rate of Progress	93%

*M = Millions of Pounds of Nitrogen*

### Phosphorus Reduction Milestone



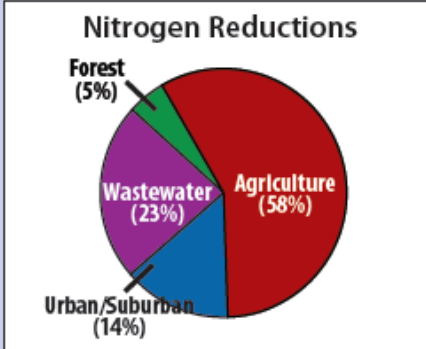
Pennsylvania's 2011 milestone commitment is to reduce phosphorus by 300,000 pounds over the three year period (2009-2011).

	<b>Projected*</b>
Reduction at Previous Rate of Progress	116,000 lbs.
<b>Pollution Load after Previous Rate of Progress</b>	<b>3.38M</b>
Reduction at Milestone Rate of Progress	300,000 lbs.
<b>Pollution Load after Milestone Rate of Progress</b>	<b>3.19M</b>
Increase in Rate of Progress	159%

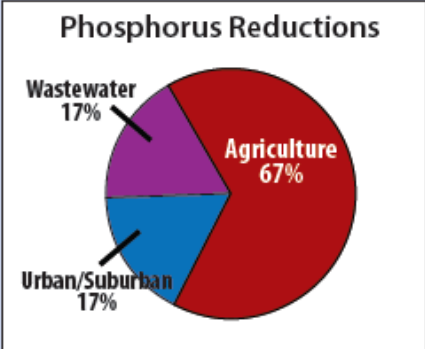
*M = Millions of Pounds of Phosphorus*

### Pollution Reductions by Source

#### Nitrogen Reductions



#### Phosphorus Reductions



\* Nitrogen and phosphorus reductions are based on Phase 4.3 Watershed Model data for agricultural, urban/suburban and air reductions and monitored data for wastewater reductions.

For more, contact: Kenn Pattison, (717) 772-5652, [kpattison@state.pa.us](mailto:kpattison@state.pa.us)



## Funding During Milestone Period

<b><u>Pennsylvania Department of Environmental Protection (DEP)</u></b>	
Nutrient Management Delegation Agreements	\$1,749,000
Conservation District Fund Allocation Program	\$2,065,320
Chesapeake Bay Implementation Grant State Match Plus	\$3,410,000
PA Stormwater Planning and Management (Act 167)	\$2,200,000
Growing Greener Watershed Protection Grant Program	\$13,512,087
<b><u>Pennsylvania State Conservation Commission (SCC)</u></b>	
Dirt and Gravel Road Maintenance Program	\$2,441,000
Nutrient Management Program	\$2,301,000
Conservation District Fund Allocation Program	\$1,091,600
NRCS Engineering Assistance for BMP installation	\$64,000
Commercial Manure Hauler and Broker Certification Program	\$89,400
Resource Enhancement and Protection Program (REAP)	\$8,450,000
<b><u>Pennsylvania Infrastructure Investment Authority (PENNVEST)</u></b>	
Loans and grants for wastewater projects	\$30,078,120
<b>TOTAL</b>	<b>\$67,451,527</b>

## Pollution Reduction Actions by End of 2011

Abandoned Mine Reclamation	2,219 acres	Nutrient Management	473,801 acres
Animal Waste Management Systems	275 units	Off-Stream Watering with Fencing	6,143 acres
Carbon Sequestration/Alternative Crops	25,740 acres	Off-Stream Watering w/ Fencing & Rotational Grazing	21,249 acres
Conservation Plans/SCWQA	327,599 acres	Off-Stream Watering without Fencing	7,335 acres
Continuous No-Till	86,567 acres	Other Conservation Tillage	88,924 acres
Cover Crops (late planting)	174,818 acres	Poultry Litter Transport Out of Watershed	55,659 tons
Dirt and Gravel Road Erosion and Sediment Control	124,913 feet	Poultry Litter Transport Into Watershed	3,256 fewer tons
Enhanced Nutrient Management	450 acres	Poultry Phytase	19,626 pounds P
Erosion and Sediment Control	181 acres	Septic Connections	7,353
Forest Buffers (all land uses)	19,059 acres	Tree Planting	15,065 acres
Forest Harvesting Practices	125 acres	SWM Practices	8,690 acres
Grass Buffers	1,161 acres	Urban Stream Restoration	4,400 feet
Land Retirement	58,876 acres	Wetlands	1,548 acres
Mortality Composters	22 units	Heavy Truck Anti-Idling Rule	9.78M fewer hours
Non-Urban Stream Restoration	215,088 feet		

## Additional Reduction Options

### **Erosion and Sediment Control Regulations**

- Codification of post-construction stormwater requirements
- Mandatory riparian forest buffers for exceptional value waters
- Conservation Plan revision to include animal heavy use areas

### **Stormwater Management Planning Act expansion to provide for Integrated Water Resource Planning**

### **Legacy Sediment BMP Development and Implementation**

### **Phosphate Dishwasher Detergent Ban**

Agricultural BMPs	(Units)	2008 EPA	2009 EPA Value	Progress	2011 Milestone	Implementation	Percentage of Milestone
		Value		(2008 EPA-2009 EPA)	Implementation	Remaining	Achieved at 2008-09 Implementation Rate
Nutrient Management	(acres)	1,310,614	1,334,908	24,294	473,801	449,507	5
Precision Agriculture	(acres)	0	0	0			
Enhanced Nutrient Management	(acres)	961	2,239	1,278	450	0	100
<b>Total Nutrient Management (All Types)</b>	<b>(acres)</b>	<b>1,311,575</b>	<b>1,337,147</b>	<b>25,572</b>			
Continuous No-Till	(acres)	57,780	61,478	3,698	86,567	82,870	4
Other Conservation-Tillage*	(acres)	672,082	666,524	-5,558	88,924	94,482	-6
<b>Conservation-Tillage (All Types)</b>	<b>(acres)</b>	<b>729,862</b>	<b>728,002</b>	<b>-1,860</b>			
Cover Crops-Standard Planting	(acres)	131,431	197,704	66,273	174,818	108,545	38
Cover Crops-Early Planting	(acres)	0	0	0			
Small Grain Enhancement-Standard Planting	(acres)	0	0	0			
Small Grain Enhancement-Early Planting	(acres)	0	0	0			
<b>Total Cover Crops (All Types)</b>	<b>(acres)</b>	<b>131,431</b>	<b>197,704</b>	<b>66,273</b>			
Off-Stream Watering w/ Fencing	(acres)	20,279	21,015	736	6,143	5,407	12
Off-Stream Watering w/o Fencing	(acres)	7,445	7,656	211	7,335	7,124	3
Off-Stream Watering w/ Fencing & Rotational Grazing	(acres)	41,429	46,952	5,523	21,249	15,726	26
Precision or Intensive Rotational Grazing	(acres)	0	29	29			
<b>Total Pasture Grazing BMPs (All Types)</b>	<b>(acres)</b>	<b>69,153</b>	<b>75,652</b>	<b>6,499</b>			
Forest Buffers*	(acres)	29,673	34,405	4,733			
Wetland Restoration*	(acres)	2,837	2,973	136			
Land Retirement	(acres)	134,976	147,329	12,353	58,876	46,523	21
Grass Buffers*	(acres)	2,788	3,911	1,123			
Tree Planting	(acres)	7,663	7,581	-82			
Carbon Sequestration/Alternative Crops	(acres)	25,740	27,599	1,859	25,740	23,881	7
Conservation Plans/SCWQP	(acres)	1,413,048	1,483,247	70,199	327,599	257,400	21
Animal Waste Management Systems (All Types)	(manure acre) = 145 Animal Units	4,086	4,293	206	275	69	75
Water Control Structures	(acres)	0	0	0			
Horse Pasture Management	(acres)	0	1	1			
Non-Urban Stream Restoration (Agriculture)	(feet)	76,323	94,511	18,188			
Dirt & Gravel Road Erosion & Sediment Control	(feet)	0	828,094	828,094			
Poultry Phytase	Reduction of Cropland Applications (lbs TP)	3,227,331	3,233,873	6,542	19,626	13,084	33
Dairy Precision Feeding and/or Forage Management	Reduction of Applications (lbs TN)	0	0	0			
Dairy Precision Feeding and/or Forage Management	Reduction of Applications (lbs TP)	0	0	0			
Swine Phytase	Reduction of Cropland Applications (lbs TP)	0	0	0			
Manure Transport	(net tons transported)	43,633	51,121	7,488	55,659	48,171	13
Ammonia Emissions Reductions	Reduction of Atmospheric Deposition (lbs TN)	0	0	0			
<b>Urban/Suburban Lands BMPs</b>							
Wet Ponds & Wetlands	(acres)	75,631	76,026	395			
Dry Detention Ponds & Hydrodynamic Structures	(acres)	451,214	453,539	2,325			
Dry Extended Detention Ponds	(acres)	92,647	92,564	-83			
Urban Infiltration Practices	(acres)	84,999	85,453	454			
Urban Filtering Practices	(acres)	0	0	0			
Recent/Retrofit Stormwater Management	(acres)	0	0	0			
<b>Total Stormwater Management (All Types)</b>	<b>(acres)</b>	<b>704,491</b>	<b>707,582</b>	<b>3,091</b>	<b>8,690</b>	<b>5,599</b>	<b>36</b>
Forest Conservation	(acres)	0	0	0			
Impervious Surface & Urban Growth Reduction	(acres)	0	0	0			
Forest Buffers (Urban)*	(acres)	2	0	-2			
Tree Planting (Urban)*	(acres)	0	0	0			
Grass Buffers (Urban)*	(acres)	7	0	-7			
Stream Restoration (Urban)	(feet)	2,200	2,200	0	4,400	4,400	0
Erosion & Sediment Control*	(acres)	8,184	8,118	-66	181	247	-37
Nutrient Management (Urban)	(acres)	0	0	0			
Street Sweeping	(acres)	0	0	0			
Street Sweeping	(tons sediment)	0	0	0			
Forest Buffers (Mixed Open)*	(acres)	6,291	8,693	2,403			
Wetland Restoration (Mixed Open)*	(acres)	862	862	0			
Tree Planting (Mixed Open)*	(acres)	34,765	36,311	1,546			
Nutrient Management (Mixed Open)	(acres)	0	0	0			
Abandoned Mine Reclamation	(acres)	10,769	12,063	1,294			
Non-Urban Stream Restoration (Mixed Open)*	(feet)	67,069	73,779	6,710			
Dirt & Gravel Road Erosion & Sediment Control (Mixed Open)*	(feet)	356,654	828,094	471,440			
Abandoned Mineland Reclamation	(acres)	10,769	12,063	1,294	2,219	925	58
<b>Urban/Suburban Lands BMPs: Septic</b>							
Septic Connections	(systems)	41,644	44,074	2,430	7,353	4,923	33
Septic Denitrification	(systems)	0	0	0			
Septic Pumping	(systems)	0	0	0			
<b>Resource BMPs</b>							
Forest Harvesting Practices	(acres)	125	228	103	125	22	82
Non-Urban Stream Restoration (Forest)*	(feet)	0	0	0			
Dirt & Gravel Road Erosion & Sediment Control (Forest)**	(feet)	2,637,709	1,656,188	-981,521	124,913	1,106,434	-786
<b>Cummulative BMPs</b>							
Forest buffers (all uses)	(acres)	35,965	43,098	7,133	19,059	11,926	37
Dirt & Gravel Road Erosion & Sediment Control (all uses)	(feet)	2,994,363	3,312,375	318,012	124,913	0	100
Non-urban Stream Restoration (all uses)	(feet)	143,392	168,289	24,897	215,088	190,191	12
Tree Planting (all uses)	(acres)	42,428	43,892	1,464	15,065	0	100
Wetland Restoration (all uses)	(acres)	3,699	3,835	136	1,548	1,412	9
Grass buffers (all uses)	(acres)	2,795	3,911	1,116	1,161	45	96
<b>BMPs Not Reported to EPA Model</b>							
Mortality Composters	(systems)				22		
Heavy Truck Anti-Idling Rule	(fewer hrs)				9,780,000		
Poultry Litter Transport Into Watershed	(tons)				55,659		
Poultry Litter Transport Out of Watershed	(fewer tons)				3,256		

\* These BMPs are applicable in two or more land uses. Therefore, a tally for all uses for which the BMP is employed is included under Cumulative BMPs. The Cumulative BMPs value is used in comparison to the 2011 Milestone value.

\*\* Negative values for these BMPs reflect lower reported implementation in 2009 than in 2008. No further explanation is readily apparent.



## Enclosure C: CBF's Comments on PA DEP's Draft Agricultural Water Quality Initiative



# CHESAPEAKE BAY FOUNDATION

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## *Saving a National Treasure*

June 8, 2010

### Chesapeake Bay Foundation's Comments for Pennsylvania's Proposed Chesapeake Bay Agricultural Water Quality Initiative

The Chesapeake Bay Foundation agrees with the goals of "Pennsylvania's Proposed Chesapeake Bay Agricultural Water Quality Initiative." We applaud the objectives of nutrient and sediment reductions on all farms within the Chesapeake Bay watershed, while maintaining the economic viability of these farms and meeting federal and state laws and Chesapeake Bay legal requirements.

We consider it appropriate that the initiative focus in part on education and outreach to meet existing regulatory requirements for Erosion and Sediment Control and Manure Management, along with technical assistance to meet these requirements, especially for farms that have been outside of the realm of the Nutrient Management and Concentrated Animal Feeding Operation (CAFO) programs. We also believe that compliance assurance coupled with targeted enforcement actions are needed for operations that are not taking the necessary steps to comply with these requirements, and that the enforcement actions will serve as an incentive to encourage other farms to comply with these regulations to reduce nutrient and sediment pollution to Pennsylvania's waters.

The Chesapeake Bay Foundation recommends the following changes to strengthen the initiative:

#### 1. Targeted Watersheds

The targeted watershed approach must be complemented with a broad and robust compliance outreach effort throughout the Chesapeake Bay watershed. The focus on small watersheds is very limiting, especially since Pennsylvania has approximately 5,500 miles of streams impaired by agricultural pollution alone. Focusing on a small number of watersheds at any given time will limit DEP's ability to restore all impaired streams and the Chesapeake Bay in a timely fashion. The work within the prioritized watersheds should not eclipse the effort throughout the watershed.

Also, there are DEP, Conservation District, and other relevant staff located throughout the Chesapeake Bay watershed, including those in small watersheds not in the initial prioritization. Their efforts for outreach, education and enforcement are essential. A targeted watershed focus without a complimentary outreach to farms throughout the watershed could allow these staff, as well as the farmers in those areas, to be complacent and not take the necessary steps to improve water quality.

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717/234-5550 | FAX: 717/234-9632 | CBF.ORG

## 2. Total Maximum Daily Load Compliance

All Manure Management Plans and Erosion and Sediment Control Plans, and their associated conservation practices, should be developed so that they will be adequate given expectations for agriculture's portion of local and Chesapeake Bay Total Maximum Daily Loads (TMDLs). Individual plans satisfying only state and federal regulatory requirements could be insufficient to reduce nutrient and sediment pollution to meet the TMDL. This would require further outreach and effort to refine plans and encourage adoption of additional conservation measures, adding to the work load of agency staff. It would also impose significant hardship for farmers who could be required to develop multiple plans in succession.

The Manure Management Plans and Erosion and Sediment Control Plans should address all measures needed to meet both water quality goals and regulatory requirements. For example, a farm with contour strips and manure application setbacks from streams may satisfy regulatory requirements, but the addition or substitution of no-till cultivation, cover crops and riparian buffers may be needed to address water quality goals. The plans should include these practices so that farms are not faced with the further challenges at a later date to establish additional practices.

## 3. Concentrated Animal Feeding Operations

The proposed plan includes working with EPA Region 3 to improve the CAFO program. The Chesapeake Bay Foundation strongly recommends that the program designate livestock operations with discharges as CAFOs, as specified in the federal CAFO rule. The farms should have an opportunity (within 60 days) to correct the discharges before designation. The goal should be to remove the discharges, rather than expand the number of farms under the CAFO program.

Farms' efforts to prevent CAFO designation would be a valuable tool to address problems such as: livestock directly depositing manure in streams, stormwater flowing from manure management facilities, and other sources of stream degradation. CAFO designation would provide a regulatory tool to address some of the most significant sources of pollution to the Commonwealth's waters.

In Pennsylvania, requiring farms to eliminate discharges or face regulation as CAFOs is likely to be a more effective tool to improve water quality than lowering the threshold of animal numbers to include more farms as CAFOs.

## 4. Enforcement

The proposed initiative lacks necessary details on the "tiered compliance process." For example, it does not specify the timeframe provided to farms to comply with requirements. It provides for enforcement discretion that is not detailed. "Escalated enforcement" is not defined. There are no timelines for ensuring that all farms will have the necessary plans developed and implemented.

The initiative should focus enforcement on the most problematic farms first. Complaint-driven enforcement of environmental regulations is inadequate because it drives regulatory action to the farms where there are observant neighbors, not necessarily where the greatest pollution risks exist. Throughout the watershed, there are farms that have not participated in voluntary technical and financial assistance, and some of these operations contribute to serious water quality problems. Publicized enforcement on these farms would serve as an incentive to many others to quickly develop the plans and establish the conservation practices needed on their farms to avoid similar regulatory action.

## 5. Details needed

Most importantly, the proposed Chesapeake Bay Agricultural Water Quality Initiative is lacking some of the most important details to assess the potential effectiveness. Achieving the Initiative's goals will require a substantial revision of existing Conservation District and DEP staff job descriptions and/or expectations to prioritize a significant increase in outreach and compliance work. The plan should specifically address how this technical assistance and enforcement will occur. The draft begs many questions:

- What is the timeline? How many farms will have plans developed each year? When will the plans be implemented?
- How and when will farms be notified of the requirements?
- What type of outreach and educational activities will be conducted?
- Who will conduct these outreach and educational activities?
- What will be the specific roles and responsibilities of Conservation District and DEP staff?
- How will other partners, such as the USDA Natural Resources Conservation Service, Penn State Cooperative Extension, Pennsylvania Department of Agriculture, PennAg Industries Association, Pennsylvania Farm Bureau, Chesapeake Bay Foundation, private sector technical assistance providers, and other public agencies, agricultural and conservation organizations collaborate?

### Recommended strategy for reaching compliance throughout Chesapeake Watershed

The outreach, education and enforcement requirements to meet the Chesapeake Bay Agricultural Water Quality Initiative are immense, but they are achievable goals with a concerted effort. The Chesapeake Bay Foundation provides the following estimates as a framework to ensure that every farm across the Chesapeake Bay watershed develops and implements the necessary plans.

According to the Census of Agriculture, Pennsylvania's portion of the Chesapeake Bay watershed includes approximately 40,000 farms needing Erosion and Sediment Control Plans, and about 18,000 livestock operations needing Manure Management Plans. About 2,000 already have Nutrient Management Plans, so the remaining 16,000 require Manure Management Plans. The Lower Susquehanna Watershed should see the most emphasis initially, because this area contributes both the greatest nutrient and sediment loads to the Chesapeake Bay and has greater staff resources. The Lower Susquehanna Watershed contains about 21,000 farms, approximately 10,000 of which have livestock.

Some farms will require only verification that they have current Erosion and Sediment Control or Conservation Plans and Manure Management Plans that are being implemented on schedule. Other farms will require only modest updates to their plans to address water quality concerns. A third set of farms will require far more assistance in developing and implementing plans where none currently exist. Anecdotal information suggests that about approximately one third of farms are in each of the three above groups. We estimate that an average of two days of technical assistance staff time per farm are needed to develop a basic Erosion and Sediment Control plan with a Manure Management Plan in the case of livestock operations.

CBF's assessment of technical resources estimates that reaching about 5,000 farms each year is possible, so that developing the necessary plans for all farms in the Chesapeake Bay watershed is an achievable goal within eight years. These estimates include:

- 49 Chesapeake Bay Technicians in Conservation Districts, that could spend about 2/3 of their time (140 days/year) on outreach and plan development, with an average of two days per farm. They could develop 3430 plans annually.

- About 40 Nutrient Management Technicians, Erosion and Sediment Control Technicians and other Conservation District staff, that could spend 10% of their time, or about 21 days/year to develop 420 plans per year.
- USDA Natural Resources Conservation Service assistance with approximately 500 plans per year through various programs, such as the Environmental Quality Incentives Program and the Conservation Stewardship Program.
- Eight Department of Environmental Protection regional staff encouraging the most problematic farms to develop the necessary plans immediately, through the private sector if Conservation District staff unavailable. They could reach about 50 farms per year per person, or about 400 total plans per year.
- The private sector's development of an additional 250 plans in the initial year, and more in the future. These people must play a significant role in plan development and implementation, and their ranks would likely expand with demand, as farms see stronger regulatory requirements or nutrient credit trading opportunities.
  - Farms in geographic proximity could be grouped together (possibly with Conservation District assistance) to obtain lower cost bids for planning.
  - Additional funding from EPA could support private sector plan development.
  - Farms that pollute Pennsylvania's waters should develop the necessary plans immediately, and many will need to rely on private sector planners, or face enforcement actions.

According to these estimates of combined technical resources of the public and private sector, about 5,000 farms in the Chesapeake Bay Watershed would have plans each year. Initial efforts should be targeted to livestock operations currently lacking plans. All livestock operations in the Lower Susquehanna watershed should have plans by the third year, and by the fifth year in the rest of the watershed. By the eighth year, all Chesapeake Bay Watershed farms should have an Erosion and Sediment Control plan with a Manure Management Plan when needed, although some may need adjustments.

Timeframe for plan development:

	Lower Susquehanna Watershed		Remaining Chesapeake Watershed		Total
	Livestock farms	Crop farms	Livestock farms	Crop farms	
2010	4,000		1,000		5,000
2011	4,000		1,000		5,000
2012	2,000	1,000	2,000		5,000
2013		2,000	3,000		5,000
2014		2,000	1,000	2,000	5,000
2015		3,000		2,000	5,000
2016		3,000		2,000	5,000
2017				5,000	5,000
total	10,000	11,000	8,000	11,000	40,000

Once plans are developed, we recommend the following timeframe for implementation and establishment of the necessary conservation practices.

- Manure application rates, setbacks, management of temporary storage areas, and winter application criteria will be applied according to Manure Management Plan immediately after plan development.

- Livestock management near streams should be addressed within three months of plan development (when required in plan). People should be encouraged to participate in the Conservation Reserve Enhancement Program (CREP) when possible. Public funds should only be used when buffers of at least 35 feet are included. Flexible fencing without public funds is an option for a quick remedy when needed.
- Structural changes such as animal concentration areas or manure storages must be completed within three years of plan development.
- Cover crops, no-till cultivation, and other in-field practices should be established during the same crop year when possible, but at a maximum, within two years when crop rotations and equipment purchases cause delays.

The Chesapeake Bay Foundation recognizes that this strategy is ambitious, but can be achieved with concerted effort. It will require significant outreach and technical assistance, combined with targeted enforcement of cases where there are verified pollution problems. These enforcement cases will drive many people to seek the necessary assistance, rather than relying solely on time-consuming outreach. Since requirements for Erosion and Sediment Control Plans and Manure Management Plans have been required for over 30 years, although now undergoing major revisions, farms that are not able to receive assistance from public agencies should not be exempt from the requirements, and should be expected to seek help from the private sector.

Sincerely,



Kelly M. O'Neill  
Agriculture Policy Analyst

# **ATTACHMENT B**



## CHESAPEAKE BAY FOUNDATION

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### *Saving a National Treasure*

12 August 2010

Jon M. Capacasa, Director  
 Water Protection Division  
 USEPA Region 3  
 1650 Arch Street (3PM52)  
 Philadelphia, PA 19103-2029

Dear Mr. Capacasa:

As you know, CBF is one of the members of the Chesapeake Watershed Implementation Plan (WIP) Urban-Suburban-Rural Workgroup in Pennsylvania. As such, we have been participating in the discussions regarding the development of the WIP for the State. The purpose of this letter is to thank EPA for its detailed letter to the Pennsylvania DEP dated 9 July 2010 regarding DEP's proposed MS4 methodology as part Pennsylvania's stormwater WIP.

However, we remain concerned given that EPA did not explicitly prohibit DEP from employing the proposed methodology or indicate what, if any, ramifications may occur if this or a similarly inaccurate methodology were employed. The letter also did not appear to fully indicate the details of what an acceptable methodology is; for instance, the two MS4 methodology options set forward by EPA to the Bay states.

It should be noted that we continue formally express our opposition to using the most recent methodology proposed by DEP to determine the boundaries of the MS4 service areas in assessing the current load from MS4s. In its most recent correspondence regarding this methodology<sup>30</sup>, Pennsylvania states:

*For Pennsylvania, there are no GIS/spatial data that delineate the actual boundaries of the MS4 service areas. In discussions with Barry Newman, DEP Chief of Stormwater Planning and Management, it was decided to define the MS4 service areas based on the area of roadway within each MS4 municipality that lies within the urbanized area boundary. Urbanized*

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<sup>30</sup> This is the second methodology presented by Pennsylvania. The first proposal was that the MS4 service area would be calculated as 1% of the urban land within each of the relevant MS4 urban area boundaries, as defined by EPA. Once the MS4 service area is defined, EPA will estimate the load based on area-weighted averages to assume all loads from all land uses within the service area are part of the aggregated waste target load. The service area that is described here refers to the 1% of the urban land within the relevant MS4 urban area boundary. Methodology to Develop Current Loads for Stormwater Sectors, Handout #1, May 27<sup>th</sup> Workgroup Meeting, May 25, 2010 – Revised by PADEP.

*area extent will be derived from the US Census 2000 (2009 corrected version) Urbanized Areas data. PennDOT and the Pennsylvania Turnpike Commission maintain MS4 permits for their roadways within the Urbanized Area portions of the State. The area of their respective roadways lying within the MS4 urbanized areas will define the boundaries of these MS4 service areas.<sup>31</sup>*

Essentially, by using this approach Pennsylvania would be equating the publicly owned roads with the MS4 drainage network. Under this methodology, the land area contributing to the MS4 would not be calculated as part of the load. This approach is inadequate and we believe scientifically unjustifiable.

The reasons why the proposed approach is scientifically questionable are numerous and we will not detail them herein. In brief, however, this methodology threatens to significantly under-represent the pollution load from MS4 service areas. In turn, it will result in inappropriately depressed responsibilities for load reductions from MS4 sources areas. Additionally, by employing such a limited definition of the MS4 area, DEP would be confining the suite of potential load reduction BMPs available to MS4s to those that are only applicable on or alongside roadways.

EPA has issued a document that examines how TMDLs with storm water sources were created.<sup>32</sup> It is important to note that EPA has included a disclaimer in this document clarifying that it is not intended to serve as a substitute for the CWA regulations and does not impose legally binding requirements on EPA or states. Having said that, none of the methodologies approved in these 17 examples appears to be similar to Pennsylvania's methodology.

In our research, we have not found another instance where EPA has approved the use of this type of an approach for the calculation of MS4 loads and associated load reductions as part of a TMDL; its use or approval in this case would effectively undermine MS4 permitting programs across the country. Our analysis indicated that in general the methodologies used in past efforts have been similar to the two EPA has repeatedly proposed to Pennsylvania as follows:

- *Provide a map of the MS4 service areas including facilities like DOT roads and highways, state and federal institutions with the Chesapeake Bay drainage. EPA will use area-weighted averages to assume all loads from all land uses within the service area are part of the waste target load.*

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<sup>31</sup> Pennsylvania Sector Methodologies for Developing Current Loads, June 15, 2010, Attachment #3. PADEP.

<sup>32</sup> Total Maximum Daily Loads with Stormwater Sources: A Summary of 17 TMDLs. [http://www.epa.gov/owow/tmdl/17\\_TMDLs\\_Stormwater\\_Sources.pdf](http://www.epa.gov/owow/tmdl/17_TMDLs_Stormwater_Sources.pdf).



- *EPA will use area-weight averages to estimate current loads from urban land uses within MS4 jurisdictions, using jurisdiction boundaries originally submitted by the states in September 2008.*<sup>33</sup>

We find these two approaches reasonable and scientifically reliable. However, we understand and appreciate the unique difficulties Pennsylvania's fragmented local governmental system present in instituting an MS4 program, particularly a program which achieves quantifiable reductions in stormwater load. These issues are especially evident in the context of a TMDL.

In 2006, an interesting and appropriate solution may be the methodology employed in The Christina River Basin Watershed Stormwater Source TMDL (2006)<sup>34</sup>, which included all or parts of MS4 communities in Pennsylvania, Delaware, and Maryland.

The Christina TMDL acknowledges that for the actual wasteload allocation (WLA) neither "the PA nor the DE MS4 permits identify the boundaries of the stormwater collection system contributing areas within each municipality. Therefore, it is not possible to assign a WLA specific to the storm sewer collection areas within each MS4 municipality. Because these systems have not yet been delineated, the TMDL includes nonpoint source loadings in the WLA portion of the TMDL. It is anticipated that the state's stormwater program will revise the WLA into the appropriate WLA and load allocation (LA) as part of the stormwater permit reissuance; however, the overall reductions in the TMDL will not change."

The Christina TMDL MS4 WLA methodology could be employed as the stormwater load calculation approach in the phase 1 WIP with the requirement that all new and reissued MS4 permits contain requirements for delineating the drainage areas of each outfall within the MS4 in order to more precisely determine the WLA versus LA loads within each urbanized area.

Finally, as you know, our settlement agreement<sup>35</sup> with EPA says that the Agency will "expand the universe of MS4s" through new rulemaking. Specifically, the agreement states:

*Pg. 7 - WHEREAS, on April 21, 2010, EP A issued for public notice and comment a draft NPDES permit for the Municipal Separate Storm Sewer System (MS4) of the District of Columbia:*

*Pg. 16 – III.C.9.c. By July 31, 2010, EPA will issue an "MS4 Storm Water Permitting Approach for the Chesapeake Bay Watershed" that will identify the*

<sup>33</sup> Methodology to Develop Current Loads for Stormwater Sectors, Handout #1, May 25, 2010 – Revised by PADEP May 27<sup>th</sup> Workgroup Meeting.

<sup>34</sup> This document can be found at: [http://www.epa.gov/owow/tmdl/17\\_TMDLs\\_Stormwater\\_Sources.pdf](http://www.epa.gov/owow/tmdl/17_TMDLs_Stormwater_Sources.pdf).

<sup>35</sup> Settlement Agreement, Fowler v. EPA, No. 09-005 (D.D.C. May 11, 2010).

*key regulatory and water quality' performance expectations EP A will consider when reviewing new or reissued draft state MS4 permits.*

*Pg. – III.D.12 - 12. By September 30, 2011, EPA will propose a regulation under section 402(P) of the Clean Water Act to expand the universe of regulated stormwater discharges and to control, at a minimum, stormwater discharges from newly developed and redeveloped sites. As part of that rulemaking, EPA will also propose revisions to its stormwater regulations under the Clean Water Act to more effectively achieve the objectives the Chesapeake Bay TMDL. In developing the proposed rule, EPA will consider the following elements related to stormwater discharges both nationally and in the Bay watershed: (1) additional requirements to address stormwater from newly developed and redeveloped sites; (2) requiring development and implementation of retrofit plans by MS4s to reduce loads from existing stormwater discharges; and (3) expanding the definition of regulated MS4s. EPA will take final action on the regulation by November 19, 2012.*

It would seem entirely inconsistent with this objective, set out in the settlement of our lawsuit against the Agency, for PA to be taking an action that would substantially shrink the universe of MS4 coverage, geographically, as it pertains to PA's stormwater WIP.

We are very aware and supportive of the time, money and effort being put forth by the EPA, the states and the other stakeholders in this endeavor. We also appreciate that EPA has reiterated several times that it has high expectations for the states to provide accurate information in its WIPs.

At this stage, it is crucial to ensure that all resources are being used efficiently and in a scientifically justifiable manner to ensure a WIP and TMDL that will produce the results are all seeking. CBF therefore strongly advocates using of one the EPA-recommended methodologies be employed to determine current load from MS4s in Pennsylvania.

In conclusion, we ask that EPA clearly state to DEP in formal format that not only is the proposed methodology scientifically indefensible, adversely precedent-setting, and in contravention to regulation and law, but that will it not be acceptable in Pennsylvania's WIP. Furthermore, such a statement by EPA should make clear that if DEP employs the proposed or a similarly unacceptable methodology, EPA will reserve the right to impose consequences that include, but are is not limited to, those detailed in EPA's 29 December 2009 letter to the Bay states (i.e., the "consequences letter").

As always, we sincerely appreciate your effort and attention to this matter and look forward to your response.

Sincerely,

Harry Campbell, Pennsylvania Senior Scientist

cc: Evelyn MacKnight, USEPA-WPD; Region 3  
James Curtin, USEPA-OGC  
Jon Mueller, CBF  
Lee Epstein, CBF

# **ATTACHMENT C**



## CHESAPEAKE BAY FOUNDATION

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### *Saving a National Treasure*

July 6, 2009

Via email

Barry Newman  
Department of Environmental Protection  
Bureau of Watershed Management  
Rachel Carson State Office Building, 10<sup>th</sup> Floor  
P.O. Box 8775  
Harrisburg PA 17105-8775  
[ep-pag13comments@state.pa.us](mailto:ep-pag13comments@state.pa.us)

**RE: Proposed General NPDES Permit for MS4s (PAG-13)**

Dear Mr. Newman:

On behalf of the Chesapeake Bay Foundation (CBF), we respectfully submit the following comments on the Department's proposed general NPDES permit for small (Phase II) municipal separate storm sewer systems (MS4s) (PAG-13).

CBF is the largest nonprofit organization dedicated to the protection and restoration of the Chesapeake Bay, its tributaries, and its resources. With the support of over 200,000 members, our staff of scientists, attorneys, educators, and policy experts work to ensure that policy, regulation, and legislation are protective of the quality of the Chesapeake Bay and its watershed.

Stormwater runoff is one of the largest sources of pollution to Pennsylvania rivers and streams, including those rivers and streams that drain to the Chesapeake Bay. Approximately 4,000 miles of streams in Pennsylvania are polluted by stormwater runoff from our developed and developing areas. Improperly managed stormwater pollutes our streams with nutrients, sediment, and other pollutants, accelerates stream bank erosion and property loss, and contributes to severe flooding.

The federal Clean Water Act requires municipalities covered under the municipal separate storm sewer system (MS4) permit program to obtain an MS4 National Pollution Elimination System (NPDES) permit. This permit requires MS4 municipalities to reduce the discharge of pollutants from their stormwater systems to the "maximum extent practicable" by adopting six Minimum Control Measures, or MCMs.

MS4 municipalities in areas with impaired waters are faced with additional requirements. The federal Clean Water Act and Pennsylvania law require those municipalities to include measures necessary to ensure compliance with water quality standards.

Pennsylvania's portion of the Chesapeake Bay watershed does not include any Phase I municipalities. All municipalities that are regulated under the MS4 program are Phase II municipalities. According to EPA Chesapeake Bay Program (2007), urban and suburban stormwater runoff from Pennsylvania contributes approximately 13.7 million pounds of nitrogen, 505,000 pounds of phosphorus, and 210 million pounds of sediment to the Chesapeake Bay annually. To meet Pennsylvania's requirements to restore the Bay, loads from these sources must be reduced as follows: by 2.8 million pounds of nitrogen, 321,000 pounds of phosphorus, and 5.4 million pounds of sediment. With the Chesapeake Bay watershed in crisis, if Pennsylvania is to meet its Bay obligations with respect to reductions from stormwater sources, a robust MS4 general permit is a critical tool.

There are aspects to the current draft of PAG-13 that are improvements over the initial permit issued in 2002, and we commend DEP for making those improvements. However, in many respects, we do not believe the draft presently open for public comment is sufficient to address pollution from stormwater as required under state and federal law. The major shortcomings of the permit are:

- **The permit does not contain sufficient specificity to ensure that municipalities will reduce pollution from stormwater to the maximum extent practicable.**
- **The permit does not require municipalities to mandate the use of low impact development (LID) practices for all new development and redevelopment.**
- **While it is an improvement from the 2002 model ordinance, the draft model ordinance is not strong enough to ensure that municipalities are employing LID standards and reducing pollution to the maximum extent practicable.**
- **The permit discourages municipalities from adopting ordinances that are stronger than DEP's model ordinance.**
- **The permit does not include sufficient measures to ensure that municipalities discharging stormwater into impaired waters (including those with approved TMDLs) are reducing pollution sufficient to meet water quality standards.**
- **The permit fails to require MS4s to develop TMDL Implementation Plans which adequately incorporate EPA's nine elements for such plans.**

- **The permit lacks any provisions requiring compliance with Chesapeake Bay load allocations, which are “functionally equivalent” to TMDL wasteload allocations.**
- **The permit does not include sufficient opportunities for the public to comment on, and participate in, the development of a municipality’s stormwater management and TMDL implementation plans.**

Our detailed comments on each of these issues are set forth beginning on page four. For each issue where it is appropriate, we include recommendations for improving the draft permit.

**1. The permit does not contain sufficiently specific measures to ensure that municipalities will reduce pollution from stormwater to the maximum extent practicable.**

Section 402(p)(3)(B)(iii) of the Clean Water Act sets forth the standard of pollution control that MS4 NPDES permits must achieve. It states:

Permits for discharges from municipal storm sewers . . . shall require controls to reduce the discharge of pollutants to the maximum extent practicable, including management practices, control techniques and system, design and engineering methods, and such other provisions as the Administrator or the State determines appropriate for the control of such pollutants. 33 U.S.C. § 1342(p)(3)(B)(iii).

Congress clearly intended that MS4 permits shall not be issued unless the permits "require controls to reduce the discharge of pollutants to the maximum extent practicable [MEP]." *Envtl. Def. Ctr., Inc. v. EPA*, 344 F.3d 832, 854-56 (9th Cir. 2003) (quoting *id.*). Thus, the permit must not only preach about achieving MEP, but the permit itself must require the best controls to enable municipalities to meet the MEP technology-based standard. *Id.*; 33 U.S.C. § 1342(p)(3)(B)(iii).

Federal regulations further mandate that MS4s shall, "at a minimum," develop a stormwater management program "designed to reduce the discharge of pollutants to [MEP], to protect water quality, and to satisfy the appropriate water quality requirements of the Clean Water Act." 40 C.F.R. § 122.34(a). MS4s are required to implement six Minimum Control Measures (MCMs) in order to protect water quality and reduce the discharge of pollutants to the maximum extent practicable. *Id.* § 122.34(a), (b). Moreover, 40 C.F.R. § 122.34(d)(1)(i) requires that the MS4 identify and submit best management practices (BMPs) for each of the six MCMs. 40 C.F.R. § 122.34(d)(1)(i). These BMPs must be robust enough to fully achieve the six MCMs and ensure that the MEP standard is in fact met. *Id.*

It is DEP's obligation as the permitting authority to provide the blueprint and the means for a municipality to comply with MEP. Although the choice of BMPs lies with the municipality, DEP must provide clear guidance and set a regulatory floor through its menu of BMPs. The six MCMs will reduce pollution to MEP and protect water quality only if they are properly and fully implemented through sufficient BMPs and a robust and comprehensive stormwater management program. *Envtl. Def. Ctr., Inc.*, 344 F.3d at 856 (quoting 64 Fed. Reg. at 68,753). The permitting authority cannot merely ask the municipalities to choose any number of inadequate BMPs to comply with the MEP standard and sit on its hands while the MS4s fail to reduce pollution from stormwater. Instead, to satisfy the six MCMs and MEP standard, the permitting authority must provide for the best possible methods and include detailed guidance, clear interim benchmarks, and timelines for meeting those benchmarks.



The BMPs chosen by the MS4 to meet the six MCMs must “*in fact* reduce discharges to the maximum extent practicable.” *Envtl. Def. Ctr., Inc.*, 344 F.3d at 855. Although the permitting authority provides menus of BMPs pursuant to 40 C.F.R. § 123.35(g), the municipalities’ choices may not be sufficient to meet the MEP standard. *Id.* at 855. Without review “on the front end of permitting,” and adequate BMPs to ensure the MEP standard is met, a municipality can abuse the insufficient requirements by choosing measures that fall well short of the MEP. *Id.*

While the draft permit parrots the statutory and regulatory language regarding MEP and protecting water quality, for the most part it lacks the specific, detailed requirements to ensure that these baseline standards are met. These details are necessary because MEP “means to the fullest degree technologically feasible for the protection of water quality, except where costs are wholly disproportionate to the potential benefits.” *N.C. Wildlife Fed’n v. N.C. Div. of Water Quality*, 06 EHR 0164, at 21 (2006) (citing *Haeuser v. Dep’t of Law*, 97 F.3d 1152, 1155 (9th Cir. 1996), *Rybachek v. EPA*, 904 F.2d 1276, 1289 (9th Cir. 1990), and *Ass’n of Pac. Fisheries v. EPA*, 615 F.2d 794, 805 (9th Cir. 1980)). This may necessitate the requirement to adopt measures more stringent than standard practices. *Id.* In North Carolina, the issuing agency was ordered to implement “technologically feasible” measures to reach the MEP; specifically 200-foot buffers for perennial streams, 100-foot buffers “for intermittent streams, a zero percent impervious surface threshold for structural stormwater controls, no new impervious surface in the one-hundred year floodplain, and water quality standards for [various pollutants].” *Id.* at 22, 24.

Instead of requiring the implementation of such technologically feasible methods to legally satisfy the MEP standard, the draft general permit merely promotes standard practice by taking cost into account in its MEP definition with a business as usual approach, thereby ignoring the substantial public and ecological benefits of improved water quality. Moreover, it does not contain specific provisions that require the best controls and set forth sufficiently detailed and clear guidance for fully implementing these controls (including interim goals and timelines) to ensure that municipalities will protect meet the MEP standard.

The most conspicuous shortcoming of the permit is its failure to require MS4s to implement low impact development (LID) standards for new development and redevelopment. Without requiring LID, we do not believe the permit is sufficient to meet the baseline MEP standard. Our concerns regarding this issue are detailed in comments 2 and 3 on pages 6-8.

More generally, with respect to all six MCMs, the permit on a whole fails to include enough specificity to ensure implementation of the MCMs will meet the MEP standard. The permit should contain strong measurable goals coupled with specific timelines and milestones for meeting such goals for each MCM.

The permit should also require a robust monitoring program and better reporting requirements to ensure that MCMs are fully met and to assist in the quantification of pollutant load reductions. This is particularly of concern for meeting the Bay

requirements and forthcoming Bay TMDL, along with assuring progress toward achieving local TMDLs, as appropriate. The current permit merely requires municipalities seeking renewal of their permits to submit reports once every two years. This level and frequency of reporting is not sufficient to ensure that interim goals are being attained and stormwater pollution is being reduced to the maximum extent practicable. Nor does biannual reporting allow the DEP to adequately track and report reductions made to urban/suburban stormwater runoff as part of progress toward meeting the Commonwealth's Chesapeake Bay-based cap loads. We believe that, at a minimum, annual reporting requirements are needed to track permit compliance and adequately assess progress toward achieving local and regional water quality requirements.

The Pennsylvania Campaign for Clean Water has submitted written comments to which we are a signatory. These comments include a detailed analysis of each of the six MCMs, noting where elements are strong and where they are weak, and providing suggestions for improvement. Instead of repeating those comments here, we incorporate them by reference.

## **2. The permit does not require municipalities to mandate the use of low impact development (LID) practices for all new development and redevelopment.**

In order to ensure that MS4 permittees are meeting the MEP standards, the permit should require, not simply encourage, low impact development (LID). It is beyond debate that LID is the preferred method of stormwater management. LID reduces the generation of stormwater through careful site design, recognizes stormwater as a resource, maximizes the protection of natural soils and vegetation, minimizes earth disturbance and the creation of impervious surfaces, and aims to mimic the natural hydrologic cycle. In order to achieve the full benefits of LID, and thereby reduce stormwater pollution to the maximum extent practicable, DEP must require MS4 municipalities to implement LID when addressing construction and post-construction runoff. We note that EPA Region 9 is taking the approach of requiring LID in MS4 permits in order to meet baseline requirements of the Clean Water Act. For example, the Washington State Pollution Control Hearings Board found that the issuing agency appropriately included a LID provision in an MS4 permit. *Puget Soundkeeper Alliance v. Dep't of Ecology*, PCHB NOS. 07-022, 07-023, at 46-47 (2009), available at <http://www.eho.wa.gov/searchdocuments/2009%20archive/pchb%2007-022,07-023%20findings%20of%20fact%20conclusions%20of%20law%20and%20order.pdf>. But at the same time, because the LID provision did not provide guidance as to implementation, the Board found that the permit was insufficient to satisfy state law requirements and the federal MEP standard. *Id.* at 46-47. To comply with these requirements, the Board ordered the agency to implement "additional requirements with respect to broader use of LID." *Id.* at 46-47, 55. The Board extensively noted the feasibility and effectiveness of LID for stormwater management and cited several MS4 permits in California that have required LID. *Id.* at 21-22 (citing Santa Monica, Santa

Barbara, San Diego, Ventura County, and San Francisco Bay Regional permits); *see id.* at 22-44.

We commend DEP for recognizing the importance of LID in its Stormwater BMP Manual, finalized in December 2006. In Chapter 4, the BMP Manual sets forth the process for LID site design, with preference for using nonstructural BMPs in Chapter 5 and green infrastructure structural BMPs in Chapter 6. The permit, however, contains minimal reference to the BMP Manual and little guidance to municipalities on how to use it. The permit should provide municipalities with a clearer framework for use of the BMP Manual to meet LID requirements.

The simplest way to provide this guidance is to revise the model ordinance to provide further consistency with the BMP Manual, expressly adopt the LID site assessment and design process, and require adoption of LID practices. Specific recommendations for achieving this within the ordinance are provided in comment 3 below.

**3. The draft model ordinance is an improvement from the 2002 model ordinance, but it needs to be further strengthened so that municipalities will employ LID standards and reduce pollution to the maximum extent practicable.**

The permit requires municipalities to adopt the 2009 model ordinance or an ordinance approved under a recent Act 167 plan. The requirement to adopt the model ordinance is one of the critical elements of the MS4 permit. It allows permittees to have in place enforceable mechanisms for meeting several of the MCMs, most notably MCM 4 (Construction Site Runoff Control) and MCM 5 (Post-Construction Stormwater Management in New Development and Redevelopment).

The draft 2009 model ordinance is an improvement over the 2002 model ordinance, and will get MS4 municipalities much closer to the requirement of reducing pollution to the maximum extent practicable. Specific improvements are noted in the Pennsylvania Campaign for Clean Water's comments, which we incorporate by reference.

We note, however, the model ordinance is still in draft form and is not yet finalized. The fact that it is not yet finalized makes it difficult to provide sufficient comment on the requirement to adopt the ordinance. Without knowing what the specific provisions of the final model ordinance will be, it is hard to say whether the permit will meet the MEP standard required by the Clean Water Act.

With that said, it is clear that the draft 2009 model ordinance is not strong enough to meet the MEP standard. To this end, we were pleased to hear DEP staff at the Harrisburg public meeting state that further revisions are still being made to the ordinance to strengthen it.

CBF has developed a model ordinance that follows the general structure of DEP's draft model ordinance, yet further incorporates the concepts and processes of the BMP

Manual and includes elements more stringent than the BMP Manual where necessary to meet the MEP standard. A copy of our model ordinance is provided for your consideration. The key aspects of this ordinance are:

- Incorporation of the Stormwater BMP Manual.
- Volume control standards that require capture and treatment of the increase in the pre- to post-development total runoff volume from the 1-year, 24-hour design storm.
- Strong recommendations to use the Small Storm Hydrology Method (Pitt 2003) to calculate runoff and employ it throughout the site to evaluate multiple natural micro drainage patterns and place nonstructural and “green” BMPs throughout the site to manage runoff at the source.
- Water quality standards that limit pollutant load to 0.28 lb/ac/yr for total phosphorus and 3.00 lb/ac/yr for total nitrogen for low impervious sites (less than 40% impervious). High impervious surface areas (greater than 40% impervious) limited to 0.4528 lb/ac/yr for total phosphorus and 2.68 lb/ac/yr for total nitrogen .
- Exemptions from peak rate control standards where runoff will already be sufficiently controlled through volume controls.
- More stringent erosion and sediment control standards to improve minimization of disturbance, erosion, and sedimentation.
- Required natural features site analysis and mapping.
- Required development of a concept plan that includes complete natural features site analysis and mapping, plus preliminary locations of BMPs and development footprints.
- Required onsite pre-application meeting to review the concept plan and explore the use of LID to the maximum extent practicable.

The current draft model ordinance does not contain such provisions, and is therefore insufficient to ensure that municipalities adopting it are reducing pollution to the maximum extent practicable. DEP should include these or substantially similar provisions in its final model ordinance in order to meet that legal standard.

#### **4. The permit should not discourage municipalities from adopting ordinances that are stronger than DEP’s model ordinance.**

The permit requires municipalities to adopt the 2009 model ordinance or an ordinance approved under a recent Act 167 plan. DEP should revise this requirement so that municipalities desiring to adopt ordinances stronger than the model ordinance may do so without having to apply for an individual permit.

#### **5. The permit must require stronger measures to ensure that municipalities discharging stormwater into impaired waters are reducing pollution sufficient to meet water quality standards.**

DEP's draft permit includes additional requirements for MS4s in impaired waters where a TMDL has been approved. While this is an improvement over the first MS4 Phase II permit that was finalized in 2002—which had no such requirements—it is a far cry from what is required under the Clean Water Act.

The permit's provisions addressing discharges to impaired waters do not meet certain minimum requirements of the federal Clean Water Act and Pennsylvania law, specifically:

- The provisions addressing discharges to impaired waters with an approved Total Maximum Daily Load (TMDL) do not contain measures to ensure compliance with wasteload allocations.
  - The permit lacks provisions incorporating Chesapeake Bay load allocations and requiring compliance with such allocations.
  - The permit lacks any provisions necessary to achieve compliance with water quality standards in impaired waters, regardless of whether a TMDL has been approved.
  - The permit lacks any provisions prohibiting the addition of new discharges that cause or contribute to the impairment.
- a. The permit's provisions addressing discharges to impaired waters with an approved TMDL do not contain measures sufficient to ensure compliance with the TMDL's wasteload allocations.**

DEP's draft permit includes additional requirements for MS4s in impaired waters where a TMDL has been approved. While this is an improvement over the first MS4 Phase II permit that was finalized in 2002—which had no such requirements—it is a far cry from what is required under the Clean Water Act.

The Clean Water Act requires states to establish TMDLs for impaired waters so that the impairment can be remedied and water quality standards can be met. 33 U.S.C. § 1313(d)(1)(C); 40 C.F.R. § 130.7(c)(1). Point sources are assigned wasteload allocations (WLAs) necessary to meet the overall TMDL pollutant load cap. 40 C.F.R. § 130.2(h), (i). WLAs must be expressed in numeric form in the TMDL. *See id.* § 130.2(h), (i).

Once a TMDL is approved and specific WLAs have been established for point sources within the watershed, the NPDES permits for those point sources must be consistent with the terms of the TMDL and the WLA, and permit effluent limitations must be established as "consistent with the assumptions and requirements of any available waste load allocation." 40 C.F.R. § 122.44(d)(1)(vii)(B); *see also Dioxin/Organochlorine Ctr. v. Clarke*, 57 F.3d 1517, 1520 (9th Cir. 1995) (citing 40 C.F.R. § 130.2). In this respect, the WLA is a type of water quality-based effluent limit (WQBEL) which must be imposed upon the point source in order for water quality standards to be met. 40 C.F.R. § 130.2(h); 25 PA. CODE §96.4(d).

Because MS4s are point sources under the Clean Water Act, if they are contributing to the impairment of waters for which a TMDL is developed, they must be given a specific, numeric WLA within the TMDL. 40 C.F.R. § 130.2(h), (i). The NPDES MS4 permit in turn must incorporate permit conditions sufficient to ensure that WLAs are achieved so that water quality standards are met. See 25 PA. CODE § 96.4(f)(2) (WLAs and effluent limitations “shall be made more stringent if the cumulative loading . . . does not meet [applicable water quality standards.]”); see also *Establishing Total Maximum Daily Load (TMDL) Wasteload Allocations (WLAs) for Storm Water Sources and NPDES Permit Requirements Based on Those WLAs*, EPA Memorandum from Robert H. Wayland and James A. Hanlon to Water Division Directors, Regions 1-10 (November 22, 2002) [hereinafter EPA Memo].

The draft permit requires the implementation “to the maximum extent practicable (MEP)” of a Stormwater TMDL Plan “that achieves the pollutant reductions consistent with the applicable TMDL.” The permit requires the adoption of two of the seven listed TMDL Control Measures over the five-year life of the permit. In noncommittal language, the permit also states that “all other measures needed to reduce the pollutant load consistent with the TMDL shall be implemented *as soon as practicable*, in accordance with the Plan timeline, to make *measurable progress* in *substantially reducing* the applicable pollutant loads” (emphasis added).

These permit conditions are not sufficient to meet the minimum requirements of the Clean Water Act. TMDLs are required under the Clean Water Act for waters for which technology-based effluent limits “are not stringent enough to implement any water quality standard.” 33 U.S.C. § 1313(d)(1)(A), (C). MEP is akin to technology-based effluent limits for MS4s. 66 Fed. Reg. 68722, 68750 (describing MEP as “a different technology standard for all pollutants”); see also *N.C. Wildlife Fed’n v. N.C. Div. of Water Quality*, 06 EHR 0164, at 21 (2006) (MEP “means to the fullest degree technologically feasible for the protection of water quality, except where costs are wholly disproportionate to the potential benefits.”). In impaired waters where stormwater discharges from MS4s are among the contributors to the impairments, baseline MEP limits are not sufficient to protect receiving waters—if they were sufficient, MS4s would not be contributing to the impairment. Rather, as discussed above, more stringent WQBELs, in the form of WLAs incorporated into NPDES permits, are required. 40 C.F.R. § 122.44(d)(1)(vii)(B); 25 PA. CODE § 96.4(b), (d); see also EPA Memo. Accordingly, as a matter of law, implementation “to the maximum extent practicable,” “as soon as practicable,” in order to make “measurable progress” in “substantially reducing” pollutants is just not good enough in a TMDL watershed. Rather, *full* implementation, to the level necessary to reduce pollutants to *fully* meet WLAs, is required.

To create additional uncertainty as to whether and how permittees will achieve compliance with WLAs, the permit requires permittees to establish a timeline for implementation of their TMDL Implementation Plans, but does not set a temporal limit on the timeline. Conceivably, a permittee could establish a 50-year timeline and be

considered in compliance with the permit. This open-ended timeline for compliance is not permitted under Pennsylvania law. DEP is not permitted to issue NPDES permits without conditions necessary to ensure compliance with water quality standards. 25 PA. CODE §§ 92.2(b)(14), 92.31(a)(5), 92.73(5). Provisions that allow the implementation of a TMDL Implementation Plan to extend beyond the statutory maximum five-year term of the permit would violate this requirement because the permits would not contain effluent limits necessary to meet water quality standards within the life of the permit. Accordingly, DEP must specify in the permit that the maximum timeline for *full* compliance of the TMDL Implementation Plan is five years.

The section of the permit that sets forth the seven TMDL Control Measures and requires implementation of only two of them is woefully inadequate for several reasons. First, while some measures are good and should have true water quality benefits, others are weak. We are concerned that, when given the choice, municipalities will choose the two least burdensome practices without any consideration of pollution reduction potential. It is difficult to fathom how planting 25 trees and retrofitting one detention basin over five years will make any measurable difference in pollutant loads, let alone fully achieve WLA reduction requirements.

Second, the permit allows for the haphazard installation of stormwater BMPs throughout the landscape without regard to hydrological connectivity. Importantly, the permit contains absolutely no requirements to quantify the pollution reductions achieved from implementing these practices. This is not only technically unjustifiable, but is also wasteful of financial resources. We believe that MS4s discharging to waters with a TMDL must develop a systematic and quantifiable approach to reducing stormwater load. Quantification of critical source areas of pollution and systematic approaches towards achieving reductions is absolutely necessary in order to determine whether TMDL wasteload allocations have been achieved. *See* EPA Memo, at 5 (requiring permitting authorities to include discussion of BMP selection and assumptions, which may be included in the plan, and suggesting that permitting authorities require permittees to provide supporting information as to how its plan will meet WLAs); *see also*, Florida Stormwater Association Educational Foundation Research Advisory Council, *Quantifying Pollutant Loads Associated with Particulate Matter and Stormwater Sediment Recovery through Current MS4 Source Control and Maintenance Practices*, at 3 (June 19, 2008) (Quantification analysis methodology “is needed since MS4s are faced with quantifying load reductions in Basin Management Action Plans to achieve TMDLs.”).

The hydrological analysis required to quantify pollution loads from stormwater runoff under specific BMP scenarios must identify the runoff contributions from the various land cover components of a specific area, as affected by soil characteristics and land cover type. It must address how such runoff will change in response to rainfall events of differing intensities and precipitation amounts. The hydraulic design elements must be able to realistically calculate the flow path components of runoff and route runoff through storage or infiltration structures. It should also be capable of partitioning overland discharge from subsurface infiltration components. And it must accurately

estimate pollutant load and BMP efficiency scenarios on a spatially-specific basis so as to allow for critical source determination analysis and prioritization.

There are a multitude of methodologies available to analyze and quantify pollutant loads from stormwater that meet these selection criteria. These include continuous simulation models such as PCSWMM and HSPF, the Long-Term Hydrologic Impact Assessment (L-THIA) model, GWLF-PRedICT, TSA TOOLS LID Module, the Loading Simulation Program in C++ (LSPC), and WinSLAMM. Of course, each of these models has limitations, must be calibrated for local conditions (e.g., precipitation, hydrology, soils, etc.), and modified so as to employ locally accepted event-mean-concentrations for the land uses in question.

Third, the permit does not contain sufficient requirements for monitoring progress toward meeting WLAs. EPA regulations and guidance require such monitoring. 40 C.F.R. § 122.44(i); EPA Memo, at 5. Monitoring is necessary to ensure that the iterative, adaptive management approach for controlling pollution from MS4s achieves the water quality goals of the Clean Water Act. Requirements must be robust and frequent enough to inform DEP and the permittee of any BMP adjustments that are necessary to achieve WLAs within the five-year life of the permit.

Finally, we offer specific critiques of each of the seven proposed TMDL Control Measures:

TMDL Control Measure 1. We recognize and value the importance of forest riparian buffers and their pollution reduction potential. However, the control measure lacks specific requirements to ensure that the pollution reduction benefits of riparian buffer restoration are achieved. It does not set a minimum goal, in terms of stream miles or acreage, for riparian buffer establishment. It does not require a minimum width for buffers that are restored, nor for the provisions of the buffer ordinance.

TMDL Control Measure 2. The control measure does not specify whether the ordinance requiring disconnection is retroactive. We assume it is not, since retroactivity would eliminate the need to establish and implement a disconnection program. Following this assumption, the control measure lacks minimum goals in terms of acreage of impervious surface disconnected or the like. Without minimum standards, the practice lacks any assurances that it will achieve meaningful reductions.

TMDL Control Measure 3. There is no requirement to plant trees in strategic locations or in the manner (i.e., reforestation versus widely dispersed shade trees) where they will best be able to perform stormwater management and pollution removal functions. For tree plantings to be an effective stormwater management technique, they should be placed in hydrologically connected areas where the opportunity intercept precipitation and runoff is greatest. In addition, the minimum number of plants for both trees and tree seedlings is too low by several orders of magnitude. This is particularly true for the larger trees. A requirement of 50 trees in larger Phase II municipalities and 25 trees in smaller Phase II municipalities is quite inadequate. Rather than employ a method that



requires a minimum number of trees, it is more appropriate and effective to require a minimum percentage of canopy cover within the MS4 jurisdiction. As a general rule, American Forests recommends that urbanized areas maintain at least a 40% tree cover in order to achieve a minimum level ecological services. The Center for Watershed Protection has recommended that to achieve water quality benefit, suburban landscapes should maintain a 65% or greater tree canopy, urban areas with imperviousness of 26 to 60% or greater a minimum of 40% or greater canopy, and for ultra urban areas a minimum of tree canopy of 25%. These recommendations have been adopted by Chesapeake Bay Program's Urban and Community Tree Canopy Goals (Directive 03-01). DEP's current proposal falls well short of these recommendations and would yield little or no water quality benefit.

TMDL Control Measure 4. Again, there is no minimum drainage area requirement for the amount of recharge/infiltration BMPs to be installed or the volume of stormwater such systems will infiltrate. Such requirements are critical in order to ensure that the TMDL Implementation Plan will actually achieve reductions.

TMDL Control Measure 5. A minimum requirement to retrofit one basin over the five-year life of the permit is woefully weak and unlikely to lead to substantial reductions in load within the receiving waterbody. As employed by other MS4 permits, we believe that over the five-year permit cycle a set percentage (e.g., 25%) of the MS4 area be examined for retrofit opportunities and implemented accordingly.

TMDL Control Measure 6. Eroded stream banks are a symptom of poor stormwater management caused by the failure to control and properly manage stormwater upstream. Without fixing the problem of increased imperviousness and concentration of flows upstream of eroded stream banks, implementing stream bank restoration measures will likely be unsuccessful in reducing pollutant loads over the long term. It will simply be costly and ineffective. It is akin to treating the symptom of a disease and not the cause. Rather, watershed repair must start at the source, and stream restoration should be employed only after or in conjunction with upstream retrofits of stormwater infrastructure.

TMDL Control Measure 7. The minimum requirements for green roofs, rain gardens, and pervious pavement practices are only suggested, thus greatly diminishing the effectiveness of this measure. The term "green structural BMPs" should be used instead of "green infrastructure," which has a much broader meaning than these three practices.

Our review of DEP's proposed Stormwater TMDL Implementation Plan requirements clearly indicates that the standards set forth therein do not meet the minimum elements established by EPA and therefore do not constitute a true and appropriate TMDL Implementation Plan.

**b. The permit lacks any provisions requiring compliance with Chesapeake Bay load allocations, which are “functionally equivalent” to TMDL wasteload allocations.**

Federal regulations provide that more stringent measures necessary to meet water quality standards should be included in an MS4 permit where there is an approved TMDL “or *equivalent analysis* provides adequate information” upon which to develop such measures. 40 C.F.R § 122.34(e)(2) (emphasis added). The tributary load allocations resulting from the work of the Chesapeake Bay Program and partners, together with the development of the source load allocations set forth in the Pennsylvania Tributary Strategy, constitutes such an “equivalent analysis” and “provides adequate information” upon which load allocations and more stringent measures to meet them can be based. Accordingly, DEP should revise the MS4 permit to require each MS4 municipality within the Chesapeake Bay watershed to institute more stringent measures to meet Chesapeake Bay Tributary Strategy load allocations, similar to the process underway for wastewater treatment plants.

**c. The permit lacks any provisions ensuring that discharges to impaired waters comply with water quality standards.**

MS4s in TMDL-approved waters and waters where Chesapeake Bay load allocations are applicable are not the only municipalities that must meet more stringent water quality-based permit requirements under the Clean Water Act. In Pennsylvania, NPDES MS4 permits in all impaired waters, whether or not a TMDL has been developed and approved, must contain more stringent limits necessary to achieve compliance with water quality standards.

The Clean Water Act is the nation’s preeminent statute addressing pollution of our waters. Its overall objective is to “restore and maintain the chemical, physical, and biological integrity of the Nation’s waters.” 33 U.S.C. § 1251(a). To meet this objective, it provides as a goal the attainment of water quality at levels sufficient to protect aquatic life and recreation (often referred to the “fishable and swimmable” goal). *Id.* § 1251(a)(2).

The Clean Water Act establishes two basic regulatory programs for meeting its water quality goals. First, the Act requires each state to establish water quality standards for its waters that are necessary to meet the Act’s water quality goal of “fishable and swimmable” waters. Second, the Act requires point sources of pollution (such as MS4s) to obtain and comply with National Pollution Discharge Elimination System (NPDES) permits that contain effluent limitations on the pollution they discharge. *Id.* §§ 1311, 1342.

Under the Clean Water Act, NPDES permits must include effluent limitations on pollution discharged by point sources. *Id.* § 1311. An “effluent limitation” is defined by the Act as “any restriction established by a State or [EPA] on quantities, rates, and

concentrations of chemical, physical, biological, and other constituents which are discharged from point sources . . . .” *Id.* § 1362(11).

The establishment of effluent limitations on pollutants in NPDES permits is governed by section 301 of the Clean Water Act, 33 U.S.C. § 1311. This section of the Act requires two general categories of effluent limits on pollutants to be included in NPDES permits: (i) technology-based effluent limits; and (ii) if still necessary to meet water quality standards, more stringent water quality-based effluent limits. *Id.* § 1311(b)(1)(A), (B) (requiring technology-based limits); *Id.* § 1311(b)(1)(C) (requiring “any more stringent limitation . . . necessary to meet water quality standards”).

By requiring NPDES permits to include more stringent water quality-based effluent limits, the Clean Water Act recognized that technology-based effluent limits may not be enough to meet state water quality standards for particular water bodies, and thus, alone may not satisfy the Act’s “fishable and swimmable” goal.

In *Defenders of Wildlife v. Browner*, 191 F.3d 1159 (9th Cir. 1999), the Ninth Circuit interpreted section 402(p)(3)(B) of the Clean Water Act as not requiring MS4s to comply strictly with section 301(b)(1)(C). We disagree with the Ninth Circuit’s decision in *Browner*, as it is fundamentally at odds with the Act’s overarching water quality goal of “fishable and swimmable” waters, which necessarily requires achievement of water quality standards. Streams impaired by stormwater pollution from MS4s may indeed need permit limits that are more stringent than MEP to ensure that water quality standards are met so they become “fishable and swimmable.”

But even under the *Browner* court’s construct of the Clean Water Act, DEP is authorized, and indeed required, to include more stringent water quality-based effluent limits for MS4s in impaired waters. The court recognized in *Browner* that section 402(p)(3)(B)(iii) of the Clean Water Act gave the permitting agencies the authority to require those stricter limits necessary to meet water quality standards in MS4 NPDES permits. *Browner*, 191 F.3d at 1166 (stating that, because the Act allows for inclusion in permits of “such other provisions as [EPA] or the State determines appropriate for the control of such pollutants, [EPA and the states] ha[ve] authority to determine that ensuring strict compliance with state water quality standards is necessary to control pollutants”); see *Bldg. Indus. Ass’n of San Diego County v. State Water Res. Control Bd.*, 22 Cal. Rptr. 3d 128, 134-35 (Cal. Ct. App. 2004) (holding that, pursuant to section 402(p)(3)(B)(iii), the state had authority to issue an MS4 permit prohibiting discharges that “cause or contribute to the violation of water quality standards”).

In Pennsylvania, DEP has this authority and, moreover, is mandated to use it. Pennsylvania’s own regulations governing NPDES permits, set forth in 25 Pa. Code Chapter 92, clearly *require* all such permits to contain provisions necessary to ensure compliance with state water quality standards. Specifically:

- An NPDES permit<sup>36</sup> cannot be issued if the permit conditions do not ensure compliance with applicable water quality requirements of all affected states. 25 PA. CODE §§ 92.73(5), 92.2(b)(2) (incorporating by reference 40 C.F.R. § 122.4(d)).
  - An NPDES permit cannot be issued if the discharge is not in compliance with water quality-based effluent limits necessary to meet water quality standards as required by section 301 of the Clean Water Act. *Id.* § 92.31(a)(1).
  - An NPDES permit cannot be issued if the discharge is not in compliance with any more stringent limitation required to implement any applicable water quality standard. *Id.* § 92.31(a)(5).
  - Water quality-based effluent limitations “*must*” be placed on all pollutants that the permitting authority determines “are or may be discharged at a level which will cause, or contribute to an excursion above any State water quality standards, including State narrative criteria for water quality.” *Id.* § 92.2(b)(14).
- d. The permit lacks any provisions prohibiting the addition of new discharges that cause or contribute to the impairment.**

Pursuant to 40 C.F.R. § 122.4(i), an NPDES permit shall not be issued to “a new source or a new discharger, if the discharge from its construction or operation will cause or contribute to the violation of water quality standards.” 40 C.F.R. § 122.4(i). In impaired watersheds where a TMDL has been developed, a new source or discharger may be issued an NPDES permit if (i) a WLA has been allotted within the TMDL for the new source or new discharger; and (ii) compliance schedules have been established for all point and nonpoint sources within the watershed sufficient to correct the impairment. *See Friends of Pinto Creek v. EPA*, 504 F.3d 1007, 1015 (9th Cir. 2007), *cert. denied*, *Carlota Copper Co. v. Friends of Pinto Creek*, 2009 U.S. LEXIS 381 (U.S. 2009). In impaired watersheds where TMDLs have been established, a new source or discharger that would cause or contribute to the impairment shall not be issued an NPDES permit. *Id.*

As new development proceeds within MS4 municipalities, new sources of stormwater will be added to the MS4 unless the project infiltrates, evapotranspires, and/or reuses all stormwater. To meet the requirements of 40 C.F.R. § 122.4(i), the MS4 NPDES permit must include a provision prohibiting the MS4 from allowing new discharges of stormwater that cause or contribute to a violation of water quality standards. Where waters are already impaired, MS4s must ensure that any new development will result in no net increase in volume or pollutant loads from predevelopment conditions, unless a TMDL exists with WLAs for the new development and compliance schedules are in

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<sup>36</sup> Chapter 92 defines “NPDES permit” broadly to include all permits or equivalent documents or requirements issued by EPA or DEP to regulate the discharge of pollutants under section 402 of the Clean Water Act, which includes MS4 NPDES permits. 25 PA. CODE § 92.1.

place to address all other sources of impairment within the watershed. The draft permit does not contain any such requirements.

#### **e. Recommendations**

As discussed above, the draft permit does not contain sufficient provisions to meet baseline requirements of the Clean Water Act, federal regulations, and state regulations concerning discharges to impaired waters. Moreover, those provisions that do address impaired waters are only applicable *after* a TMDL has been established. This approach would allow stormwater discharges to continue to contribute to violations of water quality standards until a TMDL is developed and approved for an impaired water. Not only does this approach violate state and federal law, it is simply poor public policy. See John H. Minan, *Municipal Separate Storm Sewer System (MS4) Regulation Under the Federal Clean Water Act: The Role of Water Quality Standards?*, 42 SAN DIEGO L. REV. 1215, 1255. Such an approach will unnecessarily delay the cleanup of the Commonwealth's waters and ultimately increase the costs of that cleanup effort. For example, parts of the Schuylkill River were 303(d)-listed for algal growth and sediment pollution in 2002, but will not receive a TMDL until 2015. EPA, Listed Water Information, [http://oaspub.epa.gov/tmdl/enviro.control?p\\_list\\_id=PA03F00924\\_990318-1430-ACW&p\\_cycle=2004](http://oaspub.epa.gov/tmdl/enviro.control?p_list_id=PA03F00924_990318-1430-ACW&p_cycle=2004) (last visited June 4, 2009). Under the draft permit, a municipality that discharges nutrients or sediment into an impaired segment of the Schuylkill River through stormwater, for instance, would not require additional measures in its MS4 permit until a TMDL is developed in 2015 at the earliest. In this manner, the flawed process will allow dischargers to continue to contribute to the existing impairment of Pennsylvania's streams without any requirements other than meeting the baseline six MCMs.

To address these legal and policy shortfalls, we recommend the following changes to the draft permit:

- (1) Add a new provision that prohibits any discharge of stormwater that causes or contributes to a violation of water quality standards.**
- (2) Add a new provision that incorporates by reference any applicable numeric WLAs into the permit and requires full compliance with TMDL WLAs.**
- (3) Add a new provision stating that, for MS4s within the Chesapeake Bay watershed, applicable numeric Chesapeake Bay load allocations are incorporated by reference and full compliance with such load allocations is required.**
- (4) Revise TMDL Requirements (Part C) to include special requirements for MS4s discharging into *all* impaired waters, not just waters with approved TMDLs.**

We recommend including separate sections, one applicable to impaired waters with an approved TMDL, and another that governs impaired waters without an approved TMDL, with the following specific provisions:

**(a) Discharges to Impaired Waters with an Approved TMDL.**

- (i) Require development and implementation of a comprehensive Stormwater TMDL Implementation Plan which fully meets EPA's nine elements for such plans and sets forth specific projects, practices, and programs to reduce pollution from stormwater runoff. The plan must quantify such projects, practices, and programs to show that WLAs set forth in the approved TMDL will be met. In addition, it must include a specific timeline and milestones for full implementation of the plan so that WLAs will be fully achieved within the five-year term of the permit.
- (ii) Require monitoring and annual reporting of progress in implementing the plan to show that WLAs have actually been met.

**(b) Discharges to Impaired Waters without an Approved TMDL.**

- (i) Require development and implementation of a comprehensive Stormwater Pollution Reduction Implementation Plan which meet EPA's nine minimum elements for such plans.
  - Implementation actions/management measures: these describe actions and/or management measures necessary to implement reductions including a description of effectiveness.
  - Timelines: defines the milestones of the implementation activities including a schedule for revising point source permits to be consistent with the TMDL. The schedule also includes when best management practices and/or controls will be implemented.
  - Reasonable assurance: reasonable assurance that the implementation activities will occur. Reasonable assurance means a high degree of confidence that reductions will be implemented by Federal, State or local authorities and/or through voluntary action.
  - Legal or regulatory controls: a description of the legal authorities under which implementation will occur.
  - Time required to attain water quality standards: an estimate of the time required to achieve water quality goals specific to the various sources.
  - Monitoring plan (see 4.b.ii): a monitoring plan designed to determine the effectiveness of the implementation actions and help determine whether reduction goals are met. The monitoring

plan is intended to describe whether allocations are sufficient to attain water quality standards and how to determine whether implementation actions, including interim milestones, are occurring as planned. The monitoring approach must also contain a methodology for assessing the effectiveness of best management practices and the control of actions.

- Milestones for attaining water quality standards: a description of milestones that will be used to measure progress in attaining water quality standards. The monitoring plan must contain incremental, measurable milestones consistent with the specific implementation action and the time frames for implementing those actions.
- TMDL revision procedures: a description of when the TMDL will be revised if specific milestones for implementing actions or interim milestones for attaining water quality standards are not met.
- Tracking Implementation: To achieve water quality goals, the plan will include a time line for implementation of identified management actions. Especially in the case of nonpoint source controls, the specific management actions will be distributed in various locations in the watershed. Tracking of the implementation of management actions over time will provide valuable information.
- Public Participation: Public participation is a requirement of the TMDL process and is vital to a TMDL's success. It will be vital to the successful completion and adoption of the Implementation Plan and ultimately for achieving water quality goals.

- (ii) Require monitoring and annual reporting of progress in implementing the plan to show that compliance with water quality standards has actually been met. The minimum criteria for chemical, biological, and physical monitoring should be established as:

***Chemical Monitoring:***

A minimum of six (6) storm events shall be monitored per year at established monitoring locations with at least one (1) occurring per quarter. Quarters shall be based on the calendar year. If extended dry weather periods occur, baseflow samples shall be taken at least once every other month at the monitoring stations if flow is observed.

Discrete samples of stormwater flow shall be collected at the monitoring stations using automated or manual sampling methods. Measurements of dissolved oxygen, temperature, and water temperature shall be taken.

At least three (3) samples per year that are determined to be representative of each storm event shall be submitted to a laboratory for analysis according to methods listed under 40 CFR §136 and event mean concentrations (EMC) shall be calculated for:

- Total Nitrogen
- Total Suspended Solids
- Total Phosphorus

Data collected shall be used to estimate annual and seasonal pollutant loads and reductions and for the calibration of watershed assessment models.

**(5) Add a new provision that prohibits MS4s in impaired waters from allowing new development or redevelopment that causes or contributes to a violation of water quality standards.**

We recommend including further guidance in the permit on this point, specifically by requiring the municipality to enact and implement an ordinance more stringent than the model ordinance. This ordinance would require all new development and redevelopment to achieve no net increase in the peak rate and volume of stormwater runoff and pollutant load from predevelopment conditions. The ordinance can achieve the no net increase requirement by:

- (a) Requiring LID and establishing a process that integrates stormwater management into initial site design, through requirements for natural features site analysis and mapping, use of nonstructural and green infrastructure structural BMPs, mandatory site visits with sketch plans, and natural features mapping prior to submission of preliminary plans, etc.
- (b) Establishing net nutrient-based stormwater loading criteria of zero for nitrogen and phosphorus, and having developers demonstrate compliance with such criteria in post-construction stormwater management plans and calculations. "Net" loading criteria are determined as the difference between pre- and post-development nutrient loads.
- (c) Requiring more stringent volume controls and BMP sizing criteria than is currently required for the NPDES construction program (i.e., require runoff reduction of the full difference between the pre- and post-development one-year, 24-hour runoff volume)
- (d) Requiring use of the small storm hydrology method or similar methodology to size, calculate, and place multiple stormwater BMPs throughout the site to treat runoff at the source.



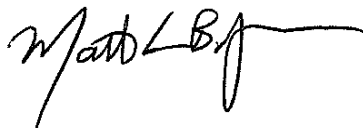
To be consistent with 40 C.F.R. § 122.4(i), the permit may allow for new development or redevelopment with a net increase in runoff peak rate, volume and pollutant loads if: (i) an approved TMDL sets forth a WLA for the new development or redevelopment; and (ii) compliance schedules have been established for all point and nonpoint sources within the watershed sufficient to correct the impairment. Within the context of this provision, we contend that DEP adopt standards similar to Virginia in which permits for new developments and redevelopments are required to meet express nutrient-based loading criteria, as well as more stringent volume control criteria (e.g., reduce runoff of the full difference between pre- and post-development one-year, 24-hour runoff volume) necessary to ensure that LID is implemented and WLAs are not exceeded.

**6. The permit must include opportunities for the public to comment on and participate in the stormwater management and TMDL implementation plans required to meet each municipality's permit.**

Finally, the draft permit should include specific opportunities for public participation as municipalities develop these plans by providing notice of draft plans and opportunities for public comment before they are finalized. These opportunities for public participation are important enough that they should not be left to the municipality to be addressed through MCM 2 (Public Participation and Involvement), but they should be stand-alone conditions of the general permit required in every instance. Notice in the *Pennsylvania Bulletin* and an opportunity to comment on draft plans should be provided to the general public so that residents from downstream municipalities and other users of rivers and streams impacted by stormwater runoff have a chance to comment on such plans.

Thank you for the opportunity to submit these comments. If you have any questions or would like to discuss these comments further, please feel free to contact us.

Respectfully Submitted,

A handwritten signature in black ink, appearing to read "Matt Royer", with a long horizontal flourish extending to the right.

Matthew Royer  
PA Staff Attorney

A handwritten signature in black ink, appearing to read "Harry Campbell", with a long horizontal flourish extending to the right.

Harry Campbell  
PA Science Advocate

cc: John Hines  
Ken Murin  
Meg Murphy