

## INSIDE

Executive  
Director's  
Message

Page 3

\*\*\*

Spring  
Engineers  
Seminar

Page 4

## CLEANING UP IMPAIRED STREAMS

# More Municipalities Must Plan and Pay for Pollutant Reductions

BY BRENDA WILT / EDITOR

**S**tormwater issues take center stage in many municipalities come spring, and this year even more so. Applications for the next permit cycle in the National Pollution Discharge Elimination System are due to the state Department of Environmental Protection (DEP) in September, and new requirements for pollutant reduction plans have municipal and consulting engineers hopping.

The current PAG-13 General Permit requires townships with municipal separate storm sewer systems (MS4s) that discharge to the Chesapeake Bay watershed to submit a pollutant reduction plan with their permit applications. That requirement will continue in the next permit cycle, along with the added burdensome requirement of identifying best management practices (BMPs) that will reduce the existing sediment load

by 10 percent within five years of the permit approval.

In a change from the 2013 permit, the 2018 permit also requires pollutant reduction plans from MS4s that discharge to local waters that are impaired for nutrients and/or sediment and where there is no established pollution limit.

### Costs are largely unknown

These pollutant reduction plans require permittees to estimate pollutant loads to the local waters and reduce those loads within five years of DEP's permit approval. If the water's impairment is due to sediment only, a minimum 10 percent reduction is required. If the impairment is based on nutrients alone (phosphorus or nitrogen), a minimum 5 percent reduction in total phosphorus is required. If the impairment is due to both sediment



**The upcoming NPDES general permit requires MS4 municipalities to develop pollutant reduction plans if they discharge runoff to impaired waters that don't have an established pollution limit.**

and nutrients, both a 10 percent reduction in sediment and a 5 percent reduction in total phosphorus are required.

"This new permit affects a lot more municipalities that did not have to provide pollutant reduction plans in the past," Beth Uhler, environmental project manager for Cedarville Engineering Group, says. "The pollutant details are much more specific this time."

Because this is new territory for many MS4s, the costs for developing a plan and implementing control measures are largely unknown. However, municipal

# POLLUTANT REDUCTION PLANS

engineers can take steps during the planning stage to ensure that the MS4 community gets the best bang for its buck.

## Getting public input

An important consideration for those developing pollutant reduction plans is the new public participation requirement. The MS4 community must make a complete copy of the plan available for public review and advertise its availability at least 45 days before the deadline for submission of the plan to DEP. The township must also accept written comments for at least 30 days from the date of public notice of the plan's availability.

Comments at public meetings or hearings must also be accepted, recorded, and considered by the MS4. The township is also required to identify any changes made to the plan in response to comments.

The upshot of all of this is that although the permit application and accompanying pollutant reduction plan is still due to DEP September 16, the draft must be completed by June or July to allow for the public participation.

## Accurate mapping is essential

In general, to create a pollutant reduction plan for an impaired waterway, an MS4 township must calculate the existing pollutant loading and the minimum reduction in loading (lbs./year), choose BMP(s) to reduce the loading, and demonstrate that the BMP(s) will achieve the minimum reductions.

The plan begins with a detailed map that identifies the storm sewershed boundary and land uses and/or impervious and pervious surfaces associated with each MS4 outfall that discharges to impaired surface waters. The map must also identify the proposed locations of structural BMPs that will be implemented to achieve the target pollutant reductions.

This is where accuracy may save some money down the road.

"The better your mapping is, the less

you may have to do as far as BMPs," Uhler says. "A good review of your map is even more important than in the past."

The map should accurately reflect the areas that drain to the impaired waters so that the MS4 doesn't calculate an existing pollutant loading that is too large, thus requiring more reduction measures, she says.

## Identifying pollutants and loadings

Next, the plan must identify the pollutants of concern for each receiving stream based on DEP's MS4 Requirements Table, and determine the existing loading for those pollutants in their stormwater discharges. MS4 townships have several options for estimating the existing loading, from simple to complex.

"DEP has developed a simplified method that puts municipalities on a level playing field," Uhler says.

This method determines the developed impervious and pervious land areas in the urbanized portion of the drainage area and multiplies the total by the pollutant loading rates (lbs./acre/year) available from DEP. Outside of the urbanized area, the MS4 can use loading rates for undeveloped land.

This is another area where MS4 townships may reduce potential implementation costs. If structural BMPs are already in place in these areas, the existing loading estimate may be adjusted to account for pollutant reductions from those projects.

"Use all the tools at your disposal to get your baseline pollutant loads as low as possible," Uhler says. "Take credit for existing BMPs now to reduce your reduction requirements later."

## Choosing the right BMPs

Once the MS4 identifies the minimum required reductions in pollutant loadings, it must decide what land use changes or BMP implementations, or both, will achieve the target reductions. These proposed solutions must be implemented within five years of the permit approval and must be located within the drainage area of the applicable impaired waters, on either public or private property.

Choosing the right combination of BMPs takes some time.

# Township Engineer

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## Educational Opportunities Are Coming Your Way



DAVID M. SANKO

**IF YOU HAVEN'T YET** registered for PSATS' 95<sup>th</sup> Annual Educational Conference and Trade Show and the Spring Engineers Seminar, there is still time to take advantage of these educational opportunities.

The conference is just one of the continuing education offerings PSATS makes available for township engineers. From maintaining and upgrading roads and bridges to fulfilling MS4 requirements, you are among those who are expected to help townships provide essential services efficiently and cost-effectively. That's where PSATS can help.

Our educational programs — whether it's a classroom course or a webinar — are the first step in helping you do a better job. We bring best practices to you from around the state, update you on pending legislation and court cases, and enable you to hear directly from experts in the field. These opportunities also allow you to share successes and strategies with your counterparts in other townships.

While PSATS offers engineering-related workshops and webinars throughout the year, our **Annual Educational Conference, April 23-26 in Hershey**, is one of our best learning experiences. Why? Because it's a one-stop educational shop that features the 2017 Spring Engineers Seminar and nearly 100 other workshops over 3½ days. We also host the largest municipal exhibit show in the state, where you can touch base with state agencies and our many vendors.

To register for the conference and the seminar, go to [engineers.psats.org](http://engineers.psats.org). I hope to see you in Hershey soon!



**Selecting the right BMPs to reach the municipality's pollutant reduction goals can be a bit challenging. It takes time to figure out which structural or nonstructural projects and activities, in which combination, will reduce the required amount of nutrients and/or sediment in the impaired waters.**

There's a lot of back-and-forth to figure out which BMPs will give you the best bang for your buck, Uhler says. You want to choose the most cost-effective projects that will get you to your goal.

To determine the amount of pollution that potential BMPs will remove, MS4 townships may rely on DEP's BMP Effectiveness Values document or the various Chesapeake Bay Program Expert Panel Reports, which assign pollutant reduction values to various BMPs. Still, it's all a bit of an educated guess.

"No one really knows what the result of these pollutant reduction projects will be," Uhler says. "Right now, DEP is not requiring testing to show that the BMPs are working. When streams are reassessed down the road, that will show whether the projects have worked."

### Paying for and maintaining BMPs

The final requirements in the pollutant reduction plan are to identify funding sources to offset the cost of the selected BMPs and who is responsible for the operation and maintenance of the projects once they are completed.

Specifying funding sources for projects that will be implemented over the next five years is not an easy task, particularly if they are grants that may or may not be awarded. DEP recognizes that challenge, however, and says that

applicants must identify all project sponsors and partners and probable funding sources for each BMP.

"DEP does not expect that guaranteed sources are identified in the pollution reduction plan, but does expect that applicants propose their preferred funding options with alternatives if the preferred options do not materialize," the department says.

Planning and constructing BMPs are not the end of the story either. Projects must be maintained so that they continue to produce the expected pollution reductions. Therefore, the pollutant reduction plan must identify who is responsible for the ongoing operation and maintenance of each BMP, what activities are involved with the operation and maintenance, and how often they will occur.

Spelling this out is particularly important for BMPs that are not on public land.

"If a BMP is on private property, the MS4 township needs to work out some sort of agreement with the property owner about operation and maintenance," Uhler says. "The new permit requires every MS4 municipality to submit an annual report so it will need to ensure that the BMPs are being maintained."

### How much will it cost?

The new NPDES permit cycle has

## POLLUTANT REDUCTION PLANS

forced many MS4 communities outside of the Chesapeake Bay watershed to develop a pollutant reduction plan for the first time. In addition to finding someone with the expertise to draft a plan, MS4s must figure out how to pay for the plan development and design and construction of best management practices to achieve the required pollutant reductions.

"Right now, people want to know what this is all going to cost," Uhler says. "The truth is, no one knows until they start crunching the numbers. Once the plan is done, however, everyone should have a good idea of how much it's going to cost and how they plan to pay for it."

The difficulty lies in the fact that most municipalities don't have a dedicated funding source for development of the plan, much less paying for its implementation, she says. That's why we're likely to see more municipalities adopt a stormwater fee to help cover these costs.

Some municipalities are forming partnerships and coalitions to share some of the costs — a practice that DEP supports.

"The department seems very willing and ready to help municipalities that want to work together," Uhler says.

Perhaps the largest unknown in all of this is whether all these measures that MS4 communities must undertake will be effective.

"Five or 10 years down the road, if streams are still impaired, what then?" Uhler wonders. "More than likely, there will be more requirements imposed on MS4s in the future." ♦

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You may access an electronic version of this newsletter, as well as previous editions, in the Engineers Association community at [discussion.psats.org](http://discussion.psats.org).

All paid members of the Township Engineers Association are automatically part of this online community.



## 2017 Spring Engineers Seminar



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## Register Now for Township Engineer Training

PSATS' 95<sup>th</sup> Annual Educational Conference and Trade Show is just around the corner, and with it, **the 2017 Spring Engineers Seminar**.

**Seminar Dates:** April 24 & 25, 2017  
8:30-11:30 a.m.

**Seminar Location:** Hershey Lodge, Magnolia A & B  
(*Confection Hall level*)

### Agenda for Monday, April 24:

- 8:00 a.m. Registration
- 8:25 a.m. Welcome  
*Pennoni Associates Inc.*
- 8:30 a.m. Legal Update
- 9:15 a.m. Planning Long-Term Stormwater Services
- 10:00 a.m. Bidding Paving Jobs
- 10:45 a.m. Developing Pollutant Reduction Plans
- 11:30 a.m. Adjournment

### Agenda for Tuesday, April 25:

- 8:00 a.m. Registration
- 8:25 a.m. Welcome  
*Pennoni Associates Inc.*
- 8:30 a.m. Every Day Counts: Innovation in Transportation
- 9:15 a.m. Speed Management for Local Roads
- 10:00 a.m. DEP Stormwater Update
- 10:45 a.m. Dirt and Gravel Roads Update
- 11:30 a.m. Adjournment

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eligible to receive  
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