Butler Township

83 Corporate Drive • Drums, Pennsylvania 18222 • (570) 788-3547 • Fax (570) 788-5938

Mr. Lee E. Murphy
Environmental Group Manager
Bureau of Clean Water
NPDES Permitting Division
Rachel Carson State Office Building
P.O. Box 8774
Harrisburg, Pa. 17105-8774

May 12, 2019

Dear Mr. Murphy:

We are concerned that the MS4 program is not being applied scientifically.

We are concerned that we will have to divert funds and township resources unnecessarily now and increasingly into the future as the MS4 program components become more defined and restrictive. We understand that, in the interest of cleaning up the Chesapeake Bay in Maryland and Virginia, Butler Township, in Pennsylvania, is being mandated to implement, among other things, the "Best Management Practices," either a Pollutant Reduction Plan (PRP) or a Total Maximum Daily Load Plan (TMDL).

We understand that the TMDL Plan is based on a model and the PRP Plan would require a load reduction of 10% of sediment and/or 5% of total phosphorus in the 5 years of the NPDES permit. (If we are not required to do the above, please let us know.)

We are not aware of any study of the Nescopeck Creek, which flows through Butler Township, as regards sediment or phosphorus (or nitrogen) levels that would show the actual amounts of these substances that the Township deposits into the Nescopeck Creek, nor of the amounts deposited upstream or downstream of the Township by other municipalities.

We have no knowledge of the actual baseline levels of these substances, nor of the levels that would be considered insignificant.

We question whether the TMDL model reflects the reality of our Township and, if so, to what degree. We also question why Butler Township which is woodland, farmland and rural/suburban is considered urban.

We ask for proof (data) that Butler Township is contributing significantly to problems with water quality, especially as it appears to have a "good" rating on the Chessie BIBI map of 2008.

We ask how much other communities, including those in Upstate New York, are contributing to adding these substances to the Susquehanna, or to pollution.

We know that The Little Nescopeck Creek is polluted with acid mine drainage from the Jeddo Mine Tunnel coming from under Hazleton and the area around it and that none of it is coming from Butler Township. Is DEP doing anything to remedy this? This would help the area locally and remove a major source of pollution entering the Susquehanna.

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We ask how much the State of Maryland itself is contributing to problems with the Chesapeake considering its complex shoreline, large cities and low grades for its rivers, streams and estuaries. The Chesapeake Bay Foundation in its Form 990 for 2016 states that a "saved bay" scores 70 out of 100 on its scale and that is the organization's goal. A graph produced by The University of Maryland Center for Environmental Science (see ecoreportcard.org) showing the Chesapeake Bay Health Score for the years 1987 through 2017 shows it to have been 48% in 1987 and 54% in 2017. There was a high of 56% in 2002 followed by a low of 35 % in 2003 but it went to 45% in 2004. The average over those 30 years was 46%. There is a lot of variability in the graph and it deals with percentages. The percentages before 1987 are not included. In light of this graph, is 70% a realistic goal? Is DEP being forced to use this goal to guide its regulations? This is a very flat graph when the data are made to fit a straight line. If this is an unreachable goal, what is the point of Butler Township spending its funds and its resources on this project?

Perhaps you could help us answer these concerns.

Also we request that PA DEP provide Butler Township with:

1) Sampling of the waterways entering and exiting the municipal borders of the Township.
2) Sampling data at intervals along waterways including in other municipalities that feed into the Nescopeck and also above and below the confluence of the Nescopeck with the Susquehanna.
3) Sampling Reports in order for the Township to contract a qualified professional to verify the accuracy of the data provided to the Township.
4) An Indemnification Agreement in which PA DEP shall indemnify Butler Township against possible lawsuits from environmental groups and others if Butler Township is acting in good faith to comply with State and Federal Regulations.

We have an obligation to our Township's citizens to spend their tax dollars wisely, in an informed manner, and on necessary programs that benefit them locally, and to avoid increases in property taxes and curtailment of services in the Township.

We are also obligated to do our best to protect our citizens' free and quiet enjoyment of their properties in the Township.

Thank you very much for any help you can give us in this matter.

Also, if you wish to meet with us and the citizens of Butler Township to discuss this further, please contact us.

Respectfully Submitted,

Butler Township Supervisors

Brian Kisenwether

Charles Altmiller

Frank Polidora

CC: Senator John Gordner
Representative Tarah Toohil.

pennsylvania
DEPARTMENT OF ENVIRONMENTAL PROTECTION

June 11, 2019

Mr. Brian Kisenwether
Mr. Charles Altmiller
Mr. Frank Polidora
Butler Township Supervisors
83 Corporate Drive
Drums, PA 18222

Dear Messrs. Kisenwether, Altmiller, and Polidora:

Thank you for your letter of May 12, 2019. Your letter raises a number of questions concerning Butler Township's Municipal Separate Storm Sewer System (MS4) stormwater permit. While the Department of Environmental Protection (DEP) is unable to satisfy all of your requests, we are able to provide background on the MS4 program, as well as guidance on the requirements of your Township's MS4 permit and how you might meet those requirements in a cost-effective manner. I hope this letter is helpful to you all in that regard.

Butler Township's MS4 permit requires the submission of a Pollutant Reduction Plan (PRP) by August 4, 2019, to DEP. You should be making good progress on the PRP by now so that you can submit it on time after completing the required public participation, which takes a minimum of 45 days. If you have any questions on developing the Plan, they can be directed to Mr. Paul Grella in the Northeast Regional Office of DEP in Wilkes-Barre, or to me. We will do anything we can to help.

You are correct that DEP's PRP requirement and guidance materials rely in part on computer modeling work done by the U.S. Environmental Protection Agency (EPA). That material was used because it represents state-of-the-art in stormwater management.

There are a number of tools and a great deal of information on municipal stormwater management on DEP's municipal stormwater website that you may find helpful. You can find the website at "DEP/Businesses/Water/Bureau of Clean Water/Stormwater Management/Municipal Stormwater," or may more easily find it by putting "PA DEP MS4" into your browser. For example, PRP requirements for each municipal MS4 are listed in the "Municipal Requirements Table (Municipal)" on the DEP website. Once in the Table, locate Luzerne County, then Butler Township. You may also find it helpful to review the Pollutant Aggregation Suggestions for MS4 Requirements Table (by clicking on that link), which was created to help MS4s interpret the Municipal Requirements Table.

I also encourage you to review information in the web-based GIS application, a link to which is also on the same website. Select Luzerne County, then Butler Township. The "hashed area" is the "Urbanized Area" in the township (as determined by the federal Bureau of the Census). Your PRP will calculate a "current load" for that area, and you will locate stormwater "Best

Management Practices" (BMPs) within it, as described in the PRP Instructions, also linked on the same website.

In preparing the PRP, you may calculate the current pollutant load using any scientifically-defensible method. Most MS4s use the loading rates in Attachment B of the PRP Instructions. It relies on model-estimated pounds of pollutants per acre per year, for pervious and impervious surfaces. If you wish to use a more sophisticated method, you are free to do so. More sophisticated methods may be of assistance in locating BMPs so they treat areas with higher relative load, so you may feel the extra effort is worth it. Your municipal engineer should be well-acquainted with this process and able to assist you in making these decisions.

DEP does not have the detailed information you request for water quality entering and leaving the Township. DEP assesses waterbodies on a watershed by watershed basis that is not tethered to municipal boundaries. The assessments utilize biological measures to ascertain whether a waterbody meets or exceeds water quality standards, or fails to meet such standards and is impaired. The fact is that all lands contribute some stormwater pollutant load. The amount of that load varies with the particular mix of land uses and the degree that the stormwater is "treated" in BMPs.

I am not able to comment on the specifics of New York's or Maryland's roles in contributing to or reducing pollution affecting the Chesapeake Bay. Each of the six states in the Bay's watershed, and the District of Columbia, are individually responsible for reducing their nutrient and sediment pollutant loads entering the Bay as mandated by the Total Maximum Daily Load (TMDL) that EPA prepared under the federal Clean Water Act. The manner in which the EPA allocated each jurisdiction's responsibility is detailed by the EPA on their Chesapeake Bay TMDL website, at www.EPA.gov/chesapeake-bay-tmdl. Our primary focus is related to Pennsylvania's responsibilities for pollutant reduction, which includes the PRP requirement.

DEP understands and appreciates your obligation to your taxpayers to wisely use their financial resources. There are ways you can manage your pollutant load reduction obligation through your PRP development process, and most municipalities have opportunities for highly cost-effective BMPs. Others save money by partnering with neighboring municipalities, making arrangements with private parties, or collaborating with PennDOT. We would be glad to review those options in detail with you as you prepare your PRP. You can also revise your PRP as time goes by and as new opportunities become available.

Thank you for your interest.

Sincerely,

Lee Murphy

Lee Murphy
Environmental Group Manager
MS4 Section
NPDES Permitting Division

Butler Township Supervisors
83 Corporate Drive
Drums, Pa 18222
June 18, 2019

Pa State Representative Tarah Toohil
1 West Broad St.
Suite 100
Hazleton, Pa 18201

Dear Representative Toohil.

I reviewed Mr. Murphy's kind response (dated June 11, 2019 and received June 17, 2019) to our letter of May 12, 2019.

He confirms that DEP's PRP (Pollutant Reduction Plan) requirements and materials rely in part on computer modeling work done by the US EPA. The reason cited is that it represents state of-the-art in stormwater management.

I would ask the following questions about this model:

- What assumptions were made in producing this model?
- How reliable is this model in predicting real conditions, past, present and future?
- How complex is this model?
- How many times has it been revised?
- Who influenced this model? This includes lobbyists and litigation/litigators or any industries/corporations that would benefit financially from its implementation.
- Most importantly to Butler Township, was any data from the Nescopeck Creek used to generate this model?

We are still concerned that our entire Township which is woodland/rural/suburban is entirely considered to be urban as regards stormwater management.

It is worrisome that DEP cannot comment on New York's or Maryland's contributions to what are termed "pollutants" to the Chesapeake. On the one hand DEP is encouraging municipalities to work together regionally and assessing waterbodies on a watershed by watershed basis (undefined) and yet does not know what New York and Maryland are doing to the Chesapeake.

Mr. Murphy does not address our concern about the acid mine drainage from the Jeddo Tunnel into the Little Nescopeck.

He confirms that no detailed studies of the waters of the commonwealth have been done.
He does not comment on the practicality of the goal of attaining a 70% grade for the Chesapeake.

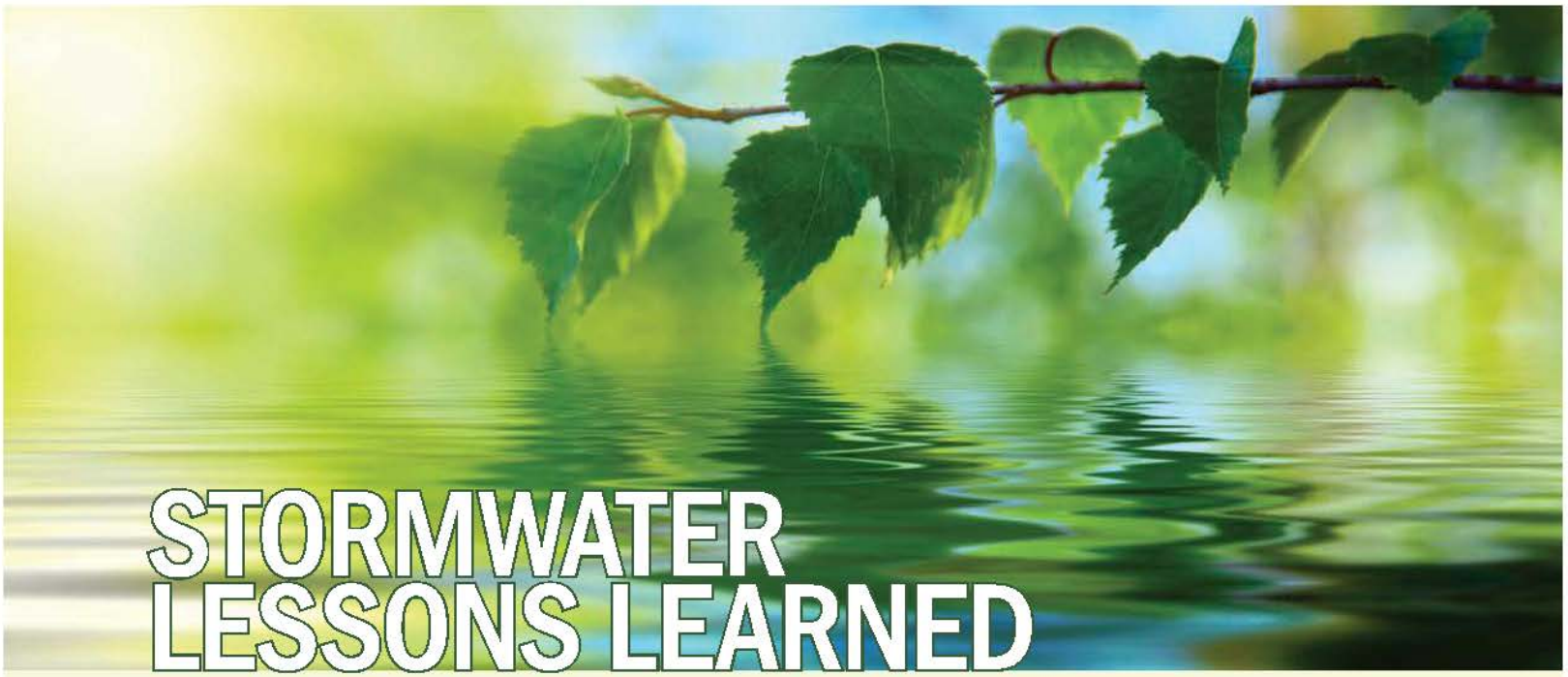
We are concerned that the Problem (if any) with the Chesapeake from run-off from Butler Township has not been properly defined or framed, nor, if present, to what degree Butler contributes to it, and that the expense and loss of free enjoyment of our citizens in their properties will be sacrificed in the quest for an unattainable goal.

Perhaps DEP, at their cost, could do the sampling of the waters as requested in our May 12th letter to check the validity of the model.

Finally something needs to be done to prevent litigation and lobbying from being the drivers of the MS4 Program; it must be based on unpoliticized science.

Thank you.

For the supervisors and people of Butler Township,
Frank Polidora, Secretary



STORMWATER LESSONS LEARNED

Townships Prepare for the Latest MS4 Challenge: BEST MANAGEMENT Practices Focused on Specific Sediment REDUCTION GOALS

As state mandates for the stormwater permit program ramp up this year, townships in Lancaster County are preparing to implement best management practices designed to take pollutant and sediment reduction to a whole new level.

BY **AMY BOBB** / ASSISTANT EDITOR

When Kent Gardner was a kid, he spent summers on the lakes of New Hampshire, where if he was thirsty, he would stop and drink the lake water.

"You just can't do that around here," the West Hempfield Township supervisor says.

Unlike the pristine lakes from his childhood, which were surrounded by acres of timberland, the waterways around his Lancaster County home pick up pollutants and sediment in runoff from roads, parking lots, lawns, and farm fields.

"Our streams empty into the Susquehanna River so we get blamed for a lot of what goes into the Chesapeake Bay," Gardner says.

Still, he acknowledges, things are better than they were. Thanks to a decades-long push spurred by federal mandates to clean up waterways, water quality has slowly and steadily improved across the state. The problem is it's just not happening fast enough, especially in areas that drain to the Chesapeake Bay.

With new, stricter stormwater requirements coming down from the state, communities in Lancaster County are getting ready to tackle these increasingly complicated and costly mandates and relying on stormwater management lessons they have already learned along the way.

The latest mandates

Under the nation's ever-evolving stormwater program, local governments with municipal separate storm sewer systems *(MS4 communities)* have been required to implement various actions, called best management practices, that aim to prevent or minimize stormwater runoff. Despite these efforts, Pennsylvania is still falling short of goals to reduce phosphorous, nitrogen, and sediment in its waterways, according to the U.S. Environmental Protection Agency (EPA).

Feeling a sense of urgency to catch up with its neighbors and prevent the

"These facilities make a difference, but it's not something you're going to see happen overnight. **It may take years to truly see the effects."**

EPA from pursuing even more onerous and demanding plans, the state Department of Environmental Protection (DEP) last year set into motion a more stringent MS4 permit that, for the first time ever, requires baseline load calculations and specifies load reductions.

Under this latest permit, communities that either are in the Chesapeake Bay watershed or have surface waters impaired with certain pollutants must reduce sediment discharge by 10 percent over the next five years. Municipalities' pollutant reduction plans laying out strategies for meeting this goal were due to DEP last September.

As implementation of the plans begins this year, you could say that Lancaster County, which lies almost entirely within the Chesapeake Bay watershed, is at ground zero when it comes to MS4 requirements. In fact, 51 of its 60 municipalities must meet sediment reduction goals through means they have spelled out in their pollutant reduction plans.

"The Lower Susquehanna is a hot spot for nutrient and sediment issues," Jennifer Fetter, a water resources educator at Penn State Extension, says.

The latest evolution in the MS4 permit requires municipalities to think and act differently when it comes to how stormwater is managed. Many of the best management practices identified for reducing sediment involve going back to fix old projects installed before it was commonly understood that stormwater should be slowed and infiltrated onsite rather than whisked away as quickly as possible to nearby streams.

"It's new for many municipalities, and we're all learning," Kara Kalupson, MS4 coordinator with RETTEW, says. "Townships are going to have to go through the process of building and maintaining these projects to find out what the problems are."

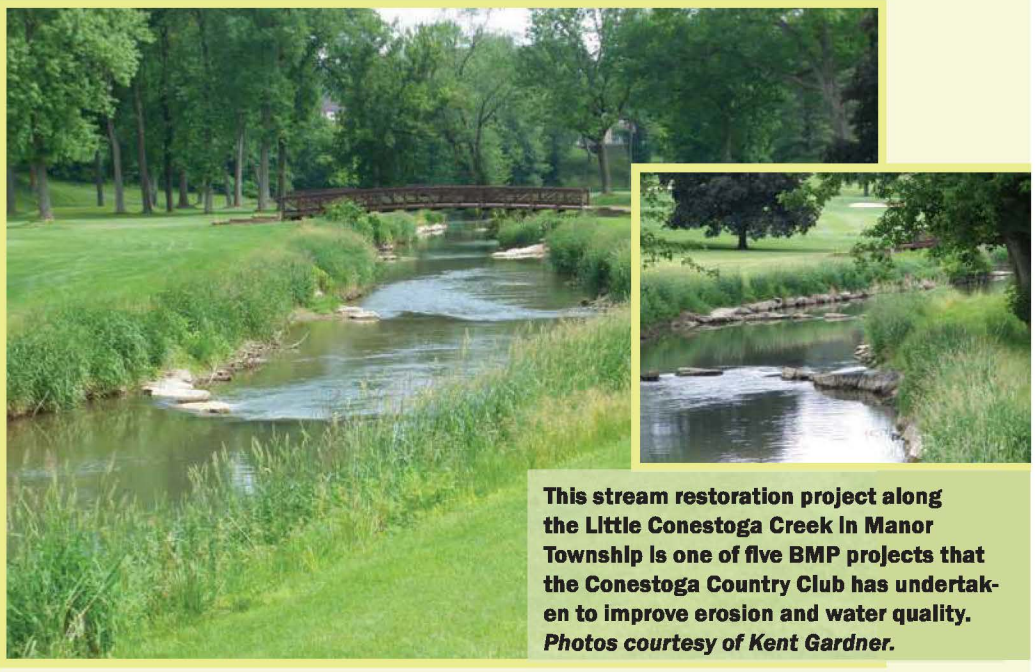
"And years of progress can be undone by one flood or natural disaster," says PSATS Executive Director Dave Sanko, who is also a former head of the Pennsylvania Emergency Management Agency. "That's a real challenge for Pennsylvania as one of the most flood-prone states in the nation."

When it comes to the latest round of stormwater management mandates, Warwick Township in Lancaster County feels ahead of the game.

"We have been doing this for 20 years," manager Dan Zimmerman says. Best management practices that filter stormwater, reduce sediments, and lessen flooding are simply par for the course in a community long focused on sustainability.

"These facilities make a difference," he says, "but it's not something you're going to see happen overnight. It may take years to truly see the effects."

Through an aggressive outreach program with agriculture and a steady conversion of older, passive stormwater facilities into active BMP models, he says, Warwick Township has exceeded its total maximum daily load (TMDL) requirements and reduced sediment by



This stream restoration project along the Little Conestoga Creek in Manor Township is one of five BMP projects that the Conestoga Country Club has undertaken to improve erosion and water quality. *Photos courtesy of Kent Gardner.*

"It's going to be a **total rethink** on how we handle **stormwater maintenance.**"

47 percent over the past two decades.

A shining example of the township's success is the restoration of Lititz Run, the main stream through the community, which is once again home to reproducing trout and a recreational destination for anglers.

Know your waterways

In Warwick Township, water clean-up efforts began by understanding what was occurring in Lititz Run.

"We monitor the stream regularly to see what's wrong with it," Zimmerman says. "As a result, we have 20 years' worth of data that shows where the trouble spots are and where we have to focus our efforts."

He likens it to the analogy of a doctor checking vital signs to determine what's wrong with a patient. Based on the stream's analytics, the township knows where to focus stormwater efforts so they do the most good.

"If the data points to nitrogen and phosphorous problems from farm runoff, that's where we will locate our BMPs," he says.

After all, he continues, for stormwater facilities to have the greatest impact on cleaning up water, they must be placed where they will be the most effective, not somewhere simply because land is available.

Townships must also understand how water flows through a community, Gardner of West Hempfield Township says.

"Municipal boundaries don't stay within one watershed," he says.

Know who is upstream and downstream and keep those relationships strong. Gardner recommends checking out watershed maps and partnering with neighboring municipalities and conservation organizations on projects with a broader watershed focus. Most counties have watershed groups that can be tapped to share experience, knowledge, and manpower on projects.

"Be open to looking for partnerships with other municipalities, businesses, and organizations," Gardner says.

Penn State's Fetter says it's important to remember that watershed boundaries are different from political boundaries.

"It's incredibly beneficial to look at who else is in a watershed and what's flowing in and out," she says. "Then, you can work with neighboring municipalities and partner on projects that will

address a pollutant reduction plan or community flooding issues."

Put in the work upfront

As part of a pollutant reduction plan, a municipality must identify projects that will slow down stormwater, encourage infiltration, and ultimately reduce sediment and nutrients in waterways. A common plan of attack involves retrofitting existing dry detention basins installed in the 1980s and '90s into bioretention basins designed with amended soils and native plants.

Because these BMPs are new to many municipalities, Kalupson of RETTEW anticipates a learning curve until the public and any public works staff installing and maintaining them completely understand how they function.

"It's going to be a total rethink on how we handle stormwater maintenance," she says.

For starters, public works crews or whoever is responsible for the facility's operation will have to do weeding, trimming, and other maintenance until the plants are established. They must understand that a basin's native grasses are only mowed a couple of times a year and must be kept at higher lengths than most township mowers can currently accommodate.

"I'm not saying that crews are going to have to become landscapers, but they will have to put a lot more thought behind maintaining these BMPs," Kalupson says. "They will have to be maintained forever, and it will be a lot of work."

Maintaining bioretention basins is challenging, Zimmerman agrees, but such maintenance is critical for the basins to work properly over the long haul.

"It's going to take some intensive work the first two or three years until plants are established and maintenance becomes minimal," he says, "and there is no shortcut to getting to that point."

His township sits down with property owners to make sure they understand what is involved in maintaining BMPs. Developers must sign stormwater maintenance agreements and participate in close-out meetings in which the township reviews maintenance requirements.

"It's not unusual to spend an hour and a half going over procedures and reminding them of what they signed," Zimmerman says. "Here's your responsibility for maintaining these facilities, we tell them, and we make yearly inspections to ensure it's being done."

Property owners have to understand that stormwater facilities are just one more of the many things they must maintain on a property, he says.

"What we want to avoid is finding out three or four years later that nothing has been done," he says. "That's a disaster."

Prioritize education and outreach

Buy-in from residents and staff is an important component of an effective stormwater management program.

"We are spending a lot of money on stormwater projects, and it takes effort to keep them working properly," Gardner says. "Property owners must understand the benefits of constructing and maintaining these projects."

When it comes to bioretention basins, where native plants and grasses

present a more natural look than the mowed stormwater projects of the past, education often begins by having to change society's view of how landscaping should look.

"Everyone is used to a nicely mowed area," Kalupson says. "A lot of people think plants look messy. They worry about snakes, insects, and having too much nature."

Education efforts should explain why infiltration is important in stormwater management and how bioretention areas are working toward that goal. Outreach can be done through newsletters, presentations at public meetings, social media, and the township website. *(See the article on page 36 for homeowner education tools available from the Penn State Extension.)* Some townships erect informational signs at BMP sites that describe the role the plants there play in cleaning water.

The message a township sends on stormwater should be consistent, and municipalities should lead by example whenever possible. Many townships install BMPs in highly visible locations, such as in parks or at township buildings, where residents can become familiar with them.

Public involvement helps, too. Volunteers who clean up streams, plant trees, and label storm drains are more likely to become diligent watershed stewards in their own lives.

Rapho Township holds events throughout the year to bring awareness to stormwater and watershed issues, including its popular Watershed Expo, which mingles music, food, and games with educational activities and displays.

"We have found that it's hard to get people to come to required public participation meetings we hold, but if we can make stormwater fun to learn about, people are more engaged and will pick up more in the process," manager Sara Gibson says. "They can take that information home and apply it to their daily lives."

Many townships target tomorrow's homeowners through educational programming geared to students. Rapho Township sponsors a Stream Stomp, along with the Lancaster County Conservation District, in which children wade through the creek looking for life forms while learning about the importance of clean water.

For 18 years, Watershed Day in Warwick Township has exposed fifth graders through field trips and activities to the importance of a healthy watershed. ➤

QUICK TIPS for stormwater success

- Inventory your stormwater management systems and understand your watersheds.
- Keep stormwater management at the forefront of township projects.
- Reach out to landowners, businesses, homeowners associations, and other groups to find land and partners for constructing and maintaining BMPs.
- Use conservation and environmental groups to help with public participation, projects, and grant applications.
- Know who your neighbors are and partner on projects as much as you can.
- Remember, you're in it for the long haul; each project you undertake is an investment in your community's long-term water quality.

Rapho Township invests in clean water by prioritizing public education: (top) This model is used to show how a rain garden works; (bottom) a sign explains why fencing is erected at a streambank. *Photos courtesy of the township.*

In a kind of follow-up six years later, students from 11th grade biology and chemistry classes are enlisted to take stream samples and analyze the water quality of Lititz Run.

"Our target is the next generation," Zimmerman says. "If we can convince them that being a good watershed steward is important, then we have started them down the right track."

Everyone wants clean water, he says. Townships just need to tap into their assets and seek potential partners.

"The only way to get a community to buy into a stormwater program is by banging the same drum year after year," he says. "With some creativity and outreach, there's really a lot a township can pursue without costing a lot of money."

Look for ways to save money

One of the greatest challenges in enacting a stormwater program is how to pay for it. Thanks to recent laws allowing authorities to undertake stormwater management and municipalities to charge stormwater fees, townships have more options on the table.

"But how a township raises money for stormwater can be a tricky conversation," Joellyn Warren, community development director at West Lampeter Township, says.

Since deciding to make stormwater management a priority, her township supervisors have been using general funds to pay for the program, including projects and staff. In 2012, the township became the first in Lancaster County to hire a full-time stormwater coordinator.

"We saw the stormwater regulations coming down and decided we couldn't just put our head in the sand," Warren says.

Having a point person on stormwater, she says, has enabled the township to focus its efforts and ensure greater progress on its stormwater goals.

Several years ago, the township began sharing this employee with its neighbor, East Lampeter Township. Through an intergovernmental agreement between the two municipalities, the stormwater coordinator spends three days a week at West Lampeter and two days at East Lampeter.

"Going together like this just made sense, and it has significantly helped with our costs," Warren says.

The arrangement has worked so well that the two townships recently began sharing a second stormwater employee whose duties are focused on mapping and website updates.

Without a doubt, stormwater management projects are expensive to install and maintain, Manor Township Public Works Director Mark Harris notes.

"Government officials sometimes struggle with the amount of money that is put into these projects when it's hard to gauge what they will see in return," he says.

To save money, his township decided

EDUCATING HOMEOWNERS:
Pick 5 to help improve water quality

Educate residents about the importance of clean water by encouraging them to take at least five of the following conservation actions:

- Plant trees and other native vegetation to promote water infiltration. If a property borders a stream, plant trees along its banks. Trees help to stabilize the banks and filter excess nutrients from the water.
- Fertilize lawns only when needed to establish vegetation or when called for by a soil test. If applying fertilizer, use a spreader that has been recently calibrated and apply at the minimum recommended rate at the proper time.
- Reduce energy consumption. Power plants contribute pollutants to the atmosphere in the form of nitrogen oxides (NOx), which when deposited on land by rainfall are a source of excessive nitrogen in waterways.
- Reduce fuel consumption. Car exhaust is also a significant source of atmospheric nitrogen.
- Do not connect sump pumps, cellar drains, or roof drains to the sanitary sewer system. Modern sanitary sewers are designed to handle sewage only, not stormwater, which can overwhelm a system and potentially cause sewer overflows.
- Minimize the use of the garbage disposal and instead, use a backyard composter. It reduces the burden on sewer systems and creates compost, a good source of fertilizer for gardens.
- Compost grass clippings and autumn leaves, which are a natural source of fertilizer and organic matter for lawns and trees.
- Minimize stormwater runoff by using rain barrels, rain gardens, and pervious surfaces to promote infiltration into the ground, rather than runoff into storm drains and waterways.
- Maintain septic systems since overburdened or malfunctioning systems contribute nitrogen to groundwater and local surface water.

Source: *Lancaster County Clean Water Consortium. The consortium is a forum for municipal officials, engineers, businesses, and others to share resources and work in partnership toward compliance with DEP's and EPA's stormwater requirements. For more information about the consortium, go to* ***lccwc.com****.*


WETLAND

LandStudies, Inc., of Lititz developed an award-winning, watershed-based planning model for the Lititz Run watershed that implemented BMPs such as wetlands, riparian buffers, and bioretention basins. *Photos courtesy of LandStudies, Inc.*

What are the most effective BMPs?

Best management practices (BMPs) have evolved over time as more is learned about stormwater and erosion. BMPs that hold water back and infiltrate it slowly into the ground are the most effective in reducing pollutants and improving water quality.

Some effective BMPs include:

Bioretention basin — Typically, a dry detention basin retrofitted with soils and native plants that capture stormwater and allow it to filter through the soil into the ground.

Rain garden — An excavated shallow surface depression planted with specially selected native plans to capture and treat runoff.

Wetland — A constructed marsh system that temporarily stores runoff in shallow pools and removes pollutants through settling and filtering.

Riparian buffer — Trees, shrubs, and grasses planted along streams to slow the speed of runoff and capture sediment and pollutants transported from the surrounding land before it enters waterways.


RIPARIAN BUFFER


BIORETENTION BASIN

to use public works staff to construct and maintain BMPs. The township also plans to take advantage of leaf compost it makes and sells to amend soils in the bioretention projects the township will begin this year.

Partnering on BMPs can also help to stretch township dollars.

Townships should take a step back and look for potential public-private partnerships, Zimmerman of Warwick Township says. It's something his township has done since starting its focus on sustainability.

"As development was coming in, we were able to get a lot of these facilities built with private money," he says.

Intergovernmental projects can help to more effectively meet the goals of pollutant reduction plans. East and West Lampeter townships recently joined with Strasburg Borough on a streambank restoration project in the Pequea Creek watershed. Although the project sits on private property in East Lampeter Township, the BMP will count as sediment reduction credit within the pollutant reduction plans of all three municipalities.

"It will cost our township about $30,000, which we will pay through our general fund," Warren says. "It would be tough to find a more effective reduction for that amount of money."

Grants can help, she says, but everyone these days is competing for the same dwindling pot of money. She points to two major grant sources — DEP Growing Greener and National Fish and Wildlife Foundation — but also notes that townships should look for funding options where they can.

Warren chairs the steering committee of the Lancaster County Clean Water Consortium, a volunteer-driven, member-supported organization under the Conservation Foundation of the Lancaster County Conservation District, which recently began offering

mini-grants to help member municipalities fund stormwater projects.

"Despite our limited budget, the consortium is trying to be an alternative source of funding for projects," she says.

Ease Into It

Because of its population, Rapho Township did not have to meet the MS4 stormwater mandates until last year, when DEP required permits for communities within the Chesapeake Bay watershed. That, however, didn't stop the township from getting a head start on stormwater management. It began incorporating best management practices voluntarily into projects several years ago, manager Sara Gibson says.

"We didn't want to wait for the hammer to come down to become accustomed to using those practices in our work," she says. "We knew we had to move more in that direction, plus we wanted to do our part in helping to clean up the bay."

Over the past two years, Rapho has added vegetative soils to its public works projects, installed rain gardens at the township building and a park, and laid down porous pavement at basketball and four-square courts at parks. The township is also building a new salt storage shed and a wash bay to capture rainwater that will be used to clean vehicles.

"We are trying to stay ahead of the game and not fall behind before we even get started," she says.

Last year, the township, which is completely in the Chiques Creek watershed, received a $161,360 grant through the EPA Chesapeake Bay Implementation Grants Program to do its first retrofit of a detention basin. This project will qualify as one of two that will help the township meet sediment reduction goals under its five-year pollutant reduction plan. ➤

"The only way to get a community to buy into a stormwater program is by banging the same drum year after year."

"We came out of the first round fortunate to find two good and doable projects that we will be able to complete at a much lower cost than other municipalities might have," she says.

Like Rapho, many townships plan to phase into their pollutant reduction plans by tackling the easier projects first.

"For the initial five-year round of this permit, everyone picked the easiest projects they could find," says Kalupson, who has helped to write 21 pollutant reduction plans for municipalities. "Some got lucky and found a stream project located on municipal property, such as a park, so they won't have to deal with private property owners or get easements this time around."

For its first pollutant reduction plan,

The key is maintenance

Maintenance is an important component of managing BMPs. This detention basin in Manor Township was neglected for 30 years, had become overgrown, and was not functioning as designed. The township plans to retrofit it into a bioretention basin.

This bioretention basin in West Lampeter Township was constructed two years ago in a portion of an existing detention basin. Water can pond up to 6 inches before spilling into the regular detention basin.

Photos courtesy of RETTEW.

> "I'm not saying that crews are going to have to become landscapers, but they will have to **put a lot more thought behind maintaining these BMPs.**"

LESSONS LEARNED

"Our target is the next generation. If we can convince them that being a good watershed steward is important, then we have started them down the right track."

Manor Township identified four malfunctioning detention basins that it will retrofit over the next five years: one at the township building, two in established developments on property that the township recently purchased, and one in a township park.

To ease its public works crew into BMP construction and maintenance, the township decided to start with its easiest project: converting a detention basin at the municipal building into a dry extended facility with forebay underdrain.

"We wanted to start with one that is smaller in scope and not as involved as a bioretention basin would be," Public Works Director Mark Harris says. Maintenance, too, will be more manageable.

"Although we will have to remove sediment that collects as stormwater enters the basin, the rest can be mowed," he says.

Manor Township's public works crew is preparing to use the next five years to become better educated on how to construct and manage these new BMPs.

"While our crew was involved with stormwater in the past, it was not to this degree," Harris says. Still, he's confident they are up for the challenge.

"We are open to new ideas and not afraid to try new things," he says.

So what happens once these projects are completed?

Looking ahead to the 2023 permit, Kalupson worries that finding additional projects to meet the pollutant reduction goals will become even more challenging for municipalities.

Both Harris and Gibson envision having to undertake more regional projects. Whatever the future holds, Rapho Township plans to follow its own advice and not wait for a mandate.

"Look ahead and anticipate what you'll be required to do," Gibson advises.

For his part, Harris wants to learn as much as he can over the next five years about the BMPs currently on the township's docket. What the next permit round will require when it comes to sediment and nutrient reductions remains to be seen, but he does see an upside to any future mandates.

"In five more years," he says, "we will be much more intelligent than we are today." ✦