


ACTION PLAN TO IMPLEMENT RECOMMENDATIONS
ADVOCACY & POLICY CAMPAIGNS

Resolve Conflicts between Rules and Regulations Regarding Drinking Water, Wastewater, Stormwater, and Surface Water

Revise state laws and regulations to address drinking water, wastewater, stormwater, and surface water quality as a single integrated system in order to resolve conflicts between competing internal rules and requirements.

By: Melissa Andrews, DVRPC

Introduction

One challenge that municipalities face when working to protect water quality is complying with conflicting state regulations on water resources. A watershed-wide advocacy campaign will help educate residents and state agencies about problems that these regulatory conflicts create, and ultimately, motivate state leaders and legislators to untangle them.

Background

Municipal leaders in the Delaware River Watershed, and nongovernmental groups that work with municipalities, are already aware of some of these regulatory conflicts. The smart growth advocacy group 10,000 Friends of Pennsylvania observed in its 2007 *Water and Growth* study that “water laws [in Pennsylvania] are scattered throughout many statutes and applied by many different agencies and entities. They address specific topics...but together do not add up to a unified legal framework for comprehensive water management” (*Water and Growth*, 2007, 15).

The *Water and Growth* study highlights 13 laws with potentially problematic interactions, including the Clean Streams Law (Pennsylvania Department of Environmental Protection [PA DEP]), the Delaware River Basin Compact (Delaware River Basin Commission), the Municipal Planning Code (Commonwealth of Pennsylvania), the Safe Drinking Water Act (PA DEP), and the Water Resources Planning Act (PA DEP). From its analysis, 10,000 Friends of Pennsylvania concluded that the state should “promote a comprehensive approach to water and land use that coordinates drinking water, wastewater, stormwater, and land use across multiple boundaries” (*Water and Growth*, 2007, 33).

The idea of a comprehensive approach resonated strongly with the Municipal Technical Assistance Advisory Panel tasked with guiding the development of recommendations for municipal water quality actions in the Delaware River Watershed. While *Water and Growth* focused on Pennsylvania, it is possible to find communities in all four states within the Delaware River Watershed that report they are struggling to protect water quality while complying with multiple state regulations. During the interview phase of this project, municipal leaders and other water quality “champions” provided anecdotal evidence of such conflicts (see the “Conversations on Conflicts” callout box).

Conversations on Conflicts

Water quality experts and municipalities mentioned the following regulatory conflicts in interviews:

“There are municipalities that would like to take a greater role in watershed protection, but there are restrictions that are put on municipalities by the State of New Jersey, such as for stream cleaning and shoreline protection, where the state restricts/redirects development.”—Water quality expert, NJ

“Farmers on a preserved farm needed to construct a poultry facility. They wanted to place it on the less important soils of the preserved farm, but these soils were near wetlands. PA DEP said the process to permit a development near wetlands would take one year. The farmers could not wait that long, so they had to place their barn on a prime soil area that was not near the wetlands.”—Water quality expert, Berks County, PA

“Uncertainty on what’s allowed or not allowed is a big problem—between EPA, PA DEP, and court agreements; the rules keep changing, so you may submit one project and think it will be approved, and then it’s not due to changing rules.”—Municipal interviewee, East Goshen, PA

Program Concept

This recommendation requires significant “grassroots” advocacy from citizens and “grass tops” revision of regulations from legislative bodies and agencies at the state level. The commitment of a wide range of experts, to determine what the conflicts are and how best to untangle them, is also critical to its success. A general program concept includes researching regulatory conflicts, planning and executing a campaign, revising the target regulations, and enforcing the revised regulations. While these program phases are presented linearly below, they may overlap or be repeated due to new opportunities or changing circumstances.

Research Phase

A project team of experts (see the “Partners” callout box) develops a list of: (1) state water regulations in the Delaware River Watershed that have the potential to conflict in a way that affects municipal water quality actions; and (2) examples from personal experience, or from a colleague’s experience, of how conflicting state water regulations have affected municipal water quality actions. Examples include those mentioned previously from the municipal and water quality expert interviews. 10,000 Friends of Pennsylvania’s *Water and Growth* study also lists potential problems:

- The Safe Drinking Water Act applies to ground and surface waters but not to small water systems or waterline extensions. Furthermore, it prioritizes “new and expensive” water treatment infrastructure over land protection strategies. New infrastructure expands a municipality’s capacity to provide drinking water, potentially yielding additional development and degradation of the community’s open space and waterways (*Water and Growth*, 2007, 17).

Partners

The project team that forms to implement this recommendation should include lawyers with expertise in state and local laws on water resources and other complementary issues, water quality experts, environmental activists, municipal leaders, municipal utility managers, and engaged politicians at the state level.

- The Water Well Drillers License Act, a licensing and recordkeeping program for drillers of groundwater wells, does not address water quality (*Water and Growth*, 2007, 17).
- Pennsylvania relies on common law for some water issues, but this set of laws was developed before it was understood that groundwater and surface water were connected, resulting in different rules guiding the use of each source separately (*Water and Growth*, 2007, 18).

The project team then determines what revisions to existing regulations would eliminate these conflicts and enable the region's water resources to be managed more holistically.

Campaign Planning Phase

The team chooses which regulatory conflicts should be the focus of an outreach campaign and brings in campaigning/communications/marketing experts. This expanded group develops strategies for: (1) growing a volunteer base in communities (such as in voting districts), states, and/or the watershed; (2) running a campaign to teach groups of citizens, lawmakers, and agency leaders about the regulatory conflicts and benefits of removing these conflicts; and (3) continued education to ensure that the new or updated regulations are enforced in the long term.

Campaigning Phase

The project team moves forward with its campaign, growing its support base and revising its strategies as needed.

Revision Phase

With sufficient outreach and pressure from the campaign group and constituents, lawmakers and agencies begin taking steps toward revising the conflicting regulations.

Enforcement Phase

Key members of the original team, or new members from the campaign, work to ensure that the new regulations are enforced.

Anticipated Outcome

The end result of this multistep process of research, prioritization, planning, campaigning, and revision is that state regulations affecting water resources will support rather than undermine each other, yielding a complementary system of laws that municipal staff, officials, and property owners can understand and follow with more confidence as they work to protect their water quality.

Funding Sources

While the portion of the recommendation that involves research could be funded from many public and private sources, the portion that involves advocacy to state lawmakers cannot be supported by public funds. Most of the activities listed in this recommendation will have to rely on a mixture of support from nongovernmental organizations, individual donors, and in-kind volunteer services.

Choosing Regulatory Conflicts

The following criteria could be used to choose regulatory conflicts on which to focus:

- impact of revising the regulation (number of municipalities affected, number/type/area of impaired watersheds affected, etc.);
- ability of an issue or real-life example to grab the interest of citizens and lawmakers;
- presence of lawmakers who are already interested in the topic;
- ease of “untangling” the regulations (easy wins, especially in the beginning of the process, would help increase support for the harder ones); and
- availability and type of funding.

Source

Scott, Marianne and Elizabeth Kitchel, with Edward W. Wilson and James McElfish. *Water and Growth: Toward a Stronger Connection between Water Supply and Land Use in Southeastern Pennsylvania*. Harrisburg, PA: 10,000 Friends of Pennsylvania, 2007. http://10000friends.org/sites/10000friends.org/files/water_report_07_final_with_covers.pdf (accessed August 8, 2017).

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ACTION PLAN TO IMPLEMENT RECOMMENDATIONS

ADVOCACY & POLICY CAMPAIGNS

Create a State Incentive Program that Encourages Municipalities to Establish Stormwater Fees and Install Stormwater Best Management Practices

Create a dedicated state fund that incentivizes suburban and urban municipalities to establish stormwater fees and install stormwater best management practices (BMPs) through matching grants with a focus on reducing discharges to impaired rivers and streams.

By: Chris Linn and Henry Felsman, DVRPC

Introduction

One of the most effective ways that a municipality can incentivize commercial and institutional property owners to install stormwater BMPs and/or reduce the size of impervious areas is to enact a stormwater fee based on the amount of impervious surface on each property. In Pennsylvania, legislation authorizing municipalities to establish stormwater authorities was passed in 2013, and legislation authorizing Second Class townships to establish stormwater fees was passed in 2016. Given the newness of this legislation, it is not surprising that only six municipalities in Pennsylvania currently utilize stormwater fees as of August 2017, including three in Pennsylvania's Delaware River Basin. While making the decision to levy a new fee on residents and businesses is politically sensitive, stormwater fees, like those established in Radnor and Philadelphia, have proven to work by incentivizing landowners to install BMPs or limit impervious surface coverage. In addition, stormwater fees generate revenue that enables municipalities to invest directly in stormwater BMPs, further reducing nonpoint source pollution.

Funding Mechanism

The proposed stormwater fee/stormwater BMP fund is closely aligned with, and could be incorporated into, the [Growing Greener III](#) campaign. The *Growing Greener III* campaign is backed by a consortium of hundreds of conservation nonprofits, municipalities, and counties. It outlines a plan for distributing \$315 million over the course of several years for conservation- and water-quality-related purposes. The stormwater fee/BMP incentive program could be included as part of the existing *Growing Greener III* proposal, or the fund could be enlarged to include resources for this proposed program.

Proposal

Create a state fund, similar to Growing Greener, dedicated to providing matching grants to municipalities that have established a stormwater authority and/or enacted a stormwater fee. The fund could also be used to provide matching grants to municipalities installing stormwater BMPs, regardless of whether they charge a stormwater fee.

Matching Grants for Municipalities with Stormwater Fees

The creation of a state fund to provide matching grants to municipalities with stormwater fees would incentivize more municipalities to develop and enact such fees. In addition, those municipalities would have a ready-made source of capital to match state grants. A dedicated state fund would also help quell an oft-heard municipal complaint that the implementation of Pollution Reduction Plans constitutes an unfunded mandate from the Commonwealth.

While the formula can evolve over time, the state stormwater fund could provide a one-to-one match to municipalities with a stormwater fee. Grants would be awarded on a competitive basis and could be evaluated by a process similar to the one currently employed for Growing Greener grants, i.e., through a process led by departmental staff knowledgeable in stormwater BMP implementation.

Grants for Municipalities without Stormwater Fees

So as not to exclude municipalities that do not possess a stormwater fee (which for the foreseeable future will include most municipalities in the state even under this proposed incentive program), grants could also be awarded to municipalities for installing stormwater BMPs. Grants should be directed to BMPs that reduce discharges of offending pollutants into impaired rivers and streams. Applicants would have to calculate and document the reductions achieved by any proposed BMP similar to the way in which they will be required to do so for the submission of Pollution Reduction Plans—and could even do so concurrently.

Grants could be competitively awarded based on a variety of factors, with the effectiveness of each BMP being a primary criterion. Municipalities that propose to decrease the amount of impervious surface in their communities could be awarded additional points. For these types of grants, the state fund may choose to provide a smaller match, e.g., 25 cents out of each dollar spent, or a one-to-three match, so as to maintain a higher incentive for the creation of stormwater fees.

Anticipated Outcomes

There are several anticipated outcomes of this action.

First, there will be a new source of state funding dedicated to improving water quality through stormwater BMPs. Second, municipalities will be incentivized to develop stormwater fees due to the financial reward (one-to-one matching funds for stormwater BMPs). Third, municipalities that do not have stormwater fees, but do discharge into impaired waters, will be similarly incentivized to install stormwater BMPs and reduce their impervious surface. Finally, the funding of stormwater BMPs at the state level will heighten awareness about the effectiveness of these practices and will reduce the negative perception that state stormwater regulations constitute an unfunded mandate.

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Examples Stormwater BMPs

Stormwater BMPs under this program would primarily be installed in developed suburban and urban settings. They include:

- Rain Gardens;
- Naturalized Detention Basins;
- Streambank Restorations;
- Riparian Buffer Planting and Restoration;
- Stormwater Meadows; and
- Other Vegetated Infiltration Techniques.

ACTION PLAN TO IMPLEMENT RECOMMENDATIONS

ADVOCACY & POLICY CAMPAIGNS

Legislate Minimum Riparian Buffer Protection Regulations

Legislate minimum riparian buffer protection regulations for municipalities (ideally at least 100 feet for all streams and 300 feet for high-quality and exceptional-value streams) where they do not already exist.

By: Laura An, Intern; Henry Felsman, Intern; and Alison Hastings, DVRPC

Introduction

Throughout the initial stakeholder interviews conducted by DVRPC in the formation of the Municipal Technical Assistance Advisory Panel (MTAAP), legislating riparian buffer protection was a frequently cited recommendation as an important strategy for protecting water quality. Current riparian buffer legislation at the state level is insufficient for optimal water protection, in both Pennsylvania and New Jersey. Lobbying for more stringent riparian buffer requirements will serve to improve water quality by ensuring more comprehensive protection for all streams and tributaries in the Delaware River Watershed.

Background

Between 2010 and 2014, the prevailing legislation with regard to riparian buffers in Pennsylvania was outlined in the Pennsylvania Code 102.14 general riparian buffer requirements. Under this code, riparian buffer zones were required within 150 feet of high-quality and exceptional-value streams.

This policy held until October 2014, when Act 162 was passed as an amendment to the Pennsylvania Clean Streams Law. This amendment gave developers the option to replace riparian buffers with any other best management practices (BMPs) that were considered “substantially equivalent.”

While seemingly benign at first glance, this legislation is of concern because it no longer explicitly requires the conservation of riparian buffers, which are widely regarded as the best method for protecting streams. Instead, it permits (and perhaps encourages) construction within riparian buffer zones, which may have negative impacts on stream quality, particularly as a result of stormwater runoff, bank erosion, and destruction of wildlife habitats. Unlike many other BMPs, riparian buffers not only reduce pollutant loads, but also serve to reduce thermal impacts on water bodies by offering shade, preserve wildlife habitats, slow

Stroud Water Research Center

The Stroud Water Research Center, a member of the William Penn Foundation's Delaware River Watershed Initiative, is a venerable research organization that is focused on freshwater science. Its scientists conduct long-term research projects in the field. One such research initiative is evaluating forested riparian buffers and "zone" buffers. These field experiments hope to inform the Stroud Water Research Center's policy recommendations regarding minimum buffer width and vegetation. Results of a 15-year study support that a forested streamside buffer better protects freshwater quality, suggesting that forested stream buffers of various widths produce several benefits in addition to filtering sediment and reducing stream erosion.

floodwaters, stabilize streambanks and prevent erosion, and recharge groundwater.

On the other hand, while New Jersey legislation with regard to buffer zones is much more stringent, some regulations remain insufficient for optimal stream protection. Current regulations were defined in November 2007 under the Flood Area Hazard Regulations, requiring riparian buffers within (a) 300 feet of Category One waters, (b) 150 feet of other

Existing Riparian Buffer Legislation, Delaware River Valley

Pennsylvania Code 102.14:

"Persons proposing or conducting earth disturbance activities when the activity requires a permit under this chapter may not conduct earth disturbance activities within 150 feet of a perennial or intermittent river, stream, or creek, or lake, pond or reservoir when the project site is located in an exceptional value or high quality watershed." — Pennsylvania Code 102.14, *General Riparian Buffer Requirements*

Act 162 (Clean Streams Law amendment):

"Act 162 allows applicants with projects within 150 feet of special protection waters flexibility in dealing with the mandatory riparian buffer requirements given... the person may use or install either: 1) a riparian buffer or riparian forest buffer; or 2) another option or options among best management practices, design standards and alternatives that collectively are substantially equivalent to a riparian buffer or riparian forest buffer in effectiveness to minimize the potential for accelerated erosion and sedimentation and to protect, maintain, reclaim and restore water quality; and for existing and designated uses of a perennial or intermittent river, stream, creek, lake pond or reservoir" — Act 162, amendment to Pennsylvania Clean Streams Law

New Jersey Flood Area Hazard Regulations:

"The regulations establish the following new regulated riparian zones: 300 feet on both sides of Category One water and upstream tributaries within the same HUC-14 watershed; (Hydrologic Unit Codes for 970 sub-watersheds), 150 feet on both sides of an upstream tributary to a trout production water not in the HUC-14 watershed; a trout maintenance water body and all upstream tributaries within one mile; any segment of water flowing through an area containing documented habitat for a threatened or endangered species of plant or animal; any segment of water flowing through an area containing acid producing soils, 50 feet along both sides of all other waters." — New Jersey Flood Area Hazard Regulations, *Riparian Zones*

sensitive water bodies (including upstream tributaries, trout maintenance water bodies, any water body flowing through the habitat of a threatened or endangered species, and any areas with acid-producing soils), and (c) 50 feet of all other water bodies.

MTAAP members recommend that state-level regulations be legislated, requiring minimum riparian buffers of at least 300 feet for all high-quality and exceptional-value streams, and 100 feet for all streams where they do not already exist.

Potential Actors

Advocacy efforts can be coordinated on a state-by-state basis and are best led by state-wide lobbying organizations like PennEnvironment or Environment NJ and supported by expert organizations like Pennsylvania Environmental Council or Stroud Water Research Center in Pennsylvania, and Association of New Jersey Environmental Commissions in New Jersey. Advocacy efforts for new riparian buffer minimums gain strength and nuance when stakeholders from multiple sectors are engaged. Possible partners include nonprofits, conservancies, land trusts, environmental law firms, academic institutions, private developers, and citizens.

Demonstrating support from municipal governments, environmental advisory committees, and water authorities through measures like passing resolutions in favor of riparian buffer regulations at a state level will be instrumental in pushing forward new legislation. Coordinated actions directed at state legislators can help standardize a basic level of protection for streams and reduce the amount of variation in local adoption of riparian buffer ordinances.

Anticipated Outcomes

The primary outcome of a policy campaign that reinstates or introduces 300-foot buffers is the maintenance and slow increase in vegetated stream buffers as evidenced by land cover data. A long-term outcome would be improved surface water quality as evidenced by water quality data. Secondary benefits would be the growing public awareness of water quality and the collaboration between nonprofits and advocacy groups gained by creating and executing a successful advocacy campaign.

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ACTION PLAN TO IMPLEMENT RECOMMENDATIONS

EXPANDING EXISTING EFFORTS

Highlight Best Municipal Practices through Awards

As an existing Delaware River Watershed-wide organization with a broad and deep reach across the basin, the Coalition for the Delaware River Watershed can regularly highlight municipalities instituting effective water resource practices, raising awareness of best practices with a wider audience, inspiring other municipalities to adopt similar efforts, and celebrating and reinforcing municipal success stories.

By: Madeline Urbish, Coalition for the Delaware River Watershed; and Patty Elkis, AICP/PP, DVRPC

Introduction

Bringing more attention to municipalities that are instituting best practices in stormwater management, land development, preservation, and other important issues directly related to water resources is an effective tool for positive accountability. First, it encourages recognized municipalities to continue managing their water resources in a responsible and sustainable manner. Second, it raises awareness of best management practices with a wider audience. Third, it can inspire other municipalities to adopt similar policies and practices when they see their counterparts and neighbors achieving success.

Proposed Delaware River Watershed-Wide Organization

The Coalition for the Delaware River Watershed unites nongovernmental organizations working in the region to raise the profile of the watershed, share information, and advocate for a healthy Delaware River Basin. It does so by coordinating communications, messages, and actions to foster accountability for success at the federal, state, and local levels. With 110 member organizations ranging from national nonprofits to regional organizations and local watershed associations, the Coalition has both a broad and deep reach throughout the river basin.

As the only watershed-wide entity made up of a diverse set of nongovernmental organizations committed to protecting and restoring the natural resources of the basin, the Coalition for the Delaware River Watershed is an ideal existing entity to regularly highlight municipalities implementing best water resource management practices. The Coalition keeps in close contact with members through biweekly email newsletters, monthly state-based conference calls with members in New Jersey and Pennsylvania, and annual events such as the Member Meeting and the Delaware River Watershed Forum. Additionally, the Coalition is in the process of developing a monthly newsletter for external audiences, including local, state, and federal government agencies.

Proposal

The Coalition can regularly promote best municipal practices throughout the watershed in various ways. First, the Coalition could include a section in its monthly newsletters to external (nonmember) audiences highlighting a municipality or project implemented in partnership with a local government that incorporates conservation best management practices. This information could also be included with member emails that go out biweekly, as appropriate. Second, the Coalition could work with state outreach leads to identify individuals to write blog posts highlighting municipalities' exceptional water resource management practices for the Coalition's website. Third, the Coalition could incorporate a municipal category award or recognition opportunity in its annual Delaware River Watershed Forum, which attracts an audience of over 300 people.

Anticipated Outcomes

Municipal success stories on water resource protection are more widely shared.

Success stories inspire other municipalities to action.

Municipalities become more engaged with other agencies and organizations connected with the Coalition for the Delaware River Watershed and the policies it promotes.

Measuring Impact

The Coalition can measure the impact of these actions through several means. First, the Coalition can track the number of individuals who receive and open the monthly newsletters, which are sent using the platform MailChimp. Second, using Google Analytics, traffic on the Coalition's website can be monitored, and the number of visits to any blog posts concerning municipal best practices can be tracked. Third, the Coalition can keep track of the number of people who attend the annual Forum, particularly the number of people who attend the portion of the conference during which a municipality is recognized for its outstanding water resources management work. The Coalition should continue to identify other opportunities to measure impact, including surveys, as the project moves forward.

Given the limited capacity of the Coalition, which is staffed by two individuals, assistance would be needed in identifying municipalities that should be recognized on a regular basis, such as the monthly newsletters or blog posts. The Municipal Technical Assistance Advisory Panel (MTAAP), or a subcommittee made up of its members, could serve this valuable role. Additionally, recommendations from organizations representing the municipalities such as the Association of New Jersey Environmental Commissions (ANJEC), the Pennsylvania State Association of Townships (PSATs), or the New Jersey League of Municipalities, should be sought out and incorporated into this process.

The awards or recognition ceremony at the annual Delaware River Watershed Forum would require an additional process, given the significance of identifying just one municipality for outstanding work each year. The Coalition forms a planning committee each year to assist in developing the program for the Forum, including speakers, sessions, and field trips. This planning committee also develops the categories for award or recognition, which can include municipal best practices, as well as a process for soliciting nominations. Coalition staff can make the MTAAP, ANJEC, PSATs, and League of Municipalities aware of this opportunity and request nominations specifically for the municipal category. Decisions on the recipients

would be made by the planning committee and Coalition Steering Committee.

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EXPANDING EXISTING EFFORTS

Educate Riparian Landowners

Increase programs that educate landowners, particularly those who live along waterways, about the value of riparian buffer restoration projects, proper land care, natural turf management, native species, and other topics that enable them to use their properties to improve water quality. The education campaign could be customized to the landowners' communities and include site tours.

By: Steven Saffier, Audubon Pennsylvania; Jeanne Ortiz, Audubon Pennsylvania; and Melissa Andrews, DVRPC

Background

Over large landscapes, compromised water quality is a daunting problem that often requires complex and expensive projects to remedy. While average streamside homeowners cannot individually solve water quality problems at the regional level, they can participate in a solution that is visible, enduring, and effective: incorporating native plants into their landscaping to restore their riparian buffer habitat.

Streamside plantings along barren buffer zones are a proven method of improving water quality. The aggregate outcomes of individual property owners managing their land to return it to a predevelopment ecology can have a similar impact. This is landscaping with a purpose: intentional practices that not only beautify a property, but also make it a functional contributor to the watershed ecosystem.

Birds can be a hook to engage a wider audience in conservation action, and this program will use people's love of birds and birding to demonstrate the value of healthy riparian habitat to bird life. Homeowners who sign up for a property management and monitoring program will be provided with a list of target species to monitor on their properties, giving them visible and measurable outcomes of their work, as birds will readily move to sites that can support them.

Anticipated Outcomes

Demonstrate best landscape practices and educate local homeowners in activities that can be conducted on their properties to drive watershed protection, including planting native species that contribute to a predevelopment stream ecology, removing invasive species,

Organizations that Could Move the Recommendation Forward

Organizations with experience in a variety of fields, including education; natural and physical sciences (particularly ecology, plant biology, ornithology, and hydrology); and landscape design, construction, and maintenance, can help implement this recommendation.

Organizations that map land cover or other factors that allow project partners to identify "hot spots" of water quality degradation in the Delaware River watershed can help identify communities to prioritize.

eliminating the use of synthetic pesticides, and reducing the use of fertilizers. Bird species will be used as barometers of ecological health and recruitment tools to engage new participants.

Focus Areas

Focus areas will be determined based on map assessments of land cover. Two to three areas will be identified as project pilot sites in consultation with other partners.

Program Components

All riparian homeowners will have access to educational materials, native plant resources, storytelling that demonstrates the practical application of streamside habitat improvement, and citizen science opportunities to track and report the presence of birds utilizing riparian corridors.

Anticipated Outcomes

Based on the metrics tracked:

Two short-term outcomes will be (1) a high homeowner use of the resources that are available to all riparian homeowners, and (2) the recruitment of a smaller group of highly engaged homeowners to participate in the more intensive property management and monitoring program.

A long-term outcome will be miles of consecutive or semi-consecutive riparian property returned to predevelopment conditions and maintained as such.

Landowners who agree to participate in a more intensive property management and monitoring program will be provided with a special registration that includes additional advanced members-only resources, as well as equipment and training to monitor the ecological health of their property.

Metrics Tracked

The program managers will evaluate the success of the program through several metrics, including the number of landowners reached and participating in the program, the number of miles of streams restored, and the changes in condition of participating streamside properties.

ACTION PLAN TO IMPLEMENT RECOMMENDATIONS

EXPANDING EXISTING EFFORTS

Use Experiential Learning to Engage the Next Generation of Leaders

Connect nonprofit organizations that undertake citizen science, experiential learning, and hands-on volunteering with county-level organizations to better engage the general public and current leaders, and train the next generation of environmental stewards and elected officials.

By: Julie Slavet, Tookany/Tacony-Frankford Watershed Partnership; and Alison Hastings, DVRPC

Introduction

Although the Delaware River Watershed is an area with many stream miles, receives a moderate amount of rain, and provides drinking water for two major metropolitan areas, water quality may not be considered a high priority by the general public. There are many reasons why. One reason may be that people are disconnected from the geography of local waterways and the challenges of protecting water quality. In many communities, smaller waterways are hidden in underground pipes and culverted. The waterway might look more like a drainage ditch.

The environmental movement and area nonprofit organizations have learned that hands-on activities—such as conducting regular visual stream assessments, planting trees next to a creek, and removing invasive plants—are effective in educating and engaging volunteers. Many of these volunteers then become environmental stewards. Some stewards become ambassadors and advocate to their neighbors and local officials. A few ambassadors become motivated to serve on a local board or commission or run for elected office.

There are many watershed associations, environmental educational nonprofits, and research organizations that lead well-established environmental education programs and offer meaningful volunteer opportunities. There is an opportunity to create a more formal pipeline to help these educated, interested, and motivated citizens become active in local land use and environmental decision making. A more formal process for connecting citizens to opportunities, and specifically opportunities related to local land use decision making, supports existing grants

Can most people name the creek closest their home?

Alliance for Watershed Education of the Delaware River

Launched in June 2017, the Alliance is a regional initiative of 23 environmental education centers located along The Circuit and on waterways throughout the Delaware River Watershed. The alliance introduced an Environmental Fellowship Program in which each center will host a summer fellow, between the ages of 18 and 24, to manage community outreach and programs. The fellow does not have to have previous environmental education experience. Paid professional opportunities may possibly be expanded to individuals with diverse backgrounds.

made by the William Penn Foundation to the League of Conservation Voters, the Academy of Natural Sciences for its Citizen Science program, and the Alliance for Watershed Education of the Delaware River.

Successful Programs

Not all citizens will be or are able to become Master Watershed Stewards. A volunteer program must provide a variety of options for volunteer engagement. Providing a basic understanding of watersheds and a visit to a creek is a first step. The next level of engagement could be participating in a tree planting. And the highest level of engagement is committing to and carrying out monthly monitoring.

County Conservation Districts in New Jersey and Pennsylvania are in an opportunistic position to coordinate and lead more citizen science and environmental stewardship programs because of their knowledge of water issues, their relationship to municipalities, and their role as technical assistance providers. In Pennsylvania, County Conservation Districts have established Master Watershed Stewards programs, and many have Watershed Specialists on staff. Conservation Districts could provide a more formalized way of connecting individuals who volunteer with a watershed organization to county and municipal boards and commissions that need informed citizen appointees.

Anticipated Outcomes

A short-term outcome of expanded educational programs based at nonprofit organizations, and more coordination with the County Conservation Districts, is the recruitment of citizens to serve on county and municipal boards.

A longer-term outcome is the increase in local elected officials who have a stated environmental ethos.

Another long-term outcome is an overall increase in the general public rating water quality as a high priority.

Anticipated Outcomes

A short-term outcome is increased recruitment of citizens to serve on planning boards/commissions and environmental advisory councils and environmental commissions.

Longer-term outcomes are increased numbers of local elected officials who have stated environmental goals and a demonstrated increase in the general public rating water quality as a high priority.

League of Conservation Voters

Conservation Voters of Pennsylvania and New Jersey League of Conservation Voters, with support from the William Penn Foundation's Delaware River Watershed Initiative (DRWI), have developed tools to help DRWI organizations grow their email lists, get educational programs and volunteer opportunities in front of more people, and learn more about current members. The ultimate goal is to identify more individuals who are interested and able to become more active and engaged in conservation organizations and water quality issues.

Funding

To realize this recommendation and anticipated outcomes, more funding is needed to support existing educational and volunteer programs, as well as directly funding Conservation Districts. This funding would enable nonprofits and the quasi-governmental organizations to regularly collaborate and identify service opportunities for citizens. Additionally, funding is needed to measure anticipated outcomes. Tracking might include polling pre-effort and mid-effort, tracking individuals who engage with a nonprofit, reviewing local election results, and interviewing recently elected officials.

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EXPANDING EXISTING EFFORTS

Municipalities Lead by Example with Best Management Practices and Green Stormwater Infrastructure

This recommendation encourages municipalities to lead by example by implementing stormwater best management practices (BMPs) and green stormwater infrastructure (GSI) projects in highly visible locations in parks and other municipal-owned properties, supplemented with educational signage and outreach.

By: SeungAh Byun, PhD, PE, Brandywine Conservancy; Michele Adams, PE, Meliora Design; and Christina Arlt, AICP, DVRPC

Introduction

The purpose of this recommendation is to provide education, outreach, planning, and design to municipalities to improve local water quality and comply with Municipal Separate Storm Sewer System (MS4) and Total Maximum Daily Load (TMDL) requirements. Funding this project would enable nonprofits and consultants to work directly with municipalities in the Delaware River Watershed to reduce pollutants from development that degrade streams and rivers.

Nonprofits and consultants would provide technical assistance to municipal officials and their staff to better help them understand and respond to water quality requirements. Assistance would include information about GSI practices and other BMPs, which benefit not only local residents and waterways, but also downstream water quality and the Delaware Estuary as a whole.

Several nonprofits and consultants, including the Brandywine Conservancy and Meliora Design, have helped municipalities identify cost-effective practices to improve water quality. For example, the Brandywine Conservancy has helped the Oxford Area School District in Chester County reforest riparian areas through a volunteer tree planting in East Nottingham Township. In addition, a rain garden was installed at Upper Oxford Township's municipal park.

Partners

This recommendation aims to educate municipalities and assist with planning and implementing stormwater BMPs and GSI. Outreach and education would target municipal officials, engineers, and staff. MS4 regulations

In Pennsylvania, many municipalities must comply with MS4 requirements and are therefore managing stormwater running off from private and public lands. *Leading by example*—municipalities implementing best practices on their own properties—is an effective role modeling strategy that demonstrates compliance, shows water quality is a priority, and educates the general public, as well as developers and large property owners. In order to most effectively ask private property owners.

present a regulatory driver for stormwater management; therefore, the target audience for this recommendation is:

- municipalities subject to MS4 permit or TMDL requirements; and
- municipalities interested in implementing innovative stormwater management measures.

Ideally, GSI would be demonstrated in three different types of municipalities: older suburban, newer suburban, and denser boroughs. In addition to the municipalities, several other partners would need to be involved. Nonprofits and consultants would provide the technical assistance to municipalities to implement BMPs/GSI. The proposed work would be divided as follows:

- nonprofits: education and outreach to municipalities and the public;
- nonprofits and contractors: identify/prioritize locations for implementation;
- consultants/contractors: develop designs and plans for BMPs/GSI;
- consultants/contractors: construction of BMPs/GSI; and
- municipalities: partners throughout the process.

Phases

The likely phases of this project would be:

- Initial Planning and Prioritization;
- Design and Documentation of Demonstration Projects;
- Construction of Demonstration Projects; and
- Outreach and Education.

With proper funding, a collection of demonstration projects could take as little as three years. The educational signage and outreach is a vital component of the BMP and GSI projects. Many residents are only familiar with manicured lawns in parks; adding BMPs and GSI, without the proper educational signage and outreach, may raise concerns about the “unkempt” look of facilities like rain gardens, as well as concerns about ticks and other wildlife.

Anticipated Outcomes

It is important for municipal officials and their staff and communities to have first-hand experience with GSI practices. Local installation will provide a better understanding of construction and maintenance requirements, aesthetics, and performance of green infrastructure. This in turn will better inform municipal standards and requirements for GSI on private development and provide municipal officials with “something to point to” when development occurs in their community.

Anticipated Outcomes

A short-term outcome will be beautification of municipal lands.

Long-term outcomes include increased municipal compliance with the TMDL reductions and MS4 permitting requirements, improved water quality as evidenced by reduced pollution, and more municipal officials and general public who value water quality.

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ACTION PLAN TO IMPLEMENT RECOMMENDATIONS

EXPANDING EXISTING EFFORTS

Match Farmers with DRWI Technical Assistance Providers

Expand upon or create programs that work with farmers to implement agricultural best management practices (BMPs) by matching farmers with the “right” technical assistance (TA) organizations or professionals.

By: Grant DeCosta, Brandywine Conservancy; and Chris Linn, DVRPC

Introduction

Agricultural lands restoration through BMP implementation is a cornerstone strategy of the William Penn Foundation’s Delaware River Watershed Initiative (DRWI). The work involves many facets of planning, including landowner relationships, conservation planning, BMP engineering and design, permitting, project management, and project evaluation. Given the demands of their work, farmers are often too busy, or unsure of how, to address the challenges of improving water quality or ensuring regulatory compliance while taking advantage of cost-share funding programs and managing project implementation. However, through the DRWI, many nonprofit organizations have already begun to build extensive landowner relationships that would enable them to serve in a TA role. Such responsibilities could include managing partner organization relationships, ensuring regulatory compliance, and providing access to private funding programs to help fill gaps in public cost-share programs. The funding piece is particularly critical, since narrow farming profit margins often make providing the match for conservation funding unfeasible.

Farmers look to TA providers for the valuable service they provide. Historically the TA role has often been filled by for-profit entities and government agencies. However, these groups have limitations. Government agencies are bound by their programmatic funding and rules, while for-profit entities are bound by a landowner’s willingness and ability to pay. Nonprofits are not bound by these constraints and can work with farmers to facilitate their participation in water quality restoration practices. Notably, nonprofits can provide TA throughout all phases of BMP projects, including: the assessment phase; conservation planning; BMP implementation; and finally, project evaluation.

TA Needs for Farmers

The farming community is in need of new opportunities to receive the right TA for various reasons, including:

- Farmers are busy. New conservation practices are not often a high priority.
- Farmers are often unaware of all BMPs they could be doing. Information is extensive and diverse in sources. Navigating is often difficult and program based. There is a reason that both private and government agencies exist to provide assistance. However, government assistance is not easy, straightforward, efficient, or ensured, while private assistance is expensive and profit driven.

- Farmers are often an insular community and wary of interlopers. Additionally, farmers are anxious about their economic and regulatory future. On the other hand, farmers have demonstrated a willingness to share issues and concerns on their lands with trusted nonprofit partners that they would not with government agencies out of fear of fines or notices of violation.
- Many farmers are reluctant to participate in Natural Resources Conservation Service (NRCS) programs due to required upfront personal funding. Nonprofits participating in the DRWI can secure matching funds that can fund all, parts of, or upfront seed money to begin a BMP implementation project that otherwise will never get started due to economic constraints.
- Some farmers are unwilling to participate in government programs due to cultural and/or religious considerations (e.g., Plain Sect, Mennonite, etc.).
- Some farmers and landowners are unable to participate in government programs due to programmatic funding rules (income limits) but still require some cost-share assistance to encourage participation.

Proposal

This proposal recommends providing funding for nongovernmental organizations active in William Penn Foundation's DRWI to provide TA to farmers in their service areas. These organizations have a deeper programmatic knowledge and ability to leverage resources for added benefits. As the DRWI is collaboration based, this proposal would utilize partners' strengths to maximize the value of TA services. In particular, nonprofit DRWI partners fill a critical gap in the provision of TA created by government agencies that are either unaware of, or unable to access, DRWI funding.

As part of this TA program, a nonprofit would first assess all aspects of a farm operation and then remain "embedded" throughout BMP implementation. The embedded phase will incorporate the other key stages of TA: planning, BMP implementation, and evaluation.

TA Process: Assessment, Planning, BMP Implementation, Evaluation

Assessment

The project will utilize a farm assessment document, or assessment tool, that can be completed with basic farming knowledge; competency in the assessment process is trainable. An assessment tool would be customized for the DRWI but broad enough to permit regional or geographic specifics. Similar assessment documents include the PA Water Quality Action Packet for Agriculture created by Bradford and Lancaster County Conservation Districts, the Farm Conservation Planning Workbook developed by NRCS and Lancaster County Conservation District, and the Brandywine Conservancy's Agricultural BMP Assessment Guide. A DRWI assessment document will standardize planning language, format, metrics, and quality. The tool will ensure compliance with NRCS Farm Bill program funding. Further, in the past, the above-referenced assessment tools have been eligible for funding reimbursement as a deliverable in Farm Bill programs. The TA assessment phase can be employed at a variety of scales, e.g., hydrologic unit code, cluster focus area, or municipal boundary. Assessments may require more or less time, depending on several on-farm factors, including operational acreage, land use, intensity of use, existing BMPs, and resource concerns. Upon completion, the assessment will provide an inventory of known and needed BMPs, a key element in delivering the right TA to ensure efficient, effective, and cost-sensitive projects.

Conservation Planning

A key component of BMP implementation is the preparation of NRCS-level conservation plans. This serves as the basis for the implementation of BMPs. The options for funding BMP implementation include direct landowner payments, private foundation grants, and public cost-share programs (e.g., Conservation Reserve Enhancement Program, Environmental Quality Incentives Program, Regional Conservation Partnership Program, and Pennsylvania Infrastructure Investment Authority). Often it takes a combination of all sources. The assessment tool captures much of the information needed for conservation plan development. The TA provider, with landowner permission, could work with a certified NRCS conservation planner to provide the information, develop the plan, and coordinate the work with the landowner. Additional planning efforts that may arise from the assessment phase include: prescribed grazing plan, manure management plans, nutrient management plans, comprehensive nutrient management plans, and fiscal planning and economic analysis.

BMP Implementation

The BMP implementation phase is often the most resource intensive for farmers, placing additional demands on their limited time. The embedded TA provider will become an asset to the farmer as a project resource. Pressing needs farmers may express include: assistance with coordinating planning, collecting bids, and translating government programs; farmer expectation management; and big-picture problem solving. Similar work has demonstrated that farmers appreciate the continuity and responsiveness provided by embedded DRWI participants. Throughout the project, the TA provider will help facilitate relationships between the farmer and other professionals involved in the project, including planners, surveyors, engineers, contractors, and government agency officials. Lastly, should budgetary challenges occur, DRWI nonprofits can provide knowledge of additional funding sources to avoid situations that could stall project completion.

Evaluation and BMP Monitoring

Upon project completion, the TA assessment can begin again with a re-evaluation of the farm's implemented BMPs, new resource concerns, or emerging opportunities. This last phase, which often occurs when a farmer has been left by the other project participants, affords farmers additional opportunities to discuss agricultural restoration and ensures continued BMP improvement. Ultimately, delivering the right TA throughout the BMP implementation process will help promote clean water, a sustainable agricultural economy, a secure foodshed, and opportunities for new partnerships and conservation work within the Delaware River Watershed

Work Plan

Assessment Phase:

- Assessment Tool development
- Farm Assessment: 4 hours field work, 6 hours data analysis, 3 hours mapping, 2 hours admin = 15 hours/farm

Planning Phase:

- Per Farm: assessment analysis = 10 hours/farm
- NRCS-certified conservation plan (varying funding sources available) = typically \$1,500/farm

BMP Implementation Phase:

- Dependent on prescribed BMPs

Evaluation Phase:

- Per Farm: 4 hours field work, 3 hours data analysis, 2 hours mapping, 1 hour admin = 10 hours/farm

Anticipated Outcomes

Upon receiving TA, farmers will have inventories of known and needed BMPs, as well as the planning documents required to meet their regulatory and operational objectives. Motivated farmers will identify new opportunities to improve water quality throughout and after the BMP implementation process, evaluating and celebrating successes. Ultimately, “a local culture of implementation” in the agricultural community will arise as word of mouth spreads knowledge of BMPs to family, friends, neighbors, and community members. Meanwhile, opportunities are likely to emerge with new funding partners: municipalities, public and private water providers, and commercial and institutional water users.

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ACTION PLAN TO IMPLEMENT RECOMMENDATIONS

EXPANDING EXISTING EFFORTS

Create a Collection of Municipal Outreach Materials

Identify a regional Delaware River Watershed organization to create and maintain an online collection of municipal outreach materials from all of the Delaware River Watershed Initiative municipalities/clusters for all municipalities to access and use.

By: Christina Art, AICP, DVRPC

Introduction

Many municipalities create outreach materials for their residents related to stormwater in order to satisfy the “public education and outreach” minimum control measure for Municipal Separate Storm Sewer Systems. Municipal staff members and consultants often spend hours creating, publishing, and distributing these materials. With over 800 municipalities in the Delaware River Watershed and Kirkwood-Cohansey aquifer, this results in a great deal of duplication and wasted effort. A regional organization should create and maintain an online collection of municipal outreach materials from municipalities and clusters.

Examples of materials that could be housed in an online repository include: brochures, flyers, newsletter articles, social media posts, videos, door hangers, and posters. The materials would ideally be stored both as editable files (e.g., Microsoft Word, Adobe InDesign, etc.) and PDFs, allowing municipalities to either modify the materials for their own purposes or browse the finished products. There would also be search capabilities on the website so that municipal officials, committee members, educators, and others can search for materials by topic, intended audience, file type, date created, or geographic area. Ideally, the outreach materials will follow the lessons learned by Resource Media in their Public Opinion Research Synthesis for the Delaware River Watershed Initiative, in order to be especially effective.

Anticipated Outcomes

A short-term outcome will be that as more municipalities and nonprofits share outreach materials, they will spend less time creating materials from scratch and be able to devote more time to other activities that protect and improve water quality.

A long-term outcome will be that municipalities and nonprofits standardize their stormwater outreach materials, and local residents learn more about stormwater because they will have received consistent messaging from multiple sources.

Anticipated Outcomes

Creating an online collection of effective municipal outreach materials will help municipalities and other organizations use their resources (time and money) more efficiently, produce more consistent and effective messaging, and ultimately yield more information to the general public.

ACTION PLAN TO IMPLEMENT RECOMMENDATIONS

EXPANDING EXISTING EFFORTS

Continue to Work with Nonprofits to Undertake Technical Work

Expand nonprofit environmental organizations' work with municipalities to undertake technical work, such as sewer outfall mapping, monitoring effectiveness of Municipal Separate Storm Sewer System (MS4) Minimum Control Measures (e.g., rain gardens), or maintaining improvements made by the municipality.

By: Melissa Andrews, Environmental Planner, DVRPC

Introduction

A theme frequently encountered through interviews with municipalities and technical assistance providers in the Delaware River Watershed is that municipalities often do not have the capacity to protect their water quality. Communities regulated under a Total Maximum Daily Load (TMDL) or MS4 permit, however, face several requirements, including: specific tasks to reduce the volume of pollutants entering local streams; and undertaking "Minimum Control Measures," which may involve community education and outreach, pollution reduction at construction and municipal public works sites, and the elimination of illicit discharges of waste into streams. Some of this work requires specialized education and, as a whole, takes time to do well—time that is often a challenge for municipal staff, volunteers, or elected officials to commit, given the rest of their duties. Such work may include monitoring water quality to determine the presence of chemical or biological indicators of stream health, developing educational materials on water quality for businesses and residents, conducting tree plantings, maintaining green stormwater infrastructure on public properties, and modeling sediment or nutrient loading in watersheds. Many municipal leaders and staff who were interviewed for the purpose of developing this recommendation were particularly frustrated with the additional tasks required of the state's new water quality permitting processes, especially the time required to learn about and undertake these tasks effectively.

Environmentally focused entities, both public and private, are well positioned to help municipalities with their water quality projects, whether mandated or voluntary. Fortunately, the Delaware River Watershed is home to numerous watershed and other environmental organizations, land trusts, county and regional governments, and higher-education institutions that have the expertise to provide technical assistance to municipalities in these topics. The Perkiomen Watershed Conservancy and the South Jersey Land and Water Trust, as discussed below, are two organizations that have already developed programs to address the need to provide municipalities with technical assistance on water quality issues. The Perkiomen Watershed Conservancy focuses on helping municipalities with their MS4 permits, while the South Jersey Land and Water Trust provides more general resources.

Perkiomen Watershed Conservancy

The Perkiomen Watershed Conservancy, located in Montgomery County, Pennsylvania, has run an MS4 membership program for municipalities for 10 years. The program helps municipalities with MS4s achieve the Minimum Control Measures required to comply with the Pennsylvania Department of Environmental Protection's MS4 permit. In 2017, a total of 25 municipalities participated in this program.

The Conservancy offers four fee-based membership levels to municipalities. The lowest membership level includes access to educational resources for municipalities to distribute to residents, at a \$250 per-year cost for each municipality. The distribution of these resources helps municipalities fulfill their MS4 "Public Education and Outreach of Stormwater Impact" requirement. Each subsequent level of membership includes the assistance included in the previous levels, as well as an additional type of assistance. The highest level, at \$2,500 per year, includes the baseline educational materials, as well as: an online survey to collect information from residents regarding stormwater, a public workshop for residents on water quality, training for municipal staff on good "housekeeping" techniques for reducing water pollution in their own operations, and support for tree plantings and volunteer recruitment.

South Jersey Land and Water Trust

The South Jersey Land and Water Trust, which operates out of Gloucester County, New Jersey, places an emphasis on assisting groups and individuals in building water quality management skills. The land trust conducts a variety of experiential skill-building "classes" outdoors. It runs regular cleanups in waterways in southern New Jersey, which are followed by an additional activity; participants may go on a guided "Nature Walk" to better understand the environmental characteristics of that place, or they might help conduct a macroinvertebrate assessment to gauge the health of a waterway. South Jersey Land and Water Trust also runs vernal pool surveys that involve a training component, enabling volunteers to identify seasonal wetlands in their own communities. The land trust staff facilitates construction projects, including stream bank restoration and rain garden construction. Staff have organized volunteers to label storm drains with reminders to avoid dumping and distribute information about watershed health.

The South Jersey Land and Water Trust also runs more conventional lectures indoors. Staff members give presentations to workplaces on such topics as watershed education, vernal pool identification, habitat protection, threatened species conservation, and overall environmental stewardship.

Funding

Many technical assistance providers in the Delaware River Watershed are already undertaking work similar to that of the Perkiomen Watershed Conservancy and the South Jersey Land and Water Trust. Their main limitation, in helping more municipalities protect their water quality and comply with their TMDL and MS4 permits, is money. Dedicated granting programs to technical assistance providers from state governments, regional governments, county governments, or private companies or foundations would help grow a technical assistance program.

Funding Sources

Potential funding sources to expand technical assistance providers' ongoing work include:

- state governments;
- regional governments;
- counties;
- private companies; and
- foundations.

Anticipated Outcomes

Short-term outcomes include reduced pressure on municipalities to comply with their water quality regulations, and potentially higher-quality permit applications.

Long-term outcomes include higher-quality water protection efforts to improve local water quality, and the sustainment of the technical assistance providers who receive support to help municipalities with their water quality efforts.

Anticipated Outcome

An expansion of the technical assistance programs that environmental entities have already developed to help municipalities with water quality issues has benefits for the participating municipalities, the technical assistance providers helping them, and the health of the municipalities' local waterways. Technical assistance would reduce the pressure on municipalities to comply with state permits and reduce the possibility of being penalized by the state for inaccurate or late permit applications. It would enable municipalities to work faster and at a lower cost, freeing them to attend to their other duties and allocate funding to other initiatives. Oversight from technical assistance providers would increase the quality of the municipalities' water quality protection efforts and contribute toward better water quality in the municipality overall. Technical assistance providers would gain more expertise through working with municipalities, developing stronger connections, helping to lay the foundation for more conservation projects in the future, and better ensuring their longevity as local and regional advocates.

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ACTION PLAN TO IMPLEMENT RECOMMENDATIONS

INNOVATIVE NEW IDEAS

Create a Department of Public Works Certification Program

Create a certification program for public works directors to conduct Best Management Practice (BMP) stream repair/restoration projects on nonexceptional value/high quality streams, without needing to obtain permits from the Department of Environmental Protection (DEP).

By: Christina Art, AICP, DVRPC

Introduction

Many municipalities would like to do more to do protect and improve water quality, including stream cleanups and minor stream rehabilitation efforts; however, they are often prevented from engaging in this kind of work because of extensive DEP permitting requirements and associated costs. If a certification for Department of Public Works (DPW) staff were to be created, it would allow trained municipal employees to engage in stream projects without the need for such an extensive and costly permitting process. Such a program could be modeled on the existing Local Technical Assistance Program (LTAP), which is a nation-wide program that teaches DPW staff proper safety and maintenance techniques for roadway infrastructure.

LTAP has a network of 58 Centers—one in every state and Puerto Rico, as well as several regional Centers serving tribal governments—that enables local governments to improve their roads and bridges by supplying them with training, information about new technology, personalized technical assistance, and newsletters. While certain classes cover road salt application, which impacts water quality, LTAP classes do not currently directly address water quality.

Anticipated Outcomes

Municipal staff would receive additional training and be better equipped to handle work in and around streams.

Possible Partner Organizations:

State Departments of Transportation's LTAP

American Public Works Association

Anticipated Outcomes

If implemented, more staff would get trained and more stream restoration work would get accomplished.

Funding

There are different types of funding associated with this proposal. Some are startup costs to develop the program, while others are ongoing costs that would need to be paid to keep the program running. Such costs include:

- writing the curriculum;
- advertising the certification to municipal employees;
- paying instructors;
- hosting classes (photocopies of materials, snacks for participants, printed certificates, etc.);
- paying administrative staff to schedule classes, coordinate instructors, mail materials, answer questions, and make sure certificate holders stay up to date on their certification; and
- paying administrative staff to periodically monitor DPW Certification holders.

Local Technical Assistance Websites in the Delaware River Watershed:

- Delaware: <http://sites.udel.edu/dct/t2-center/>
- New Jersey: <http://cait.rutgers.edu/njltap>
- New York: <http://www.clrp.cornell.edu/clrp/LTAP.html>
- Pennsylvania: <https://www.dot7.state.pa.us/LTAP/default.aspx>

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ACTION PLAN TO IMPLEMENT RECOMMENDATIONS

INNOVATIVE NEW IDEAS

Create a Delaware River Watershed Initiative Academy

The Delaware River Watershed Initiative Academy (Watershed Academy) would improve capacity among municipal officials and professionals to implement effective policies and on-the-ground actions to protect water quality.

By: Jen Adkins, Partnership for the Delaware Estuary; Ann Hutchinson, Natural Lands; Dulcie Flaharty, Natural Lands; John Theilacker, Brandywine Conservancy; Carol Collier, Academy of Natural Sciences; Susan Caughlan, Worcester Township; Patty Elkis, Melissa Andrews, and Alison Hastings, DVRPC

Introduction

A group of professionals from many different types of organizations will come together under the Watershed Academy to coordinate, enhance, and brand educational and networking programs on municipal best practices for improving water quality, and match technical assistance (TA) providers with receptive municipalities.

Background

Effectively implementing water quality improvements at the local level requires expertise from both municipalities and TA providers. Municipal representatives and decision makers, including elected officials, appointed officials, and staff, benefit from educational and networking programs that expose them to best practices in water quality actions. Water quality TA providers, including planners, engineers, landscape architects, attorneys, advocates, and other conservation professionals, also benefit from keeping up to date on best practices and sharing experiences on what does or does not work. Building more receptivity and discernment on improving water quality, and matching receptive municipalities with expert TA providers, will increase implementation of effective municipal actions to improve and maintain water quality. Targeting activity to municipalities that are most vulnerable to water quality degradations, but receptive to action, will maximize program effectiveness. Tracking TA activity and implementation will measure performance of this program and guide future activity.

Program Concept

The overall concept is to create a Watershed Academy that provides highly valued and sought-after training and TA for municipal officials and professionals and results in implementation of effective measures to improve water quality. Watershed Academy-branded programs, events, and TA providers will demonstrate a high level

Anticipated Outcomes

Municipalities engage in training and are matched with TA providers.

Improve capacity among municipal officials and professionals to implement effective policies and on-the-ground actions to protect water quality.

Implement practices that conserve and improve water quality in the Delaware River Watershed.

of expertise and effectiveness in delivering water quality policies and tools, such as plans, land use regulations, and open space funding programs that impact water quality. The program will be coordinated by an existing regional organization in partnership with other content experts. Academy-trained professionals will have access to a peer network, continued educational opportunities, and all regional municipalities that seek TA. Incentives for municipalities to engage with Watershed Academy TA providers, programs, tools, and networks will be publicized. Municipalities that utilize the Watershed Academy on a continuum will gain access to additional incentives for future actions, possibly including more expensive acquisition and restoration activities. The Watershed Academy will assess where municipal actions are most needed, which municipal actors are most receptive to implementation, and steer TA providers to interact with these officials. Tracking activities will measure Watershed Academy performance and guide future approaches.

Funding

Execution of the Watershed Academy is dependent on securing funding to subsidize the municipalities' TA work and for partner organizations to administer the program. With success, additional funders, including government-funded programs for municipalities, would be solicited to join forces to further channel and support a concerted focus on municipal actions to improve water quality.

STEPS:

1. Establish criteria for the Watershed Academy brand.
2. Promote brand and recruit existing programs and TA providers.
3. Conduct watershed-wide assessment of municipal vulnerability (geographic information system analyses based on science) and receptivity (subjective based on local knowledge).
4. Match Watershed Academy TA providers with vulnerable and receptive municipalities (Strike Force approach).
5. Coordinate with existing programs, offering continued education and networking for both TA providers and municipal officials.
6. Evaluate effectiveness and adjust approach accordingly.

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 ACTION PLAN TO IMPLEMENT RECOMMENDATIONS

INNOVATIVE NEW IDEAS

Create a Municipal Incentive Program that Encourages Property Owners

Create an incentive program at the municipal level that encourages property owners to reduce impervious surfaces and install low-impact development (LID)/green stormwater infrastructure (GSI) elements.

By: Melissa Andrews, Environmental Planner, DVRPC

Introduction

Municipalities can manage all of the stormwater that falls on their land and still not achieve their stormwater mitigation goals: privately owned land makes up a greater percentage of the total land area in virtually every community and thus has a greater influence on water quality. To address this imbalance, municipalities rely on some combination of incentives and penalties at their disposal to motivate landowners to manage their own stormwater.

An incentive program for managing stormwater, as a voluntary strategy that provides financial assistance to participating property owners, is a politically friendly and positive approach that should be easy for most municipalities to support. There are different “flavors” of incentive programs that have precedent in the Delaware River Basin and in the United States generally. Municipalities can use these incentive programs separately or in combination to address their community’s individual circumstances and needs. For example, a municipality already running a stormwater fee program can use an incentive program to help property owners reduce their stormwater fees without losing momentum toward achieving its stormwater runoff objectives. The stormwater fee itself can help defray the costs of running the incentive program. A municipality facing rapid growth and development pressures can use incentives for developers to get them to incorporate green stormwater treatments into site plans. A municipality that wants to improve water quality in a single area (such as a flood-prone neighborhood or an impaired watershed) can use a grant incentive program that funds stormwater projects based on applicants’ locations.

Partners

Municipalities have the authority to run a stormwater incentive program, although not all municipalities may have the authority to provide funding directly to private landowners for projects. Municipalities without this authority may seek to partner with a nongovernmental entity who can disburse funds appropriately.

Because incentive programs are not common in municipalities within the Delaware River Watershed, this recommendation would also benefit from an outreach program. **Water quality advocates**, whether in the public or private sectors, have a role in communicating the benefits of stormwater incentive programs to municipal officials and staff, as well as to residents and local business owners.

Background

There are five main categories of stormwater incentives:

- **Stormwater fee discounts:** Municipalities reduce property owners' stormwater fees when they use LID or GSI strategies to reduce stormwater runoff rates and volumes on their property.
- **Development incentives:** Municipalities offer permitting benefits to developers who include LID/GSI in their site design. Benefits may include faster permitting, fewer stormwater requirements, or increases in floor-area ratios (i.e., the ability to add more floors to their building).
- **Grants:** Municipalities provide grants or matching grants to property owners to construct LID/GSI on their properties.
- **Rebates and installation financing:** Municipalities provide funding, tax credits, or reimbursements to property owners who install LID/GSI. Because this incentive can occur after construction, funds can be awarded based on performance of the project.
- **Awards and recognition programs:** Municipalities publicly promote exemplary LID/GSI projects that property owners have constructed (and/or designed), sometimes with a monetary award as well. This incentive was a separate recommendation in this project.

The U.S. Environmental Protection Agency developed reports about municipal stormwater incentives in [2009](#) and in [2014](#) that describe these strategies in greater detail and offer case studies in municipalities throughout the United States. Within the Delaware River Watershed, however, the incentives approach is still rare. The City of Philadelphia and West Chester Borough are two of the currently few municipalities in the region that run landowner incentive programs. An explanation of their programs follows.

City of Philadelphia

Through its Green City, Clean Waters program, the City of Philadelphia charges property owners a stormwater fee based on the property's impervious surface coverage. Nonresidential property owners can reduce their fee by participating in the [Stormwater Management Incentives Program](#), which is a combination of a **stormwater fee reduction and grant incentive**. This program provides financial assistance in the form of a grant for the construction of GSI that manages the first inch of stormwater runoff onsite. As described in the [grant manual](#), eligible projects include detention and retention basins, green roofs, porous paving, rain gardens, and other types of GSI.

The grant is competitive, and projects are awarded based on a variety of factors, including the total volume of stormwater managed onsite, the project's cost efficiency, integration with other projects, and public education benefits. Property owners must sign an operations and maintenance agreement with the Philadelphia Water Department when they receive the grant to ensure that the GSI will be maintained in the long term.

Philadelphia residents can also participate in the Rain Check Program, which is funded by the Philadelphia Water Department and run by the Pennsylvania Horticultural Society. Residents participate in an educational workshop and can get a **free rain barrel** or **cost reductions** in installing a downspout planter, rain garden, or porous paving.

Borough of West Chester

West Chester Borough runs a **stormwater fee discount** program alongside its "Stream Protection Fee" (stormwater fee) program. According to the borough's [policies and procedures manual](#), the goals of the

incentive program are to encourage private investment in best management practices and ensure that the borough's fee program is "equitable and fair" by giving property owners opportunities to reduce their fees.

Property owners may receive a reduction of up to 60 percent of their fees, in one of two forms: a one-time cash-back rebate only available to single-family residential properties, or a recurring fee reduction credit available for nonresidential properties and all types of residential properties. Properties with LID/GSI projects in one of five categories are eligible; sample projects within these five categories include rain gardens, constructed wetlands, vegetated swales, and tree canopy cover. West Chester gives further help to residents participating in this program by running a smaller **tree donation program**.

West Chester awards credits to property owners based on the number of square feet of impervious surface that the property owners manage using LID/GSI. Property owners apply to the borough's public works department, and if approved, receive the credit retroactively and applied to their bills for up to three years.

Anticipated Outcomes

By running an incentive program, municipalities can expand stormwater mitigation efforts beyond their own properties and into the community at large. Particularly through granting and rebate/installation programs, municipalities can target areas of greater need. By incentivizing private landowners to do the "heavy lifting" of installing and monitoring LID/GSI, such programs free municipalities to take on a smaller oversight role than that required for regulations.

Proposal

Municipalities develop their own incentive programs, which, as mentioned previously, they can tailor to local circumstances and needs. The best strategies for a municipality depend on the following factors:

- the authority that the municipality has with regard private landowners;
- availability of internal and external funding sources;
- capacity of municipal staff or a partner entity to develop and run the program;
- interest from potential key partners (e.g., elected officials, neighbors in target communities, developers, GSI designers/builders);
- local development pressures (both for determining target areas and development incentives);
- appropriate GSI treatments for addressing local water quality impairments; and
- priority properties/neighborhoods (e.g., first-come, first-served; priority neighborhoods with high levels of imperviousness; many small versus several large; lower-income communities).

Funding

Some municipalities may be able to pay for running the incentive program, or the incentives themselves, out of their annual budget. Most municipalities will need some outside assistance with initiating the program or successfully running it in the long term. State departments of education; county conservation districts; or agencies, foundations, or businesses with a local or regional focus could provide matching grants either to serve as (1) start-up funds for municipalities to plan and execute their incentive program, or (2) yearly grants for select municipalities to run their program annually (perhaps ones that have greater financial need or are in a target watershed).

In general, municipalities are likely to get a higher return on investment, in terms of money spent on water quality improvements, by targeting large property owners in neighborhoods with high impermeability that are

located in the municipality's most impaired watersheds. Municipalities can find this information in their Municipal Separate Storm Sewer System permit, or from the use of a stormwater modeling software.

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ACTION PLAN TO IMPLEMENT RECOMMENDATIONS

INNOVATIVE NEW IDEAS

Create a Municipal Environmental Defense Fund

The Municipal Environmental Defense Fund could be a resource administered by an established municipal assistance organization to provide legal defense for the Delaware River Watershed's municipalities' environmentally protective measures when faced with a legal challenge.

By: Alice Baker, Esq., PennFuture; and Alison Hastings, AICP/PP, DVRPC

Purpose

Environmentally protective zoning and ordinances are frequently set aside to provide more favorable conditions for developers. In the face of development pressures, municipalities have the choice of defending their local laws at great expense and with uncertain outcomes or settling conflicts by allowing developers to move ahead with projects and providing waivers or variances to municipally implemented environmental protections. Too often municipalities take the latter option, sacrificing natural resources and undermining regulations to avoid costly legal fees.

This decision is frequently made in light of a lack of legal resources, both in implementing defensible ordinances and in defending ordinances when challenged. This proposal describes a structure to provide legal defense to Pennsylvania municipalities once a challenge or threat of challenge to a municipal ordinance has been levied. This recommendation focuses on Pennsylvania only, as a fully implemented legal defense fund would vary from state to state based on state land use law.

This recommendation focuses on providing legal guidance when a credible legal challenge is threatened and litigation is actually initiated, with the recognition that upfront education on crafting defensible ordinances is critical and the understanding that other recommendations and organizations plan to establish educational opportunities for municipal managers and solicitors on this topic.

The Pennsylvania State Association of Township Commissioners (PSATC) is an organization that has ongoing relationships with many first-class townships. PSATC has an existing legal defense fund that represents the interests of first-class townships through amicus curiae ("friend of the court") briefs in court cases at the state level.

This recommendation seeks to broaden PSATC's program to provide representation for second-class townships and boroughs, in addition to first-class townships. It further develops the program established by PSATC to assure the representation focuses on defense of *environmentally* protective programs and provides direct legal guidance before a challenge is brought and during initial engagement (rather than simply a friend of the court brief once litigation is in full swing).

Barriers to advancing these additional roles include: (1) implementing a structure to assure the environmental integrity of the law/ordinance, (2) securing adequate baseline funding to start the fund and administer the fund, (3) establishing a reserve fund to handle potential court case, and (4) accessing legal skills.

Anticipated Outcomes

As the Municipal Environmental Defense Fund becomes established, the anticipated result is that fewer waivers and variances will be provided from environmentally protective ordinances. This will be the result of municipalities' increased confidence in their ability to defend challenged measures. To accomplish this long-term goal, an initial increase in litigation over environmentally protective measures may be expected. However, as developers realize municipalities are less willing to disregard ordinances, litigation should decrease.

Anticipated Outcomes

A long-term outcome will be that municipalities issue fewer waivers and variances as municipalities gain confidence in their ability to defend challenged measures, and as supportive case law increases.

A short-term outcome will be an initial increase in litigation while the fund supports court cases.

Proposal

The Municipal Environmental Defense Fund could be housed within an existing organization, such as the Pennsylvania Municipal League (PML). PML is a nonprofit, nonpartisan organization that represents participating Pennsylvania cities, townships, towns, boroughs, and home rule municipalities. Locating such a program within an existing municipal organization that has gained the trust of many municipalities is important. Environmental organizations with legal capacity are often viewed as pursuing a predetermined agenda and not trusted by municipalities.

PML has established both relationships with municipalities and the level of trust necessary to provide legal support in this context. In order to take on direct representation of municipalities, PML would need to increase its capacity through additional funding streams and legal expertise.

Locating the Municipal Environmental Defense Fund at an existing municipal organization is advantageous to getting municipal buy-in. Environmental organizations with legal capacity may have conflicts of interest in accepting membership fees or payments from municipalities; the environmental organizations may want to reserve the right to litigate against a municipality at a future time on separate (or related) issues.

PML already requires municipalities pay an annual membership fee. An additional membership cost could be assessed to access the Municipal Environmental Defense Fund services. The fee could be paid on an annual basis regardless of whether the municipality seeks assistance from the fund, but only those that have paid the annual membership would be eligible to take advantage of the services the fund provides. Additional lines of funding such as grants and donations would be necessary to secure.

To increase municipal and legal expertise, the program could work with local bar associations or law schools, and possibly establish an environmental land use law clinic at a law school.

To ensure that the measures defended by the fund are environmentally sound, a five-member board could review all requests for assistance. The board could be composed of representatives from the environmental nonprofit community, municipalities, and legal professions.

Funding

Although the administrative costs would be relatively stable, the costs associated with an attorney's time spent on a court case could vary greatly and are difficult to estimate. Attorneys representing municipalities through the Municipal Environmental Defense Fund could seek reimbursement of attorney fees and costs as allowed under the Municipal Planning Code Section 617.2(a). Recovered fees and costs could be used by the Municipal Environmental Defense Fund to sustain future activities. The fund would need to employ three to five full-time attorneys to provide initial consultations to the municipalities, provide a description of the legal issues and positions to the board, and, in most instances, provide continuing representation.

After a case is accepted by the fund, the legal representation would be taken on by an in-house attorney, a pro bono attorney, or by retaining a law firm. The Municipal Environmental Defense Fund could regularly seek legal interns from area law schools to generate additional capacity.

Timeframe

Initial implementation of the Pennsylvania fund, securing adequate funding, and promoting its availability could likely take a year. By the second year, the Pennsylvania fund could be fully operational. By the end of the third year, it could be expected that the Pennsylvania fund provides lessons learned, and other organizations or funders can explore creating similar programs in other Delaware River Watershed states.


ACTION PLAN TO IMPLEMENT RECOMMENDATIONS

INNOVATIVE NEW IDEAS

Encourage Greater Upstream/Downstream Municipal Collaboration

Municipalities should look to collaborate with each other and technical assistance (TA) providers to achieve the greatest bang for the buck when implementing Pollutant Reduction Plans (PRPs), total maximum daily load plans, and installing best management practices (BMPs) to address nonpoint source pollution issues. To encourage higher levels of collaboration, state departments of environmental protection should allow collaboration among noncontiguous municipalities in an affected watershed to promote upstream source water protection.

By: Chris Linn, DVRPC

Introduction

As per the Federal Clean Water Act, municipalities that operate a municipal separate storm sewer system (MS4 municipalities) and that are located within a U.S. Census Bureau-defined urbanized area must comply with a basic set of regulations to manage stormwater runoff. These are organized around what are commonly referred to as the six minimum control measures, or MCMs. While each state organizes its program in slightly different ways, generally the six MCMs are as follows:

- 1) public education and outreach;
- 2) public participation and involvement;
- 3) illicit discharge detection and elimination;
- 4) stormwater runoff control at construction sites;
- 5) post-construction stormwater management at new development and redevelopment sites; and
- 6) pollution prevention and good housekeeping at facilities owned by, and with activities performed by, the permittee, such as public works facilities.

Notably, municipalities must manage stormwater at new construction sites, but the rules governing MS4 municipalities, which were first promulgated in 1999, do not directly require municipalities to address stormwater runoff from development existing *prior* to the establishment of the MS4 regulations. As a result, many of the Delaware River Basin's waterways in urban and suburban areas, a large number of which were developed prior to 1999, are impaired by stormwater runoff, particularly due to the discharge of nutrients and sediments.

A New Mandate

To address this issue, some states, including Pennsylvania, require municipalities that discharge stormwater into impaired waterways to develop and implement plans to reduce the amount of pollutants discharged into those waterways, regardless of whether the runoff results from new or existing development. In Pennsylvania,

these plans are known as Pollutant Reduction Plans, or PRPs. Beginning in 2018 and extending for a period of five years, municipalities will be required to construct on-the-ground projects (referred to as BMPs), such as riparian buffers, rain gardens, or streambank restoration projects, to reduce the amount of nonpoint source pollutants, specifically sediments and nutrients, entering surface water bodies.

Although municipalities have generally been able to comply with the six MCMs using existing resources and within their own geographic territory, implementing the new pollution reduction rules on all existing development is a significant new undertaking. In addition, the siting of on-the-ground BMP projects to reduce pollutant loads may or may not make sense within the boundaries of a particular municipality. Accordingly, municipalities should look at opportunities to collaborate with neighboring towns to achieve the greatest bang for the buck when implementing BMPs.

Pollutant Reduction Plans

Between 2018 and 2023, Pennsylvania MS4 municipalities discharging into impaired waters must achieve a 10 percent reduction in the amount of sediment they discharge over their current baseline. Municipalities are free to implement whatever BMPs they deem most effective within their own boundaries. However, achieving the required reductions can often be more cost effective if projects are implemented in neighboring or upstream municipalities within the same watershed. This is especially true in built-up municipalities, such as boroughs, where there may not be enough room to construct hundreds of acres of rain gardens, create or restore riparian buffers, or install some other type of BMP needed to trap and remove sediments from streams. In these built-up municipalities, acquiring the land to construct BMPs would likely be expensive and may even be impossible. Fortunately, in terms of watershed-wide water quality, the specific municipality in which sediment reductions are achieved does not matter.

Accordingly, the Pennsylvania Department of Environmental Protection (PADEP) encourages neighboring MS4 permittees to collaborate in the development and implementation of their PRPs and in the eventual operation and maintenance of any structural BMPs installed as part of such plans. Credit for the pollutant reductions afforded by the BMPs may be shared between the collaborating MS4s.

Municipal Collaboration

Because of the potential advantages and increased flexibility of this approach, municipalities should pursue and implement multi-municipal or even county-wide PRPs. To do so, PADEP requires collaborating municipalities to have a written agreement to ensure proper roles and responsibilities. According to PADEP, all such agreements should include the following topics:

- Scope of the Agreement:
 - complete PRP implementation (or individual BMP implementation).
- Roles and Responsibilities:
 - how projects will be selected;
 - selection of engineering and other contracted services;
 - long-term operation and maintenance;
 - adaptive management of the PRP (or the individual BMPs) over the permit period; and
 - commitment to using the PRP (or to implementing the individual BMPs).
- Allocations of cost and pollutant reduction:
 - methodology for sharing the cost; and

- methodology for distributing the pollutant reductions.
- Timeline for implementation:
 - schedule of milestones to complete and implement the plan (or the individual BMPs).

Proposal

The general outline and requirements for municipal collaboration are straightforward in concept. However, many municipalities do not have the expertise and staff capacity to prepare all the materials and conduct the technical analyses required for municipal collaboration. Accordingly, a consortium of nonprofits, counties, and other TA providers should be established to help municipalities conceive, plan, and design multi-municipal PRPs together. This TA could be provided by the *Strike Force* proposed in a separate Action Plan, or by specific nonprofits with a focus on these issues.

Pennsylvania already has two excellent examples of collaborative approaches to address watershed-wide nonpoint source pollution from stormwater runoff, one led by a county and the other led by a consortium of nonprofit and academic institutions. For more information, visit the sites for the [York County Stormwater Consortium](#) and the [Wissahickon Clean Water Partnership](#).

Action for PADEP

According to PADEP guidelines, *neighboring* municipalities can work together on implementing PRPs and installing BMPs. While more than one municipality may collaborate, thus potentially covering a large geographic area, collaborating municipalities should have *contiguous* land areas according to PADEP.

PADEP's encouragement of collaboration is positive, but the need to be contiguous limits the ability of a single municipality to collaborate with another noncontiguous municipality in an upstream (and likely less developed) portion of an affected watershed on source water protection projects.

PADEP should revise its [PRP guidance](#) to explicitly allow collaboration among noncontiguous municipalities in the same affected watershed. This would further increase the flexibility of municipalities to pursue joint PRPs and could further enhance the ability of BMPs to achieve the greatest pollutant reductions while encouraging upstream source water protection. Agreements between the cooperating municipalities would still be required to ensure that each participating municipality receives commensurate credit for its role in reducing pollutants.

Anticipated Outcomes

By facilitating increased collaboration through the provision of TA and by allowing increased collaboration across wider geographic areas, on-the-ground BMPs that achieve the greatest overall pollution reductions and

Municipal Collaboration: Case Study

The municipalities of the Wissahickon Creek Watershed in southeastern Pennsylvania joined together to form the **Wissahickon Clean Water Partnership**, a coalition of towns and sewer authorities to address impaired streams. The partnership has been facilitated by TA provided by the Pennsylvania Environmental Council, Temple University Center for Sustainable Communities, and the Environmental Finance Center of University of Maryland.

By working together on a coordinated solution, the Wissahickon Clean Water Partnership aims to ensure that local interests are emphasized while helping municipalities, sewer authorities and taxpayers keep costs down in the long run. The ultimate goal of the partnership is to synthesize a Water Quality Improvement Plan to meet pollutant reduction requirements and to protect and improve the Wissahickon Creek for all to enjoy.

ancillary community benefits for a watershed will be planned, designed, built, and maintained in a much more efficient manner.

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