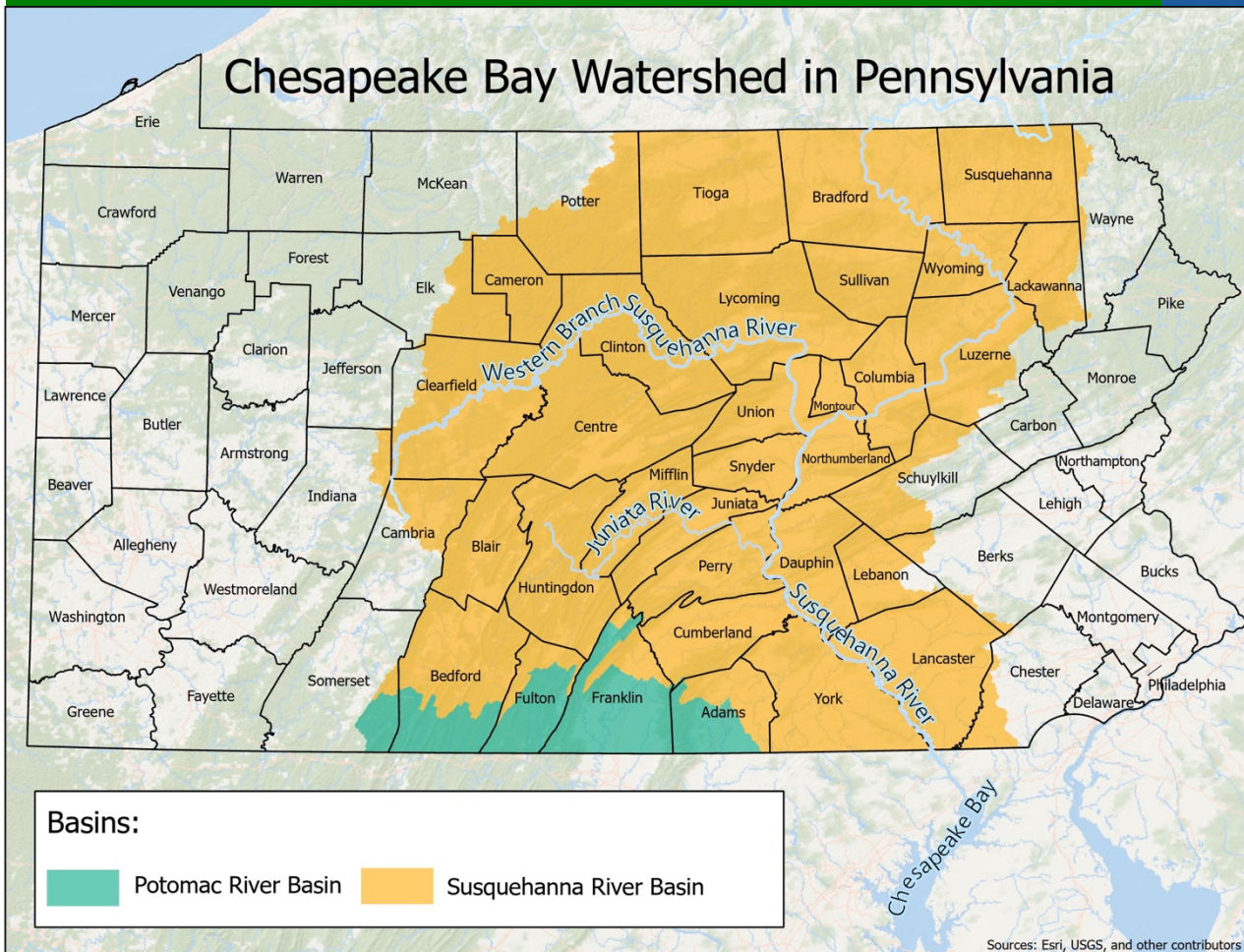




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Stormwater Finance & Outreach in Pennsylvania's Chesapeake Bay MS4 Communities



Prepared by:



ENVIRONMENTAL FINANCE CENTER

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Project Overview

Background

More than 1,000 Pennsylvania municipalities have a National Pollution Discharge Elimination System (NPDES) Municipal Separate Sewer System (MS4) permit that requires specific actions be taken to protect and restore local water quality. For those in the Chesapeake Bay Watershed, there is the additional expectation of fulfilling certain pollution reduction obligations associated with the state's Total Maximum Daily Load (TMDL) limitations. Recognizing that meeting these expectations is one of the costliest challenges local governments in Pennsylvania face, the Environmental Protection Agency's (EPA) Region 3 Office engaged the University of Maryland's Environmental Finance Center (EFC) to provide direct technical assistance designed to help these communities map a path forward for implementation and financing.

Goals

This project was intended to accomplish two main goals: 1) participate in, and support the delivery of, virtual stormwater forums that would reach a broad swath of Pennsylvania MS4 communities with information and examples of how communities are working to meet permit requirements, and 2) provide direct assistance to at least ten communities to advance effective and efficient financing strategies for achieving stormwater expectations and priorities.

Methods

The EFC supported TetraTech in the development of three virtual stormwater forums held on February 17-18, May 5-6, and June 9-10, 2021. The EFC participated in bi-weekly meetings (from November 2020 to June 2021) coordinated by TetraTech to identify potential session topics, share recruitment of speakers, and define roles and responsibilities for promotion of the opportunities among communities. The EFC gave a presentation (or in some cases multiple presentations) on Stormwater Finance Basics and/or Grants and showcased the types of technical assistance support available to communities.

The EFC used multiple methods for identifying communities for technical assistance offerings. Some communities reached out through their Countywide Action Plan Coordinators as a result of having participated in the forums, others were suggested by project partners at Pennsylvania Department of the Environment (PA DEP), EPA Region 3, or existing trusted community partners such as the Pennsylvania Association of Boroughs (PSAB) and the Pennsylvania Capitol Region Council of Governments (CapCOG). These conversations each shed light on the common challenges and barriers communities are facing in meeting their stormwater permit requirements, as well as identified additional communities potentially at a level of readiness for direct engagement.

In addition, the EFC was able to leverage existing professional connections from previous EFC projects and work throughout the Chesapeake Bay Watershed in Pennsylvania, such as the *Seeking*

Stormwater Solutions blended learning training program with five boroughs that included Oxford and Wormleysburg.

The EFC explored the potential for delivery of technical assistance with:

- Lancaster Clean Water Partners
- Franklin County Conservation District
- South Central Pennsylvania Stormwater Collaborative
- Columbia County MS4 Coalition
- Oxford Borough
- Wormleysburg Borough
- Lycoming County
- Chambersburg Borough
- Bloomsburg-Berwick

After these discussions, the EFC worked one-on-one with communities to analyze their stormwater management priorities and programmatic needs. This one-on-one support allowed EFC to narrow technical assistance offerings to support the community in clearing barriers to achieving permit requirements, preparing for future nutrient reduction expectations, meeting community priorities, and reaping the benefits of having clean and healthy local waterways.

Communities that were identified in this process and the type of technical assistance they received are discussed in greater detail in the next section of this report.

Community Spotlights

The type of assistance the EFC provided was designed to meet each community where they were in establishing and advancing their stormwater programming. Assistance was tailored to address the scale, timing, local appetite, and context of each community.

With the county-scale efforts and collaboratives, the EFC identified strategies for how to establish a private funding bank, developed strategies for estimating costs and tracking investments, or facilitated discussions around approaches to funding and financing Countywide Action Plan (CAP) implementation.

A common thread among all the communities was the desire to foster connections with other regulated municipalities in Pennsylvania and partners that could potentially support program implementation; therefore, the EFC identified partnerships, potential revenue sources and structures, and other opportunities to help more effectively and efficiently improve local water quality and meet the stormwater permit requirements for each technical assistance recipient.

Franklin County

During EFC's initial conversation with Franklin County, the CAP Coordinator identified two specific technical assistance needs: 1) the desire to establish a private funding bank or organization, similar to Lancaster Clean Water Partners, that would provide County-wide financial and technical assistance to private landowners to help close the gaps that currently exist, and 2) developing a system to facilitate the process of identifying and verifying practices that aren't currently on record so that the County can take credit for them. Follow up conversations with the CAP Coordinator led to a focus on the task of establishing a new clean water entity to serve private landowners, as the County was able to secure alternate funding and partnerships that made headway on task of identifying and verifying undocumented practices.

Over the course of six months, the EFC helped Franklin County develop a plan for the formation of a new, County-wide, water quality organization, that would be independent of governmental entities and able to accept funds from all sources, including private donations. After reviewing the structures of several organizations, the CAP Coordinator and steering committee decided that the structure and mission of Lancaster Clean Water Partners resonated most with their goals for the new organization. Once that decision was made, the task shifted to developing a framework for initial needs and fundraising strategies. The table developed to allow for the comparison of potential models is included as an appendix to this report.

The most urgent need identified was to find an existing entity that could serve as a fiscal agent for the new organization until they reach a point where they are able to stand on their own. The CAP Coordinator and steering committee initially decided they wanted to approach the Fulton Center for Sustainability at Wilson College to fulfill this role, and the EFC drafted an email for the CAP

Coordinator to use for initial outreach to Wilson. Ultimately, concerns were expressed regarding the challenges of partnering with academic institutions. In addition, a casual conversation with South Mountain Partnership (SMP) indicated potential interest in a partnership. After discussing the concerns, pros, and cons, a decision was made to pivot from Wilson College and approach SMP, and the CAP coordinator set up a meeting with SMP for early April.

The CAP Coordinator also expressed interest in retaining the EFC's services for continued support with this process beyond the EPA technical assistance award. The CAP Coordinator was able to secure funds from PA DEP to issue a contract to the EFC, not to exceed \$10,000, through December 31, 2022, that will allow the EFC to continue the work with the CAP coordinator to pursue establishing a new, County-wide, water quality organization. The scope of work for that contract is included with this report. Additionally, the EFC submitted a proposal for the NFWF Technical Assistance program to continue working on this project after the contract with Franklin County ends.

Lancaster Clean Water Partners

The EFC's work with the Lancaster Clean Water Partners (LCWP) was an outgrowth of intermittent discussions about financing capacity needs to support successful implementation of the countywide action plan (CAP). The EFC has engaged with LCWP at various points during the development of the countywide action plan and through EFC's participation in the Octoraro Source Water Collaborative. The EFC has had sustained engagement in the Oxford Region of Chester County that has also resulted in interactions with LCWP because the Octoraro Creek is a shared watershed between Lancaster and Chester counties. Finally, the EFC coordinated research with LCWP regarding water utility financing for eight communities in the Upper Conestoga River watershed in the fall of 2021.

LCWP has become the trusted partner in Lancaster County, convening organizations and entities to develop and implement the action plan. Lancaster County is a Tier 1 county and is one of the primary sources of nutrients and sediment from Pennsylvania reaching the Chesapeake Bay. Many of the goals and initiatives of LCWP align with the Countywide Action Plan. An important part of achieving LCWP's goals and the CAP goals is accessing sufficient long-term funding and financing to implement needed projects in the County. Tracking these investments is challenging because the project funding is widely distributed to a variety of entities, from the County and municipal governments to conservation organizations. Accessing information about investments can require approvals from landowners, federal agencies, or grant funders. However, without any sense of the scale and kind of funding available, the stakeholders in the County cannot adapt plans to seek funding and financing to implement the most efficient and effective strategies. Predictability of funding is essential for success.

For this project, the EFC partnered with LCWP to develop a high-level funding map to better understand where funding and financing is available to address the four priority areas outlined in the CAP, where there are challenges to using the existing funds effectively, and where there are gaps in

funding. LCWP shared the information it has regarding grant and programmatic funding coming into the County for project implementation aligned with the CAP. The EFC reviewed this information for this initial analysis and sought to align the funding information according to the CAP priorities, considering current contributions and the likelihood of future contributions. This analysis was coupled with a visual map to better understand gaps in funding and potential gaps in programming and partnerships. The EFC recommended adopting one of two strategies to track funding and financing needs: 1) identifying large funding sources for each CAP priority and following trends in annual contributions to help develop future financing needs, or 2) using the experience gained through the rapid stream delisting strategy about specific project costs to predict costs for future catchment rapid delisting projects. A sample tracking spreadsheet was developed that mirrored these two approaches. In addition, the EFC developed a set of municipal stormwater financing scenarios to demonstrate how American Rescue Plan Act (ARPA), general fund, grant, fee, and debt financing resources could be combined to meet MS4 pollution reduction obligations. These deliverables were shared with LCWP and are included as an attachment to this report. A virtual follow up discussion is planned for May.

Oxford Borough

The EFC has had a long-term relationship with Oxford Borough dating back to the borough first becoming a permittee. The EFC, in partnership with the Brandywine Conservancy, supported the Borough and East Nottingham Township in considering a collaborative approach to their MS4 permits. That work then transitioned into broader engagement across the Oxford Region with support of funding from the National Fish and Wildlife Foundation to identify gaps in capacity and funding to meet Chesapeake Bay goals in Chester County. This project resulted in a strong relationship with the Oxford Regional Planning Committee and helped identify water quality priorities for these communities. The current Oxford Borough President, Kathryn Cloyd, served on the Oxford Regional Planning Committee at the time and joined the Regional Environmental Advisory Council that was formed as a result of that project. She then signed up for the peer-to-peer learning project called *Seeking Stormwater Solutions* that the EFC offered in collaboration with the Alliance for the Chesapeake Bay. When the EFC conducted outreach to Pennsylvania communities in the Chesapeake Bay watershed about this project, Kathryn encouraged the acting Borough Manager, and then the new Borough Manager, to work with the EFC to develop a stormwater financing strategy for the Borough.

Because of this long history with the Borough, the EFC was able to engage quickly. Even though the Borough is covered by the MS4 program in Pennsylvania, the previous Borough Manager and Council contested their ability to comply with the program requirements because of the costs. With a change in Borough leadership and a new consulting engineer, the Borough is now taking a proactive approach to stormwater management. The Borough engaged with the Alliance for the Chesapeake Bay to implement several riparian buffers and have built several street bump outs as rain gardens.

For the purposes of this project, the Borough staff and elected officials asked the EFC to support the development of a stormwater financing strategy. The EFC worked with Borough staff and the consulting engineer to identify budget documents and stormwater management planning information to be used as the foundation for the financing strategy. In addition, the Borough had identified a set of projects to meet the pollution reduction requirements of their MS4 permit. That draft plan included an estimated cost of \$685,000.

The EFC discussed with the group that it would be prudent to budget for pollution load reductions anticipated in the next MS4 permit, meaning the Borough would be budgeting for approximately \$1.4 million over 10 years for project implementation, including personnel and maintenance costs. Some additional information is needed to achieve more precise estimates. It is important to note that the Borough's annual operating budget is approximately \$2 million.

The EFC presented at a Borough finance committee meeting and at a Borough Council meeting to share our work, receive feedback, and run through some information about stormwater fee programs from some Pennsylvania boroughs. The Borough has committed its ARPA funds to initiating a stormwater fund in its budget and has initiated discussions with East Nottingham about partnering on BMP implementation, including opportunities for shared services around BMP inspections and operations and maintenance. The Borough is also going to attend the required training to be able to apply for Dirt and Gravel Road/Low Volume Road grant funds. Finally, the Borough is actively learning about stormwater fees in the region and considering initiating a feasibility study for a fee.

South Central Pennsylvania Stormwater Collaborative

The South Central Pennsylvania Stormwater Collaborative (the Collaborative) is an informal collection of over 40 municipalities, engineering consultants, nonprofits, and others from the Cities of Harrisburg and York, and Franklin, Adams, Cumberland, and Dauphin Counties, that meet quarterly to discuss their experiences in managing their MS4 permits. While the challenges faced vary widely, addressing the "how to pay" question is common to most. Each communities' programs are at varying stages of maturity, with newer MS4s starting at square one on how to fund their program, while longer-standing programs have, or are considering fee systems, and are looking at debt financing options as well.

The EFC met with leadership from the Collaborative to discuss what type of support would be most beneficial to the group. It was decided that a discussion around approaches to funding and financing Countywide Action Plan implementation would be valued, so the EFC delivered a webinar at the virtual fall meeting that explored budgeting considerations and the funding programs and financing strategies that could deliver the level of stormwater services that would meet the expectations of the community and satisfy the state agency. The slide deck from this webinar, which was well attended and included a highly engaged discussion session, is offered as an attachment to this report.

Wormleysburg Borough

The EFC began to work with the Borough of Wormleysburg through the *Seeking Stormwater Solutions* blended learning training program that ran from Fall 2020 to Spring 2021. Wormleysburg is a new permittee with its current MS4 permit expiring in 2023. The Borough currently draws funds for stormwater management programming on an as-needed basis from its general fund. Therefore, the Borough was eager to work with the EFC to identify long-term strategies that will establish a funding stream that is equitable and effective in generating sufficient revenue for a comprehensive stormwater program that both addresses MS4 permit requirements and meets local priorities.

The EFC gathered relevant data from appropriate Borough staff and evaluated the existing program structure, determined current capacity to implement what was needed, and identified trends in funding levels. Through this review process and conversations with the Borough, the EFC made the following recommendations.

Partner effectively. Many required, permitted activities can be accomplished more efficiently through partnerships with surrounding municipalities, the Cumberland County Conservation District, the South Central PA Stormwater Collaborative, conservation and watershed organizations, Capital Region Council of Governments (CapCOG), and academic institutions.

Increase the mix of revenue sources that the Borough relies upon for stormwater management programming. The EFC recommended establishing a budgeting practice of annually allocating some of the Borough's liquid fuels tax revenue to a stormwater management fund, as well as more formally allocating a portion of the general fund to a stormwater management fund, and jump-starting a new stormwater fund using ARPA dollars. Lastly, the EFC pointed to several sources of potential grant funding for the Borough to consider using for implementing best management practices.

Consider new funding streams. The EFC recommended that the Borough take advantage of PENNVEST's Small Project Program and consider partnering with Cumberland County to establish a county funding mechanism through a sublevel revolving fund. The EFC also provided guidance on how to develop a stormwater fee for leadership at the Borough to consider.

Develop an asset management plan. This strategy encourages Wormleysburg to make small investments in operations and maintenance now to help avoid significant expenses in the face of catastrophic system failure or emergency response and repair that can have impacts that ripple through the local economy.

Utilize utilize a "dig once" approach. This strategy couples planning for gray infrastructure with green infrastructure in the Municipality's capital improvement planning processes whenever possible, whether those processes are formal and result in a Capital Improvement Plan (CIP) or whether they are informal. By utilizing an integrated "Dig Once" approach, Wormleysburg could achieve more cost-effective solutions and a greater return on investment.

Outputs and Outcomes

Outputs: Outputs from the EFC's engagement include:

- Participation in the development (including bi-weekly planning calls), delivery, and content of three stormwater forums.
- One matrix of water quality organizational structures (Franklin County).
- One scope of work successfully funded to continue support of Clean Water for Franklin County (Franklin County).
- One High-Level Financing Map for Implementation of the Lancaster County Countywide Action Plan (Lancaster County).
- One set of MS4 Funding Scenarios (Lancaster County).
- One CAP Progress Tracking Spreadsheet (Lancaster County).
- Two stormwater financing strategies (Oxford and Wormleysburg Boroughs).
- One Presentation to Borough Council on stormwater fees (Oxford Borough).
- One County Action Plan finance presentation to more than 40 communities and supporting stakeholders (South Central Pennsylvania Stormwater Collaborative).
- Participation in monthly updates with EPA Region 3 and PA DEP.

Outcomes: The stormwater forums that EFC supported the development and delivery of connected a broad swath of Pennsylvania MS4 communities with information and examples of approaches to working to meet permit requirements and local water quality priorities. The EFC's direct technical assistance helped advance effective and efficient local strategies for financing stormwater needs in regulated municipalities in Pennsylvania and provided a roadmap for sufficiently, sustainably, and equitably supporting water quality program implementation.

Lessons Learned and Additional Opportunities

The opportunity to work with these communities proved highly informative from a needs assessment perspective. It was also highly informative in helping to shape EFC's understanding of the scale and types of assistance needed in Pennsylvania's MS4 communities. This becomes even more critical as technical assistance providers throughout the region are determining how best to support communities in navigating the Infrastructure Investment and Jobs Act (IIJA) Bill landscape. The following summarizes what was learned.

Working with Countywide Action Plan (CAP) Coordinators was an effective approach.

Working through existing structures developed to implement Pennsylvania's Watershed Implementation Plan for the Chesapeake Bay at the county level through CAP coordinators and CAP Implementation Plans leveraged the legacy of existing efforts and momentum in communities. This yielded two important benefits: 1) the ability to engage with the support of a local partner that already has a trusted relationship with municipalities in the county, and 2) building upon an existing initiative to implement the CAP as opposed to splitting focus from, segmenting, and possibly confusing municipal engagement.

Supporting implementation of CAPs that include a municipal element helps MS4 communities fit their stormwater management activities into a larger context that has the potential for more meaningful water quality impact and helps identify the roles that all sectors play in meeting the water quality goals set out in the CAP. As CAP implementation continues, communities would benefit from continued support regarding how to initiate or build out an asset management strategy for their gray and green stormwater infrastructure; how to best leverage their own municipal ARPA funds and those available through other governmental entities; how to access funding available through various state agencies as a result of the IIJA; and, how to integrate their MS4 work with their Act 167 Plans and hazard mitigation activities.

There are perception barriers that require attention.

Recent EFC research with multiple municipalities in three watersheds in the state indicated that many communities in Pennsylvania are not interested in using debt-financing as a strategy to meet their MS4 and stormwater management needs. In many cases, particularly for smaller municipalities, this view may be appropriate as their needs may be met with other revenue streams. However, for some of the larger municipalities and boroughs, debt-financing may be a cost-effective strategy. The EFC sees an opportunity to work with PENNVEST to develop materials to better communicate how and when debt-financing for stormwater management could be a good fit for municipalities in Pennsylvania.

Collaboration can be an effective approach to achieving broader water quality impacts with greater efficiency.

Because there are so many MS4 permittees in Pennsylvania, it is hard for municipal leaders (both elected and staff) to believe that their projects are truly going to have a positive impact on water quality given the scale of the larger watershed. Collaborations, particularly watershed-based collaborations, have helped peers support each other's work and develop effective water quality improvement strategies. What the EFC has seen in its engagement with multi-municipal collaborations is that the most effective ones often have a champion, a lead organization (county government entity, watershed group or conservation organization), municipal partners who are dedicated to committing the time upfront that collaboration can require, and some kind of governing structure (ranging from simple informal agreements to formal intergovernmental agreements). All the partners must understand and buy in to the value of their participation and what they will get out of the collaboration, which can vary from project identification, to peer-to-peer networking and learning, to project planning assistance, to engagement with non-profit partners who can provide educational expertise and private landowner engagement. This project identified several nascent multi-municipal collaborations that would benefit from additional capacity-building support, as well as several that have petered out that might be able to be rejuvenated.

In addition to collaborating with other municipalities in the same watershed, the EFC has been emphasizing the opportunities within a municipality to collaborate across departments. This can include taking a "Dig Once" approach to capital improvement planning; using a "One Water" or integrated water planning strategy across drinking water, wastewater, and stormwater management needs; and engaging with hazard mitigation planners in the municipality or region to include stormwater management needs. The EFC sees opportunities for sustained engagement with interested municipalities to support them through adoption of these kinds of internal collaborations.

There is a role for EPA and PA DEP in encouraging more multi-municipal collaboration.

In addition to the benefits to municipalities from collaboration, regulatory agencies can benefit from multi-municipal collaborations on stormwater management for many reasons, including reduction in documentation to review and potential for larger water quality gains. While regulatory agencies cannot require collaboration, there are ways to incentivize and encourage collaboration among municipalities from continuing to support the type of technical assistance provided by this award to identifying grant resources available for collaborative plans and projects. Based on what the EFC has learned from engagement with communities on stormwater management over several decades, and in particular what was observed on this project, the EFC could work with partners at EPA and PA DEP to explore mechanisms for encouraging more multi-municipal collaborations.

There would be value in establishing a liaison for municipal conversations with state agencies such as PENNVEST, PennDOT, and PEMA.

While many Pennsylvania municipalities fully understand that they could be interacting more effectively with state agencies, it is difficult for one township or borough to feel like their voice will be

heard. For example, PENNVEST is clearly fully engaged in getting state revolving fund resources to communities across Pennsylvania, yet it is also constrained by limited staff. Many municipalities have indicated their frustration in attempting to reach PennDOT to discuss problems they are experiencing from PennDOT roads in their communities, and while stormwater managers are well aware of the impacts of larger storm events in their communities, many have no experience interacting with PEMA. Because outreach to state agencies can take a substantial amount of time and perseverance, many municipal staff give up quickly. The EFC could play a valuable role identifying appropriate staff at state agencies, facilitating conversations, and convening webinars with state agency officials to address questions that are common across multiple municipalities.

There is sustained demand for this type of technical assistance which will only be amplified by the needs associated with accessing federal infrastructure fund dollars.

There were a number of communities with interest in continued support for a variety of reasons. Developing the trust and shared vision collaboration requires takes time. Emerging collaboratives, such as Columbia County, and collaboratives in the process of rejuvenating, such as Lycoming County, were highly interested in working with the EFC, but were not at an appropriate point in their development to do so just yet. Other communities, like Franklin County and Oxford Borough, developed such momentum with this support, they are eager for support that will keep advancing local stormwater programming. In addition, communities from outside Pennsylvania have expressed interest in this type of support in the region.

The need for water quality technical assistance in the Commonwealth will only be amplified with the influx of resources both through ARPA and IIJA, which presents a new and important opportunity to support municipalities more broadly in developing effective and realistic stormwater management financing strategies across revenue streams related to this new federal funding. While some communities are well-equipped to identify their needs and access the funding, others, particularly the disadvantaged communities that are a target for these funds, are not.

For example, it has been our experience that many boroughs in Pennsylvania are facing financial stress and would benefit from support in helping navigate a productive path forward to financing stormwater project implementation in a way that fits their communities' financial capacity. Because the IIJA funds are designed to be more impactful in disadvantaged communities, and because of what has been learned from our engagement with boroughs, the EFC could work with partners such as the Pennsylvania State Association of Boroughs and similar organizations to identify a set of communities in the Chesapeake Bay watershed to support in identifying how the IIJA funds could support their MS4 and stormwater management needs.

Appendices

Appendix A: Franklin County Materials

- Franklin Organization Examples
- Scope of Work for the EFC to continue efforts on establishing a new County-wide, water quality organization

Appendix B: Lancaster Clean Water Partners Materials

- High-Level Financing Map for Implementation of the Lancaster County Countywide Action Plan
- MS4 Funding Scenarios
- CAP Progress Tracking Spreadsheet

Appendix C: Oxford Borough Materials

- Stormwater Financing Strategy
- Presentation to Borough Council on Stormwater Fees

Appendix D: South Central Pennsylvania Stormwater Collaborative Materials

- Financing County Action Plans Presentation

Appendix E: Wormleysburg Borough Materials

- Stormwater Financing Strategy

Appendix A: Franklin County Materials

- Franklin Organization Examples
- Scope of Work for the EFC to continue efforts on establishing a new County-wide, water quality organization

	Lancaster Clean Water	Watershed Alliance of York	Schuylkill Action Network	South Mountain Partnership
Background	In June 2018, Lancaster County – along with Adams, Franklin, and York Counties – was invited by DEP to develop a countywide plan (once referred to as the local strategy or Lancaster WIP) to address the state’s WIP goals. Armed	Founded in 2001, WAY is a non-member, umbrella organization serving over 50 academic, civic, for-profit, government, non-profit, and other stakeholder groups and individuals.	The Schuylkill Action Network (SAN) evolved out of a 2003 source water assessment that identified threats for the Philadelphia Water Department. 2004 - \$1.15 million Targeted Watershed Grant from the EPA provided the initial funding 2006 - Intial strategic plan completed 2009 - Fulltime SAN Coordinator was hired	SMP is a regional, landscape-scale conservation project that launched in 2006. It is a public-private partnership between DCNR and the Appalachian Trail Conservancy, and has grown into an alliance of citizens, businesses, non-profits, academic institutions, and local, state and federal government agencies.
Type of Work	The Lancaster Clean Water Partners aims to achieve a shared vision of clean and clear water in Lancaster County by 2040. The Lancaster Countywide Action Plan (CAP) outlines Lancaster’s path for achieving nitrogen and phosphorus reductions for clean and clear water throughout the county. The partners focus on: Building cross-sector partnerships Promoting practices that will improve quality of life	The mission of WAY is to improve York County's water, making it cleaner and healthier for all. WAY and its partners recognize the important interrelationships of land use, clean water, and biodiversity, in York County, Susquehanna River Basin, and Chesapeake Bay watersheds, as being vital to restoring, enhancing, protecting, and sustaining community health, economic sustainability, and environmental quality, in the 21st century and beyond. WAY's guiding principles are to: Be a watershed communications center Be a public information clearinghouse Provide a public forum for networking, cooperating, sharing, and problem solving Support locally-led watershed initiatives Leverage resources to support local watershed initiatives and programs	The SAN works through collaborative actions in partnership with local watershed organizations, land conservation organizations, businesses, academics, water suppliers, recreational communities, local governments, and regional, state, and federal agencies. SAN serves to advance drinking water and watershed protection by addressing: Abandoned Mine Drainage Agricultural Impacts Stormwater Pathogens & Point Source Watershed Land Protection Recreational Use Needs Education & Outreach	SMP serves four main roles: Facilitator – the Partnership strives to create connections, convene conversations, and open arenas for dialogue on the range of topics relevant to our mission and goals. Integrator – the Partnership serves to break down silos and to bridge connections and conversations across geo-political and sectorial boundaries. Interpreter – the Partnership serves to engage partners and the public on the significance of the landscape’s resources, and the interconnectedness and interdependency of these resources. Catalyst – the Partnership serves to translate conversation into action by supporting partner projects and identifying strategic opportunities to initiate and advance specific projects. In 2009 SMP launched a mini-grant program. In the first five years of the program, SMP awarded over \$215,000 in grant funding across 35 projects. Partners have used these funds to leverage the investment of an additional \$485,000 in matching funding.
Host Organization	Independent Organization	Independent Organization	Housed within the Partnership for the Delaware Estuary	Independent Organizaion

	James River Advisory Council	Anacostia Watershed Restoration Partnership	New Jersey Highlands Coalition
Background	TBD	<p>The Anacostia Watershed Restoration Partnership (AWRP) is a cooperation between federal, state and local government. The USACE was the original federal liaison and Metropolitan Washington Council of Governments (COG) oversees the AWRP, providing the administrative policy and technical support.</p> <p>1987 - Anacostia Watershed Agreement was signed and the Anacostia Watershed Restoration Committee was formed</p> <p>1991 - Second agreement was signed and 6 guiding restoration goals were established</p> <p>2001 - Targets and indicators were identified</p> <p>2006 - AWRP Structure was revised to what it is today</p> <p>2010 - Restoration plan finalized</p>	<p>1988 - Formed to advocate for state legislation as a program of the New Jersey Conservation Foundation</p> <p>1992 - A Federal study of the Highlands Region was completed (updated in 2002)</p> <p>2003 - Governor's Executive Order created the NJ Highlands Task Force; the Task Force was given 6 months to develop recommendations</p> <p>2004 - The Highlands Protection and Planning Act passed, creating the Highlands Council and requiring the development of a Regional Master Plan to protect water quality</p> <p>2004 - The Federal Highlands Conservation Act passed. This provides funding for land protection across 4 states</p> <p>2008 - The New Jersey Highlands Regional Master Plan was</p>
Type of Work	<p>JRAC provides a forum for the diverse interests along the James River in Central Virginia and engages the public about issues and challenges facing the river. JRAC's vision is a healthy, beautiful, economically vital and accessible James River that is cared for by a diverse and engaged community that acts on its behalf.</p> <p>JRAC conducts 5 Key Activities:</p> <p>James River Days - A brochure w/map that promotes hundreds of recreational, environmental, and educational activities on and around the James April-October</p> <p>Parade of Lights - Holiday boat parade</p> <p>James River Regional Cleanup - Volunteer cleanup held on the same day/time at over 15 locations throughout the watershed. Has been happening for 22 years</p> <p>James River Week - A weeklong celebration of the river that is kicked off with the cleanup. Includes boating wildlife tours, an art exhibit, Films on the Canal Walk, story times, social events and more.</p> <p>Stewards of the River Awards - Annual awards presented to people or groups who have made measurable, positive impacts to the James River and surrounding communities.</p>	<p>All projects support the overarching goals of the AWRP:</p> <ul style="list-style-type: none"> Reduce Pollutant Loads Enhance Aquatic Diversity Restore Anadromous Fish Spawning Range Increase Acreage & Quality of Wetlands Expand Forest & Riparian Buffers Increase Public Awareness & Citizen Participation <p>All projects that support the AWRP goals also help the individual jurisdictions meet local TMDLs, WIPs, and local restoration goals. COG assists the jurisdictions with meeting these goals by providing additional technical support (paid for through the annual dues) or applying for supplemental funding.</p>	<p>NJHC works on projects in the areas of:</p> <ul style="list-style-type: none"> Land Protection Agricultural BMP Implementation Riparian Buffer Restoration Stream Restoration Floodplain Reconnection Dam Removal Municipal Outreach and Engagement on Plan Conformance
Host Organization	Housed within Chesterfield, Virginia County government	Housed within the Metropolitan Washington Council of Governments (COG)	Independent Organization

	Lancaster Clean Water	Watershed Alliance of York	Schuylkill Action Network	South Mountain Partnership
Organizational Structure	<p>Executive Committee (5 members) Steering committee (9-21 members) All committee members can serve a maximum of 3, 3-year terms. 4 staff members (Grants & Projects Manager, Communications & Program Manager, Director of Strategic Partnerships & Programs, and a Senior Advisor) Unlimited partners Action Teams of local experts and partner organizations including Agriculture, Buffers, Data Management, Communications, Stormwater and CCWPSA</p>	<p>Non-member, umbrella organization Board of Directors (14 members) Six committees: Agriculture, Data Management, Education & Outreach, Legislative & Programmatic, Project Implementation, and Revenue Building</p>	<p>Executive Steering Committee leads efforts Planning Committee oversees strategic planing Workgroups focus on issue specific implementation More than 100 public and private sector partners</p>	<p>A leadership Committee provides the overall strategic direction for the Partnership. Three committees: Communications, Programs, and Fundraising</p>
Partner Organizations	<p>countywide, collaborative partnership of diverse partner organizations – local leaders in business, municipal public service, higher education, conservation planning, and non-profit management – that come together with a common agenda. Partners include: Federal, State, and Local Agencies</p>	<p>Partners Include: Master Watershed Steward Program Stewards of the Lower Susquehanna Inc. Yellow Breeches Watershed Association Prettyboy Watershed Alliance The Izaak Walton League Gunpowder Valley Conservancy Deer Creek Watershed Association Trout Unlimited York County Conservation District</p>	<p>Partners include: Federal and State Agencies NGOs Academia Water Suppliers and Utilities Private Industry</p> <p>A full partner list is available at: https://www.schuylkillwaters.org/about-us/meet-our-partners</p>	<p>Partners include: Local agencies NGOs Academia Private Industry</p> <p>A complete partner list is available at: https://southmountainpartnership.org/about-us/our-partners</p>

	James River Advisory Council	Anacostia Watershed Restoration Partnership	New Jersey Highlands Coalition
Organizational Structure	<p>Executive Director (always a County employee) Chair or Co-Chairs Six committees: Activities, PR/Media, Issues, Membership, Admin/Finance, and Stewards of the River Awards Chairs and committee leads are representatives from the County and general membership Unlimited members and partners</p> <p>Chesterfield County acts as the fiscal agent for JRAC and all funds (operating and reserve) are kept in an account separate from County funds.</p>	<p>There are 4 fulltime COG staff plus interns dedicated to AWRP Four committees: Executive, Steering, Management, & Community Advisory Additional special interest workgroups Paying partners include: Anacostia jurisdictions (District of Columbia, Montgomery County, MD and Prince George's County, MD), Maryland Department of the Environment, Environmental Protection Agency, and Maryland Department of Natural Resources. Quarterly meetings (open to public) are held and all AWRP decisions are voted on during these meetings. However, only the paying partners hold voting power, though all members can weigh in with their thoughts prior to a vote.</p>	<p>Non-profit coalition of approximately 100 member organizations. There is an Executive Director and 6 staff members as well as 3 committees (Policy, Natural Heritage, and Cultural Resources). NJHC is part of the Delaware River Watershed Initiative, collaborating with 10 other organizations in the Highlands. There is a shared action plan that implements elements of the NJ Highlands Regional Master Plan</p>
Partner Organizations	<p>All work is done in partnership. By leading discussions about the river, and hosting regional events and programs, the council sets the tone for positive and interactive relationships among partners throughout the region. Partners include: State and Local Government NGOs Private Business and Industry Civic Organizations Citizens</p> <p>A complete list of Partners and Members can be found at: Membership List https://jracs-va.org/jracs-membership/</p> <p>Partners List https://jracs-va.org/our-partners/</p>	<p>Work is done independetly as well as collaboratively. COG has contracts with the Anacostia jurisdictions and provides them direct technical support but COG will also support larger, Partnership-wide initiatives.</p> <p>Partners Include: Federal, State, and Local Government NGOs Private Industry Academia Small Watershed/Citizen Groups</p>	<p>Partners Include: Local Government NGOs Private Industry Academia</p> <p>A complete list of parnters can be viewed at: https://njhighlandscoalition.org/member-organizations/</p>

	Lancaster Clean Water	Watershed Alliance of York	Schuylkill Action Network	South Mountain Partnership
Funding Sources	Funding comes from a variety of Federal, State and Private sources including: EPA National Fish & Wildlife Foundation US Fish and Wildlife Service PA DCNR PA DEP USDA - NRCS	Should WAY be a model of interest, this will be further investigated.	Operational funds come from a Philadelphia Water Department (PWD) contract and the William Penn Foundation Project implementation funds come from: State agencies Federal agencies Private foundations Water utilities Schuylkill River Restoration Fund	The Mini-Grant Program is a competitive program, with grants being awarded through an application process each year. Funding to administer the program is provided to the Appalachian Trail Conservancy via DCNR's Community Conservation Partnership Program and the Environmental Stewardship Fund.
Cash Flow	Funding is available	TBD	Operational funds support capacity for SAN personnel to manage	Funding is available to outside entities through an application
Contact Info	Allyson Gibson serves as the Director of Strategic Partnerships and Programs for the Lancaster Clean Water Partners. agibson@lancastercleanwaterpartners.org	(717) 840-7430 There's no specific contact person	Kate Hutelmyer Collaborative Programs Manager Email 302-655-4990 ext. 109	Katie Hess Director of South Mountain Partnership Director of Pennsylvania Landscape Conservation Appalachian Trail Conservancy 4 East First Street Boiling Springs PA, 17007 khess@appalachiantrail.org 717-609-4581
Misc	They have a collaborative watershed mapping tool. They have	They have social media accounts on Facebook and Instagram. They also have different committees established, one of which is a fundraising and sponsorship raising group. Link listed below:	They have social media accounts and newsletters. They also host events for outreach and engagement.	
Website	https://lancastercleanwaterpartners.org/	https://watershedallianceofyork.org/	https://www.schuylkillwaters.org/	https://southmountainpartnership.org/

	James River Advisory Council	Anacostia Watershed Restoration Partnership	New Jersey Highlands Coalition
Funding Sources	Localities make direct contributions annually Corporations donate financially and/or in-kind, typically in support of a specific event	The Anacostia jurisdictions pay annual partnership dues. Those dues go to the dedicated COG staff that work for the partnership. Several Federal and State partners also pay annual dues, but at a much lower amount. Additional funds are brought in through grants, etc., to help fund work/special projects that aren't prioritized in the jurisdiction's workplans with COG. Dues are not collected from other partners, but there has been talk of discussing that.	Since 2004, NJHC has had sustained Federal funding totaling over \$20 million for land protection, averaging a little more than \$1 million per year. Sustained State funding Sustained foundation funding through the William Penn Foundation's Delaware River Watershed Initiative Additional project funding through NFWF for restoration work and the Open Space Institute for land protection
Cash Flow	All funds stay within the Council and are used to support JRAC's	All funds stay within the Partnership and are used to support COG's	TBD
Contact Info	Kim Conley Executive Director ConleyK@chesterfield.gov	Phong Trieu ptrieu@mwkog.org	Julia Somers Executive Director 973-588-7190 info@njhighlandscoalition.org
Misc	https://www.facebook.com/JamesRiverAdvisoryCouncil		
Website	https://jrac-va.org/	https://www.anacostia.net/	https://njhighlandscoalition.org/



ENVIRONMENTAL FINANCE CENTER

Scope of Work for the Environmental Finance Center to continue efforts with Franklin County on establishing a new County-wide, water quality organization. This contract will not exceed \$10,000 and will end on December 31, 2022

Mission, Goals, Vision, Services

EFC will facilitate and attend 3, 2-hour meetings with Franklin County Conservation District (FCCD) and relevant stakeholders. These meetings will serve the following purposes: 1) a kickoff brainstorming session starting with a draft mission, vision, and goals that will be developed prior to the kickoff; 2) a stakeholder review revision; and 3) presentation of finalized mission, vision, and goals.

Donor Letter

EFC will work with the CAP Coordinator to develop an initial donor letter including the needs and vision of the new organization. EFC envisions this as a three part task including: 1) a conversation to discuss the initial content ideas; 2) preparation of a draft letter; and 3) revisions based on the input of the CAP Coordinator in order to approve the final letter.

Draft Budget and Organizational Structure

EFC will develop a draft budget and organizational structure for the new entity. This process will include working with the CAP Coordinator to define the parameters and vision of the organization as well as identifying and prioritizing potential staff positions.

Job Description

Based on the positions identified through the development of the budget and organizational structure, EFC will draft job descriptions for the relevant positions, including potential salary ranges.

Web Content

EFC will work with the CAP Coordinator to identify a list of salient information for a web site. Based on this list, EFC will draft content for the website. EFC will provide assistance in identifying a web site developer but will not develop the actual website.

Additional Tasks

Additional tasks that EFC *could* support that are not included in this scope include event planning, event promotional materials, and facilitating dialogue with DEP.

Appendix B: Lancaster Clean Water Partners Materials

- High-Level Financing Map for Implementation of the Lancaster County Countywide Action Plan
- MS4 Funding Scenarios
- CAP Progress Tracking Spreadsheet

TO: Allyson Gibson, Lancaster Clean Water Partners (LCWP)
FROM: University of Maryland Environmental Finance Center (UMD EFC) and the Water Center at Penn (WCP)
DATE: March 31, 2022
RE: High-Level Financing Map for Implementation of the Lancaster County Countywide Action Plan (CAP)

With funding support from the Environmental Protection Agency Region 3 to assist communities with the municipal separate storm sewer system (MS4) element of the Chesapeake Bay compliance strategies, EFC and WCP are partnering with LCWP to develop a high-level funding map to understand better where funding and financing is available to address the four priority areas outlined in the CAP, where there are challenges to using the existing funds effectively, and where there are gaps in funding. LCWP shared the information it has regarding grant and programmatic funding coming into the County for project implementation aligned with the CAP. EFC and WCP reviewed this information for this initial analysis. EFC and WCP aligned the funding information according to the CAP priorities and then considered current contributions and the likelihood of future contributions. This analysis was coupled with a visual map to better understand gaps in funding and potentially gaps in programming and partnerships.

General Analysis

Having accurate information about the funds being used as well as the funds needed in Lancaster County to implement the variety and scale of best management practices (BMPs) supports CAP implementation planning. However, the complexity of partners, projects and funding sources makes attaining truly accurate figures difficult. For example, while it is feasible to develop robust estimates for the riparian buffer priority, it is unlikely that firm numbers can be developed for investments already made and those needed under the agriculture and stormwater priorities without significant investment in time. For these priorities, the value of the accuracy of the estimates has to be balanced against resource investment to achieve that accuracy.

In addition, developing one overarching estimate for CAP implementation across all priorities would involve multiple assumptions. The resulting range would be artificially high because all assumptions made in its development generally tend to be conservative. Since the CAP is meant to be constantly adapting and projects are always being implemented, any estimate ranges would need to be updated regularly.

High-level estimates already exist. Pennsylvania's Phase 3 Watershed Implementation Plan estimates a need of \$521 million per year to meet the WIP goals by 2025, with a current gap in resources of \$324 million per year across the entire watershed. It recommends allocating \$46 million per year for agricultural compliance and soil health initiatives and \$31.5 million for forest and grass buffers. If Lancaster County is trying to reach a pollutant loading of approximately 11.5 million pounds of nitrogen per year, that represents approximately 34% of the state's WIP

goal of 34 million pounds of nitrogen per year. That translates to an estimate of \$177 million per year needed in Lancaster County of the state's estimate of \$521 million per year.

Understanding current capacity to implement is also essential to a successful implementation strategy. LCWP has indicated that there are twice the applications for CAP implementation funds than what is available. The county's CAP grant announced in December 2021 was \$3.6 million, indicating the potential for at least another \$3.6 million of projects that went unfunded, a measure of unmet demand.

Instead of developing a range of total costs for full CAP implementation, EFC and WCP suggest creating a CAP implementation budget projection over a set period of time to help inform the Partners' planning process and CAP adaptation. With this framing in mind, we recommend adopting a method for tracking annual investments and implementation based on high-level estimates. This could be done in one of two ways: 1) estimating investments in BMPs and acres treated with BMPs outlined in the CAP and tracking trends using the method outlined below or 2) estimating investments to implement the rapid stream delisting strategy at the individual catchment level using estimates for specific needed projects based on past experience.

Because the rapid stream delisting strategy aligns with local priorities and takes a holistic view of water quality issues in a geographic area, it should be an efficient strategy for leveraging available funds. In addition, the smaller scale will make tracking all kinds of data easier and estimates would likely be within a smaller range and generally more useful because they will be based on local costs. For example, LCWP indicated that for one catchment, they estimate a cost of \$1.5 million for buffers for 21 parcels.

If LCWP decides to use the first method, we would recommend developing a budget projection over at least the next 5 years and using the current investments outlined in this report to help build out that budget at an order of magnitude of \$100,000. EFC also recommends developing a method to convert pollutant load reductions to acres treated with BMPs. LCWP reports that it has documented 40% of the stormwater BMPs that have been implemented. It seems likely that most stakeholders have very little sense of what it means to achieve a 10 percent reduction in sediment but might understand what it might mean to increase by 10 percent the numbers of farm acres using some kind of water quality BMP. This metric is easier to track than the level of pollutant in a water body, though we recognize that the Partners' will need to conduct water quality monitoring and report on pollutant load reductions to regulatory agencies. The budget projection can also help outline the long-term investment needs around engagement, maintenance and collaboration outlined below.

Estimating Investments and Tracking Trends

- *Unrestricted Funding*

Turning to the review of current investments, there are some investments that EFC and WCP were unable to assign to a specific CAP priority. They are outlined in the table below. To the

extent that these investments are unrestricted, they are extremely important to fill gaps or cover expenses not reimbursed through other funding sources.

<i>Funding Source</i>	<i>Amount</i>
CAP implementation	\$2.1 million for 2021
Most Effective Basins	\$1.7 million for 2021
EPA 319 grants	Between \$210,000 and \$434,000 annually

PROPOSED CRITICAL RESOURCE TO TRACK:

→ Any regular investments above a certain level (probably \$500,000) that allow for unrestricted, flexible spending.

- *Agriculture Priority*

There are several large funding streams supporting work on the agriculture priority in the county. Agricultural land uses make up approximately half of the county’s acreage. With approximately 5000 farms and approximately 370,000 acres of farmland, this is a significant funding and financing challenge especially given that there are few regulatory requirements applicable to farmland that can be used as drivers for action. On the other hand, the lack of regulatory requirements is among the reasons that costs are low for implementation of conservation and water quality measures. Other drivers, such as branding opportunities through dairy cooperatives, have proved effective.

Lancaster County has been the locus of many pilot and demonstration projects to engage agricultural stakeholders in water quality improvements. Among the lessons learned from projects is that it takes time to develop a trusted relationship with the farm landowner before conservation practices will be considered. Building these relationships takes time and resources, often not the kind of resources available through grant funding or through cost-share programs. There are substantial and regular sources of funding to support implementation of agricultural best management practices. Examples of the kinds and levels of support are outlined in the table below.

<i>Funding source</i>	<i>Amount</i>
Natural Resource Conservation Service EQIP in Lancaster County	Approximately \$2.2 million per year
NRCS Regional Conservation Partnership Program (RCPP)	\$7.4 million over 5 years
NRCS RCPP Alliance for the Chesapeake Bay	\$4 million over 5 years

Pennsylvania Department of Agriculture programs	Ranges from \$2.8 million to \$5.3 million per year
PA Dept of Ag Conservation Excellence Grants	\$2.2 million in 2021
PENNVEST investments in nutrient management projects in individual farms	43 projects since 2010; range from \$111,000 to \$788,000 averaging \$420,000 per project Estimate of \$1.2 million total

While LCWP estimates that approximately 50 percent of farmers have conservation plans, it is unclear how many of those plans have been fully implemented or how much of the agricultural land in the county needs to be under agricultural best management practices to show measurable impact on water quality. Existing rules make accessing data to track progress difficult. There is shared understanding across partners in the county that capacity to engage farmers is critical and under-resourced.

Because of the inability to access needed data, tracking farmer engagement capacity in terms of full time employees across partner organizations should be considered as a metric to track. In addition, repeated investments from selected programs will provide LCWP with information to assess progress on the CAP's agricultural priority and high-level estimated investment gaps. These regular investments are significant and they can be measured against the estimated acres of agricultural land that need best management practices to meet the CAP goals. For example, LCWP might estimate that 80% of the farms (4000 farms) and agricultural acreage (about 296,000 acres) need engagement and some kind of BMP implementation to meet the CAP goals. LCWP could track that farmer engagement capacity and acres impacted. While this would not be precise information about pollutant load reductions, it would identify human capacity bottlenecks in implementation.

If LCWP decides to track financing using the Rapid Stream Delisting Strategy, more accurate estimates based on growing local experience implementing the agricultural BMPs will help identify more specific agricultural investment needs at the catchment level and the most common combination of BMPs implemented on farms. Other metrics, such as land application of manure, might be easier to track using the delisting strategy.

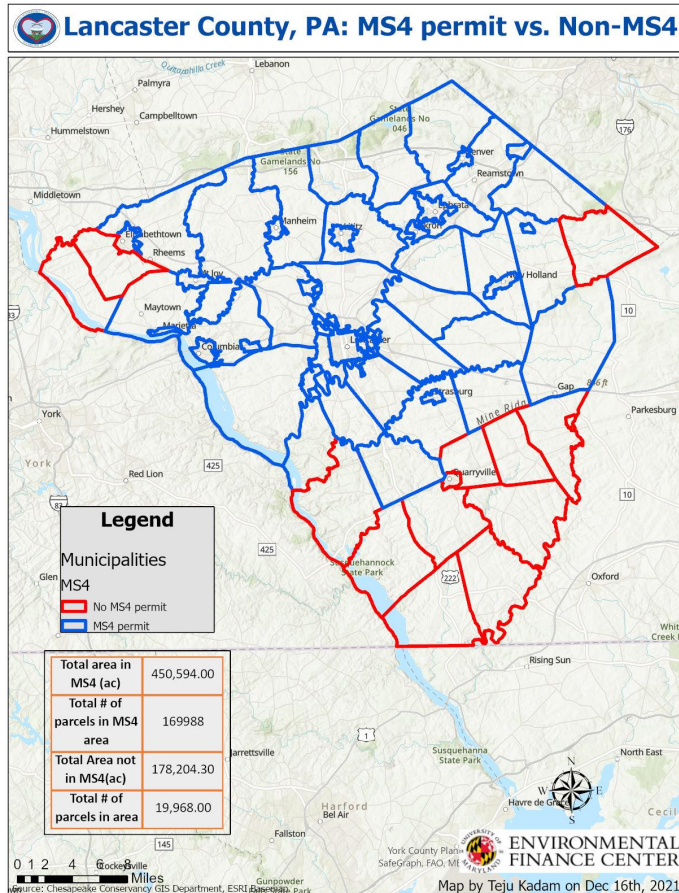
PROPOSED CRITICAL RESOURCES TO TRACK:

- High-level estimate of the agricultural acreage (X of 370,000) treated with BMPs needed to meet CAP goals to track trend (this could also be done for a selected set of BMPs that are the most impactful as opposed to one generic estimate across all BMPs)
- Capacity (i.e. FTEs) available to engage with farmers to develop and implement conservation plan elements
- Regular investments from selected agricultural programs measured against estimated BMP acreage need

- *Stormwater Priority*

This CAP priority is focused on stormwater management within the urbanized area of MS4 communities. There are approximately 271,000 acres in the county that are not in agricultural land and approximately 90,000 acres of that area is outside of an urbanized area, leaving approximately 181,000 acres within the MS4 urbanized area. There are 41 townships, 18

boroughs and 1 city in the county. Of these, 12 townships are not MS4 permittees, indicating that these areas do not have sufficient urbanized areas necessitating an MS4 permit. These 12 townships represent the majority of the 90,000 acres that are not a focus of this priority.



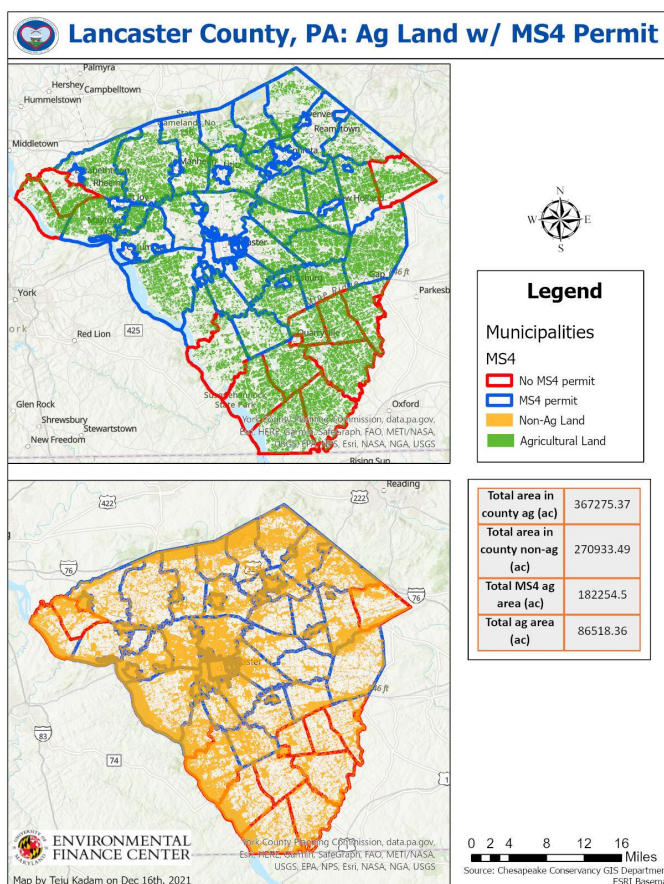
Municipalities have several strategies to efficiently invest their financial resources for stormwater management. One approach is to integrate MS4 permit requirements with other community priorities. This strategy is most effectively implemented through a capital improvement planning process that uses a “Dig Once” strategy so costs for project planning, engineering permitting and implementation are not duplicated to implement a road resurfacing project and then a stormwater management project within the road right of way, for example. Collaboration is also a financing strategy that several Pennsylvania municipalities have adopted to reduce

duplication and access additional resources (such as public education materials) to meet their MS4 permit requirements.

Meeting community needs should include prioritizing impairments to water quality in local streams first and focusing on municipal sources causing these impairments. The Rapid Stream Delisting Strategy provides an excellent avenue to achieve these goals with targeted and effective investments that address the long-term focus of the MS4 program. In other words, MS4 communities may continue to have pollution load reduction requirements in their MS4 permits until all impairments are addressed and the stream is delisted. This strategy also allows for clarification of each sector’s role in addressing these impairments so that municipalities are appropriately investing in projects to reduce municipal sources and the agricultural sector is responsible for agricultural sources. In general, municipalities should focus on projects that

address all municipal sources of water pollution first to ensure that they do not spend more on their MS4 compliance until delisting is achieved.

A significant challenge in this priority area is investment in operations and maintenance to ensure the effectiveness of the stormwater best management practices over the course of their full lifecycle. Many grant programs do not provide resources for maintenance despite the value of this investment. Some grant programs recognize that certain projects do not reach full implementation until vegetation is established and allow for the use of capital for maintenance until establishment. Most communities have to rely on general fund or stormwater fee funds to maintain their stormwater management systems - whether gray infrastructure such as pipes and inlets or green stormwater infrastructure such as bioswales and rain gardens.



Meeting community priorities can also mean integrating stormwater management into park and hazard mitigation planning and project implementation. This framing can help achieve significant efficiencies and identify additional resources that will support MS4 compliance. Given the increased number of large storm events in the region, hazard mitigation planning around flooding should be integrated with a municipality's stormwater management program.

In the context of pollution reduction plans, most communities in Pennsylvania identified general funds and grant funds for their financing strategies. General funds are often spread thin over multiple community priorities and grant funds are irregular and insufficient to support 100 percent of most municipalities' stormwater management needs. Some communities have adopted stormwater

fees to finance stormwater management. Several communities are using some of their American Rescue Plan Act (ARPA) funding to support their stormwater program by either setting up a stormwater fund or using the funds to implement specific projects.

<i>Funding Source</i>	<i>Amount</i>
Municipal Stormwater Fees Lancaster City Lititz Borough	Unknown
American Rescue Plan Act funds (can be used for stormwater management)	\$106 million Lancaster County \$39 million Lancaster City \$990,694 Lititz Borough
PENNVEST Programs	\$7 million to Lancaster City for GSI in 2011
CFA programs	\$500,000 from Act 13 over time
Dirt & Gravel/ Low Volume Road Program	\$370,000 across county
Growing Greener	Range from \$33,000 to \$680,000; average \$398,000 \$6.8 million in 2021
Salisbury Township	\$1.15 million for P3 to meet MS4?

While communities in the county have access to PENNVEST resources to support infrastructure needs for drinking water and wastewater management, only Lancaster City has used PENNVEST financing for stormwater management. It appears that there is a gap in understanding how these funds could be used, particularly because the municipal staff responsible for stormwater management is often not someone who manages drinking water or wastewater infrastructure who might have gained experience with PENNVEST for those water infrastructure needs. The Commonwealth Financing Authority also administers several grant programs that can support stormwater projects that improve water quality. An important question to consider for this priority is whether available funding is being accessed and used as effectively as it could be. Information is readily available from PENNVEST and CFA about approved projects.

The MS4 communities are required to submit annual reports that outline projects implemented and pollution reductions achieved. LCWP could rely on this information for estimating investments and tracking trends. However, this information will not indicate investments in operations and maintenance.

Finally, while stormwater management collaborations have been initiated in the county, the capacity and effectiveness of existing collaborations is unclear. An effective stormwater collaborative could be catalytic in achieving this priority. Communities engaged in stormwater collaborations in other parts of the state have found that the investment in establishing the collaboration has been well worth it in terms of gaining efficiencies and accessing funding resources.

PROPOSED CRITICAL RESOURCES TO TRACK:

- High-level estimate of municipal MS4 acreage (X of 181,000) treated with BMPs needed to meet CAP goals to track trend (this could also be done for a selected set of BMPs that are the most impactful as opposed to one generic estimate across all BMPs)
- Pollution reductions reported in annual MS4 reports
- Amount of ARPA funding dedicated to stormwater projects/programs across municipalities
- Stormwater management budgets in MS4 municipalities
- Projects (particularly GSI projects) implemented with PENNVEST and CFA resources
- Growing Greener grant investments
- Stormwater fee programs and estimated revenue generated
- Regular investments at the municipal level in stormwater collaboration

- *Riparian Buffers*

This priority covers all acreage in the county and is the only priority that applies to the 90,000 acres of non-agricultural land outside of the MS4 urbanized area. The 2018 Toolbox information indicates that there is a substantial amount of nutrient and sediment loading sourced from these acres. Reaching the goals of this priority requires significant investments in landowner outreach and education. The revised CAP indicates that there is an unmet demand among landowners, indicating that engagement has been effective and supporting continued investment in the engagement strategies that have proved successful. Maintenance of riparian buffers to ensure their effectiveness over time and to support full establishment of vegetation is essential to success. It appears that dedicated and specific funding programs support this priority.

Funding Source	Amount
Pennsylvania Department of Conservation and Natural Resource (DCNR) Buffer program	Ranges from \$600,000 to \$1.2 million annually
DCNR Community Conservation Partnerships Program	\$2.8 million in 2020 (not clear what projects were supported)

PROPOSED CRITICAL RESOURCE TO TRACK:

- Estimated acreage treated needed (X of total riparian acreage) to meet CAP goal to track trend
- Regular investments from selected buffer programs measured against estimated BMP acreage need

- *Data and Monitoring Priority*

This priority applies across the more than 600,000 acres of the county. The CAP does not include any BMPs for this priority and it does not have specific, regular funding sources for

implementation. The revised CAP notes the lack of clarity around verification and the accuracy of reporting used to measure progress toward pollutant reduction goals. It also notes the need for water quality monitoring procedure alignment across sectors and areas as well as connecting the on-the-ground work with data experts. Data collection and assessment is hampered by different levels of accessibility. These limitations must govern the expectations and results from data collection and monitoring efforts. The Rapid Stream Delisting Strategy can also be used to pilot and adapt data collection and monitoring procedures.

PROPOSED CRITICAL RESOURCES TO TRACK:

- Project information uploaded to FieldDoc
- Adoption of quality assurance/quality control procedure for monitoring including number of sites and locations
- Mapping of area assessed by each monitoring location
- Investments in data collection and monitoring

Conclusions

With the diversity of partners and funding sources supporting water quality projects in Lancaster County, trying to track all the funding accurately would be a challenging endeavor. From the information shared, it appears that over \$20 million is available on an annual basis to support water quality investments. This high-level estimate could support development of a 5-year running project budget for CAP implementation (by CAP priority or by catchment) that also accounts for implementation capacity and outlines significant budget needs while allowing for cost adjustments and adaptation as implementation progresses.

A recommendation was made to centralize grant application and administration. While the appeal is understandable, centralizing all grant application and disbursement processes runs the risk of creating a bottleneck that slows action on the ground, undermining the Partners' goal to drive action. For this reason, EFC and WCP recommend developing high-level estimates and tracking the larger, regular funding sources to understand trends. These estimates would not be used to make project level decisions but would help with making programmatic decisions and adapting the CAP as needed while also providing sufficient information to indicate to funders where resources should be directed.

Reviewing the information shared, it appears that the most important constraints for the agriculture and stormwater priorities is operationalizing the current funding opportunities. For the agriculture priority, resources for more farmer engagement capacity is needed. For the stormwater priority, municipalities have not yet moved from project planning to project implementation in terms MS4 compliance. They might benefit from technical support to better realize how to leverage existing funding opportunities and programs to meet community priorities as well as complying with their MS4 permits. LCWP's focus should be on ensuring that resources are being put to good use and measuring the impact of current level of investment in terms of acres treated with water quality BMPs.

Riparian buffers may need a higher level of regular funding given that demand is greater than current available resources. Increased project implementation funds should be paired with sufficient capacity to implement the projects. As for the data and monitoring priority, EFC and WCP support the Partners' collaborative approach. **Because collecting the information is important to the larger Chesapeake Bay watershed restoration, significant financial support for this priority must come from state and federal partners. It appears that this is a significant gap that must be resolved.**

Unrealized Opportunities

This analysis suggests that there might be some unrealized opportunities for pollutant load reductions. With respect to reducing the pollutant loads in stormwater runoff from non-agricultural, non-urbanized lands, the riparian buffer priority is the only CAP programming for this area that represents about 90,000 acres or 15 percent of the county. **It seems that these lands could be important for other BMPs to achieve water quality improvements, such as increasing overall tree canopy from the current 15 percent or addressing the nitrogen and phosphorus impacts from turf fertilizers from these lands as noted in the Lancaster County Toolbox document.**

Another potential opportunity involves partnering with transportation entities on road runoff management. A substantial increased amount of funding is now available to states to address transportation infrastructure. The projects implemented with these funds will impact water quality in Lancaster County. It is important for the Partners to ensure that the funding is working for water quality as opposed to creating further challenges. **Specific opportunities include road stream crossings and roadside BMP implementation for federal, state and municipal roads.** The Lancaster County Toolbox noted that 28 percent of nitrogen loading comes from roads and impervious surfaces outside of MS4 areas and 19 percent inside MS4 areas. For phosphorus loading, these numbers are 14 percent and 20 percent and for sediment loading, they are 31 percent and 27 percent. While these figures were calculated in 2018 and are based on modeling and are therefore not precise numbers, they probably approximate the impact of roads on water quality in the county. It is significant.

Long-term Financial Challenges

As the Partners are well aware, sustaining the gains made from the action-oriented CAP strategy requires long-term investments to maintain landowner relationships, ensure maintenance of BMPs over the course of their life cycles, and sustain the collaborative structure envisioned by the CAP. Because much of the CAP depends on private landowners, its long-term success is dependent on maintaining engagement with landowners, particularly as properties change ownership. **Maintaining BMPs of all types is a huge challenge across the county. It will likely require the development of distributed systems of service providers that could be catchment-based or practice-based.** The costs of maintenance should be included in project design, grant applications and cost estimates, despite the fact that many grant funders will not cover maintenance expenses. If these costs are not included in the planning process, it will be harder to generate that information later, when maintenance is likely already overdue. Finally, the collaboration envisioned by the CAP provides the administrative

structure that enables implementation to support needed BMP maintenance and adaptation. Nonetheless, while there have been significant regular investments from multiple sources over several years, there are no guarantees that the funding will continue to support the collaboration at a scale and over a timeline that will be sufficient to meet the need without regular engagement and information sharing with community members and funders about the progress being made. Estimating investments and tracking trends will support the continued engagement.

Financing Scenarios for MS4 Communities in Lancaster County

Scenario 1

Municipality PRP includes 1-2 projects to meet 5 year MS4 permit

Cost estimates for all projects up to \$250,000

Funding Source	<i>Mix 1</i>	<i>Amount over 5 yrs</i>	<i>Mix 2</i>	<i>Amount over 5 yrs</i>	<i>Mix 3</i>	<i>Amount over 5 yrs</i>	<i>Mix 4</i>	<i>Amount over 5 yrs</i>
Municipal	General Funds	\$37,500 for grant match	ARPA funds	\$37,500			Liquid Fuels Revenue	\$50,000 cash; \$50,000 in-kind
Grant	PA DEP Growing Greener Grant (minimum 15% match)	\$212,500	PA DCED Watershed Restoration and Protection Program (minimum 15% match)	\$212,500	NFWF Small Watersheds (no match requirement)	\$250,000	LCCD Dirt & Gravel Road/Low Volume Road Program (50% match required; can be in-kind match)	\$100,000
TOTAL		\$250,000		\$250,000		\$250,000		\$200,000

Scenario 2

Municipal PRP includes 3-5 projects to meet 5 year MS4 permit
 Cost estimates for all projects ranging from \$250,000 to \$1 million
 Municipality has a stormwater fee

Funding Source	<i>Mix 1</i>	<i>Amount</i>	<i>Mix 2</i>	<i>Amount</i>	<i>Mix 3</i>	<i>Amount</i>	<i>Mix 4</i>	<i>Amount</i>
Municipal	ARPA funds	\$40,000	ARPA funds	\$50,000	ARPA funds	\$100,000	ARPA funds	\$50,000
	General Fund	\$25,000 (including \$15,000 for grant match)	General Fund	\$87,500 (including \$37,500 for grant match)	General Fund	\$175,000 (including \$75,000 for two grants)	General Funds (including for PA DEP grant match)	\$137,500
							Liquid Fuels	\$50,000 cash; \$50,000 in-kind
	Stormwater fee	\$100,000 (\$20,000 per yr)	Stormwater fee	\$150,000 (\$30,000 per yr)	Stormwater fee	\$300,000 (\$60,000 per yr)	Stormwater fee	\$300,000 (\$60,000 per yr)
<i>Municipal subtotal</i>		<i>\$125,000</i>		<i>\$237,500</i>		<i>\$475,000</i>		<i>\$537,500</i>
Grant	PA DEP Growing Greener Grant (15% match)	\$85,000	PA DEP Growing Greener Grant (15% match)	\$212,500	PA DCED Grant and PA DEP Grant (each 15% match)	\$425,000	PA DCED Grant (15% match)	\$212,500
							NFWF Small Watershed Grant	\$100,000
							LCCD DG/LV Road	\$100,000
TOTAL		\$250,000		\$500,000		\$1 million		\$1 million

Scenario 3

Municipal PRP includes 3-5 projects to meet 5 year MS4 permit
 Cost estimates for all projects ranging from \$500,000 to \$1 million
 Municipality gets a PENNVEST loan

Funding Source	<i>Mix 1</i>	<i>Amount</i>	<i>Mix 2</i>	<i>Amount</i>	<i>Mix 3</i>	<i>Amount</i>
Municipal	ARPA Funds	\$100,000	ARPA Funds	\$100,000	ARPA Funds	\$100,000
	General Funds	\$15,000 for grant match	General Funds	\$45,000 (including \$15,000 for grant match)	General Funds	\$37,500 for grant match
	Stormwater Fee	\$122,360 (\$10,000 per year plus \$14,472 per year for loan payments)	Stormwater Fee	\$186,880 (\$20,000 per year plus \$17,376 per year for loan payments)	Stormwater Fee	\$330,320 (\$40,000 per year plus \$26,064 per year for loan payments)
<i>Municipal subtotal</i>		\$237,360		\$331,880		\$467,820
Grant	PA Growing Greener (15% match)	\$85,000	PA Growing Greener Grant (15% match)	\$85,000	PA Growing Greener (15%)	\$212,500
Loan	PENNVEST (1.5% for 20 years)*	\$250,000	PENNVEST (1.5% for 20 years)*	\$300,000	PENNVEST (1.5% for 20 years)*	\$450,000
TOTAL		\$575,900 (plus \$14,472 per year for 15 more years)		\$648,216 (plus \$17,376 per year for 15 more year)		\$1,136,620

* Payments extend for 15 years beyond 5-year permit term

Scenario 4

Municipal PRP includes multiple projects at total cost of over \$2 million

Municipality gets a loan to cover full costs

Funding Source	<i>Mix 1</i>	<i>Amount</i>	<i>Mix 2</i>	<i>Amount</i>	<i>Mix 3</i>	<i>Amount</i>
Municipal	General Funds	\$579,060	General Funds	\$635,880	General Funds	\$727,200
Loan	PENNVEST (1.5% for 20 years)	\$2,000,000 (\$115,812 per year)	Bank Loan (2.5% for 20 years)	\$2,000,000 (\$127,176 per year)	Bank Loan (4% for 20 years)	\$2,000,000 (\$145,440 per year)

LCWP High Level Financing Tracker

Tracking sources of funding, resource needs, and generalized implementation metrics for better budgeting; focus is funding sources providing more than \$250,000 annually

Flexible Funding

<u>Funding Source</u>	2021	2022	2023	2024	2025
CAP implementation	\$2,100,000.00	\$ 2m			
Most Effective Basins	\$1,700,000.00				
319 grants	\$300,000.00				
	\$4,102,021.00				

Agricultural Priority Total 370,000 acres of ag land; 5000 farms

<u>Funding Source</u>	2021	2022	2023	2024	2025
NRCS Equip	\$2,200,000.00	\$1 million	\$1 million	\$1 million	\$1 million
NRCS RCPP LCWP	\$1,480,000.00	\$1.48 million	\$1.48 millior	\$1.48 millior	\$1.48 million
NRCS RCPP Turkey Hill	\$800,000.00	\$800,000	\$800,000	\$800,000	\$800,000
PA Ag programs	\$2,800,000.00	\$2.8 million	\$2.8 million	\$2.8 million	\$2.8 million
PA Ag Conservation Excellence	\$2,200,000.00	\$2.2 million	\$2.2 million	\$2.2 million	\$2.2 million
PENNVEST nutrient manag	\$500,000.00	\$500,000	\$500,000	\$500,000	\$500,000
	\$9,982,021.00				

Agricultural acres with ag BMP

Number of FTEs for farmer engagement

Lancaster Farmland Trust

LCCD

Acreage manure land application

Stormwater Priority

Total of 181,000 acres of urbanized area; 1 city, 18 boroughs and 29 townships with some urbanized area

Funding Sources

SW municipal general fund budget totals

Municipal stormwater fee revenue from budgets

ARPA funds committed to stormwater

PENNVEST GSI projects

Commonwealth Fin Auth GSI Projects

Dirt and Gravel/Low Volume Road Program

Growing Greener for GSI, Stream Restoration

FEMA/PEMA floodplain restoration projects

2021	2022	2023	2024	2025
\$370,000	\$370,000	\$370,000	\$370,000	\$370,000

\$6,800,000

(could get an estimate from municipal budgets for those with fees)
\$106 million total for Lancaster County
\$7 million to Lancaster City in 2011
\$500,00 total from Act 13

Pollution Reductions in MS4 annual reports

No. of municipalities actively part of stormwater collaborations

Acres treated with SW BMP

Communities with identified SW O & M strategies

Riparian Buffer Priority

<u>Funding Sources</u>	2021	2022	2023	2024	2025
DCNR Buffer program	\$600,000	\$600,000	\$600,000	\$600,000	\$600,000
Grants					

Acres of Riparian Buffer implemented

Rapid Catchment Delisting Strategy

Catchment A	Cost estimate	Amount of time to implement	Responsible party	Funding Sources
Stream restoration project				
Stormwater basin retrofit				
Manure management				
Riparian buffers	1,500,000			21 parcels

Appendix C: Oxford Borough Materials

- Stormwater Financing Strategy
- Presentation to Borough Council on Stormwater Fees

Stormwater Financing Strategy

Borough of Oxford

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Project Background

More than 1,000 Pennsylvania municipalities have a National Pollution Discharge Elimination System (NPDES) Municipal Separate Sewer System (MS4) permit that requires specific actions be taken to protect and restore local water quality. For those in the Chesapeake Bay Watershed, there is the additional expectation of fulfilling certain pollution reduction obligations associated with the state's Total Maximum Daily Load (TMDL) limitations. Recognizing that meeting these expectations is one of the costliest challenges local governments in Pennsylvania face, in the fall of 2020, the Environmental Protection Agency's (EPA) Region 3 Office engaged the University of Maryland's Environmental Finance Center to provide direct technical assistance designed to help these communities map a path forward for implementation and financing. When soliciting communities regarding their interest, Oxford Borough indicated a desire to work with EFC to further develop its stormwater management program. After an initial conversation in which the Borough identified both short-term and long-term financing as a challenge, this study officially commenced.

Goals

The goal of this document is to identify strategies for Oxford to fund and finance its stormwater management program and pollution reduction projects so that it can achieve current permit requirements, prepare for future regulatory changes, meet community priorities, and reap the benefits of having clean and healthy local waterways. The MS4 permit is iterative, permit will likely require a greater level of pollution reductions. It is imperative that Oxford enhance its existing stormwater management program to position the Borough to properly maintain its system to meet all state and federal requirements and to better address the Borough's stormwater management needs, especially in the face of the increasing number of large storm events. A stormwater program that meets the Borough's needs will require the support of a more robust and reliable funding strategy than that currently outlined in the Borough's budget.

Approach

The analysis began with an assessment of Oxford's current stormwater program. Borough staff and contractors shared relevant information with EFC staff. EFC, the Borough's engineer, and Borough staff and elected officials evaluated the existing program structure, determined current capacity, and identified trends in funding levels. The team also reviewed appropriate documents including engineering reports and draft plans for pollution reduction projects as well as budget and program information available on the Borough's website.

Oxford's Current Stormwater Program

Stormwater Permit Status

Oxford was required to submit an individual permit under the Pennsylvania Department of Environmental Protection's (PA DEP) MS4 program. The 2018 MS4 permit requirements for the Borough included pollution load reductions to address both local stream impairments for the Little Elks Creek watershed and Octoraro Lake as well as pollution reductions needed to meet the Chesapeake Bay Total Maximum Daily Load (TMDL) requirements. There are four primary watersheds within the Borough; Muddy Run - East Branch Octoraro Creek; The Little Elk Creek; Tweed Creek (Octoraro Creek); and Big Elk Creek. All four are within different HUC 12 watersheds and therefore excess loading reductions in one watershed cannot be carried over to another watershed. The Borough submitted its permit application addressing the six minimum control measures (MCMs) along with a Pollution Reduction Plan (PRP) in a timely manner in 2018. While the Borough does have an MS4 permit in place, the PRP is currently being reviewed by the Pennsylvania Department of Environmental Protection (PA DEP). PA DEP has approved the sewershed mapping portion of the PRP. The next element to be reviewed will be the Borough's calculations of the required pollution reductions. Once the pollution load reductions have been finalized, PA DEP will review whether proposed stormwater management projects will meet the needed pollution reductions.

Existing Budget and Funding

The current funding strategy for stormwater management in Oxford is to draw funds on an as-needed basis from the Borough's general fund. There is a line item in the Borough's budget for stormwater which covers the consulting costs for the Borough's engineer to administer the MS4 permit requirements, including permit development and annual reporting.

Recent storm sewer general budget amounts:

- \$50,000 in 2019
- \$10,000 in 2020
- \$12,000 in 2021

The Borough's proposed PRP includes projects to meet the current MS4 permit requirement that sediment levels in impaired streams in the Borough be reduced by 10 percent. Budgeting for these

projects should include the costs to design, permit, and complete the projects as well as associated operations and maintenance to protect the Borough's investment in those projects. The draft plan includes an estimated cost of \$685,000 for these projects but does not include an estimate for operations and maintenance. The MS4 permit period expires in 2022 and presumably a new five-year permit application and PRP will need to be submitted in 2023.

In December 2021, the Borough adopted a General Fund Budget that includes \$14,500 for storm sewers, with \$2,500 of that designated for operations and maintenance. The Borough also established a Water Resource Protection Fund in its Capital Budget. The Borough is directing approximately \$536,000 from American Rescue Plan Act resources to this fund as well as \$100,000 from the Borough's General Fund to this new fund. The proposed 2022 budget for this fund anticipates about \$45,000 annually for professional fees, the \$14,500 for storm sewers, and \$115,000 for contracted services to initiate implementation of pollution reduction projects. Proposed budgets for future years include storm sewer infrastructure investments as well as pollution reduction projects, reflecting a transition to investing in and supporting a hybridized stormwater management system that includes both gray and green infrastructure elements.

Reliance on a municipality's general fund can leave gaps in local stormwater programming, particularly when funds are limited and other community priorities are elevated over stormwater management. The Borough is thinking strategically towards long-term solutions, as shown by choosing to establish a Water Resource Protection Fund and directing American Rescue Plan Act resources to it. The goal of this stormwater financing study is to identify additional long-term strategies that will establish a funding stream that is equitable and effective in generating sufficient revenue for the Borough to develop and maintain a comprehensive stormwater program. Such a financing mechanism is necessary to address the specific MS4 permit requirements and address the local stormwater management needs.

There are likely opportunities for leveraging any Borough investments across community priorities. The Borough regularly invests in its road system including resurfacing roads and managing road runoff. Integrating green stormwater infrastructure strategies into road runoff management techniques would help the Borough meet its stormwater permit needs while also protecting its investment in its road system. The Borough also manages its own drinking water system and has a vested interest in the water quality of the source waters serving that system. It is known that there are high nitrate levels in well water in the region. In addition, some of the rivers and streams in the region are not meeting all of the water quality standards particularly for nitrogen, phosphorus and sediment. Both the Oxford Water Department and Chester Water Authority are partners in the Octoraro Source

Water Collaborative which supports, among other initiatives, the implementation of agricultural best management practices that reduce nitrates thus also benefiting the Borough's source waters. Finally, the Borough also is part of the Oxford Area Sewer Authority which has a discharge permit under the Clean Water Act. There might be significant opportunities for efficiencies by looking across these drinking water, wastewater, and stormwater management requirements. And leveraging these opportunities might also help the Borough identify ways to build community resilience in the face of increasing large storm events and other climate challenges. Thinking across these community priorities can help identify a wider variety of resources that can be accessed to implement projects with multiple benefits across these priorities.

Level of Service Review

All MS4 permits include six Minimum Control Measures (MCMs). Within each MCM, there are recommended best management practices (BMPs) derived by the U.S. Environmental Protection Agency (EPA) and the Pennsylvania Department of the Environment (PA DEP). Based on conversations had with the Borough over the past year, the project team makes the following recommendations to effectively and efficiently address the six MCMs.

Many of these activities can be accomplished more efficiently through partnerships with surrounding municipalities, the Chester County Conservation District, conservation and watershed organizations, and academic institutions. These partnerships can expand the Borough's capacity by relying on the partners to sponsor events or develop content, particularly for public education and outreach as well as municipal staff training.

A level of service review also includes information about any existing gray infrastructure, including stormwater inlets and pipes as well as any stormwater storage facilities. The Borough would benefit from documenting all elements of its stormwater management system - all gray and green stormwater infrastructure - as well as noting the maintenance status of these assets - and including the information in this strategy document.

MS4 Permit Requirements

Minimum Control Measure 1: Public Education and Outreach

The intention of MCM 1 is to implement a public education program that will distribute educational materials throughout the Borough and conduct outreach activities showing the impacts of stormwater.

Partnerships are an effective way for communities to meet this requirement. The Borough meets this requirement by participating in the Oxford Regional Environmental Advisory Council (EAC) whose primary focus is water quality. The Borough also participates on the Oxford Regional Planning Committee (ORPC). ORPC has collaborated on water quality education and land use planning activities. Recent activities included two annual meetings of water quality partners in the region to discuss project work and an analysis of woodlands in the Oxford region conducted by the Brandywine Conservancy. In addition to these two regional groups, primary partners in public education and outreach include the following organizations:

- Chester County Conservation District
- Brandywine Conservancy
- Pennsylvania State Extension
- Stroud Water Research Center
- Octoraro Watershed Association
- Elk Creeks Watershed Association
- Alliance for the Chesapeake Bay

To increase the variety of distribution methods and transparency with residents, the EFC recommends the Borough create a stormwater management page on its website where interested residents can find information on these partnerships, ongoing projects, and learn about what actions they can take to reduce polluted stormwater runoff at home. By partnering with other organizations, the Borough likely doesn't need to develop new educational materials, saving time and resources.

Minimum Control Measure 2: Public Involvement and Participation

The intention of MCM 2 is to implement a public involvement and participation program for stormwater.

To effectively meet this MCM the EFC recommends that the Borough continue to leverage its partnerships. For example, every year the Alliance for the Chesapeake Bay holds Project Clean Stream¹, where local volunteers pick up trash from parks and streams and raise awareness about the importance of individual environmental stewardship. The Borough could register to host a clean-up and the Alliance would provide all necessary supplies. There is likely lots of other programming and support that could be provided by members of the Regional EAC and ORPC. Borough staff are encouraged to build on these relationships, identify opportunities to meet the public involvement and participation requirement, and advocate for clean water activities in the Borough.

Minimum Control Measure 3: Illicit Discharge Detection and Elimination (IDD&E)

The intention of MCM 3 is to develop, implement, and enforce a program to detect and eliminate illicit discharges that go into the municipal storm drain system.

There are several municipal entities who could be involved in developing an effective IDD&E program. PA DEP has a free online course as part of its Stormwater Academy that provides step-by-

¹ <https://www.allianceforthebay.org/project/project-clean-stream/>

step guidance on how to conduct dry weather screenings of MS4 outfalls to evaluate for the presence of illicit discharges². The EFC recommends that the Borough also complete Penn State Extension's *Urban Stormwater Basics*³ free online course to consider who on the Borough's staff should manage this MCM and how. Aspects to consider are that front office staff need to know where to direct calls about stormwater issues. This is especially true of spill reports or suspected illicit discharge activities. Emergency responders also need to understand the impacts of spills and other hazards ending up in the storm sewers and how those are regulated. Additionally, participants can then obtain a certificate of completion that can be filed in the municipality's stormwater records and used to support annual reports on staff training for good housekeeping and illicit discharge plans.

The EFC also recommends that the Borough provide a mechanism on its website for the public to report any illicit discharges they observe.

Minimum Control Measure 4: Construction Site Stormwater Runoff Control

The intention of MCM 4 is to develop, implement, and enforce a program to reduce pollutants in any stormwater runoff from construction activities that result in a land disturbance of greater than or equal to one acre.

Oxford relies on Pennsylvania's statewide program for stormwater associated with construction activities to satisfy this requirement. The Borough has an agreement with the Chester County Conservation District to provide construction runoff oversight. The Conservation District has an Urban Resource Conservationist⁴ assigned to each municipality in the county as well as several resources and presentations⁵ geared towards a municipal audience. The EFC encourages Oxford to take advantage of the resources provided by the Chester County Conservation District and continue to build on this partnership to effectively meet this MCM.

Minimum Control Measure 5: Post-Construction Stormwater Management in New Development & Redevelopment

The intention of MCM 5 is to develop, implement, and enforce a program to address stormwater runoff from new development and redevelopment once the construction phase is complete.

² <https://pacleanwateracademy.remote-learner.net/course/view.php?id=354>

³ <https://extension.psu.edu/municipal-staff-and-elected-official-stormwater-training-needs>

⁴ <https://www.chesco.org/ImageRepository/Document?documentId=65668>

⁵ <https://www.chesco.org/284/ErosionStormwater>

This is another MCM that falls under the delegation Agreement with the Pennsylvania Department of Environmental Protection (DEP), where the Chester County Conservation District assumes local responsibility for post-construction stormwater management. Once again, the EFC encourages Oxford to take advantage of the resources provided by the Chester County Conservation District and continue to build on this partnership to effectively meet this MCM.

One aspect of this MCM that the Borough controls is its stormwater ordinance⁶. On May 12, 2014, Oxford passed its Stormwater Ordinance. The ordinance pre-dates PA DEP's 2022 Model Stormwater Management Ordinance, that in addition to including the elements of the ordinance that Oxford already has, also encourages low-impact development practices and includes guidance on how to identify and repeal sections of ordinance that conflict with low impact development (LID) practices. The EFC recommends that Oxford conduct a code and ordinance review to ensure that no sections of its stormwater ordinance code conflicts with the installation of LID and green infrastructure. A great resource that the Borough could use is the Center for Watershed Protection's Code and Ordinance Worksheet⁷ and accompanying Scoring Spreadsheet⁸ in its efforts to evaluate local regulations and identify revisions that allow or require site developers to minimize impervious cover, conserve natural areas, and use runoff reduction practices to manage stormwater.

Minimum Control Measure 6: Pollution Prevention/Good Housekeeping for Municipal Operators

The intention of MCM 6 is to develop an operation and maintenance program for reducing pollutant runoff from municipal operations and use all available training materials. The stormwater program must include employee training to reduce stormwater pollution from activities such as fleet and building maintenance and park and open space.

There are many free resources available to the Borough to meet this requirement at no cost (other than devoting staff time). In addition to Penn State Extension's *Urban Stormwater Basics*,⁹ PA DEP provides free courses on multiple stormwater topics through its online Clean Water Academy¹⁰. Borough staff are encouraged to take advantage of these opportunities.

⁶ <https://ecode360.com/30844891>

⁷ <https://owl.cwp.org/mdocs-posts/better-site-design-code-and-ordinance-cow-worksheet-2017-update/>

⁸ <https://owl.cwp.org/mdocs-posts/cow-scoring-spreadsheet/>

⁹ <https://extension.psu.edu/municipal-staff-and-elected-official-stormwater-training-needs>

¹⁰ <https://www.dep.pa.gov/Business/Water/CleanWater/StormwaterMgmt/Stormwater/Pages/Training.aspx>

Estimated Stormwater Management Program Expenses

The Borough has decided to develop a stormwater management budget that would include all management expenses associated with its MS4 permit requirement and operations and maintenance expenses for the existing stormwater infrastructure. This holistic view also includes envisioning the system as a hybrid system of both gray and green infrastructure managing stormwater.

This analysis provides generalized high-level cost estimates over 10 years to facilitate the Borough's discussion of appropriate funding sources and strategies to meet estimated expenses. More accurate estimates can be developed based on Borough staff experiences with the development of individual stormwater management projects.

Stormwater Management Program Elements:

- Capital projects - gray and green stormwater infrastructure installations and replacements
- Operations and maintenance for gray and green stormwater infrastructure - street sweeping, inlet cleaning, bioswale maintenance for example
- Personnel - staff time for capital projects and operations and maintenance
- Equipment - any needed equipment like street sweeper, inlet cleaning devices
- Public Education and engagement - materials, event planning costs
- Administration - budgeting, operations, permit administration and compliance, contractor/technical support engagement and management; grant application and administration; program management - right now seems to be covered by staff time across several positions

Asset Status:

Gray stormwater infrastructure:

Miles of pipe - \$750,000 replacement planned for 2023

Inlets - planned replacements/capital improvements

O & M - estimate for regular needs

Green stormwater infrastructure:

Capital projects within the Borough - 10-year need - \$1.3 million estimated to implement pollutant reduction projects under two MS4 PRP
 O & M - estimate for regular needs

Range of estimated annual expenses without capital projects: \$59,500 - \$65,000

Range of estimated annual expenses for capital projects only: \$115,000 - \$1,030,000

	2022	2023	2024	2025	2026	2027	2028	2029	2030	2031
O & M	\$14,500	\$14,500	\$14,500	\$14,500	\$20,000	\$20,000	\$20,000	\$20,000	\$20,000	\$20,000
Gray installation/replacement		\$750,000								
Green installation/replacement	\$115,000	\$285,000	\$135,000	\$150,000	\$200,000	\$200,000	\$200,000	\$200,000	\$200,000	\$200,000
Administration										
Staff										
Equipment										
Professional services	\$45,000	\$45,000	\$45,000	\$45,000	\$45,000	\$45,000	\$45,000	\$45,000	\$45,000	\$45,000
TOTAL										

Funding Options and Financing Strategies

The Borough's financing strategy must address the amount of funding, timing of the funding, and kind of funding that the public and elected officials are willing to support. This stormwater financing strategy is designed to anticipate two permit cycles requiring 10 percent sediment reductions using an estimated needed budget amount for the stormwater financing plan to \$1.3 million over 10 years. The following discussion is based on this framing with an understanding that it should be an appropriate order of magnitude in terms of the amount of funding needed though not a precise figure. On an annual basis without any adjustment for inflation, this estimate would put the Borough's stormwater needs at approximately \$130,000 annually for 10 years

To put these estimates in context of the overall Borough budget, the current annual budget includes total revenue of approximately \$4 million. In terms of expenditures, almost half of the budget is committed to police expenses (salaries, expenses, and benefits). Borough administrative costs, salaries and benefits are approximately \$800,000 annually; debt service is approximately \$350,000; and highways, parking and public works expenditures totaling approximately \$550,000. Maintaining a stormwater management fund of \$130,000 as part of the Borough's annual budget would represent approximately 3 percent of the Borough's current \$4 million budget.

This section will outline existing revenue sources, potential sources, and other opportunities. The mix of revenue sources that the Borough of Oxford relies upon will be unique to the needs and preferences of its elected officials and residents.

Existing Funding Streams

Water Resources Protection Fund

OPPORTUNITY - Continue to make annual contributions to this new fund

Initiating the new Water Resources Protection Fund using ARPA funding provides the Borough with a strong foundation to build on as it transitions to integrating its planning and budgeting for all elements of stormwater management across both its MS4 compliance obligations and maintenance of both gray and green infrastructure in its stormwater management system. The Borough also contributed \$100,000 from the general fund to this account, ideally a practice that becomes the norm

in future budgets. These funds can be matched with annual contributions from the liquid fuels annual revenue and general fund annual revenue to maintain sufficient funds for immediate needs, grant match requirements, and/or costs not covered by other funding sources, such as project planning costs.

Liquid Fuels Revenue

OPPORTUNITY - Use liquid fuels revenue as match for Low Volume Road grants

OPPORTUNITY - Establish a budgeting practice of annually allocating some of this revenue to a stormwater management fund to support road runoff management and road stream crossing maintenance

Pennsylvania municipalities receive funding annually from state liquid fuel taxes to help address their road management expenses. The challenges related to stormwater management are directly related to the amount of impervious cover in a community, including runoff from roads. It is in the municipality's interest to effectively manage road runoff to extend the life cycle of any road investments, both in terms of road surface and road stream crossings. By incorporating management of water quality into the water quantity strategies that municipalities use to manage road runoff, the municipality can more efficiently use its liquid fuels revenue to meet multiple municipal priorities. In addition, the liquid fuels revenue can be used as match for grant funding available to implement road runoff best management practices through the Dirt and Gravel/Low Volume Road program administered by the Chester County Conservation District. It is important to understand that the practices outlined in the low volume road program to manage road runoff can and should be applied to every road in the Borough to reduce road runoff pollution, whether the road is low volume or not. For these reasons, it would benefit the Borough to establish a practice of identifying a set amount or a set percentage of its liquid fuels revenue to road runoff best management practices that will also serve to meet the Borough's MS4 pollution load reduction requirements. It appears that the budget includes \$5,000 for storm drains. It is likely that the managing runoff from the Borough's roads causes more than \$5,000 of maintenance needs.

Low Volume Road Grant Funding

OPPORTUNITY - Seek grant funding to implement road runoff management projects in the Borough

Grant funding will never provide 100 percent of any municipality's stormwater management needs. However, grants can be an important source of funding to test specific stormwater management best

practices. The Borough should leverage existing revenue to meet its stormwater management needs by applying for the Dirt and Gravel/Low Volume Road Program grants managed by the Chester County Conservation District. Identifying potential road runoff and road stream crossing projects that would fit this program should be a high priority.

Chester County's Chesapeake Communities Action Plan (C3AP) includes a target of implementing 2,000 new linear feet of road runoff best management practices through the Dirt and Gravel/Low Volume Road program. See C3AP in the following section of this report.

New Funding Streams

Chester County Countywide Action Plan (C3AP) and Funding for Implementation

The County recently completed its action plan based on Pennsylvania's watershed improvement plan for the Chesapeake Bay watershed. It includes a priority initiative for municipalities that includes an MS4 circuit rider and a stormwater basin retrofit pilot program among other activities. These kinds of collaborative efforts may not provide funds to the Borough, but they will help meet some of the Borough's needed capacity and reduce the need for Borough expenditures. In addition, there will be CAP implementation funds that could support some of the Borough's MS4 requirements.

More specifically, the C3AP includes three priority initiatives relevant to Oxford:

- Catchment targeting
- Buffers and streams, and
- Municipal initiative

The catchment targeting initiative will assess all 59 stream catchments in the Chester County portion of the Chesapeake Bay watershed. Based on these assessments, the catchments will be prioritized for implementation of conservation opportunities (including farmland, forest, and wetland conservation) and Dirt and Gravel/Low Volume Road opportunities. The catchment assessment could identify catchments and road opportunities in the Borough.

The buffers and streams initiative will focus on those stream corridors prioritized during the catchment assessment for protection, restoration, and improvements of riparian areas. The C3AP includes a target of 50 new acres of urban forest buffers with 20 of those acres coming from MS4 areas. It also includes a target of 12,000 new linear feet of urban stream restoration.

The municipal initiative includes an MS4 Circuit Rider as a critical element for success. The circuit rider would help reconcile urban BMP reporting and support verification of those BMPs over the long term. The municipal initiative calls for building a stormwater basin retrofit pilot program and identifies the need for ensuring maintenance of all stormwater BMPs over their full life cycles. The C3AP notes that collaboration and assistance to MS4 communities is essential for long-term success of the C3AP and the MS4 program in the region. Along those lines, it identifies partnering with PennDOT as an important action and identifying joint PRP projects to municipalities in the region. It outlines nine stormwater BMPs with implementation targets, four urban landscape BMPs and two septic system BMPs under this initiative.

The plan outlines some of the resource needs and points to collaboration as an important strategy to achieving the plan's targets and leveraging existing resources for maximum impact. The county will receive some funding for implementation of the plan. To the extent that Oxford can identify projects that help implement the plan, it is more likely that it will be successful in accessing implementation funds for those projects both through these county sources and through other Chesapeake Bay funding sources.

PENNVEST Opportunities

PENNVEST has two funding programs that could be relevant to the Borough's stormwater management work. One is a small project program that could be used to fund projects up to \$500,000 and a programmatic financing program that can be used to fund a series of planned projects over a 3-year timeframe. The Borough has used debt financing before and PENNVEST has made clear that it will consider general funds to secure a loan. One of the advantages of debt financing is that it can help level out the financing needs required of the municipal budget while implementing both small and large projects.

There is also the possibility of partnering with other Chester County municipalities to establish a county funding mechanism through what PENNVEST is calling a sublevel revolving fund. The county is currently developing its Chesapeake Bay County Action Plan and this concept could be an element of that plan.

The recent federal funding under the Infrastructure Investment and Jobs Act (IIJA) will substantially increase the funding available from PENNVEST. A large portion of those funds are required to be provided as grants or principal forgiveness. Oxford should stay up to date on PENNVEST programs and identify opportunities to apply for funding individually or in partnership with other Chester County municipalities.

Additional Grant Programs

The Borough should also consider Growing Greener grants and look at the many grant programs managed by the Commonwealth Financing Authority (CFA) to fund implementation and maintenance of both gray and green infrastructure projects. Several of the CFA programs can be used for stormwater management projects, including Act 13 and Pennsylvania Small Water and Sewer programs. More funding may be available through these programs as a result of the federal funding through the ARPA and IIJA.

See Appendix A for a list of additional funding opportunities.

Develop a Stormwater/Stream Protection/Resilience Fee

Some in the Borough have discussed reviewing the feasibility of adopting a stormwater fee. Other communities in Chester County have adopted a fee. West Chester Borough called its fee a Stream Protection Fee which likely helped with public communication about the need and purpose for adopting it. Some of the best practices seen in communities that have adopted fees include initiating a stakeholder engagement group (including large non-profit landowners like school districts and churches) early in the process and ensuring that infrastructure is considered, including both gray and green elements that are currently part of and may be part of the overall stormwater management system. The Borough needs to ensure that it is maximizing the full benefit of existing gray infrastructure throughout its useful lifecycle. It can take as much as 18 months of public outreach before a community might be ready to consider adopting a fee.

See Appendix B for sample stormwater utility fee structures.

Partnership Opportunities

Oxford Water Authority and Oxford Area Sewer Authority

The Borough is served by local municipal authorities for drinking water and wastewater. The sewer authority extends well beyond the Borough limits. Collaborating with other water entities can provide significant efficiencies because of shared interests. Some communities have expanded the activities of their regional sewer authorities to include stormwater management across several MS4 communities. Wyoming Valley Sanitary Authority is one example. Other communities have pursued “One Water” integrated planning - across their drinking water, wastewater, and stormwater management needs.

Many of the gray infrastructure elements of these systems are similar such that asset management and maintenance can be regularized across them. In addition, green infrastructure to improve water quality can positively impact drinking water supplies and expand the capacity of existing gray stormwater infrastructure. The Borough should consider both kinds of collaborations.

East Nottingham

Given that East Nottingham is also an MS4 permittee in a shared watershed, the Borough should explore any interest in partnering on stormwater management program elements including project implementation. Since both the Borough and East Nottingham are members of the Oxford Regional Planning Committee and served by the Oxford Area Sewer Authority, the municipalities already have experience partnering and can build on this foundation.

Conservation organization partnerships

The Borough has already partnered with the Alliance for the Chesapeake Bay to implement some riparian buffer projects. The Alliance was able to provide plant material at no cost to the Borough. There are likely more partnership opportunities like this available and the Borough's continued engagement with regional organizations will ensure that the Borough will be well-positioned to identify them in the future. Importantly, these opportunities may assist the Borough with project planning and grant administration costs depending on the program and project involved. Though important and potentially catalytic, these partnerships are not likely to result in addressing all of the Borough's stormwater management needs.

Transportation Management Association of Chester County

This group brings together public and private partners around transportation projects, including trails and new rail stations. Its mission includes improving air quality. Given the challenges posed by climate change and the increasing number of large storm events, this group could become a partner in addressing the challenges of increased road runoff and water quality issues related to it. It could also help with outreach to state and federal transportation partners.

PennDOT

There are four Pennsylvania Department of Transportation (PennDOT) roads in the Borough. The roads are not parsed out in the Borough's watershed mapping. PennDOT should be seeking to partner with the Borough on project identification, planning and implementation but that has not been their norm. The Borough should explore working with other municipalities in the region to push back on

PennDOT MS4 permit compliance in terms of any permit obligations that implicate municipalities and establish true partnership structures. As mentioned above, the C3AP mentions partnering with PennDOT to achieve water quality benefits. The Borough should work with Chester County to pursue this partnership.

East Penn Railways

There are two stormwater outlets under the railroad tracks that are big stormwater outfalls causing erosion for the Borough. Identifying the best contact and paths forward to partnering with railroads can be even more challenging than engaging with PennDOT but could be pursued with other municipalities along the rail line.

Other Approaches

Develop an Asset Management Program

Asset management is a strategic approach designed to support decision making around how and where to spend limited resources (time and money) to achieve desired results. Such a process is needed when there are competing priorities for limited funding. Asset management provides a framework with tools and practices that can assist a system in operating, maintaining, and managing assets in a cost-effective, sustainable fashion. Communities with successful stormwater programs have realized that small investments in operations and maintenance now can help avoid significant expenses in the face of catastrophic system failure or emergency response and repair that can have impacts that ripple through the local economy. Understanding the location, condition, and capacity of the existing stormwater system and having a plan for repair and replacement of system components helps to keep costs steady and predictable. Please refer to the Southwest Environmental Finance Center's Integrated Asset Management Framework¹¹ and the MOST Center's Asset Management for Stormwater¹² course for more details.

Utilize a "Dig Once" approach

This strategy couples planning for gray infrastructure with green infrastructure in the municipality's capital improvement planning processes whenever possible, whether those processes are formal and

¹¹ <https://swefc.unm.edu/iamf/>

¹² <https://umd-oes-arch.catalog.instructure.com/courses/asset-management-for-stormwater>

result in a Capital Improvement Plan (CIP) or whether they are informal. By utilizing an integrated "dig once" approach, communities can achieve more cost-effective solutions and a greater return on investment.

One study¹³ of the City of Lancaster in Pennsylvania shows that using a "dig once" strategy has saved the city approximately 45 percent on project planning, permitting and implementation costs by integrating stormwater projects into other capital improvement projects as opposed to doing these projects separately.

Please refer to the MOST Center's Integrating Green Infrastructure Into Capital Improvement Planning¹⁴ course for more details.

¹³ https://www.chesapeakebay.net/documents/GI_Integration_Final_Workshop_Report.pdf

¹⁴ <https://umd-oes-arch.catalog.instructure.com/courses/integrating-green-infrastructure-into-capital-improvement-planning>

Appendix A: Grant Funding Programs

Funding Organization	Title of Grant Program	Overview of Grant Program	Additional Details
Pennsylvania Department of Community and Economic Development (PA DCED)	H2O PA – Flood Control Projects	Funds projects which involve construction, improvement, repair or rehabilitation of all or part of a flood control system.	https://dced.pa.gov/programs/h20-pa-flood-control-projects/
PA DCED	Greenways, Trails and Recreation Program (GTRP)	Funds projects which involve development, rehabilitation and improvements to public parks, recreation areas, greenways, trails and river conservation.	https://dced.pa.gov/programs/greenways-trails-and-recreation-program-gtrp/
PA DCED	H2O PA – Water Supply, Sanitary Sewer and Storm Water Projects	Provides for single-year or multi-year grants to municipalities or municipal authorities to assist with the construction of drinking water, sanitary sewer and storm sewer projects.	https://dced.pa.gov/programs/h20-pa-water-supply-sanitary-sewer-storm-water-projects/
PA DCED	Municipal Assistance Program (MAP)	Provides funding to assist local governments to plan for and efficiently implement a variety of services and improvements, and soundly manage development with an emphasis on intergovernmental approaches. Funding is available for three groups of activities: shared services, community planning and floodplain management.	https://dced.pa.gov/programs/municipal-assistance-program-map/
PENNVEST	Pennsylvania Infrastructure Investment Authority (PennVEST)	PENNVEST provides low-interest loans and grants for new construction or for improvements to publicly or privately-owned drinking water, storm water or sewage treatment facilities, as well as non-point source pollution prevention best management practices. PENNVEST also provides loan funding to remediate brownfields sites, as well as loan funding to individual homeowners for repair or replacement of their malfunctioning on-lot septic system or first time	https://dced.pa.gov/programs/pennsylvania-infrastructure-investment-authority-pennvest/

		connection to a public sewer collection system. The Advance Funding Program provides low-interest loans to provide funding for the design and engineering needed to improve water and wastewater management systems.	
PA DCED	Watershed Restoration and Protection Program (WRPP)	Projects which involve the construction, improvement, expansion, repair, maintenance or rehabilitation of new or existing watershed protection Best Management Practices (BMPs).	https://dced.pa.gov/programs/watershed-restoration-protection-program-wrpp/
National Fish and Wildlife Foundation (NFWF)	Innovative Nutrient and Sediment Reduction (INSR)	Funds projects that accelerate the rate and scale of water quality improvements specifically through the coordinated and collaborative efforts of sustainable, regional-scale partnerships in implementing proven water quality improvement practices more cost-effectively.	https://www.nfwf.org/programs/chesapeake-bay-stewardship-fund/innovative-nutrient-and-sediment-reduction-grants-2022-request-proposals
NFWF	Small Watershed Grants	NFWF's Small Watershed Grants Program makes awards each year through two distinct funding opportunities: SWG-Implementation (SWG-I) and SWG-Planning and Technical Assistance (SWG-PTA).	https://www.nfwf.org/programs/chesapeake-bay-stewardship-fund/small-watershed-grants-2022-request-proposals
NFWF	Most Effective Basins Grants program	Supports projects that accelerate implementation of cost-effective agricultural best management practices in selected basins of the Chesapeake Bay watershed of Pennsylvania.	https://www.nfwf.org/programs/chesapeake-bay-stewardship-fund/pennsylvania-most-effective-basins-grants-2021-request-proposals
Chesapeake Bay Trust (CBT)	Green Streets, Green Jobs, Green Towns (G3)	This program supports design projects, financing strategies, and/or implementation of green street and community greening projects. Grant funding can be applied anywhere in the Chesapeake Bay watershed portion of EPA Region 3.	https://cbtrust.org/grants/green-streets-green-jobs-green-towns/

PA DEP	Growing Greener	One of the three programs covered under the Growing Greener Plus Grants Program is the Growing Greener Watershed Restoration and Protection Program	https://www.dep.pa.gov/Citizens/GrantsLoansRebates/Growing-Greener/Pages/default.aspx
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Appendix B: Stormwater Utility Fee Structure Examples

There are currently 1,851 stormwater utilities nationwide including 58 in Pennsylvania.¹⁵ In fact, Pennsylvania leads the nation in the formation of new stormwater utilities with all but one of the 58 utilities formed within the past decade.

Most fees are based on the total amount of impervious cover on a property including roofs, driveways, patios, and parking lots. Fees do not include public sidewalks, roadways, and structures that are in the public Right-of-Way. The greater the amount of impervious surface on a property, the larger the fee. The most common structure is the Equivalent Residential Unit (ERU), followed by tiered systems and flat fees.

An ERU is the average impervious area (IA) on a single-family, residential parcel. An ERU equals the total impervious area for residential properties divided by the total number of residential properties. The goal is to find a balance between your financing needs and ERU's to determine what your fee should be.

For example, in Gettysburg, PA:

Total residential lot impervious area = 2,880,652 sq ft

Total residential units = 1,144

$2,880,652 / 1,144 = 2,518$

1 ERU = 2,500 sq ft

Tiered systems charge a fee based on where the property's impervious area falls in a series of ranges.

In flat fee systems, everyone pays the same fee. Generally, these fee systems are not structured fairly because you are not taking the amount of impervious area per parcel into consideration meaning that a big box store pays the same fee as a single-family home.

In some instances, flat fees have been implemented temporarily to raise funds to complete a study in order to determine what the fairest structure for a jurisdiction is.

¹⁵ https://digitalcommons.wku.edu/cgi/viewcontent.cgi?article=1003&context=seas_faculty_pubs

In Pennsylvania, most fees are collected either monthly or quarterly as a line item on water & sewer bills.

Examples of fee structures from other Boroughs in the Chesapeake Bay Watershed of Pennsylvania are included in the table below.

	Lemoyne, PA	Chambersburg, PA	Carlisle, PA
Year Fee Established	2019	2015; revisions to non-residential rate effective in 2022	November 2018
Structure	IA ETU (residential and nonresidential)	Flat Fee (residential); <i>was a flat fee for non-residential from 2015-2021 but now</i> IA ERU (non-residential)	Tiered Residential IA ERU Non-Residential
ERU / ETU	1 ETU = 4,356 sq ft	1 ERU = 2,920 sq ft	1 ERU = 2,410 sq ft
Rate	1 ETU = \$7.70/month	1 ERU = \$5/month	1 ERU = \$21/quarter
Billing Structure	Line item on utility bill (monthly)	Line item on utility bill (monthly)	Line item on utility bill (quarterly)
Credit System	None yet. Plan to develop a credit program soon.	Residential: Single-family residential customers that attend a Borough sponsored Public Education event will receive reimbursement for one ERU fee. Non-residential: 15% credit will be offered for structural BMPs that were installed before June 20, 2004; 30% credit will be offered for BMPs installed before and after June 20, 2004 (when Town Council first adopted Stormwater Management Code).	Any property owner can apply for a credit up to 20% of that property's stormwater management service charge.

Stormwater Fee

- Stormwater is now the most common way that pollution gets to our rivers and streams
- Includes pesticides, herbicides and fertilizers from yards as well as oils and salts from roads
- Stormwater that collects and accelerates along roads and in stormwater pipes can also cause erosion of streambanks, adding excessive sediment to the stream
- Stormwater fees are designed to reflect the potential for a property to generate runoff so they are based on the amount of impervious surface
- Stormwater fees can only be used to cover the costs of stormwater management – they cannot be used to pay for other water resource management challenges (like paying for a water treatment upgrade) or other municipal needs
- Stormwater fees can be used to manage both the gray and green stormwater infrastructure that makes up the borough's stormwater management system – so they can be used to replace existing pipes and inlets, to replace aging road-stream crossings, to build new rain gardens or bioswales, to do street sweeping, to pay for maintenance of both gray and green elements of the system and pay for staff time and equipment to manage stormwater.



Alarm System Registration

Alert Center

Budget Information

Calendar

Document Center

Employment Opportunities

Fee Schedule

Form Center

Infrastructure Projects

Meeting Agendas

Meeting Management

Meeting Minutes

Health Coverage - Healthy Communities

Bulk Trash Collection

STREAM PROTECTION FEE

To check your balance, pay online instantly, obtain a receipt, or change your mailing address please visit MuniBilling.com. For other issues please e-mail SPF@west-chester.com

The Stream Protection Fee (SPF) Program was established by Borough Council via [ordinance](#) in June 2016 to provide a dedicated funding source for stream restoration and stormwater mitigation initiatives. Per the terms of the ordinance:

- The SPF is assessed annually on all developed property in the Borough, including parcels owned and occupied by government and non-profits
- Each property is assessed based on the impervious area (IA), [originally measured in 2016](#) and updated on an on-going basis with newly available aerial imagery, and/or utilizing professionally-prepared plot plans submitted with building permits. Properties are reassessed following all real estate transactions
- Impervious areas include rooftops, parking areas, sidewalks and walkways, porches, decks, and patios – essentially any developed square footage
- The SPF rate is \$6.70 per 1,000 square feet per month, however properties with less than 3,000 square feet fall into five billing tiers:

Tier 1	< 1,000 sqft IA	\$40.20 per year
Tier 2	1,000 – 1,500 sqft IA	\$100.56 per year
Tier 3	1,500 - 2,000 sqft IA	\$140.76 per year
Tier 4	2,000 - 2,500 sqft IA	\$180.96 per year
Tier 5	2,500 - 3,000 sqft IA	\$221.16 per year
Tier 6	3,000 sqft IA	\$6.70 per 1,000 sqft per month

Lemoyne Borough (Cumberland County)



Background

According to the U.S. Environmental Protection Agency (EPA), polluted stormwater runoff is the leading cause of impairment to nearly 40 percent of the surveyed U.S. water bodies which do not meet current water quality standards. When left uncontrolled, this water pollution can result in the destruction of fish, wildlife, and aquatic life habitat. In addition, if not properly managed, stormwater runoff can lead to both public and private property damage.

Mandated by Congress under the Clean Water Act, the NPDES Stormwater Program (MS4) is a national program for addressing stormwater discharges, delegated to Pennsylvania Department of Environmental Protection (PADEP).

Reducing pollutant and sediment within the Borough will reduce the impact to the Susquehanna River. These reductions will help rehabilitate and protect our waterways, in return, improving our potable drinking water supply.

The Borough has spent the last year tackling the difficult issue of how to fully and equitably fund stormwater management in order to meet the obligations of the EPA and the PADEP.

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Rehabilitating Our Waterways



Effective Spring 2019

Lemoyne Borough (Cumberland County)

New Stormwater Assessment

Lemoyne Borough intends to implement a Stormwater Management Program in order to comply with the Environmental Protection Agency (EPA) and the Department of Environmental Protection (DEP). A new Stormwater Assessment will be used to address stormwater concerns and infrastructure as required.

Residents and property owners are encouraged to attend a public meeting on **February 28, 2019 @ 6:30 p.m.** at the Borough Office to learn about the upcoming Stormwater Assessment and Stormwater Management Program.

What is a Stormwater Assessment Fee?

A Stormwater Assessment Fee is collected solely for the purposes of funding stormwater related projects, permits, infrastructure, and public education/outreach.

This fee provides the user with various stormwater related services (much like a sewer fee, trash collection fee, or a water fee). It has its own budget and must be fully transparent to show it is properly spent. The collection of this fee is enabled by the Pennsylvania Borough Code.



What is the proposed cost to you?

An Equivalent Tenth of Acre Unit (ETU) is the total deeded parcel acreage, divided by 0.1, to determine the equivalent tenth of acre units for each parcel.

1 ETU = \$7.70/month

Single Family Residential Equivalent Tenth of Acre Unit	Adjusted Equivalent Tenth of Acre Unit	Monthly Bill
1	1	\$7.70
2 to < 5	2	\$15.40
5 to < 10	3	\$23.10
10 to < 15	4	\$30.80
15 to < 20	5	\$38.50
20+	6	\$46.20

All Non-Single Family Residential Properties will be charged based upon the total number of Equivalent Tenth of Acre Units for that parcel.

How are the collected fees used?

The Stormwater Assessment Fee pays for the operation and maintenance costs associated with the Stormwater Management Program. Some of the services provided in the program include the following:

- Infrastructure construction, maintenance and repair
- Stormwater quality improvement projects
- Flooding mitigation projects
- Permit Compliance
- Public Education and Outreach
- Illicit Discharge Detection & Elimination

Why not use tax revenue?

The cost of these new programs and plans, in addition to the need for various infrastructure improvement projects, far exceeds the amount the Borough currently spends from the Stormwater Fund. Additional use of tax revenue from the General Fund would require reducing expenditures by the Borough in other areas such as police services or street repairs.



What have we done?

- Market Street Rain Gardens
The Market Street Streetscape project incorporated a series of rain gardens along the corridor that collect and treat runoff from the road, preventing pollutants from being discharged into the Susquehanna River.
- Pollutant Reduction Plan (PRP)
The Borough developed a PRP as part of the 2017 PA DEP permit renewal process. The plan defines measurable goals of pollutant reduction over the next five years. As part of the planning process, the Borough applied for and received a grant from PA DEP for implementation of the stream restoration project identified in the plan.

How can you help?

- Keep storm drains free of litter and other debris
- Sweep up grass clippings, leaves, and fertilizers and pesticides from impervious surfaces
- Clean up pet waste
- Never dump anything down storm drains
- Compost your yard waste
- Direct downspouts away from paved surfaces
- Don't wash your vehicle in the road or driveway
- Check your vehicle regularly for leaks
- Vegetate bare spots in your yard

Refer to the Borough's website, www.lemoynepa.com, for a list of FAQs and additional information.

City of Lebanon



What is the storm water management fee?

A storm water management fee was established by the City of Lebanon to ensure City-owned storm water management facilities are well-maintained and to pay for the implementation of programs and facilities designed to reduce storm water pollution. Storm water pollution is a City-wide issue that must be properly managed to improve the quality of our local waterways. The operation and maintenance of a municipal separate storm sewer system (MS4) is expensive, especially when federal and state regulatory requirements concerning water quality are considered.

Why is a storm water management fee necessary?

The City of Lebanon, like many local municipalities, must comply with state and federal MS4 mandates to reduce storm water pollution. Compliance with these unfunded mandates is expected to cost the City over \$3,400,000 over the next five years. Through the Clean Water Act, the U.S. Environmental Protection Agency (EPA) and Pennsylvania Department of Environmental Protection (DEP) have imposed new regulations to require the clean-up of our impaired waterways, including the Quittapahilla Creek, Susquehanna River and Chesapeake Bay, so they are safe for their designated uses, such as public water supply and recreation. National Pollutant Discharge Elimination System (NPDES) regulations require MS4 permittees, such as the City of Lebanon, to take specific actions to manage storm water pollution.

Prior to the 2018 MS4 permit renewal, the City of Lebanon was able to fund its storm water management program through normal tax collections. Under the new permit, the City is required to develop and implement a Pollutant Reduction Plan (PRP) designed to reduce pollutant loads carried by storm water runoff to the City's impaired waterways. Sediment discharges must be reduced by 10 percent over the next five years. Implementation of the PRP will dramatically increase the cost of the City's MS4 program and tax revenue is not sufficient to pay the expected costs.

City of Lebanon Storm Water Management Fee Program



Why are property owners paying a storm water fee instead of a tax?

A dedicated storm water management fee program links the revenue collected from the storm water management fee directly to the storm water services that the City provides. The fee is necessary for the City to fund its storm water management program since tax revenues are not enough to cover costs brought about by the new regulations.

Storm water management fees collected by the City must be spent specifically on storm water services and facilities. Revenue from tax collections, such as the property tax, are used to fund most of the City's general services, such as police and fire protection, road maintenance, code enforcement and administration. However, tax-exempt properties also generate storm water runoff and are subject to the fee. The revenue collected will enable the City to administer its storm water management program and build the capital improvements necessary to reduce storm water pollution.

Who will pay the storm water management Fee?

Storm water management fees are assessed on all properties in the City with at least 300 square feet of impervious cover. Impervious cover includes buildings, driveways, parking lots, sidewalks, patios, decks, tennis courts, etc. Stone surfaces are also considered impervious.

How is the storm water management fee calculated?

All properties in the City of Lebanon have been classified either as "Single-Family Residential" (SFR) or "Non-Single Family Residential" (non-SFR) based on the use of the property. The average amount of impervious area on a SFR property is called an Equivalent Residential Unit, or ERU. One ERU is 1,780 square feet in City of Lebanon. All SFR properties are charged for one (1) ERU. All non-SFR properties are charged multiple ERUs based on the total impervious area on the property. For example, a property with 1,780 square feet of impervious area would be charged for ten (10) ERUs. For each property, a fee of \$60.00 per ERU per year is charged for the first ERU and a fee of \$12.56 per ERU per year is charged for each additional ERU above one (1) ERU.

Why is impervious area being used to determine the fee?

Impervious areas consist of all "hard" surfaces such as rooftops, driveways, parking lots, sidewalks, concrete, stone, or gravel which prevent water from soaking into the ground. These surfaces increase both the rate and volume of storm water runoff reaching local streams. The excess runoff picks up pollutants such as trash, debris, sediment, oil, fertilizers, pesticides, and other chemicals along the way. Impervious areas are the focus of the storm water management fee because they are the primary source of pollution in developed watersheds, accounting for eight (8) times more pollutants than undeveloped areas.

How will the City of Lebanon spend the money generated?

The revenue generated by the storm water management fee will allow the City of Lebanon to meet federal and state storm water regulations, operate and maintain the MS4, and fund drainage improvement projects. The City is prohibited from spending the money for any purpose not related to the MS4 program.

I'd like to understand more. Where can I find additional information on the stormwater management fee?

The City of Lebanon is committed to being as transparent as possible and continues to work in the best interest of all City residents and property owners. The City is assisting property owners in understanding the storm water management fee by providing a Stormwater Management Fee FAQ document at www.lebanonpa.org

How can I reduce my bill?

The City is offering storm water management fee credits to property owners who install stormwater Best Management Practices (BMPs) or maintain existing BMPs. Eligible BMPs include, but are not limited to: detention and retention basins, infiltration trenches, riparian forest buffers, and vegetated swales. Single-family residences are eligible for up to a 100% BMP credit and non-single family residential property owners are eligible for up to a 50% BMP credit. Copies of the Credit Manual and Credit Application Form may be obtained from the City.



Riparian Buffer BMP at Northeast Park

How will the billing be handled for rental properties?

The bill will go to the property owner. It will be up to the property owner to decide how or if the tenants should share in the payment.

Can I appeal the storm water management fee?

A property owner who believes that the impervious area calculation and/or the classification of their property is incorrect may appeal the stormwater management fee, as can owners of two SFR properties that are adjacent, have only one house between the two properties, and have a total impervious area less than 2,670 square feet (1.5 ERUs). Additional information on appeals and the appeal form are available from the City.

Derry Township Municipal Authority



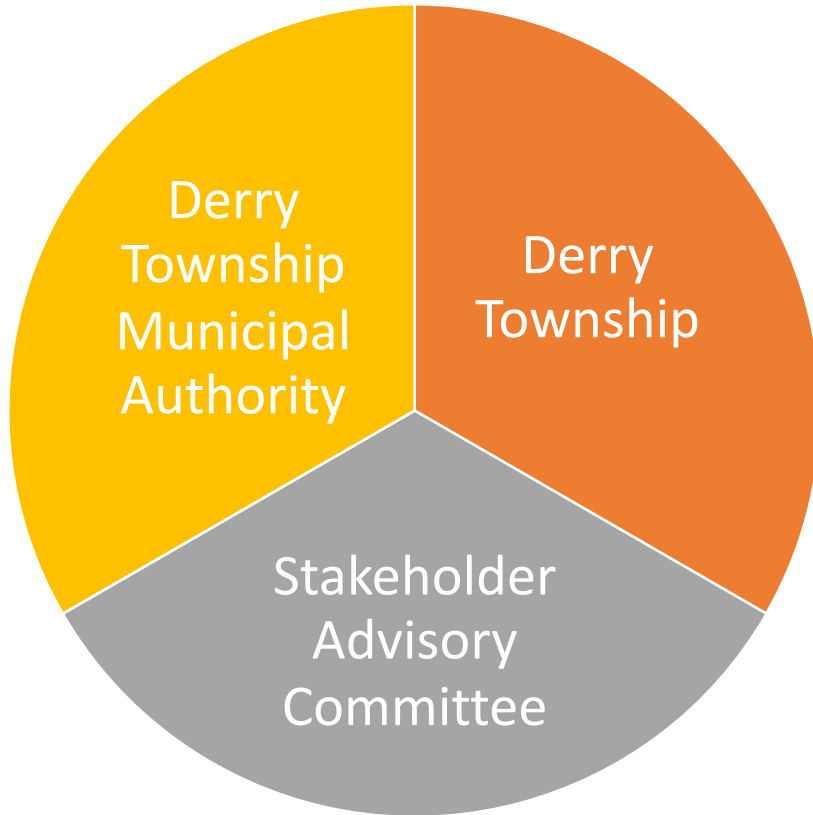
DTMA

- Municipalities are facing many stormwater related challenges
 - Tightening regulations
 - Aging infrastructure
 - Increased development
 - Level funding
- Authorities provide:
 - Financial, administrative, and jurisdictional benefits
 - A steady and dedicated revenue source
 - A more equitable means of allocating growing costs of stormwater management

- Provides a dedicated source of funds
- Funds directed solely to stormwater management
- Fairly apportions costs to the burden each property contributes to the system
 - Based upon impervious area = “contribution to the problem” Users pay based upon level of service received
- Fees can be collected from tax exempt users
- Credits provided based on level of service received
- Provides an incentive to reduce impervious surface

- Meet increasing regulatory requirements
- Effectively handle and manage stormwater runoff
- Assess stormwater and flooding problems
- Cost effectively maintain aging stormwater infrastructure
- Prioritize and strategically implement capital improvements
- Overcome restrictions of level funding

DTMA Process for Stormwater Management



- Township Board of Supervisors recognized the need to develop a new model comprehensive Stormwater Management Program (SMP) for the Township
- Meeting held between Board of Supervisors, DTMA, and both staffs for 3-4 months to discuss pros, cons, and potential hurdles
- No downside for DTMA
- All upside for the Township residents
- Formed Stakeholder Advisory Committee to evaluate program further

Community Stakeholders

Property Owners

Business Owners

Industry

Recreation

Government

Home Owners Associations

Hospitals

Religious Institutions

Schools

Charitable Organizations

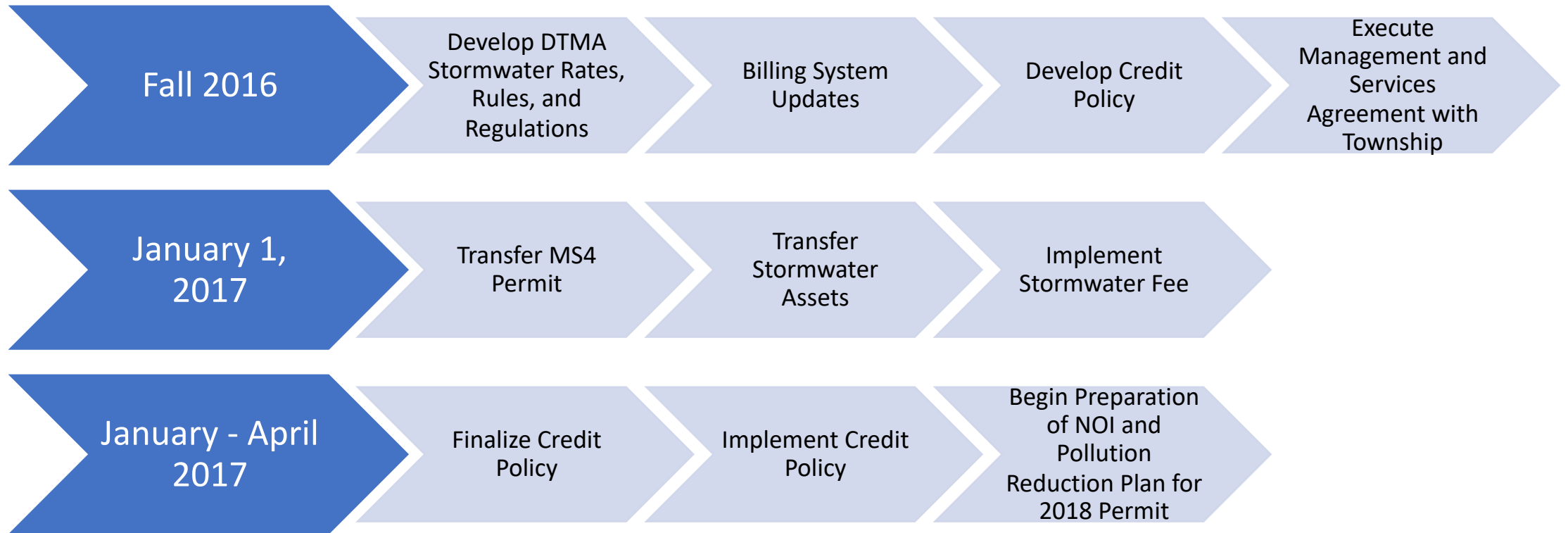
Landlords

Environmental Groups

Municipal/Authority Officials

Municipal/Authority Staff

Sample Steps and Timeline



What to Expect

- When you charge someone a fee, you will hear from them more.
- They'll expect some results.
- Although your Stormwater Authority is new, the community needs it was formed to address are not.
- Customers expect customer service.
- You're going to be front-loaded with a big "To-Do" list.
- Your existing staff might have some apprehensions.
- You're going to get asked questions on potentially unfamiliar topics.
 - Think about the front lines here too!
- Be prepared to buy additional equipment.
- Adding stormwater may prompt other organizational changes
 - Billing/Asset management software
 - Additional staffing
 - Changes in billing procedures / More time needed to process billing
- No matter how much you plan, you won't think of everything. Be Flexible!

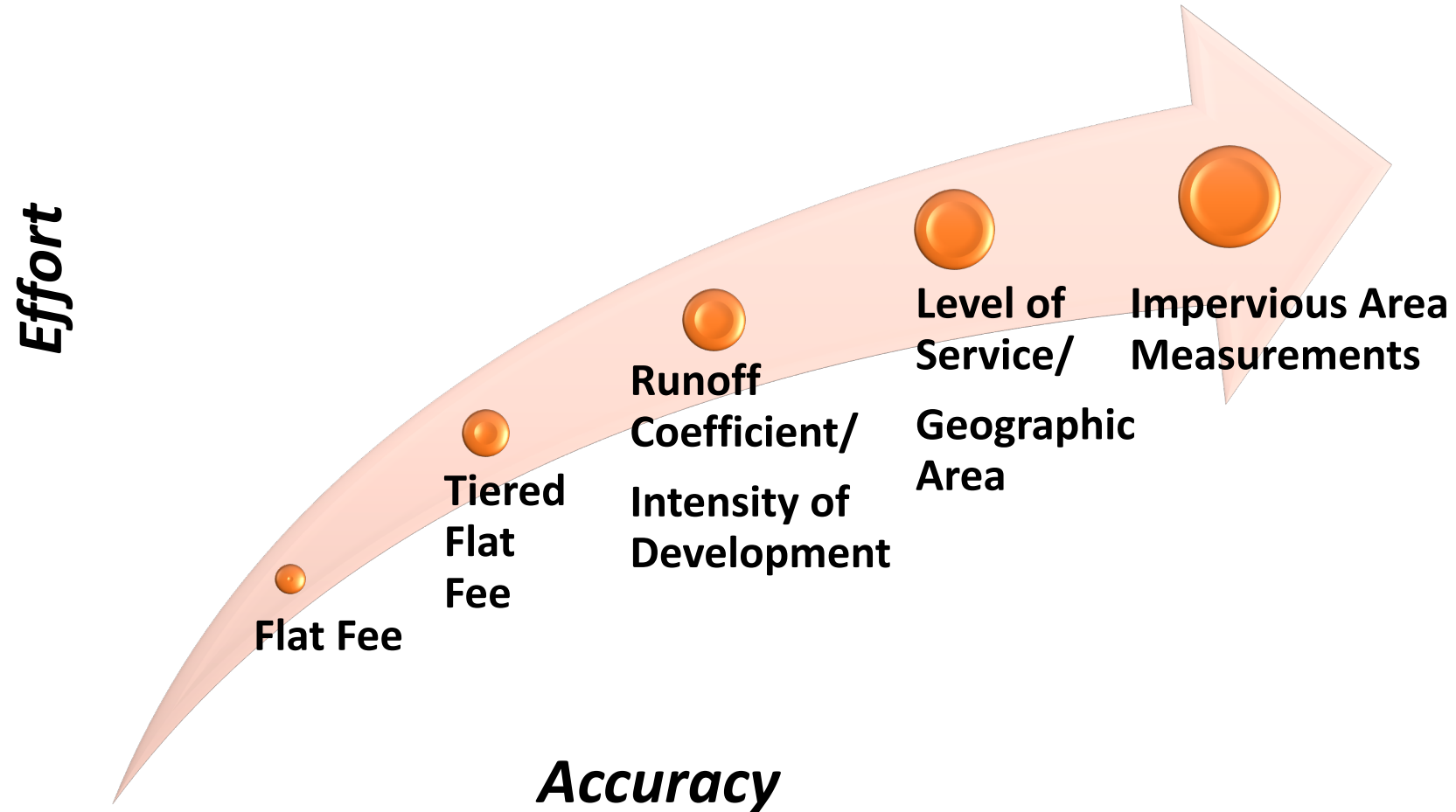
DTMA Infrastructure Review/Needs

- \$27,000,000 in needed improvements identified through planning documents
- Condition Assessment and priority planning ~ \$0.5M
 - Partnership with USACE (50/50 cost share)
 - Mapping/Condition Assessment of Infrastructure (years 2016-2018)
 - Impervious Surface Development in GIS
 - Flood Modeling
 - Flood Emergency Access Study
- Replacement of failed infrastructure ~ \$11M
 - Significant portion of pipe and facilities anticipated to reach its useful life over next 10-20 years
- System improvements and new green infrastructure / stormwater best management practices (BMPs) to address flooding ~ \$15.5M

	Level of Service	O&M	Planning & Compliance	Capital Improvements
Desired Level	Exceptional	Fully Preventative/ 100% Routine	Comp planning, NPDES compliance	Prioritized/Fully Funded
Existing Level	Expanded	Inspection based	Reactionary Planning	Inspection-based/moderate budget
	Average	Responsive only	Emergency	Critical needs only/minimal budget
	Minimal	Non-Responsive	No Planning	No planning/No budget

Comprehensive **Mix of routine & inspection based** **Priority Planning** **Phased/allocated budgets**

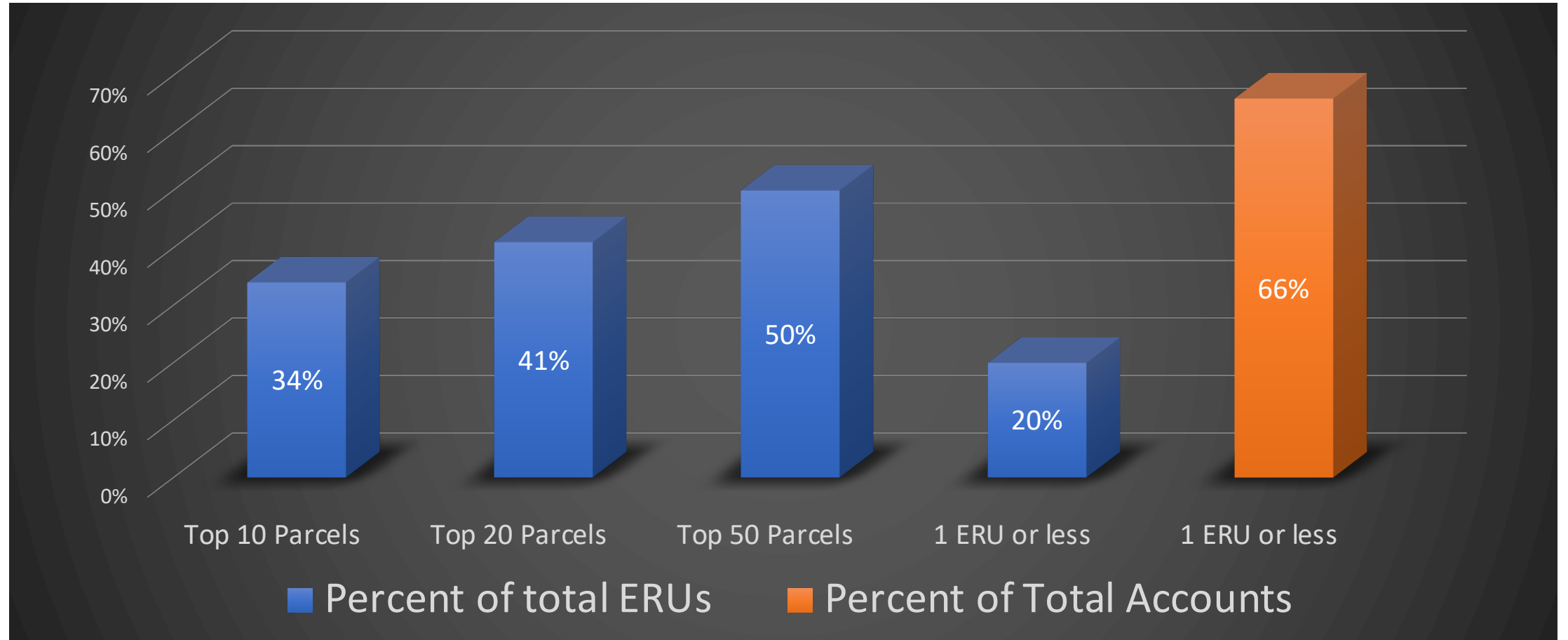
Rate Models



- A common means to simplify impervious area
- Usually set to the median or average impervious area for residential homes in your community
- Therefore, the typical residential property is 1 ERU
- Non-residential properties are then calculated using ERU
 - 1 ERU = 3,000 SF
 - Commercial Property is 30,000 SF
 - $30,000/3,000 = 10$ ERUs

- Easier said than done
- Level of effort will be dependent on the quality of your existing data and how accurate you want to be
- \$\$\$
- Most balance accuracy with costs
- Tools like GIS are a big help

Breakdown of ERUs



DTMA

Projected Annual Budget (2017-2021)	
Category	Projected Cost
Administrative/General	\$150,000
Operation & Maintenance	\$330,000
MS4 Compliance	\$290,000
Capital Improvements	\$560,000
Total Annual Cost:	\$1,330,000

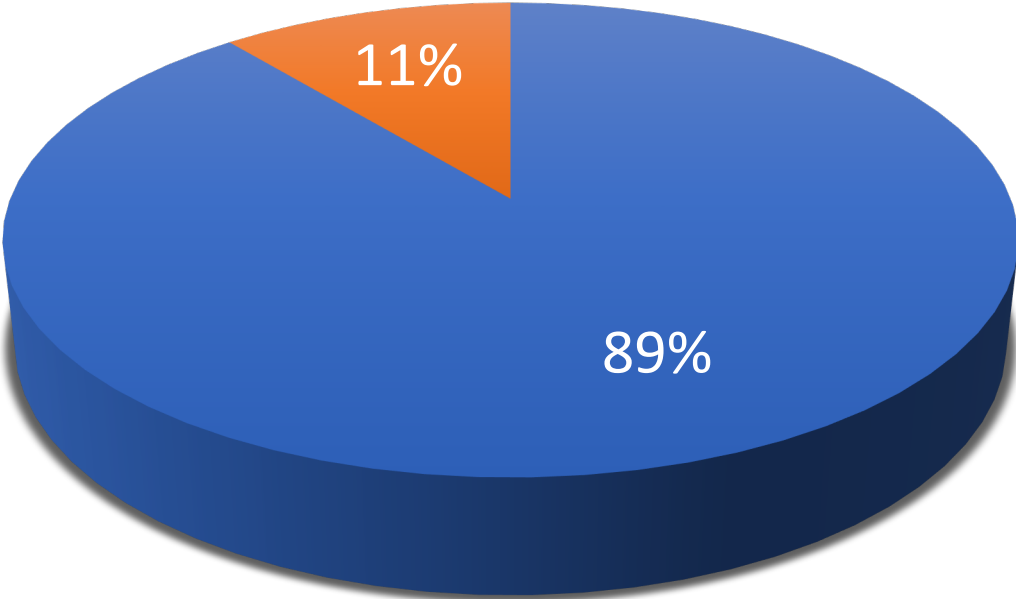
- If the stormwater fee is there to address stormwater issues, you need a mechanism to adjust fee for different levels of effort on properties.
- Credit Policy – A means to lower a stormwater fee for properties that are reducing the cost burden related to stormwater.
 - Properties with stormwater BMPs
 - Properties willing to install BMPs
 - Properties that don't contribute as much to the problem

DTMA Stormwater Management Fee Calculation

Total Annual SMP Cost	\$1,330,000
Total ERUs	25,766
Collected (Adjusted) ERUs	17,444
Annual SMP Fee (\$/ERU)	\$76.25
Monthly SMP Fee (\$/ERU)	\$6.35
Approved Fee (\$/ERU/Month):	\$6.50

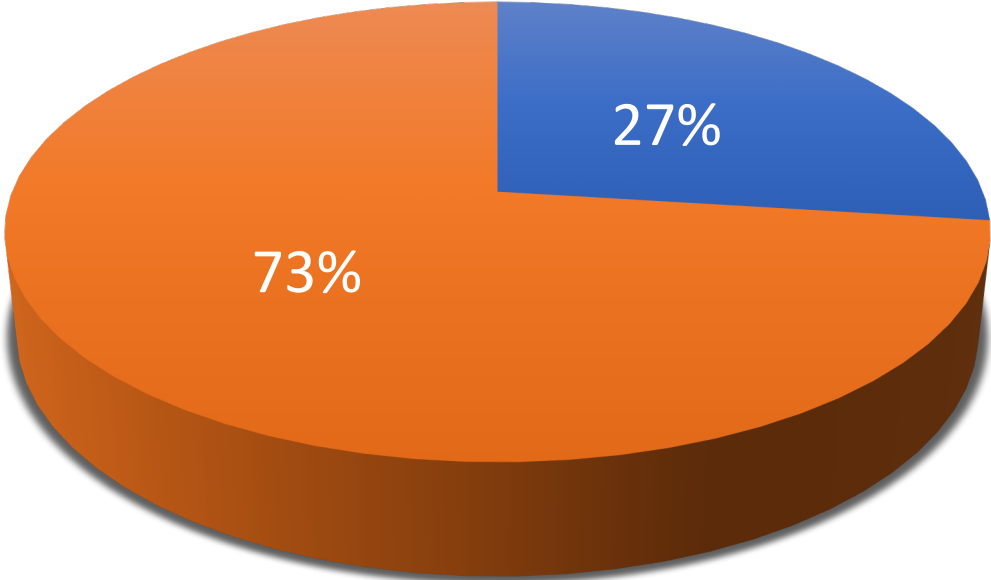
Accounts v ERUs

Number of Accounts



■ Residential ■ Non-Residential

Number of ERUs



■ Residential ■ Non-Residential

Appendix D: South Central PA Stormwater Collaborative Materials

- Financing County Action Plans Presentation

Financing County Action Plans

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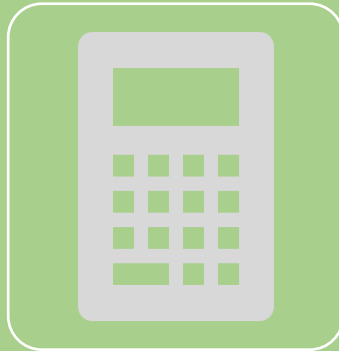
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Environmental Finance Center: What We Do



Capacity Building & Training

- Local Government Leadership Training
- On-line and Virtual Workshops
- www.mostcenter.umd.edu



Policy Analysis & Financial Assessment

- Policy Review
- Financing Strategies
- Budget Analysis
- Program Evaluation



Community Outreach & Facilitation

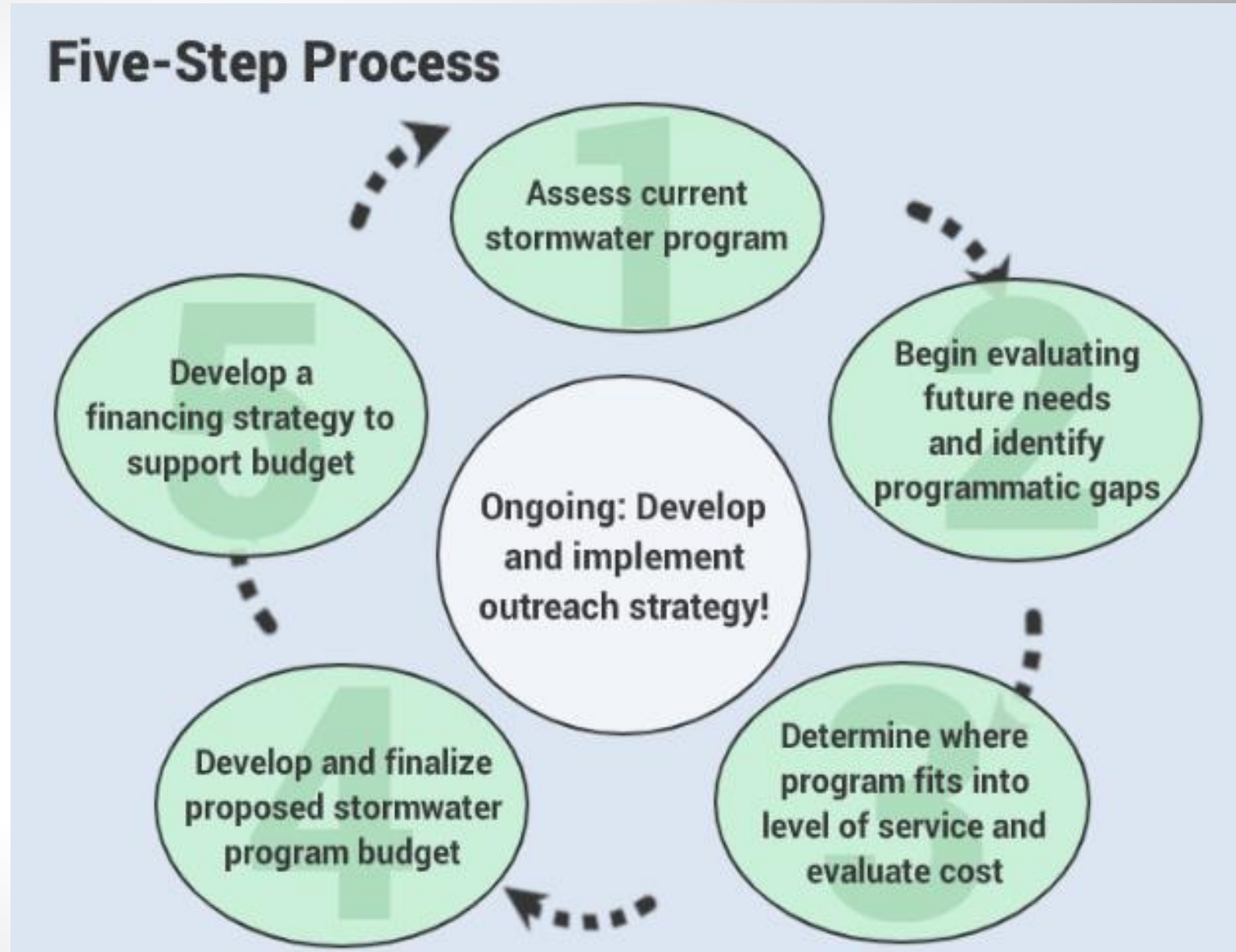
- Designing outreach campaigns
- Facilitating stakeholder engagement
- Conducting focus groups
- Managing community surveys and interviews

How do we manage different sources of stormwater?



- Industrial – site-specific NPDES permit or through WWTP
- Urban – Municipal NPDES MS4 permit
- Construction – 25 PA Code Chapter 102
- Post-construction – Stormwater Management Act 167
- Non-point source – CWA Section 319; non-MS4 communities and agricultural runoff

Stormwater Program Development Process



Stormwater Program Financing Strategy Components

ACTIVITIES

- Capital Improvements (BMPs)
- Operations and Maintenance
- Public Education and Involvement
- Technical Support
- Engineering and Planning
- Regulatory Compliance and Enforcement
- Administration
- Billing and Finance



PARTNERS

- Internal Municipal Partners (Parks & Rec, Roads, Admin)
- Municipal Committees (Open Space, Parks & Rec, Env'tl Advisory)
- Existing Municipal Authorities
- Other Municipalities
- Watershed Organizations
- Conservation District
- County Planning Department
- Private landowners

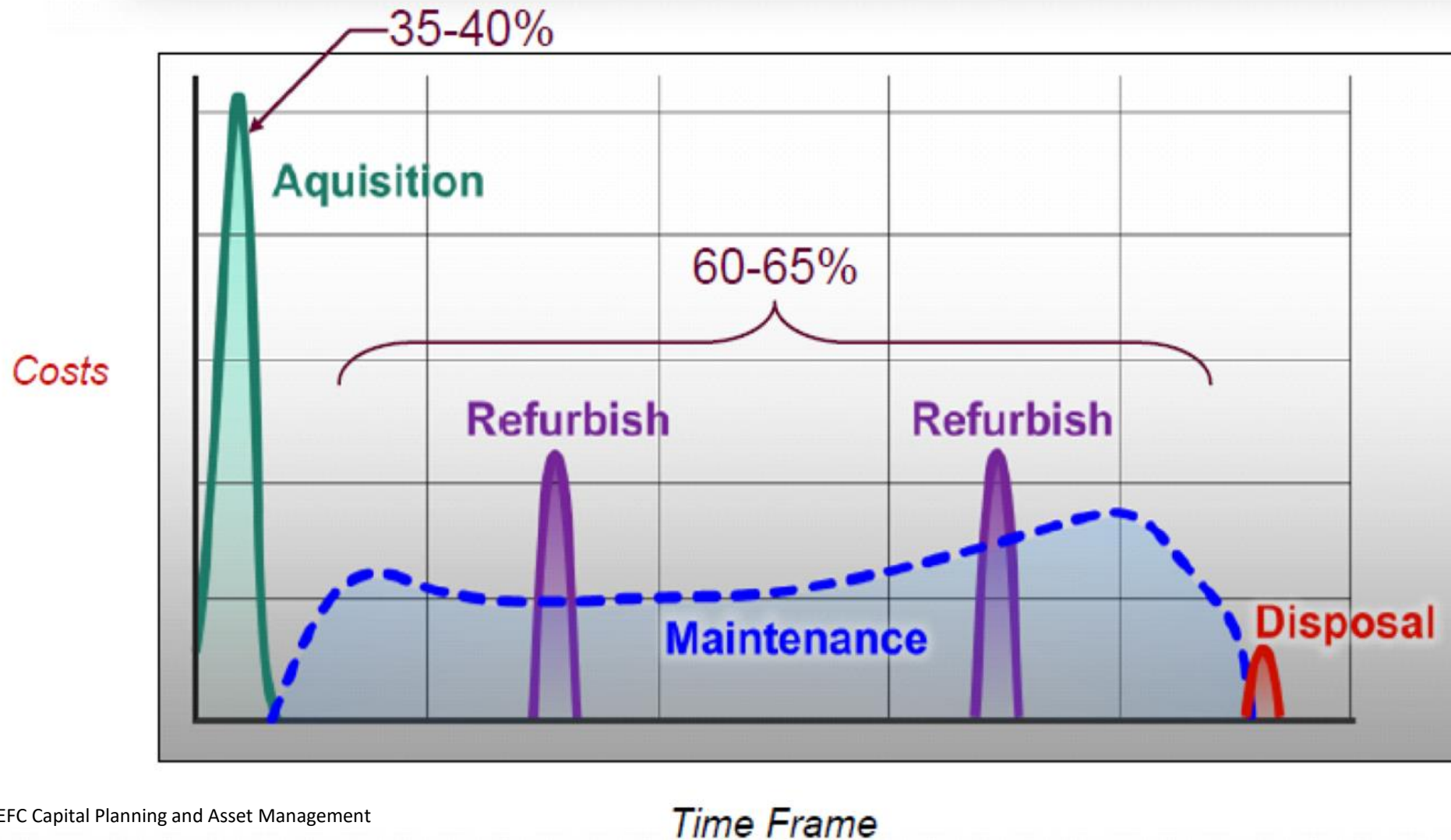
REVENUES

- General Funds
- CIP Funds
- Bonds
- Grants
- Fees
- Cost-share programs



Source	Cost Coverage		Strengths	Weakness
	Capital	O&M		
General Fund	Yes	Yes	Can be used to support all program costs	Competes with other community priorities, changed from year to year, less equitably spreads costs across payers
Grants	Yes	No	Good source for “shovel ready” project implementation, demonstration projects, and initial program staff	Not guaranteed, highly competitive, suitable for demonstration projects, not sustainable in the long-term
SRF & Loan Programs	Yes	No	Can offer up-front capital for larger projects	Not guaranteed fund source, highly competitive, must repay – often with interest
Bond Financing	Yes	No	Can be used for large, long-term expenditures	Dependent on fiscal capacity, must repay with interest, cost of securing bond may be high
Permit, Development & Inspection Fees	Yes	No	Offers nexus to system and program expansion needs	May not sufficiently cover program costs, may deter development
Stormwater Utility Fee	Yes	Yes	Can generate sufficient revenue, sustainable, dependable, equitable depending on design, supports all program costs	Requires significant public dialogue, can create administrative challenges
Tax Districts	Yes	Yes	Can generate sufficient revenue, sustainable, dependable	Necessitates enabling statute, can have equity problems due to property value basis

Lifecycle Costs



Budgeting Implications of BMP Selection

What are upfront costs for BMPs? How does timing impact the program's cash flow?

Do the BMPs serve other community priorities?

Who should pay for what kind of BMP implementation?

Municipal v Private

Review regulations to reduce the assets that the municipality is managing

Center for Watershed Protection
Code and Ordinance worksheet

<https://owl.cwp.org/mdocs-posts/better-site-design-code-and-ordinance-cow-worksheet-2017-update/>

Shift risk and cost of asset management to those seeking to build more impervious cover through codes/ordinances

New v Retrofit

New

- Higher upfront costs
- May be more responsive to specific permit needs
- May be more responsive to current community priorities

Retrofit

- Lower upfront costs
- Value depends on where asset is in its lifecycle
- Land ownership may be an issue

Road Runoff Management

Who is responsible for which roads?

What are the funding sources available to manage road runoff?

Does your county or state road manager have a partnership program?

Can you work with other municipalities to develop a partnership program if one doesn't exist?

Dig Once

An examination of the City of Lancaster, Pennsylvania's efforts to **incorporate green infrastructure into planned capital improvement projects indicated costs were 45% lower** than if these green infrastructure projects had been installed outside of the CIP process.

*The Economic Benefits of Green Infrastructure:
A Case Study of Lancaster, PA*

https://www.epa.gov/sites/production/files/2015-10/documents/cnt-lancaster-report-508_1.pdf

Agricultural Runoff Management

Who should be responsible for agricultural runoff management?

What are the funding sources available to manage runoff from agricultural land uses?

Does your county conservation district have a cost-share program?

How will O & M be done and reported?



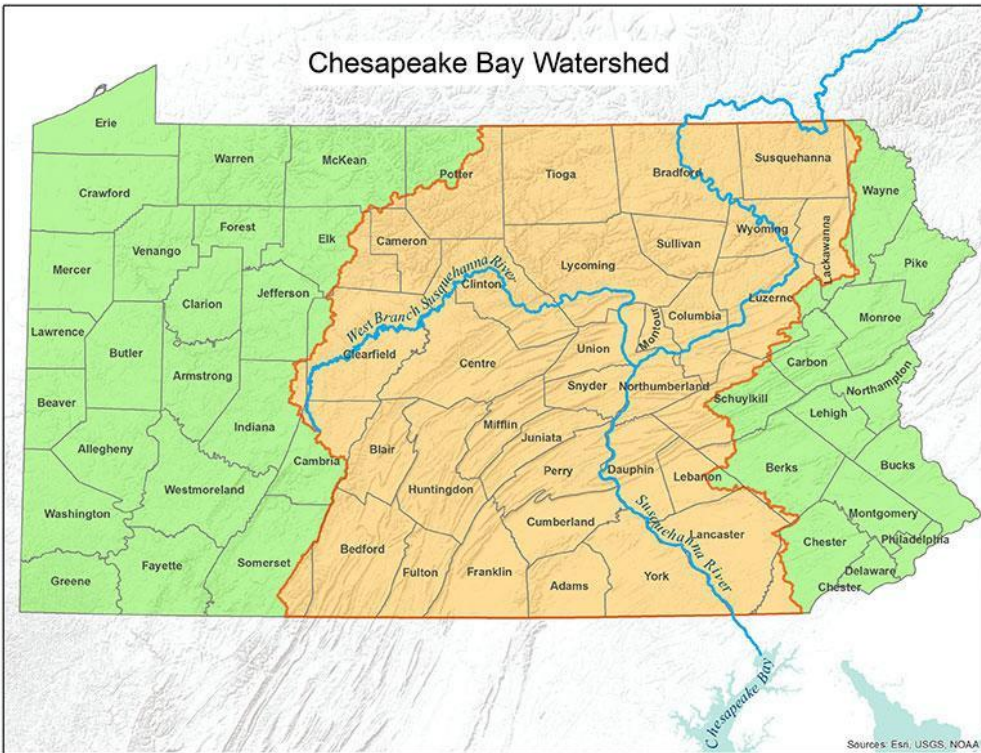
Engaging with Partners

- Conservation Districts
- County Planning Commissions
- Economic Development Councils
- Watershed Organizations
- Agricultural Organizations
- Land Conservancies
- Schools, Colleges, and Universities

Stormwater Technical Assistance for Pennsylvania Communities

- Goal: Support Pennsylvania municipalities with their stormwater management planning and implementation in conjunction with overall Chesapeake Bay WIP process through County Action Plan development and implementation.
- Focus on funding and financing stormwater management programs and projects.
- No cost to the communities served.

Project Overview



- Establish relationship with municipality or collaborative entity

- Review existing stormwater plans/CAP plans
- Identify financing strategies that meets the specific needs of the community
- Explore and select financing strategies that consider the costs of compliance with MS4 programs, costs of reductions in agricultural runoff, the associated capital investment needed for design and construction, land rights for installation of BMPs, long-term operation and maintenance, and other asset management expenses
- Timeline: Complete by March 31, 2022

Examples of Ongoing Work

Community	Overview of Project
Franklin County	<p>Explore the feasibility of a local Clean Water Fund that could address gaps in water quality financing</p> <p>Better capture the nutrient reductions of undocumented existing best management practices</p>
Lancaster Clean Water Partners	<p>Develop a financing strategy for LCWP to achieve the goals of their stream delisting strategies</p> <p>Develop a general financing strategy to support Lancaster's Countywide Action Plan (CAP)</p>
Oxford Borough	<p>Develop financing strategies that will help the Borough implement best management practices and meet pollution reduction goals</p>
South Central Watershed Partnership	<p>Host a stormwater financing workshop on October 26, 2021</p>

Discussion

- What are some of your communities' stormwater priorities?
- What financing challenges are you facing meeting stormwater goals?
- Do you have stormwater technical assistance needs?

Questions?

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Appendix E: Wormleysburg Borough Materials

- Stormwater Financing Strategy

Stormwater Financing Strategy

Borough of Wormleysburg

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Margaret Stuski, Council Member

University of Maryland, Environmental Finance Center:

Ellen Kohler, Former EFC Program Director of Water Resources
Natalia Sanchez, Program Coordinator

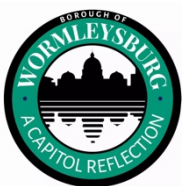
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Funding for this Study was provided by the Environmental Protection Agency.



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Project Background

Background

More than 1,000 Pennsylvania municipalities have a National Pollution Discharge Elimination System (NPDES) Municipal Separate Sewer System (MS4) permit that requires specific actions be taken to protect and restore local water quality. For those in the Chesapeake Bay Watershed, there is the additional expectation of fulfilling certain pollution reduction obligations associated with the state's Total Maximum Daily Load (TMDL) limitations. Recognizing that meeting these expectations is one of the costliest challenges local governments in Pennsylvania face, in the fall of 2020, the Environmental Protection Agency's (EPA) Region 3 Office engaged the University of Maryland's Environmental Finance Center (EFC) to provide direct technical assistance designed to help these communities map a path forward for implementation and financing. When soliciting communities regarding their interest, Wormleysburg Borough indicated a desire to work with the EFC to further develop its stormwater management program. After an initial conversation in which the Borough identified both short-term and long-term financing as a challenge, this study officially commenced.

Goals

The main goal of this project is to identify strategies for Wormleysburg Borough to fund and finance its stormwater management program and projects so that it can achieve permit requirements, prepare for future nutrient reduction expectations, meet community priorities, and reap the benefits of having clean and healthy local waterways. The MS4 permit is iterative, renewing every five years, and each new 5-year permit is anticipated to require a greater level of activity and regulatory compliance. It is imperative that Wormleysburg enhance its existing stormwater management program to position itself to properly maintain their system, to meet all state and federal requirements, and to better address the Borough's stormwater management needs, especially in the face of the increasing number of intense storm events. A stormwater program that meets the Borough's needs will require the support of a more robust and reliable funding strategy than currently outlined in the Borough's budget.

Approach

The analysis began with an assessment of Wormleysburg's current stormwater program. The EFC gathered relevant data from appropriate Borough staff and worked with municipal staff to evaluate the existing program structure, determine current capacity, and identify trends in funding levels. The team also reviewed appropriate documents such as the current budget, past budgets, Capital Projects budget, Annual MS4 Status Reports, and Wormleysburg's Pollution Reduction Plan (PRP).

Wormleysburg's Stormwater Program

Stormwater Permit Status

Wormleysburg is required to submit an individual permit under the Pennsylvania Department of Environmental Protection's (PA DEP) MS4 program. The 2018 MS4 permit requirements for the Borough included pollution load reductions to address both local stream impairments for the stream parallel to Walnut Street and the stream parallel to State Route 3016 (Harvey Taylor Bypass), as well as pollution reductions needed to meet the Chesapeake Bay Total Maximum Daily Load (TMDL) requirements. The Borough submitted its permit application addressing the six minimum control measures (MCMs) along with a pollution reduction plan (PRP) in a timely manner in 2018. The current MS4 permit will expire in 2023, and a new five-year permit will need to be submitted in 2023.

Existing Budget and Funding

The current funding strategy for stormwater management in Wormleysburg is to draw funds on an as-needed basis from the Borough's general fund. Reliance on the general fund can leave gaps in local stormwater programming, particularly when funds are limited and other community priorities often take precedence over stormwater. Therefore, the goal of the stormwater financing study is to identify long-term strategies that will establish a funding stream that is equitable and effective in generating sufficient revenue for the Borough to develop and maintain a comprehensive stormwater program that both addresses MS4 permit requirements and meets local priorities and needs.

There is a line item in the Borough's budget for stormwater that to date has covered the costs of its MS4 program. The funds allocated to this line item have varied in the past four years as detailed below.

Existing stormwater budget amounts:	\$0 in 2019
	\$80,000 in 2020
	\$30,000 in 2021
	\$100,000 in 2022

The Borough's PRP includes the Lower Rupley Memorial Stream Project that will meet the current MS4 permit pollution reduction requirements of:

- Reducing sediment levels by 10 percent,
- Reducing total nitrogen levels by 5 percent, and

- Reducing total phosphorus by 3 percent.

The PRP includes an estimated cost of \$234,000 for the Lower Rupley Memorial Park Stream Restoration Project, however the cost does not include maintenance. The Borough should consider not only the costs to design and install the project but its associated operations and maintenance costs to protect its investment.

Level of Service Review

All MS4 permits nationwide include six Minimum Control Measures (MCMs). Within each MCM, there are recommended best management practices (BMPs) derived by the U.S. Environmental Protection Agency and enforced by the Pennsylvania Department of Environmental Protection (DEP). The EFC reviewed the Borough's permit application, 2019 and 2020 annual MS4 status reports, and the PRP. After this comprehensive review, the EFC identified strategies to improve water quality more effectively and efficiently.

Many required permitted activities can be accomplished more efficiently, through partnerships with surrounding municipalities, the Cumberland County Conservation District, the South Central PA MS4 Work Group, conservation and watershed organizations, Capital Region Council of Governments (CapCOG) and academic institutions. Partnering with other local organizations is a way to increase the capacity of the Borough and meet permit requirements without taking on additional expenses (other than dedicating staff time). Specific ways that partnering with these organizations can help meet minimum control measures are explained below. These partnerships can expand the Borough's capacity by relying on partners to sponsor events or develop content, particularly for public education and outreach as well as municipal staff training.

Minimum Control Measure 1: Public Education and Outreach

The intention of MCM 1 is to implement a public education program that will distribute educational materials throughout the Borough and conduct outreach activities showing the impacts of stormwater.

Wormleysburg meets this requirement by keeping a stormwater page¹ on its website with educational information including a "When it Rains, it Drains" brochure, a Homeowner's Guide to Stormwater, an informational booklet on Backyard Conservation, and linking to additional resources on the Chesapeake Stormwater Network². The Borough also installed, and plans to continue to install, storm drain medallions.

To increase the variety of distribution methods, the Borough also effectively partners with CapCOG. This partnership allows the Borough to tap into CapCOG's stormwater programming, including

¹ <https://www.wormleysburgpa.org/borough/storm-water-management/>

² <https://chesapeakestormwater.net/>

distributing its annual newspaper ad to residents which includes stormwater educational materials, at no cost to the Borough.

To increase the efficacy of this MCM, the Borough recently started to participate in the South Central PA MS4 Work Group which will provide a multitude of opportunities for the requirements of this MCM and others at little to no cost.

Minimum Control Measure 2: Public Involvement and Participation

The intention of MCM 2 is to implement a public involvement and participation program for stormwater.

The Borough has effectively met this requirement in a few different ways. For example, the Borough provided a complete copy of the PRP for public review at the Borough Office for a 30-day review period from June 26, 2017 through July 26, 2017 and interested parties could submit written comments at this location. Additionally interested members of the public were encouraged to attend and provide comments regarding the PRP at the Borough's Council Meeting held on July 11, 2017.

The Borough also holds River Day twice a year where cleanups are completed along the riverfront. If interested in saving money on stream clean up events, the Borough should consider taking part in the Alliance for the Chesapeake Bay's Project Clean Stream.³ If the Borough registers to host a clean-up through this program, and the Alliance would provide all necessary supplies and could assist the Borough in raising awareness about the importance of individual environmental stewardship.

This is another MCM where participating in the South Central PA MS4 Work Group and CapCOG can provide a multitude of opportunities for the Borough to complement the work already being done to complete this requirement. The benefits of participating in the Work Group include learning from and working through challenges with peer communities and utilizing existing public education and outreach materials and platforms for effective dissemination.

³ <https://www.allianceforthebay.org/project/project-clean-stream/>

Minimum Control Measure 3: Illicit Discharge Detection and Elimination (IDD&E)

The intention of MCM 3 is to develop, implement, and enforce a program to detect and eliminate illicit discharges that go into the municipal storm drain system.

Wormleysburg has fifty-one outfalls within its boundaries. The Borough screens ten outfalls a year, meaning that each outfall is screened once throughout the permit cycle, meeting necessary requirements. Currently, the Borough contracts this service to an external engineering firm, however, staff recently hired at the Borough has expressed interest in getting trained on this topic and completing outfall inspections in-house. This would present the Borough with annual cost savings and greater in-house capacity moving forward. There are several resources available to Wormleysburg's staff including Neponset Stormwater Partnership's Outfall Inventory and Prioritization Tool⁴ and Baxter and Woodman's Prioritizing Stormwater Outfall Screening During Dry Weather Periods for MS4 Requirements⁵ for how to properly and effectively conduct outfall screenings.

Additionally, the Borough provides a mechanism on its website⁶ for the public to report any illicit discharges they observe and developed a stormwater ordinance that prohibits non-stormwater discharges into the regulated MS4 system. It is the opinion of the EFC that these components of the MCM are being met effectively and efficiently.

Minimum Control Measure 4: Construction Site Stormwater Runoff Control

The intention of MCM 4 is to develop, implement, and enforce a program to reduce pollutants in any stormwater runoff from construction activities that result in a land disturbance of greater than or equal to one acre.

Wormleysburg relies on Pennsylvania's statewide program for stormwater associated with construction activities to satisfy this requirement. The Borough has an agreement with the Cumberland County Conservation District to provide construction runoff oversight. Based on discussions with staff at the Borough, the EFC believes that this partnership is very effective.

⁴ <https://yourcleanwater.org/wp-content/uploads/2019/03/NSP-Outfall-Inventory-Ranking-Tool-INSTRUCTIONS-Final-v2.pdf>

⁵ https://www.illinoisfloods.org/content/documents/1b_when_its_not_raining_-_prioritizing_outfall_screening.pdf

⁶ <https://www.wormleysburgpa.org/borough/storm-water-management/>

Minimum Control Measure 5: Post-Construction Stormwater Management in New Development & Redevelopment

The intention of MCM 5 is to develop, implement, and enforce a program to address stormwater runoff from new development and redevelopment once the construction phase is complete.

On March 8, 2011 Wormleysburg passed a stormwater ordinance⁷ that requires the implementation and maintenance of post-construction BMPs and includes sanctions for noncompliance. These ordinances pre-date PA DEP's 2022 Model Stormwater Management Ordinance⁸, that in addition to including the elements of the ordinance that Wormleysburg already has also encourages low-impact development practices and includes guidance on how to identify and repeal sections of ordinance that conflict with low impact development (LID) practices.

The EFC recommends that Wormleysburg conduct a code and ordinance review to ensure that no sections of its ordinance conflict with the installation of LID and green infrastructure. The Borough recently completed a strategic management plan through the Pennsylvania Department of Community and Economic Development (DCED) which comes with grant funding from the state of Pennsylvania that they intend to use towards, among other things, hiring a code officer to conduct a thorough code and ordinance review. The EFC strongly recommends that as part of this code and ordinance review the code enforcement officer uses the Center for Watershed Protection's Code and Ordinance Worksheet⁹ and accompanying Scoring Spreadsheet¹⁰ in its efforts to evaluate local regulations and identify revisions that allow or require site developers to minimize impervious cover, conserve natural areas and use runoff reduction practices to manage stormwater.

Another future goal for the Borough is to train staff to conduct post construction inspections and to verify the stormwater projects are functioning as designed. This would decrease costs to the Borough as they currently contract this service to its engineer as well as increase the in-house capacity of Borough staff.

⁷ <https://www.wormleysburgpa.org/wp-content/uploads/2021/05/Stormwater-Management-Ordinance-494.pdf>

⁸ <http://www.depgreenport.state.pa.us/elibrary/GetDocument?docId=13879&DocName=10%202022%20MODEL%20STORMWATER%20MANAGEMENT%20ORDINANCE.PDF%20%20%3Cspan%20style%3D%22color%3Agreen%3B%22%3E%3C%2Fspan%3E%20%3Cspan%20style%3D%22color%3Ablue%3B%22%3E%3C%2Fspan%3E>

⁹ <https://owl.cwp.org/mdocs-posts/better-site-design-code-and-ordinance-cow-worksheet-2017-update/>

¹⁰ <https://owl.cwp.org/mdocs-posts/cow-scoring-spreadsheet/>

Minimum Control Measure 6: Pollution Prevention/Good Housekeeping for Municipal Operators

The intention of MCM 6 is to develop an operation and maintenance program for reducing pollutant runoff from municipal operations. Additionally, the stormwater program must include employee training to reduce stormwater pollution from activities such as fleet and building maintenance and park and open space.

Based on the EFC's discussions with the Borough, there is an interest in completing monthly training to municipal staff on stormwater management and the MS4 program. One option for the Borough is to look at the existing training materials¹¹ provided by CapCOG on its website, share them with its staff, discuss, and present questions to CapCOG. Members of CapCOG (like Wormleysburg) can always request training materials or programs¹² from CapCOG. Another easy way to provide additional training opportunities to municipal staff is to keep up to date with the different programming provided on the CapCOG calendar¹³ and encourage (or require) attendance.

Appendix A has additional training opportunities available for the Borough.

Chesapeake Bay Total Maximum Daily Load Pollution Load Reductions

The Borough's PRP includes the Lower Rupley Memorial Park Stream Restoration Project that, when completed, will meet the current permit's requirement that sediment levels in impaired streams be reduced by 10 percent, total nitrogen levels reduced by 5 percent, and total phosphorus reduced by 3 percent. The PRP includes an estimated cost of \$234,000 (without taking into account maintenance).

The Borough intends to pursue grant funding opportunities from state and federal agencies to offset the capital costs associated with the PRP's project. Potential grant funding sources for the Borough to consider are included in Appendix B of this report. If grant funding is not available to implement the project, the Borough anticipates utilizing reserve funds from its budget to proceed. Should the Borough fail to obtain sufficient funds through grant funding and/or the Borough's budget, the

¹¹ <https://www.capitalregioncog.org/stormwater-management-program/pages/archived-training-materials>

¹² <https://www.capitalregioncog.org/programs-and-services/pages/training-demonstrations-conferences>

¹³ <https://www.capitalregioncog.org/calendar>

Borough will be required to pursue a low interest loan opportunity through PENNVEST or secure another private loan.

There are many ways in which the Borough can more effectively plan for its PRP costs. They are outlined in the next section of this report.

Funding Options and Financing Strategies

The Borough's financing strategy must address the amount of funding, timing of the funding, and kind of funding that the public and elected officials are willing to support. At minimum, the EFC strongly recommends establishing and budgeting for a permanent stormwater line item in the Borough budget (or keeping the MS4 line item) to achieve permit requirements, prepare for future nutrient reduction expectations, meet community priorities, and reap the benefits of having clean and healthy local waterways.

To put these estimates in context of the overall Borough budget, the current annual budget includes total revenue of \$1,834,305. Maintaining a stormwater management fund of \$100,000 (the current budgeted level) as part of the Borough's annual budget would represent approximately 5.5% percent of the Borough's total budget.

In terms of green infrastructure, the Borough is highly developed and only two existing BMPs exist within its boundaries, an infiltration basin in the Woods at Waterford and a rain garden in the Woods at Waterford. At the end of this current permit cycle (by 2023) Wormleysburg will also be responsible for the operations and maintenance of the Lower Rupley Memorial Park Stream Restoration project. The EFC recommends that the Borough investigate its expenditures for the past two years to determine how much it has spent to maintain the two existing BMPs, predict what the cost of maintenance for the additional BMP will be, and account for these costs in its stormwater line item (or include it in the budget of the Department of Public Works who maintains the stormwater facilities). Thinking ahead, pollution reduction requirements are expected to become more stringent over time making the cost of implementing the next round of PRP projects more expensive than this cycle's. The Borough should think about how to prepare and determine at what level they are comfortable increasing contributions to its stormwater line item.

In terms of gray infrastructure, the EFC found that the Borough has fifty-one outfalls within its boundaries, however, the quantity of pipes, conveyance, and other infrastructure was not found in our extensive literature review. The maps included in the Borough's PRP, and the state requirement that the entire stormwater system be mapped makes it very likely that this information exists and the Borough manager is working with the Borough's engineer to document this information. The EFC recommends that the Borough collect and review this information and incorporate the costs of routine maintenance and emergency repairs into its MS4/stormwater line item. To address these costs the EFC

recommends creating a reserve fund for stormwater infrastructure to draw from, specifically for maintenance and repairs. It is best practice to keep a minimum of 10% of the cost of an asset in a reserve fund. More information on asset management is below.

This section will outline existing revenue sources, potential sources, and other opportunities. The mix of revenue sources that the Borough of Wormleysburg relies upon will be unique to the needs and preferences of its elected officials and residents.

Existing Funding Streams

Liquid Fuels Revenue

OPPORTUNITY - Use liquid fuels revenue as match for grants

OPPORTUNITY - Establish a budgeting practice of annually allocating some of this revenue to a stormwater management fund

Pennsylvania municipalities receive funding back annually from state liquid fuel taxes to help address their road management expenses. The challenges related to stormwater management are directly related to the amount of impervious cover in a community, including runoff from roads. It is in Wormleysburg's best interest to effectively manage road runoff to extend the life cycle of any road investments, both in terms of road surface and in terms of any road stream crossings. By incorporating management of water quality into the water quantity strategies that municipalities use to manage road runoff, the municipality can more efficiently use its liquid fuels revenue to meet multiple municipal priorities. In addition, the liquid fuels revenue can be used as match for grant funding available to implement road runoff best management practices through the Dirt and Gravel/Low Volume Road program¹⁴ administered by the Cumberland County Conservation District. It is important to understand that the practices outlined in the low volume road program to manage road runoff can and should be applied to every road in the municipality to reduce road runoff pollution, whether the road is low volume or not. For these reasons, it would benefit the Borough to establish a practice of identifying a set amount or a set percentage of its liquid fuels revenue to road runoff best management practices that will also serve to meet the Borough's MS4 pollution load reduction requirements.

¹⁴ <https://www.ccpa.net/4629/Dirt-Gravel-Low-Volume-Roads>

General Funds

OPPORTUNITY - Establish a budgeting practice of annually allocating some of this revenue to a stormwater management fund

The majority of municipal revenue is categorized as general funds that come from local taxes. For the past four years the amount of money contributed to the Borough's MS4 line item has varied considerably from \$0 in 2019 to \$100,000 in 2022. The EFC recommends that the Borough look at expenditures from the past four years (the existing permit cycle) to determine the costs it has incurred for developing its PRP plan, the amount spent on maintenance of existing BMPs and gray stormwater infrastructure, and the anticipated additional maintenance costs and ensure that enough money is being dedicated to the MS4 line item in its budget for these tasks. For the cost of the project identified in its PRP plan, grant funding is likely able to cover a majority of the cost, but match may be required and will likely need to come from the general fund. The EFC also recommends that the Borough consider establishing a reserve fund for unanticipated costs such as emergency repairs of pipes or stormwater conveyance (if this is not already accounted for in the Borough's Capital Improvement Budget).

American Rescue Plan Act (ARPA) Funds

OPPORTUNITY - Use this likely one-time funding to jump start a stormwater management fund

During our conversation with Borough staff and elected officials, the idea was mentioned of using some of the ARPA funding that is coming to the Borough as a one-time allocation to initiate a stormwater management fund that could be used to support community needs. The ARPA specifically calls out stormwater management as an appropriate use for the funding. This initial funding could then be matched with annual contributions from the liquid fuels annual revenue and general fund annual revenue to maintain sufficient funds for immediate needs, grant match requirements, and/or costs not covered by other funding sources.

Grant Funds

OPPORTUNITY - Seek grant funding to meet specific elements of the stormwater management program, particularly specific best management practices

Grant funding will never provide 100 percent of any municipality's stormwater management needs. However, grants can be an important source of funding for public education and outreach, pilot

projects to test specific stormwater management best practices, and collaborations with private and/or municipal partners. Two important grant programs that the Borough should be leveraging to meet its stormwater management needs include the Growing Greener Program and the Dirt and Gravel/Low Volume Road Program managed by the Cumberland County Conservation District. The Borough should also look to the many grant programs managed by the Commonwealth Financing Authority. Several of these programs can be used for stormwater management projects, including Act 13 and Pennsylvania Small Water and Sewer programs.

Appendix B provides more detailed information on grant funding programs that the EFC has seen communities like Wormleysburg access and use on stormwater management projects.

Wormleysburg recently completed a strategic management plan through the Pennsylvania Department of Community and Economic Development (DCED) which will give the Borough a competitive advantage when applying for grants administered by the state. The EFC strongly encourages that the Borough continue to seek these types of programs and technical support that will increase the efficacy of the Borough's small staff.

New Funding Streams

PENNVEST Opportunities

PENNVEST has two funding programs that could be relevant to the Borough's stormwater management work. One is a small project program¹⁵ that could be used to fund projects up to \$500,000 and a programmatic financing program¹⁶ that can be used to fund a series of planned projects over a 3-year timeframe. One of the advantages of debt financing is that it can help level out the financing needs required of the municipal budget while implementing both small and large projects.

There is also the possibility of partnering with other Cumberland County municipalities to establish a County funding mechanism through what PENNVEST is calling a [sublevel revolving fund](#)¹⁷ which provides affordable financing for the construction, improvement, extension, expansion, repair or rehabilitation of nonpoint source pollution controls. The EFC encourages Wormleysburg to review

¹⁵ <https://www.pennvest.pa.gov/Information/Funding-Programs/Pages/Small-Projects.aspx>

¹⁶ <https://www.pennvest.pa.gov/Information/Funding-Programs/Pages/ProFi.aspx>

¹⁷ <https://www.pennvest.pa.gov/Information/Funding-Programs/Pages/Clean-Water-State-Revolving-Fund.aspx>

the County's recently completed its Chesapeake Bay County Action Plan,¹⁸ review the municipal actions within the plan, identify which of the actions it is interested in implementing in Wormleysburg, and work with the County Conservation District and other partners to determine an effective funding mechanism for implementing the plan.

Develop a Stormwater/Stream Protection/Resilience Fee

The idea of exploring the feasibility of adopting a stormwater fee was mentioned by Borough staff. Some of the best practices seen in communities that have adopted fees include initiating a stakeholder engagement group (including large non-profit landowners like school districts and churches) early in the process and ensuring that infrastructure is considered, including both gray and green elements that are currently part of and may be part of the overall stormwater management system. The Borough needs to ensure that it is maximizing the full benefit of existing gray infrastructure throughout its useful life cycle. It can take as much as 18 months of public outreach before a community might be ready to consider adopting a fee.

A fuller overview of stormwater fee programs and example fee structures in the next section of this report.

Partnership Opportunities

East Pennsboro Township and Lemoyne Borough

East Pennsboro Township borders the Borough to the north and the west. The Borough of Wormleysburg is bordered to the south by the Borough of Lemoyne. Both communities are members of CapCOG and the South Central PA MS4 Work Group, which provide an easy way for Wormleysburg to collaborate on stormwater challenges with its neighboring municipalities. Additionally, Cumberland County's Chesapeake Bay County Action Plan includes many projects geared towards the municipalities of the County. The EFC recommends that Wormleysburg review the plan and facilitate (or participate in) a conversation between the County Conservation District and its neighboring municipalities to discuss how the County plans to implement and fund the plan and what role can municipalities play in the process.

¹⁸ <https://www.ccpa.net/4897/Clean-Water-Cumberland---Countywide-Acti>

PennDOT

There are 27 acres of Pennsylvania Department of Transportation (PennDOT) roads in the Borough. The roads are parsed out in the Borough's sewershed mapping. PennDOT should be seeking to partner with the Borough on project identification, planning, and implementation but that has not been their norm. The Borough should explore working with Cumberland County and other municipalities in the region to better engage PennDOT on MS4 permit compliance in terms of any permit obligations that implicate municipalities and establish true partnership structures.

Conservation organization partnerships

There are likely partnership opportunities available to the Borough, including the Cumberland County Conservation District. Continued engagement with regional organizations will ensure that the Borough will be well-positioned to identify them in the future. Just as with grant funding, though, this kind of partnership is not likely to result in addressing all the Borough's stormwater management needs.

South Central Pennsylvania MS4 Work Group

The South Central Pennsylvania MS4 Work Group was created in the spring of 2019 to meet the need for collaboration among MS4 coordinators and stormwater program managers to fulfill the requirement of the MS4 permit program. Recently, Wormleysburg staff has expressed interest in participating in this Work Group, which the EFC believes will result in many cost savings and potential grant funding. Current Work Group members include MS4 coordinators from municipalities, county planners, conservations districts, the private sector, and non-MS4 municipalities. The workgroup has quarterly meetings, open membership, and strives to provide support for its members with networking, public outreach, training and education, fulfilling MCMs and other permit requirements, providing grant opportunities, information sharing, and enhancing working relationships across municipal, county, and private sectors. Given the emphasis of funding organizations like the National Fish and Wildlife Foundation towards funding collaborative efforts of sustainable, regional-scale partnerships, this type of strategic partnering could lead to more competitive grant proposals and accelerated BMP implementation.

Develop an Asset Management Program

Asset management is a strategic approach designed to support decision making around how and where to spend limited resources (time and money) to achieve desired results. Such a process is needed when

there are competing priorities for limited funding. Asset management provides a framework with tools and practices that can assist a system in operating, maintaining, and managing assets in a cost-effective, sustainable fashion. Communities with successful stormwater programs have realized that small investments in operations and maintenance now can help avoid significant expenses in the face of catastrophic system failure or emergency response and repair that can have impacts that ripple through the local economy. Understanding the location, condition and capacity of the existing stormwater system and having a plan for repair and replacement of system components helps to keep costs steady and predictable. Please refer to the Southwest Environmental Finance Center’s Integrated Asset Management Framework¹⁹ and the MOST Center’s Asset Management for Stormwater²⁰ course for more details.

Utilize a “Dig Once” approach

This strategy couples planning for gray infrastructure with green infrastructure in the municipality’s capital improvement planning processes whenever possible, whether those processes are formal and result in a Capital Improvement Plan (CIP) or whether they are informal. By utilizing an integrated “Dig Once” approach, communities can achieve more cost-effective solutions and a greater return on investment.

One study²¹ of the City of Lancaster in Pennsylvania shows that using a “Dig Once” strategy has saved the city approximately 45 percent on project planning, permitting and implementation costs by integrating stormwater projects into other capital improvement projects as opposed to doing these projects separately.

Please refer to the MOST Center’s Integrating Green Infrastructure Into Capital Improvement Planning²² course for more details.

¹⁹ <https://swefc.unm.edu/iamf/>

²⁰ <https://umd-oes-arch.catalog.instructure.com/courses/asset-management-for-stormwater>

²¹ https://www.chesapeakebay.net/documents/GI_Integration_Final_Workshop_Report.pdf

²² <https://umd-oes-arch.catalog.instructure.com/courses/integrating-green-infrastructure-into-capital-improvement-planning>

Stormwater Utility Fee Structure Examples

There are currently 1,851 stormwater utilities nationwide including 58 in Pennsylvania.²³ In fact, Pennsylvania leads the nation in the formation of new stormwater utilities with all but one of the 58 utilities formed within the past decade.

Most fees are based on the total amount of impervious cover on a property including roofs, driveways, patios, and parking lots. Fees do not include public sidewalks, roadways, and structures that are in the public Right-of-Way. The greater the amount of impervious surface on a property, the larger the fee. The most common structure is the Equivalent Residential Unit (ERU), followed by tiered systems and flat fees.

An ERU is the average impervious area (IA) on a single-family, residential parcel. An ERU equals the total impervious area for residential properties divided by the total number of residential properties. The goal is to find a balance between your financing needs and ERU's to determine what your fee should be.

For example, in Gettysburg, PA:

Total residential lot impervious area = 2,880,652 sq ft

Total residential units = 1,144

$2,880,652 / 1,144 = 2,518$

1 ERU = 2,500 sq ft

Tiered systems charge a fee based on where the property's impervious area falls in a series of ranges.

In flat fee systems, everyone pays the same fee. Generally, these fee systems are not structured fairly because you are not taking the amount of impervious area per parcel into consideration meaning that a big box store pays the same fee as a single-family home.

In some instances, flat fees have been implemented temporarily to raise funds to complete a study in order to determine what the fairest structure for a jurisdiction is.

²³ https://digitalcommons.wku.edu/cgi/viewcontent.cgi?article=1003&context=seas_faculty_pubs

In Pennsylvania, most fees are collected or quarterly as a line item on water & sewer bills.

Examples of fee structures from other Boroughs in the Chesapeake Bay watershed of Pennsylvania are included in the table below.

	Lemoyne, PA	Chambersburg, PA	Carlisle, PA
Year Fee Established	2019	2015; revisions to non-residential rate effective in 2022	November 2018
Structure	IA ETU (residential and nonresidential)	Flat Fee (residential); <i>was a flat fee for non-residential from 2015-2021 but now</i> IA ERU (non-residential)	Tiered Residential IA ERU Non-Residential
ERU / ETU	1 ETU = 4,356 sq ft	1 ERU = 2,920 sq ft	1 ERU = 2,410 sq ft
Rate	1 ETU = \$7.70/month	1 ERU = \$5/month	1 ERU = \$21/quarter
Billing Structure	Line item on utility bill (monthly)	Line item on utility bill (monthly)	Line item on utility bill (quarterly)
Credit System	None yet. Plan to develop a credit program soon.	Residential: Single-family residential customers that attend a Borough sponsored Public Education event will receive reimbursement for one ERU fee. Non-residential: 15% credit will be offered for structural BMPs that were installed before June 20, 2004; 30% credit will be offered for BMPs installed before and after June 20, 2004 (when Town Council first adopted Stormwater Management Code).	Any property owner can apply for a credit up to 20% of that property's stormwater management service charge.

Appendix A: Staff Training Resources

Trainer/Organization	Name of Training	Additional Information
Pennsylvania Capital Region Council of Governments	Stormwater Management Program: Archived Training Materials	https://www.capitalregioncog.org/stormwater-management-program/pages/archived-training-materials
Chesapeake Bay Foundation	MS4 Webinars and Community Resources INCLUDING some specific to Pennsylvania municipalities.	https://www.cbf.org/issues/polluted-runoff/ms4-webinars-and-community-resources.html
Pennsylvania Department of Environmental Protection	Various	https://www.dep.pa.gov/Business/Water/CleanWater/StormwaterMgmt/Stormwater/Pages/Training.aspx
MOST Center	Various	https://mostcenter.umd.edu/courses

Appendix B: Grant Funding Programs

Funding Organization	Title of Grant Program	Overview of Grant Program	Additional Details
Pennsylvania Department of Community and Economic Development (PA DCED)	H2O PA – Flood Control Projects	Funds projects which involve construction, improvement, repair or rehabilitation of all or part of a flood control system.	https://dced.pa.gov/programs/h20-pa-flood-control-projects/
PA DCED	Greenways, Trails and Recreation Program (GTRP)	Funds projects which involve development, rehabilitation and improvements to public parks, recreation areas, greenways, trails and river conservation.	https://dced.pa.gov/programs/greenways-trails-and-recreation-program-grtp/
PA DCED	H2O PA – Water Supply, Sanitary Sewer and Storm Water Projects	Provides for single-year or multi-year grants to municipalities or municipal authorities to assist with the construction of drinking water, sanitary sewer and storm sewer projects.	https://dced.pa.gov/programs/h20-pa-water-supply-sanitary-sewer-storm-water-projects/
PA DCED	Municipal Assistance Program (MAP)	Provides funding to assist local governments to plan for and efficiently implement a variety of services and improvements, and soundly manage development with an emphasis on intergovernmental approaches. Funding is available for three groups of activities: shared services, community planning and floodplain management.	https://dced.pa.gov/programs/municipal-assistance-program-map/
PENNVEST	Pennsylvania Infrastructure Investment Authority (PennVEST)	PENNVEST provides low-interest loans and grants for new construction or for improvements to publicly or privately-owned drinking water, storm water or sewage treatment facilities, as well as non-point source pollution prevention best management practices. PENNVEST also provides loan funding to remediate brownfields sites, as well as loan funding to individual homeowners for repair or replacement of their malfunctioning on-lot septic system or first time connection to a public sewer collection system. The Advance Funding Program provides low-interest loans to provide funding for the design and engineering needed to improve water and wastewater management systems.	https://dced.pa.gov/programs/pennsylvania-infrastructure-investment-authority-pennvest/

PA DCED	Watershed Restoration and Protection Program (WRPP)	Projects which involve the construction, improvement, expansion, repair, maintenance or rehabilitation of new or existing watershed protection Best Management Practices (BMPs).	https://dced.pa.gov/programs/watershed-restoration-protection-program-wrpp/
National Fish and Wildlife Foundation (NFWF)	Innovative Nutrient and Sediment Reduction (INSR)	Funds projects that accelerate the rate and scale of water quality improvements specifically through the coordinated and collaborative efforts of sustainable, regional-scale partnerships in implementing proven water quality improvement practices more cost-effectively.	https://www.nfwf.org/programs/chesapeake-bay-stewardship-fund/innovative-nutrient-and-sediment-reduction-grants-2022-request-proposals
NFWF	Small Watershed Grants	NFWF's Small Watershed Grants Program makes awards each year through two distinct funding opportunities: SWG-Implementation (SWG-I) and SWG-Planning and Technical Assistance (SWG-PTA).	https://www.nfwf.org/programs/chesapeake-bay-stewardship-fund/small-watershed-grants-2022-request-proposals
NFWF	Most Effective Basins Grants program	Supports projects that accelerate implementation of cost-effective agricultural best management practices in selected basins of the Chesapeake Bay watershed of Pennsylvania.	https://www.nfwf.org/programs/chesapeake-bay-stewardship-fund/pennsylvania-most-effective-basins-grants-2021-request-proposals
Chesapeake Bay Trust (CBT)	Green Streets, Green Jobs, Green Towns (G3)	This program supports design projects, financing strategies, and/or implementation of green street and community greening projects. Grant funding can be applied anywhere in the Chesapeake Bay watershed portion of EPA Region 3.	https://cbtrust.org/grants/green-streets-green-jobs-green-towns/
PA DEP	Growing Greener	One of the three programs covered under the Growing Greener Plus Grants Program is the Growing Greener Watershed Restoration and Protection Program	https://www.dep.pa.gov/Citizens/GrantsLoansRebates/Growing-Greener/Pages/default.aspx