Providing Financing Technical Assistance to Chesapeake Bay Communities: Final Project Report

Prepared for the *US EPA Chesapeake Bay Program Office*

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Final Report

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The following document provides the US EPA Chesapeake Bay Program Office with a final report related to the *Providing Financing Technical Assistance to Chesapeake Bay Communities* project. The Environmental Finance Center received grant funding from the US EPA Chesapeake Bay Program Office to assist the region in three specific areas. The first area is related to the expansion of the Stormwater Financing Unit; the second is to promote agriculture-financing activities in the Chesapeake Bay region; and lastly, to further develop and expand on opportunities within the Chesapeake Bay region regarding public private financing.

This report provides a description of our activities related to these three program areas. Included is a description of the project structure, key activities and outputs, anticipated outcomes, and next steps where applicable. In addition, we provide supporting documents in the appendix, including:

- A final project report to the Spring Creek Watershed Commission
- Tompkins County, NY Financing Boot Camp Resource Guide
- Tompkins County, NY Financing Boot Camp Agenda
- Wrightsville Stormwater Financing Study Final Report
- Narragansett Financing Forum Agenda
- Chesapeake Financing Forum Agenda and list of Panelists
- Chesapeake Community Financing Forum Agenda and Discussion Guide

Part 1: Expansion of the Stormwater Financing Unit

Project Structure

In an effort to improve Chesapeake Bay communities' access to the best available information and technical assistance to support appropriate environmental financing strategies, our Center is expanding the *Stormwater Financing and Outreach Unit* (Stormwater Unit) located within the EFC. With support from the Maryland Department of Natural Resources, the Stormwater Unit has provided direct technical assistance to Maryland communities since 2011 with much success. With support from the U.S. Environmental Protection Agency Chesapeake Bay Project Office (CBPO), the EFC is now able to extend this assistance to other Bay states. The Stormwater Unit enables the EFC to provide assistance to select communities based on their commitment to developing comprehensive stormwater financing programs and their intention to establish a dedicated revenue stream for stormwater.

The EFC is providing assistance to three regions through this effort – Wrightsville Borough, York County, PA; Spring Creek Watershed, Centre County, PA; and Upper Susquehanna Watershed, New York. The following outlines the activities, outputs, and anticipated outcomes for each community:

Upper Susquehanna Watershed, New York. As a part of this project, the University of Maryland EFC proposed to collaborate with the Syracuse University EFC, leveraging their support from a USDA Rural Development Technical Assistance award. The two Centers proposed to offer green infrastructure and resiliency financing guidance to the often-overlooked Chesapeake Bay communities in the New York portion of the watershed. CPBO support has focused on direct technical assistance to a few of these communities, while USDA Rural Development Technical Assistance funding enabled the EFCs to share green infrastructure finance and resilience information and recommendations with a broader swath of communities in the Upper Susquehanna region.

Ultimately, three communities in the upper reaches of the watershed, just south of Ithaca in Tompkins County, New York were selected for participation. The Towns of Danby, Caroline, and Newfield were chosen due to their interest level, their willingness to consider financing approaches that are collaborative in nature and green infrastructure focused, and their level of readiness to implement.

Activities to date

- The Maryland EFC has coordinated our partners at the Syracuse EFC to identify communities in the New York portion of the Chesapeake Bay watershed who are at a sufficient level of readiness and commitment to fully engage in an environmental finance Boot Camp.
- The Syracuse EFC presented the Boot Camp opportunity to a collection of communities participating in an event at the Southern Tier Regional Planning and Development Board in early January.
- Three towns just south of the City of Ithaca in Tomkins County contain some of the uppermost reaches of the Chesapeake Bay watershed. An increase in the intensity and frequency of storm events in recent years have the three towns – Caroline, Danby, and Newfield – acutely aware

of the impact of climate change on weather patterns, and investment in green infrastructure approached to hazard mitigation has become a priority for these communities.

- The EFCs established a partnership with the Cornell University Extension Officer for Tompkins County who has engaged these three communities and confirmed that they are interested in better understanding how to address water quantity management locally in a way that also benefits water quality, particularly for downstream communities, and the resources available to support these efforts. There is also interest in the cost-savings that a coordinated regional approach could achieve.
- Several Boot Camp planning calls were held with the communities and Cornell University Cooperative Extension beginning in early April. These proved essential to building Boot Camp sessions and activities that focused on the water quantity management and sustainable financing needs specific to the southern Tompkins County towns participating.
- The Boot Camp was scheduled for June 17, 2015 in Ithaca, New York at the Cornell Cooperative Extension in Tompkins County. The Boot Camp agenda built upon an April workshop hosted by Cornell Cooperative Extension and the Maryland and Syracuse EFCs[1] and outlined six key components: 1)a framing the issues/mapping exercise to identify problem areas and uncover drivers; 2) green infrastructure, stormwater, and flooding financing basics and case stories; 3) an overview of a five-steps process for building a more resilient program; 4) techniques for determining costs and creating a realistic budget; 5) a discussion of regional funding, technical assistance and partnership opportunities; and 6) a dialogue around education, outreach and thinking long-term.
- An unforeseen weather event resulted in severe flooding in the three towns. Roads were impassable, critical infrastructure such as bridges and culverts were washed away, and parts of the communities were inaccessible. Expected Boot Camp participants had to focus on emergency management activities, and the project partners chose to postpone the Boot Camp until fall 2015.
- Nonetheless, the trip offered the opportunity for first-person research on the issues these communities face and one-on-one dialogues with State Parks personnel and local residents are informing the revised session that will be offered in fall 2015.

Outputs

- The Boot Camp opportunity was publicized at a meeting of the Southern Tier Regional Planning and Development Board.
- The Maryland and Syracuse EFCs engaged partners at Cornell University Cooperative Extension as a part of the Boot Camp planning team to assist with community assessment and recruitment.
- The Boot Camp planning team has participated in several planning calls over the course of the reporting period to finalize Boot Camp participants and discuss event content and logistics.

[1] The April workshop was supported with USDA Rural Development Technical Assistance and Training funding.

- Cornell Cooperative Extension has agreed to offer event space and refreshments as in-kind services.
- The Boot Camp planning team developed community context assessments for participating municipalities (Caroline, Danby and Newfield).
- The Maryland EFC assigned student staff effort to the project to support the development of community profiles, the collection of information and resources for the Boot Camp event, and logistical event planning needs.
- A save-the-date flyer/invite and agenda for the June 17th Boot Camp was developed and shared with community contacts and other interested attendees in mid-May.
- A funding and partnership resource guide was created in collaboration with the Syracuse EFC for the three communities in Tompkins County. This guide provided up-to-date funding assistance and partnership opportunities directly related to water quantity management, green infrastructure, and stormwater.

Outcomes

- The Boot Camp planning team leveraged a jointly offered USDA Rural Development supported event in April 2015 as an opportunity to meet briefly with expected Boot Camp participants to gauge issues of interest with each municipality.
- While the Boot Camp event that was scheduled to take place at Cornell Cooperative Extension's offices in mid-June 2015 was canceled due to severe weather impacts, the planning calls held by the EFC have opened a dialogue among the three communities for collaboration around water quantity management, regional approaches, asset management and "downstream" activities.
- The post-storm damage one-on-one dialogues held with Extension and Parks personnel as well as town residents will inform the fall 2015 Boot Camp, ensuring the event truly focuses on the needs of these communities.

Next Steps

- The Maryland and Syracuse EFCs plan to leverage USDA Rural Development dollars to reschedule the Boot Camp to the fall of 2015.
- Following the Boot Camp the EFCs will develop a set of recommended next steps.

Wrightsville Borough, York County, PA

Activities to date (April – June 2015)

- The EFC Project Team met one-on-one with the joint Borough Streets Director/Municipal Authority General Manger.
- The EFC Project Team brought together key stakeholders including the Mayor, Municipal Authority Chairman, municipal staff, authority staff, as well as consulting engineers, project managers, solicitors, and finance representatives from both the Borough and Authority to present our interim stormwater program budget and financing recommendations.

- The EFC Project Team presented our final recommendations to a joint committee including the Borough Council and Municipal Authority Board of Directors.
- The EFC Project Team met internally to finalize our recommendations, analyze data, and discuss the operating and financing scenarios that ultimately were recommended as part of this effort.
- The EFC Project Team completed the final report for the Borough, and after vetting the report internally, submitted a draft report for review to the Borough on July 1st. The Borough provided comments to the report by July 15th, and the attached report is the finalized version.
- The EFC Project Team participated in the Borough's Community Revitalization Day.

Outputs

- The EFC Project Team met with the Borough Authority General Manager/Borough Public Works Director on April 2nd to finalize the staffing components that impact both departments.
- The EFC Project Team met with the Borough Mayor, Municipal Authority Chairman, municipal staff, authority staff, and consultants on May 11th to present our interim recommendations. This meeting greatly helped inform the EFC Project Team's recommendations as to the feasibility and capacity of certain entities to take on stormwater management, and the associated costs, risks, and hurdles that each entity (Borough or Authority) would assume.
- The EFC Project Team presented our findings and recommendations to a joint committee including the Borough Council and Municipal Authority Board of Directors on June 15th, which led to a robust discussion among stakeholders about the opportunities for increased efficiency via the Municipal Authority assuming a larger role in stormwater management and began a discussion of next steps.
- The EFC Project Team developed and submitted a draft report for stakeholder review on July 1st, which includes a robust stormwater program budget and financing strategy to support the budget. The report was finalized after receiving local feedback on July 15th.
- The EFC Project Team developed a brochure that was handed out at the Borough's Community Revitalization Day on May 2nd, in which we participated. The Borough's Community Revitalization Day was located at the riverfront park on May 2nd, which was an opportunity to educate citizens about the Riverfront Revitalization Plan and the importance of stormwater management, engage volunteers to plant over 100 trees, and provide an opportunity to support local businesses and organizations. The day drew a number of local partners from watershed and recreational groups to neighboring communities. Elected leaders, municipal staff, and youth and families came together for a family fun-filled day.

Spring Creek Watershed, Centre County, PA

Activities to date

- At the end of the last project quarter, the EFC Project Team received feedback from the Spring Creek Watershed Commission (SCWC) that the group was unable to reach full consensus and therefore unable to move forward working with the EFC. Therefore, in this project quarter the EFC Project Team met internally on several occasions, brainstorming potential project ideas,

partners to engage, and opportunities to better capitalize on the SCWC's existing organizational structure and the themes that had emerged.

- The EFC Project Team developed a final report for the US EPA's Chesapeake Bay Program Office outlining the project background, summary of accomplishments, activities and outcomes, and lessons learned from the introductory dialogue we pursued with the SCWC through this effort.

Outputs

- The EFC held a series of internal project team meetings to identify opportunities and challenges and assess EFC's role in future regional efforts, as well as analyze the SCWC's capacity to lead regional stormwater management efforts.
- The EFC Project Team prepared a final report for the US EPA's Chesapeake Bay Program Office, attached to this report.

Part 2: Ag Financing Unit

Project Structure

EFC's Ag Financing Unit included two focus areas to promote water quality and meet the state WIPs. The results of these activities will be reported to the Chesapeake Bay Program Office (CBPO) and the Bay TMDL Ag Workgroup. This summarizes activities performed during this reporting period (April 1 – June 30, 2015) in these two focus areas:

- Water Quality and Conservation in Nurseries in Rural Communities of Headwater Areas
- Advancing Communication with Local Food Producers

Water Quality and Conservation in Nurseries in Rural Communities of Headwater Areas

Activities to Date (April - June 2015)

- Reviewed the VA DEQ database to identify key large surface water and groundwater users for tours/ interview questions in headwater areas. Toured four commercial large water user nurseries. None of these nurseries wanted their information shared due to proprietary nature of practices. Therefore, planning efforts to host a meeting between nursery greenhouse owners in both the central Virginia and Shenandoah Valley areas was revised. The results of the practices observed during tours focused on tailwater and stormwater end use and was aggregated and shared with the committee to develop the expert panel. Specific practices and nurseries were not disclosed based on requests for confidentiality with DEQ and DCR.
- Participated in teleconferences as a committee member developing recommendations for the Agricultural Stormwater and Tailwater Management Expert Panel.

Outputs

- The EFC staff served as a committee member on the Agricultural Stormwater and Tailwater Management Expert Panel Establishment Group (EPEG) and participated in several calls with the EPEG committee over the course of the reporting period. Results of efforts were shared with the Chesapeake Bay Program Partnership's Agriculture Workgroup on April 16, 2015 in a

report "Recommendations for the Agricultural Stormwater and Tailwater Management Expert Panel".

- The EFC summarized findings of practices at greenhouses to help inform future food system projects in communities about best practices on farms for greenhouse entrepreneurs in hydroponics, etc. in the Eastern Shore area of Maryland.

Advancing Communication with Local Food Producers in Virginia

Activities to Date (April - June 2015)

- Presented at a Mid-Shore Food System Council workshop on June 23, 2015 in Wye Mills, Maryland on financing a regional food system (for more info on project, see: http://delmarvafarmer.com/publications/the-delmarva-farmer/2377-rohman-shining-bright-light-on-mid-shore-food-system&#8221). The focus of the workshop presentation summarized lessons gleaned during the food hub management certification program.
- Participated in a workshop held May 12, 2015 in Wye Mills, Maryland evaluating a five county regional food focus offering food and water quality benefits with increased access to local healthy foods as well as building resilient self reliant communities. The workshop was coordinated by the Institute for Public Health Innovation and the Mid-Shore Food System Council. EFC participation also included numerous pre-workshop planning sessions with the Eastern Shore local foods sustainability coordinator in preparation for the event.
- Completed the on-line University of Vermont's Food Hub Business certification program. Course knowledge was shared with several communities including the Mid-Shore Food System five-county region through multiple collaborative sessions with the Cambridge region of Maryland; the Eastern Panhandle of West Virginia; and Frostburg Grows in Frostburg, Maryland.
- Developed dashboards to track food system costs for communities, evaluations of national case studies of public private partnerships advancing local healthy foods, based on school learnings and interviews with Frostburg Grows to obtain operational details and offer recommendations.
- Worked with the Eastern Panhandle in WV to envision regional expansions of local foods needs and practices to advance local foods and promote economic development for agricultural producers in the Eastern Panhandle.
- Appointed to the Leadership Committee of the Chesapeake Foodshed Network. The leadership committee is developing recommendations for the funders in the watershed to brainstorm development of a regional vision to advance local foods and promote agriculture and water quality.
- Provided a summary of services through financing local food systems to the Chesapeake Foodshed Network in May 2015.

- The EFC is on the food waste reduction subcommittee of the Chesapeake Foodshed Network. In collaboration with the UMD Hughes Center, the EFC has drafted a food waste presentation coffee talk to share with the Chesapeake Foodshed Network in Fall 2015.
- Collaborated with the Sustainable Maryland Certified program to broaden the food systems metrics category to consider including reducing food waste in municipalities.

Outputs

- The EFC participated in two workshops in the Eastern Shore, Maryland to share lessons from the recently completed food hub certification program facilitating the Mid-Shore food system efforts in financing strategies and considerations when forming an entity through enhancing public private partnerships.
- The EFC drafted the content for a webinar series to be offered for Sustainable Maryland communities to finance increased access to local foods through a food hub or other food aggregation facility during 2015-2016.
- EFC held numerous communications with Ann Karlen, co-founder of the Philadelphia Common Market, and discussed business models of Common Market and Fair Foods Philly to develop best practices in food aggregation and distribution systems.
- The EFC and UMD Hughes Center planned a webinar to reduce food waste for the Chesapeake Foodshed Network (upcoming webinar, Fall 2015, TBD).

Part 3: Watershed Investment Incubator Project

Project structure. The purpose of the *Watershed Investment Incubator Project* was to accelerate and bring to scale water quality restoration and protection financing in two watersheds: the Chesapeake and Narragansett Bays. Specifically, EFC linked two iconic communities: Annapolis, MD and Newport, RI to create a unique learning and policy development opportunity. Specifically, our objective was to identify opportunities for these two communities to implement innovative partnerships with the private sector designed to address key water management issues. The complexity and scale of large-scale ecosystem restoration and protection efforts often seems insurmountable due to a lack of sufficient funding and financing resources. Coastal urban communities like Annapolis and Newport face dual financing challenges:

- Protecting and restoring aquatic ecosystems and water quality through aggressive stormwater management; and,
- Mitigating the impact and risk associated with sea level rise and major storm events.

In addition, though local and state governments have the central role in financing and implementing water quality and infrastructure financing programs within their communities, the scale and complexity of the financing needs will require innovative new approaches for allocating and investing capital in support of watershed restoration and protection programs and needs including:

- Creating financing efficiencies. Limited public financial resources will require maximizing the impact and efficiencies of water infrastructure investments. In short, it will become

increasingly important for public leaders to maximize the efficiency and environmental effectiveness of environmental investments.

- Achieving sufficient financing scale. It is essential that local and state leaders expand the scale of restoration financing. In short, the public sector needs to accomplish large-scale restoration with limited resources.
- Mitigating the risk associated with restoration investments. Because public financial resources are limited, it essential that risks to those investments are reduced.
- Incentivizing innovation. Finally, the complex nature of water resources restoration and protection will require new and innovative policies, practices, and interventions moving forward.

Incubator Projects. The overarching goal of this project was to identify options for coastal and watershed communities to address these four foundational financing needs. A key feature of this project was establishing linkages between coastal communities within two iconic watersheds: the Narragansett Bay and the Chesapeake Bay. The goal was to create "incubators" or direct learning experiences and opportunities where local and state leaders could develop and implement innovative public-private partnerships and market-based financing systems that can then be modeled and implemented in other communities across the region and the country. The lessons learned from this collaboration will inform EFC's efforts to provide innovative technical assistance and financing capacity related water resources management within coastal communities.

Watershed Financing Forums. The key deliverable of this project was the convening of two Watershed Financing Forums. EFC, in partnership with Save the Bay in Providence, Rhode Island, and the City of Annapolis, Maryland, planned two local financing forums or workshops within each region. Each forum was meant to focus primarily on local urban stormwater financing issues with the goal of building more resilient communities and find opportunities for expanding programs in the long-term by engaging the private sector.

Key Activities and Outputs.

- On January 12th and 13th, EFC met with Save the Bay Narragansett, US EPA Region 1, Newport officials, and nonprofit organizations to learn about upcoming infrastructure financing activities planned by Governor Gina Raimondo for the state of Rhode Island. EFC intended to model aspects of a proposed new "Green Bank" concept for the Chesapeake Bay. EFC also worked to build a partnership between similar cities in both watersheds.
- On February 10th, EFC convened a meeting with the City of Annapolis officials that included the mayor, aldermen, department officials, and non-profit organizations to discuss Annapolis' climate change and stormwater plans. Following this half-day meeting where EFC also met with city council, the EFC began planning for a series of meetings to promote private sector engagement in public sector activities.
- Between February and March 2015, EFC organized nine different conference calls between various New England and Chesapeake Bay organizations and other local governments to plan for a joint two day event in Rhode Island for early April and another two day event in May in Annapolis area.

Narragansett Bay -- Newport Forum

- The first forum was held on April 12th in Providence, Rhode Island and was attended by over 50 guests including the RI General Treasurer, RI state representatives, Department of Environmental Management, EPA Regional Administrator and staff, local RI Phase 2 municipalities, estuary representatives, non-profits, several private sector firms, and Chesapeake Bay elected officials. The forum focused on comparing the two watersheds on a wide range of leadership examples, discuss local drivers, and share opportunities for both bays to create linkages between state and local financing as well as public and private resources. The event also brought in Mayor Mike Pantelides of Annapolis and his key staff members as well as Mayor Rick Gray of the City of Lancaster, PA. The event was well timed with Governor Gina Raimondo of Rhode Island recent announcement for plans to build a new Infrastructure Bank that will expand the new Clean Water Finance Agency and expected to finance $30 million worth of new infrastructure projects and create hundreds of jobs over the next three years. The EFC felt this news was worth closer examination to see if it was replicable on some level for the Chesapeake Bay.
- The second forum was held on April 13th at the Newport Yacht Club and included elected leaders from Annapolis and Newport, their respective key staff members, EPA Region 1, and several local permitted municipalities focusing on the similarities between both historic communities and looking at long-term financing challenges associated with climate change, specifically stormwater management and tidal flooding infrastructure needs. This second day event was meant to compare local issues, find opportunities to partner, and examine funding and financing opportunities between both cities.

  The City of Newport is aggressively aiming to improve their city in order to be better prepared for anticipated impacts of coastal flooding. Newport's intends to utilize a series of innovative public private partnership plans that cover water infrastructure improvements, increase job creation and stimulate economic development, promote energy independence, provide green infrastructure training, and ensure cyber security. Newport's plans were meant to inspire Annapolis officials to take action on financing similar activities in Maryland and build a partnership with Newport for future joint projects. The April 13th event concluded with a tour of Newport's new "high tech" water treatment facility followed by an informal meeting of both cities' officials to plan for specific areas of collaboration in energy and water resources that would solidify a meaningful partnership.
- The model for using a city-to-city exchange to finance water resource management activities was submitted and accepted as an abstract to present at the 2015 101'st ICMA Conference in Seattle, WA in September 2015.
- Both forums held in New England in April were well received and sparked a level of discussion that hasn't taken place before between the Chesapeake Bay and another watershed regarding public private partnerships and watershed restoration. The second set of events being planned in Annapolis will take the lessons learned in New England and make it specific for Maryland and the Chesapeake Bay.

Chesapeake Bay – Annapolis Forum

- On May 6, 2015, the EFC convened an invitation only Water Resources Financing Forum at the Smithsonian Environmental Research Center (SERC) in Edgewater, MD. The forum was designed as a continuation of the New England event exploring the opportunities for effectively integrating public and private capital in support of environmental restoration and protection efforts around the Chesapeake Bay. The forum included leaders from local, state, and federal governments, as well as market and financing experts from a variety of industries and firms. Representatives from the Narragansett Bay were also on hand to share in the experience and share insights from the April event.

  The May 6 forum was convened as a roundtable discussion with a diverse group of approximately 20 leaders and experts from both the public and private sectors. Our goal for the day was to establish a framework for developing and implementing long-term watershed protection and resiliency financing strategies in local communities in Maryland and throughout the region.

  The issues and ideas discussed at the forum are both timely and important. Communities in coastal regions are uniquely impacted by both traditional stormwater, as well as tidal flooding and storm events. In addition, water resources management must be balanced with the need for investments in other community priorities including emergency energy production and distribution, public safety, and transportation. Effectively addressing these multiple resource management issues will require targeted and effective public policies and programs, which incentivize and engage the private sector.

  In lieu of formal presentations, we asked each of the participants to provide his or her perspective and insight on specific questions associated with establishing integrated public-private investment systems, including:

  - What are the potential financing challenges related to stormwater management and climate change resiliency?
  - What is the appropriate role of the private sector and the marketplace in addressing water resources and resiliency infrastructure needs?
  - How can local governments create the right incentivizes for the private sector to engage, and gain a better understanding of how the public sector can create those incentives?
  - What are the enabling conditions necessary for linking public-private sectors, and are they being effectively established in Maryland and around the Mid-Atlantic region?
  - How can state and local governments work more collaboratively to engage the private sector?

- The May 7 *City-to-City Mentoring Workshop* was the second in the two-day event in Annapolis. The workshop was conducted as an information-sharing event primarily between the cities of Annapolis and Newport. There was also an opportunity for other Maryland municipalities and communities to engage in broader discussions relating to effective planning and financing for activities associated with climate change and water resources management. There were approximately 20 local government officials as well as state agencies and nonprofits participating.

Our goal for this workshop was to gain a better understanding of the challenges and opportunities to finance water resources restoration and protection activities at the local level and begin laying a foundation for coastal communities to become more climate resilient. Our approach was to use the examples of two pilot cities, Annapolis and Newport, to gain better insight into the different approaches and potential solutions for becoming "model resilient cities" related to preparing for the impacts of climate change. The outcomes for the day's discussion were intended to foster Annapolis and Newport's newly forged relationship into a longer-term and successful. In addition, our objective was to ensure that the information gathered throughout this process is be shared with other municipalities who are interested in understanding the challenges, solutions, resources, and process needed in effectively addressing the impacts of climate change to their cities.

The workshop discussion was based on key topics related to each city, including:

- Improving the way water resources are managed at all levels of government. This includes a long-term strategy for communication, both internal and external, project implementation, partnerships, and most importantly, appropriate financing and funding mechanisms.
- Developing a plan for implementing green infrastructure projects including financing for operations and maintenance and prioritizing best management practices that will withstand the impacts of climate change.
- Exploring energy efficiency or alternative energy projects that can withstand the impacts of severe weather events.
- Approaching climate change and water resources management as an opportunity for economic growth rather than overwhelming financial obligation.
- Creating opportunities to mitigate risk to the city in terms of investments.
- Examining the role of cyber security, historic preservation, community engagement, and job training as essential elements of climate resiliency.

The EFC facilitator asked key questions of all the communities and organizations present related to potential financing challenges, especially as they relate to water resources management. Discussion questions included:

- What is the appropriate role of the public and private sector in addressing water resources and resiliency infrastructure needs?
- How can local governments take sound plans and turn them into attainable projects?
- How can we reduce the level of risk to the community?
- How can we effectively engage, educate and inform the community on the need to be proactive on implementing and financing a plan?
- How can we achieve buy-in from elected officials?
- How can state and local governments work together towards building climate resilient cities?
- How can we advance the lessons from Annapolis and Newport and apply them to other communities facing climate change concerns beyond coastal flooding?

Using these questions as a guide, the workshop participants identified the key issues that both the public and private sectors must address in order to become climate resistant cities. EFC

and its project partners will us the results of our discussions as the basis for developing and implementing community-based technical assistance and outreach programs and resources.

Outcomes

The primary desired outcome of all EFC projects is the improved capacity of communities to financing and implement environmental and natural resource restoration and protection projects; this project was no exception. As a result of the exchange and interaction between the two pilot communities, the following outcomes were achieved:

- A codified process for information and knowledge exchanges between the Newport and Annapolis communities.
- A connection between the project communities and financing and business experts from across the country.
- The foundation for an EFC coastal communities financing initiative that will provide technical resources and capacity to multiple communities across the Chesapeake Bay watershed.

Next Steps

Ultimately our goal with this project was to build on the dialogue and conversations that took place during the two forums by providing Chesapeake Bay coastal communities, and Annapolis specifically, with the technical resources necessary for advancing water resources restoration and protection efforts. Following the May 6 and 7 forums, EFC convened Annapolis leadership to discuss the types of resources that would be most beneficial to them. As a result of those discussions, EFC identified three areas of future community engagement:

- Innovative policy and business development knowledge exchanges. Both the Narragansett and Chesapeake Forums produced rich conversations related to the processes, policies, and resources necessary for incentivizing innovative technologies and financing mechanisms associated with water resource and climate change resilience. The experiences and initiatives in Newport provided the City of Annapolis with an effective template for establishing and their resiliency effort. City leaders have expressed an interest in establishing formal information exchanges with key business leaders to develop ideas for incentivizing better public-private partnerships as well as more effective leveraging of public revenues and fiscal resources.
- Employing the use of market mechanisms. The use of market mechanisms as part of water quality restoration financing is gaining traction across the Chesapeake Bay watershed, at both the state and local levels. As water quality markets begin to take shape and be refined, there is a potential opportunity to link those markets to water and climate resilience efforts at the local and regional level. EFC will be connecting Annapolis leadership to discuss options for creating and implementing these market mechanisms, including how those efforts can be linked to other local market programs across the region.
- Water resources financing technical assistance. Finally, water resources resiliency will require coastal communities to effectively and efficiently finance both stormwater management as well as tidal flooding issues. This in turn will require local governments to

establish effective financing systems. EFC will be working with Annapolis officials to gauge the capacity and effectiveness of their stormwater and water resources financing program, and then making recommendations for improving that capacity.

Appendix

Introductory Dialogue: Spring Creek Watershed Commission, Centre County, Pennsylvania

Final Report

Prepared by the Environmental Finance Center (EFC) at the University of Maryland for the U.S. Environmental Protection Agency's Chesapeake Bay Program Office

June 2015

Project Background

The Spring Creek Watershed Commission (SCWC), a watershed-based member organization located in Centre County, Pennsylvania, reached out to the EFC in the summer of 2014 to explore the organization's progress in helping meet stormwater management and water quality goals, to discuss strengths and challenges in the region, and to assess the organization's ability to respond to issues within the Spring Creek Watershed. With support from the U.S. EPA's Chesapeake Bay Program Office (CBPO) as part of the expansion of the EFC's Stormwater Financing and Outreach Unit, the EFC held several initial discussions with members of the SCWC, indicating a valuable opportunity to work with the SCWC on identifying regional stormwater management issues and opportunities in the watershed.

The **Spring Creek Watershed Commission** is comprised of 13 member municipalities in the watershed with active engagement by staff and elected officials within the municipalities, as well as representation from groups including but not limited to Trout Unlimited, Spring Creek chapter, Spring Creek Watershed Association, ClearWater Conservancy, Centre Regional Planning Agency, and the Centre County Conservation District.

Support for the SCWC comes from a per capita fee from the member municipalities, in addition to grants and partnerships, as received. The SCWC was formed in September 2007 through an inter-municipal agreement.

Source: Spring Creek Watershed Commission, http://www.scwatershed.com/

As a regional entity, the EFC believes the SCWC is well positioned to serve as the watershed's organizing conduit for exploring a multi-jurisdictional, multi-organizational approach to addressing local and regional water quality. Since a regional approach to addressing stormwater aligns well with EFC's goal of assisting municipalities in the Chesapeake Bay watershed in developing efficient water quality and quantity management programs, this effort was a first step to determining the feasibility of a more in-depth future project.

Summary of Accomplishments

Throughout the course of the project, the EFC identified several themes that suggested issues that could advance the mission of the SCWC and improve restoration and protection efforts in the watershed, as well as several challenges in the organizational structure and current role of the SCWC that could hinder the organization's ability to fully realize their goals. However, many of the organizations participating in the SCWC (see text box) together have the opportunity to regionally collaborate. The EFC found that the Spring Creek watershed stakeholders are, in fact, already working

collaboratively, through participation in the SCWC and additional partnerships such as those working together on Municipal Separate Storm Sewer System (MS4) permit goals. See Appendix 1 for a list of themes identified by the EFC based on a SCWC meeting held on November 19th, 2014, as well as the next steps laid out and proposed by the EFC Project Team.

Project Activities & Outcomes

As a starting point, the EFC Project Team worked with members of the SCWC to explore the background of the region and the anticipated challenges of managing stormwater into the future through in-person, phone, and email communications both with SCWC members and other stakeholder organizations. The following outlines the main activities, outputs, and outcomes associated with the introductory dialogue between the EFC Project Team and members of the SCWC.

Activities

After initial conversations between the EFC Project Team and key stakeholders, the EFC Project Team attended a monthly SCWC meeting on November 19th, 2014 and gave a presentation titled "Stormwater Management in the Spring Creek Watershed: Exploring Opportunities and Challenges". The EFC developed a list of relevant themes and potential next steps based on the feedback from that meeting, as well as a follow up discussion with key SCWC members. This was delivered to the SCWC chair and key members in December 2014.

The EFC Project Team met internally on several occasions, brainstorming potential project ideas, partners to engage, and opportunities to better capitalize on the SCWC's existing organizational structure and the themes that had emerged. As noted in the next steps developed by the EFC Project Team, we anticipated holding facilitated discussions at 2-3 additional SCWC's monthly meetings. The Project Team was scheduled to present during the winter of 2015, but due to inclement weather and other pressing agenda items, the SCWC's timeline limited the EFC's ability to attend additional meetings. After repeated communications with key members of the SCWC via email and phone between January and March 2015, it was determined that the SCWC was comfortable with their existing role and the partners already available in the watershed, and that additional in-person EFC facilitated discussions were not necessary.

Outputs

Primary outputs of the exploratory dialogue with the SCWC include:

- Four conference call discussions – two with key members of the SCWC, one one-on-one dialogue with the SCWC chair, and an additional one-on-one dialogue with ClearWater Conservancy;
- One formal proposal "plan of action" delivered to the SCWC Chair on September 22nd, 2014 (see Appendix 2);
- One formal presentation and introductory in-person dialogue on November 19th, 2014 during a monthly SCWC meeting;

- One informal follow up discussion over breakfast the following morning with key members of SCWC;
- A dialogue with representatives from Pennsylvania State University to identify areas of overlap and potential future water quality project opportunities in the region.
- A protection and restoration themes and needs assessment document designed to inform future SCWC decision making (see Appendix 1); and,
- A series of internal project team to identify opportunities and challenges and assess EFC's role in future regional efforts, as well as analyze the SCWC's capacity to lead regional stormwater management efforts.

Outcomes

This effort's primary outcome was an increased awareness by SCWC members of their stormwater challenges, organizational needs, existing resources, and potential approaches to becoming more efficient and effective in watershed protection and restoration efforts in the Spring Creek region.

Lessons Learned

The EFC Project Team learned many lessons from exploring this introductory dialogue with the SCWC. Identifying existing barriers and opportunities to improved resource protection is an essential part of the EFC's process, helping to determine a community or region's level of readiness to pursue an in-depth assessment of the feasibility of potential stormwater management and financing scenarios. This initial investigation enables the EFC to connect communities with existing resources that can help improve their level of readiness when needed and ensures that resources and capacity to support more intensive technical stormwater financing assistance are focused where successful outcomes are most likely.

In the case of the SCWC, we learned that while there is great enthusiasm and commitment by individuals and groups in the region to manage stormwater through regional approaches, and that this is already happening to some extent especially amongst MS4 communities, it does not appear that the SCWC will serve as a regional lead in at this time. While the current organizational structure of the SCWC hinders them from being the regional lead on stormwater management, there are many local opportunities for the SCWC to continue its effort to bring together watershed's stakeholders and advance protection of the natural resources in the region.

Appendix 1. Spring Creek Watershed Commission (SCWC) Opportunities: Environmental Finance Center (EFC) Themes and Next Steps based on Meeting 1 – November 19th, 2014

Main themes EFC heard based on first meeting:

- Overarching concept is for SCWC to move from collective vision to consensus-driven action through:
    - Mapping natural areas and recharge areas as way to communicate with stakeholders and prioritize areas for project implementation
    - Understanding stormwater **issues** throughout watershed
    - Incorporating green infrastructure and stormwater management into existing capital planning and projects
    - Engaging partners -- Penn State, water/sewer authorities, watershed groups, county entities, etc.
- Demonstration projects are needed, and valuable, but need pre/post metrics to show impact
- *Interest in hearing about EFC examples

Based on the themes above and EFC's internal research and analysis, the EFC has identified the following next steps:

- Two follow up meetings with the Commission based on initial agreement that will focus on:

Meeting 2. *Sharing case stories from across the region* (January or February 2015 SCWC Meeting):

i. A Green Infrastructure Approach to Leveraging Local Priorities in Warrington Township, PA
ii. Building Green Infrastructure in Blair County, PA
iii. Lancaster County, PA Municipal Stormwater Financing Feasibility Study
iv. Community engagement – will share a variety of strategies based on EFC projects

Meeting 3. *Brainstorming the universe of next steps for sustained engagement in the Spring Creek Watershed* (March or April 2015 SCWC Meeting):

i. Training opportunities for municipal staff, elected officials, consultants, and natural resource stakeholders on regional approaches to protecting natural resources, holistic sustainability strategies, and/or integrating green infrastructure and capital planning into local and watershed-wide project prioritization.
ii. A larger proposed project(s) hosted by the SCWC and conducted by the EFC in partnership with local and regional entities (Penn State University among others). This opportunity will focus on the themes we heard during the first meeting and any additional developments that take place in meetings 2 and 3 and through EFC's continued research and analysis.

Appendix 2. Proposal Letter Submitted to SCWC Chair, September 22nd, 2014

Environmental Finance Center, University of Maryland
054 Preinkert Field House, College Park, Maryland 20742
www.efc.umd.edu

September 22nd, 2014

Dear Mr. Hameister,

After initial discussions between the Environmental Finance Center (EFC) at the University of Maryland and members of the Spring Creek Watershed Commission (SCWC), we have identified an introductory opportunity to work together on regional stormwater management issues in the Spring Creek Watershed. It is important that the municipalities in the SCWC are interested in moving forward with exploring a regional approach to addressing local and regional water quality, which is why we believe the SCWC is best positioned to be the organizing conduit and main point of contact for this initial work.

Since a regional approach to addressing stormwater aligns well with EFC's approach to working with municipalities in the Chesapeake Bay region, we consider this a first step to determining the feasibility of a more detailed project in the future. It is also important to note that many of our partners and funding agencies in the Chesapeake Bay are equally interested in regional approaches to stormwater management in order to accelerate Bay clean up.

As a starting point, the EFC would like to work with members of the SCWC to explore the background of the region and the anticipated challenges of managing stormwater into the future. We would then like to collectively brainstorm around how potential future collaboration with EFC could possibly support your communities moving forward.

The EFC will initiate a presentation and discussion on November 19th for the SCWC's monthly meeting, and will follow up with 2-3 additional sessions in early 2015 to continue brainstorming opportunities for regional approaches in the Spring Creek Watershed. The EFC has received support from one of our funders to facilitate the initial meetings, and will explore additional project and partnership opportunities with the SCWC to the extent the outcome of these initial meetings suggest appropriate.

We look forward to the opportunity to begin working with the SCWC.

Sincerely,

Monica Billig
Program Manager, Pennsylvania Satellite Office
Environmental Finance Center
University of Maryland

Environmental Financing Boot Camp

You're invited!

Advancing Resiliency in
Caroline, Danby and Newfield, New York
(Tompkins County, New York)

WHEN: June 17, 2015
9:00AM – 3:00PM

WHERE: Cornell Cooperative Extension for Tompkins County
Room A
615 Willow Ave.
Ithaca, NY 14850

The Environmental Finance Centers located at the University of Maryland and Syracuse University, in partnership with the Cornell Cooperative Extension, will host a full-day Environmental Financing Boot Camp to address environmental issues, initiatives and sustainable financing options in your communities focused on flooding, green infrastructure and stormwater. ***See agenda below***

RSVP: Please RSVP to **Sharon Anderson** (ska2@cornell.edu), Environment Team Leader, CCE Tompkins County by **June 12**.

AGENDA

Environmental Financing Boot Camp

Advancing Resiliency in Caroline, Danby and Newfield, New York

June 17, 2015

Cornell Cooperative Extension of Tompkins County
Room A
615 Willow Ave.
Ithaca, NY 14850

What you'll walk away with:

- Funding and technical assistance resource guide;
- Better understanding of financing mechanisms relevant to your community's needs;
- Budgeting templates to support a resiliency program;
- Visualization of flooding, GI and stormwater issues and opportunities to address them;
- "Greening your Codes" resource guide.

Part I –Setting the Stage

9:00 AM - - **Welcome and Introductions**
Sharon Anderson, CCE Tompkins County

9:15 AM - - **What are the Environmental Finance Centers located at the University of Maryland and Syracuse University? Why are they in Tompkins County?**
Brenton McCloskey, EFC UMD
Khris Dodson, EFC Syracuse

The Environmental Finance Centers (EFC) have helped communities in the Mid-Atlantic and northeast regions and across the country develop and implement sustainable finance options for a variety of environmental initiatives. In partnership with Cornell Cooperative Extension, the EFCs will provide valuable guidance in outlining the steps necessary to develop a sustainable path forward for your communities that focuses on advancing resiliency in the areas of green infrastructure, stormwater and flooding.

9:30 AM - - **Framing the Issues and Mapping Exercise Program:**
Identifying the Problem Areas and Uncovering the Drivers
TBD: Local Speakers
Brenton McCloskey and Jennifer Cotting, UMD EFC

Audience Participation

It is important to fully understand what the issues are in your community. First, we will hear from local representatives in the room to help frame out what's been done to date, what challenges exist, and what are the areas of concern. Secondly, maps of the communities will be provided to help visually pinpoint the hotspots.

10:15 AM - - **Refresher: Green Infrastructure, Stormwater and Flooding in Context**
EFC's perspective, financing basics and case stories
Jennifer Cotting, UMD EFC
Khris Dodson, Syracuse EFC

Once we better understand the local issues and challenges, it is important to understand how the EFCs systematically approach these issues having worked with other communities around the country. The financing basics will be covered here as well as case stories that will highlight similar community challenges and solutions for how to implement a successful program.

11:00 AM - - **BREAK**

11:15 AM - - **Five Steps for a More Resilient Program**
Brenton McCloskey and Jennifer Cotting, UMD EFC

The steps include initial assessment, identifying gaps and future needs, determining the level-of-service and evaluating costs, finalizing a budget and developing a long-term financing strategy.

12:00 PM - LUNCH (provided) and Networking

Part II – Creating and Financing a Successful Program

1:00 PM - - **Determining Costs and Creating a Realistic Budget**
Brenton McCloskey and Jennifer Cotting, UMD EFC

Audience Participation

The EFC will provide the guidance and steps necessary to begin outlining what a budget for a sustainable program would look like. This will include a step-by-step look at budget line items such as staff time, maintenance, equipment, etc. Audience participation is critical as we will uncover the nuisances and include key components to begin building a budget outline for your communities.

1:45 PM - - **Regional Funding, Technical Assistance and Partnership Opportunities**
Brad DeFrees, Syracuse EFC
Khris Dodson, Syracuse EFC
Sharon Anderson, CCE

A walk-through of the regional funding and technical assistance opportunities for Caroline, Danby and Newfield. Identifying capacity for proposal development and writing will also be addressed.

2:15 PM - - **BREAK**

2:25 PM - - **Education, Outreach and Thinking Long-term**
Jennifer Cotting and Brenton McCloskey, EFC
Local discussions: Tompkins County Stormwater Coalition and Onondaga County

The EFC will highlight the importance of planning ahead to reduce obstacles and discuss ways to improve efficiencies. Remember that education and outreach to your citizen groups and your elected officials is very important when advocating for a dedicated funding mechanism.

3:00 PM - - **ADJOURN**

EFC Boot Camp Resource Guide:
Stormwater Management, Climate Change, and Flood Resiliency

prepared for Towns of Newfield, Danby, Caroline, NY – *June 17, 2015*

Grants are available for municipalities to help improve stormwater management, reduce the effects of climate change, and improve the flood resiliency in a community. The tables below show specific grants and financing programs that are available to New York State municipalities.

Codes: ○ Water Quality, ■ Green Infrastructure, □ Flood Resiliency, ∞ Sustainability ◆ Energy Efficiency

Stormwater Management and Improved Water Quality Funding	
Green Innovation Grant Program (GIGP) ○ ■ **Deadline:** (7/31/15) Recurring **Source:** NYS Environmental Facilities Corporation **Funding:** Varies. Can provide up to 90% of the construction, planning and design costs of the project. Requires 10% local match. **Contact:** Suzanna Randall, NYSEFC **Phone:** 518-402-7461 **E-mail:** GIGP@efc.ny.gov	**Description:** The program is designed to create cutting edge green technologies. These technologies improve water quality and encourage innovation in stormwater management. The goal is to inspire and transfer technologies to others. **Applicable Projects:** Green infrastructure projects that may incorporate • Permeable pavement • Bioretention • Green roofs and green walls • Stormwater street trees and urban forestry programs • Stormwater harvesting • Downspout disconnection • Other green projects More information at the NYS EFC site. Link: http://www.efc.ny.gov/Default.aspx?tabid=461
Water Quality Improvement Project Program (WQIP) ○ **Deadline:** (7/31/15) Recurring **Source:** NYS Department of Environmental Conservation **Funding:** Varies. Can provide up to 85% of wastewater treatment improvements and 75% of non-agricultural nonpoint source abatement and control, habitat restoration, and municipal separate storm sewer systems (MS4) **Contact:** NYSDEC **Phone:** 518-402-8267 **E-mail:** DOWinformation@dec.ny.gov	**Description:** The program is aimed to support water quality improvements, restore habitats, and reduce pollutant runoff in NYS water bodies. **Applicable Projects:** • Non-agricultural Non-Point Source abatement and control (NPS) • Municipal Wastewater Treatment (WWT) • Aquatic Habitat Restoration (AHR) • Municipal Separate Storm Sewer Systems (MS4) More information at the NYS DEC site. Link: http://www.dec.ny.gov/pubs/4774.html

Wastewater Infrastructure Engineering Planning Grant ○ **Deadline:** Continuous **Source:** NYS DEC and EFC **Funding:** Varies. A max of $100,000 can be awarded with a 20% match from the recipient. **Contact:** Susan Van Patten or Jeremy Campbell **Phone:** (518) 402-8179 **E-mail:** cfawater@dec.ny.gov	**Description:** Grants are awarded to municipalities to help pay for the initial planning of eligible Clean Water State Revolving Fund (CWSRF) water quality projects. The grant will assist municipalities with a Median Household Income (MHI) of $65,000 or less with the engineering and planning costs. **Applicable Projects:** Grants will be provided to finance activities including engineering and/or consultant fees for engineering and planning services for the production of an engineering report More information at the NYS EFC site. Link: http://www.efc.ny.gov/Default.aspx?tabid=82
Clean Water State Revolving Fund ○ **Deadline:** Continuous **Source:** NYS DEC and EFC **Funding:** Varies. The Clean Water Sate Revolving fund is provided on average 5 billion dollars annually to assist projects. A max of 100% of the project can be financed with low interest terms lasting up to 20 years **Contact:** Dwight Brown, NYSEFC **Phone:** (518) 402-7396 **E-mail:** CWSRFinfo@efc.ny.gov	**Description:** To construct water quality protection projects in order to improve water quality, protecting aquatic wildlife, and drinking water sources, and preserve our nation's waters for recreational use. **Applicable Projects:** Projects include point source projects such as wastewater treatment facilities and nonpoint source projects such as stormwater management projects and landfill closures, as well as certain habitat restoration and protection projects in national estuary program areas. More information at the NYS EFC site. Link: http://www.efc.ny.gov/Default.aspx?tabid=82

Climate Change Funding	
Sustainable Ithaca ◆■∞ **Deadline:** 7/6/15 and 9/25/15 **Source:** Park Foundation **Funding:** Varies. **Contact:** Park Foundation **Address:** Park Foundation, Inc. 140 Seneca Way, Suite 100. Ithaca, NY 14850. **Phone:** (607) 272-9124 **E-mail:** info@parkfoundation.org	**Description:** Sustainable Ithaca supports Tompkins County communities in becoming fully sustainable in an environmentally, socially and economically way. **Applicable Projects:** • **Energy & Climate Change:** Projects support community reductions in greenhouse gas emissions. • **Environmental Health & Toxic Threats:** Projects that improve the knowledge and prevention of toxic environmental stresses and other threats to human health. • **Greening Systems:** Promotes projects that encourage the use of smart growth practices, strengthen and re-localize the food system, protect ecosystems, and implement efficient transportation systems. • **Education & Behavior Change:** Projects promote action-oriented approaches that address lifestyle changes. These projects are directed to K-12 schools and the general public. More information on the Park Foundation site. Link http://www.parkfoundation.org/sustainable_ithaca_grants.html
FlexTech Program ◆ **Deadline:** December 31, 2015 or until funds are exhausted. **Source:** NYSERDA	**Description:** The FlexTech Program offers a wide range of flexible, cost-shared technical services to help businesses operating in New York State make informed energy decisions. Experts create a customized assessment identifying energy consumptions and costs. **Applicable Projects:** • Peak Load Reductions and Load Management

Funding: Varies. Can provide up to 50% of the FlexTech consulting cost **Contact:** Sheila Mahoney, NYSERDA **Phone:** (518) 862-1090 ext. 3630 **E-mail:** flextech@nyserda.ny.gov	• Energy Efficiency Analysis • Long term Energy and Carbon Management • Energy procurement strategies • Other energy related decisions More information on the NYSERDA site. Link: http://www.nyserda.ny.gov/All-Programs/Programs/FlexTech-Program
Existing Facilities Program Pre-Qualified Incentives ◆ **Deadline:** December 31, 2015 or until funds are exhausted. **Source:** NYSERDA **Funding:** Up to $30,000 in both electric and natural gas incentives per facility per calendar year. **Contact:** NYSERDA **Phone:** (518) 862-1090, or toll free 1-866-774-8818 **E-mail:** efpoutreach@nyserda.ny.gov	**Description:** Increase water and wastewater treatment facility efficiencies by using more efficient equipment. Higher efficiencies are aimed to offset the costs of the equipment. **Applicable Projects:** Fixed incentives are available on a dollar-per-unit basis for smaller-scale projects that include efficiency improvements to • Lighting • HVAC • Commercial refrigeration • Commercial kitchen • Gas equipment • Other categories More information on the NYSERDA site. Link: http://www.nyserda.ny.gov/All-Programs/Programs/Existing-Facilities-Program
Commercial New Construction Program ◆ ∞ **Deadline:** Until funds are exhausted. **Source:** NYSERDA **Funding:** Up to $1,000,000 **Contact:** Stephen Finkle, NYSERDA **Phone:** 518-862-1090 Ext. 3505 **E-mail:** NCPOutreach@nyserda.ny.gov or stephen.finkle@nyserda.ny.gov	**Description:** The program provides technical support to design teams and financial incentives to commercial and industrial building owners who are planning the construction of new and substantially renovated buildings using energy-efficient measures in New York State. **Applicable Projects:** Construction of buildings or substantial renovation of current buildings. More information on the NYSERDA site. Link: http://www.nyserda.ny.gov/Funding-Opportunities/Current-Funding-Opportunities/PON-1601-New-Construction-Program-Financial-Incentives
Cleaner Greener Communities (CGC) ◆ ∞ □ **Deadline:** September 15, 2015 **Source:** NYSERDA **Funding:** **Phase I -** $10 million in support to regional planning teams to create sustainability plans **Phase II -** $90 million toward regional projects that support the regional sustainability goals identified during the planning process. **Contact:** NYSERDA **Phone:** (518) 862-1090, or toll free 1-866-774-8818 **E-mail:** cgc@nyserda.ny.gov	**Description:** The program's goal is to help implement sustainable initiatives and projects that accelerate the adoption of sustainable planning and development practices, that create multiple community benefits, are innovative, use public and private resources, lower carbon emissions, and create a better environment, economic, and more resilient future for NYS. **Applicable Projects:** Policy and plan development, technical assistance, and implementation of projects that • Reduce Green House Gas (GHG) emissions • Having stormwater and flood resiliency adaptive planning in place that has a affect on GHG emissions More information on the NYSERDA site. Link: http://www.nyserda.ny.gov/All-Programs/Programs/Cleaner-Greener-Communities
On-Site Wind Turbine Incentive Program ◆ **Deadline:** December 31, 2015 or until funds are exhausted. **Source:** NYSERDA **Funding:** Up to 50% of installation costs with a limitation of	**Description:** NYSERDA provides incentives for the installation of end-use wind energy generation systems for residential, commercial, institutional or government use. . **Applicable Projects:** Wind turbine installations in areas that have a good wind source, are in a rural area, are in a location where codes allow for

$1,000,000 per site/customer **Contact:** NYSERDA **Phone:** (518) 862-1090 or toll free 1-866-774-8818 **E-mail:** smallwind@nyserda.ny.gov	installations, meet the minimum distances from buildings, road and property lines, and have a monthly electricity bill of $150 dollars or greater. More information on the NYSERDA site. Link: http://www.nyserda.ny.gov/Funding-Opportunities/Current-Funding-Opportunities/PON-2439-On-Site-Wind-Turbine-Incentive-Program
Solar PV Program Financial Incentives and NY-Sun Commercial / Industrial Incentive Program **Deadline:** December 29, 2023 or until funds are exhausted. **Source:** NYSERDA **Funding:** Varies based on project **Solar PV Program Financial Incentives** **Contact:** Frank Mace, NYSERDA **Phone:** (518) 862-1090 ext. 3433 **E-mail:** Frank.Mace@nyserda.ny.gov **NY-Sun Commercial / Industrial Incentive Program** **Contact:** Venice Forbes, NYSERDA **Phone:** (518) 862-1090, ext. 3507 **E-mail:** venice.forbes@nyserda.ny.gov E-mail: Commercial.IndustrialPV@nyserda.ny.gov	**Description:** NYSERDA provides cash incentives for the installation of eligible PV systems. **Applicable Projects:** **Solar PV Program Financial Incentives:** Grid-connected Electric Photovoltaic (PV) systems that are 25kW or less for residential, and 200 kW or less for non-residential sites. **NY-Sun Commercial / Industrial Incentive Program:** Grid-connected Electric Photovoltaic (PV) systems that are greater than 200kW More information on the NYSERDA site. Link: http://www.nyserda.ny.gov/Funding-Opportunities/Current-Funding-Opportunities/PON-2112-Solar-PV-Program-Financial-Incentives Link: http://www.nyserda.ny.gov/Funding-Opportunities/Current-Funding-Opportunities/PON-3082-NY-Sun-Commercial-Industrial-Incentive-Program

Flood Resiliency Related Funding	
Pre-Disaster Mitigation Grant Program **Deadline:** Continuous Annual Funding **Source:** FEMA **Funding:** Varies **Contact:** FEMA Federal Region II 26 Federal Plaza New York, NY 10278-0002 **Phone:** (212) 680-3600 **E-mail:** FEMA-R2-ExternalAffairs@fema.dhs.gov	**Description:** The program provides funds for hazard mitigation planning and projects on an annual basis. The goal is to reduce overall risk to people and structures in communities, while also decreasing reliance on federal funding in the occurrence of a disaster. **Applying for the PDM:** Local communities apply through NYS, which applies to FEMA directly. More information on the FEMA site. Link: http://www.fema.gov/pre-disaster-mitigation-grant-program
Flood Mitigation Assistance (FMA) (Planning, Project, and Management Cost Grants) **Deadline:** Continuous Annual Funding **Source:** FEMA **Funding:** Varies **Contact:** FEMA Federal Region II 26 Federal Plaza New York, NY 10278-0002 **Phone:** (212) 680-3600 **E-mail:** FEMA-R2-ExternalAffairs@fema.dhs.gov	**Description:** The program provides funds for projects that reduce or eliminate risk of flood damage to buildings that are insured by the National Flood Insurance Program (NFIP) on an annual basis. The NFIP is designed to reduce the impact of flooding on private and public structures through affordable insurance and by encouraging communities to adapt and enforce flood management practices. Grant Types: • **Planning:** prepares flood mitigation plans. • **Project:** implement measures to reduce flood losses. • **Management Cost:** Helps Grantee to administer the FMA programs and activities. **Applying for the FMA:** Local communities apply through NYS, which applies to FEMA directly. More information on the FEMA site. Link: http://www.fema.gov/pre-disaster-mitigation-grant-program

Resources Available for Stormwater Management, Climate Change, and Flood Resiliency

These programs may provide workshops, publications, representatives, financing opportunities, and other resources to help educate and assist municipalities in handling topics concerning stormwater management, climate change, and flood resiliency.

Stormwater Management Assistance	
Stormwater Coalition of Tompkins County **Contact:** Tompkins County Soil and Water Conservation District **Phone:** (607) 257-2340 **E-mail:** angeldybas@tcswcd.org	**Description:** The program helps exchange and foster cooperation between MS4 communities. They also assist with identifying funding mechanisms to meet the financial needs of complying with the Phase II Stormwater regulations. The coalition aims to protect and/or improve local water quality in accordance with Federal, State, County, and local water quality regulations, planning documents and policies; and facilitate consistency of stormwater management and regulations across municipal boundaries. More information at the Stormwater Coalition of Tompkins County site. Link: http://tcstormwater.org/

Finger Lakes – Lake Ontario Watershed Protection Alliance (FLLOWPA) ⭘ **Contact:** Kristy LaManche, Program Coordinator and Sandy Tuori-Bell, Program Assistant **Phone:** (315) 592-9663 **Fax:** (315) 592-9595 **E-mail:** klamanche@twcny.rr.com (Kristy) **E-mail:** s3doh@msn.com (Sandy)	**Description:** The program's goal is to protect and enhance water resources by • Promoting the sharing of information, data, ideas, and resources pertaining to the management of watersheds in New York's Lake Ontario Basin. • Helping create watershed management programs and partnerships. • Encouraging a holistic, ecosystem-based approach to water quality improvement and protection of the Lake Ontario Watershed. Water quality problems are defined and solutions are developed and implemented at the local level. This helps develop a more regional perspective that informs local programming and encourages cooperation. . More information at the FLLOWPA site. Link: http://www.fllowpa.org/index.html
Tompkins County Water Resource Council (WRC) ⭘ **Contact:** Tompkins County Water Resource Council **Phone:** (607) 274-5560 **Fax:** (607) 274-5578	**Description:** The WRC advises the Tompkins County Legislature on issues related to water resources management and planning, and is charged with identifying problems, proposing priorities, and promoting the coordination of activities in the management and protection of the County's water resources. The aim is to coordinate water resources-related efforts of local governments, public and private institutions, and agencies and organizations throughout the County. More information at the Tompkins County Water Resource Council (WRC) site. Link: http://www.tompkinscountyny.gov/planning/committees-wrc
Upper Susquehanna Coalition ⭘ **Contact:** Wendy Walsh, Watershed Coordinator Upper Susquehanna Coalition **Phone:** (607) 687-3553 **E-Mail:** wwalsh@u-s-c.org **Contact:** Administrative Office **Phone:** (607) 687-3553 **Fax:** (607) 687-9440 **E-Mail:** wwalsh@u-s-c.org **Contact:** Adam Hills, Tompkins County Alternative Voting Member **E-mail:** Adamhills@tcswcd.org	**Description:** The Upper Susquehanna Coalition's mission is to protect and improve water quality and natural resources in the Upper Susquehanna River Basin. They have past and current projects, and host and provide information for workshops and webinars pertaining to protecting and managing water resources. More information at the Upper Susquehanna Coalition site. Link: http://www.u-s-c.org/html/index.htm

Climate Change Assistance	
Cornell Cooperative Extension-Tompkins Energy and Water Programs ⭘◆ Energy Concerns **Contact:** David Astorina, Energy Program Coordinator **Phone:** (607) 379-9739 **E-mail:** david.astorina@cornell.edu Water Concerns **Contact:** Sharon Anderson, Environment Team Leader **Phone:** (607) 272-2292 ext. 156 **E-mail:** ska2@cornell.edu	**Description:** The Cornell Cooperative Extension-Tompkins has compiled resources to help your community reduce resource consumption, use resources more efficiently, protect the resources in your community, and save money. They are able to help communities by providing information through workshops, research, and case studies. The program also has staff that are able to point you in the right direction when making energy and water related decisions. More information at the Cornell Cooperative Ext. of Tompkins County site. Link: http://ccetompkins.org/energy Link: http://ccetompkins.org/environment/water

Get Your Green Back Tompkins ◆ ∞ **Contact:** Jonathan Maddison Way2Go Program Manager **Phone:** (607) 272-2292 **E-mail:** jwm346@cornell.edu **Contact:** Cornell Cooperative Extension Upgrade Upstate New York-Tompkins **Phone:** (607) 272-2292 **E-mail:** tompkins@cornell.edu	**Description:** A community-based campaign that inspires households and businesses in Tompkins county to take steps in saving money and energy in food, waste, transportation, and heating and lighting. The campaign provides contact information for trusted building performance institute (BPI) contractors and renewable energy installers local to Tompkins County. **Resources:** **Upgrade Upstate New York:** No-cost or reduced-cost energy assessments available to homeowners to help indicate where energy losses can be minimized, and natural resources can be saved. The program also lists incentives to do this, which are available to owners, renters, and landlords. **Way2Go:** Informing Tompkins County residents about alternate forms of transportation in order to help create a more sustainable community. The program has workshops and clinics to help educate residents and local government on more sustainable transportation techniques. More information at the Cornell Cooperative Ext. of Tompkins County or Upgrade Upstate New York-Tompkins site. Way2Go Link: http://ccetompkins.org/community/way2go Upgrade Upstate New York Link: http://www.upgradeupstate.org/home
Tompkins Community Action Energy Services ∞ ◆ **Contact:** Tompkins Community Action Main Office 701 Spencer Road, Ithaca NY 14850 **Phone:** 607-273-8816 **Fax: 607-273-3293** **E-mail:** info@tcactionweb.org	**Description**: The Energy Services program of the Tomkins Community Action helps lower income households in communities develop to their full potential through weatherization, home performance, EmPower NY, and building energy solutions. **Programs:** **Building Energy Solutions:** Provides installation of home energy efficiency measures. Services range from furnace and window replacement to air sealing and appliance replacement. **EmPower NY:** The program provides free cost-effective improvements, to income eligible NYSEG and National Grid customers, to help lower the cost and consumption of electricity. **Weatherization:** The program provides installation of energy saving measures in owner occupied homes and rental units. The program is available at no cost to income-qualified Tompkins County homeowners, renters and landlords. **Home Performance:** Assisted Home Performance with ENERGY STAR® helps income eligible households lower their energy bills and make their homes safer and more comfortable by matching up to 50% of costs (up to $5,000) of improvement costs. More information at the Tompkins Community Action site. Link: http://www.tcactionweb.org/joomla/index.php/energy-services
Tomkins County Climate Initiative Program (TCCPI) ◆ **Contact: TCCPI** **Phone:** (207) 229-6183 **E-mail:** info@tccpi.org	**Description**: The program is a clean energy coalition of local community leaders who are committed to greater energy efficiency, reduced greenhouse gas emissions, and a greater use of renewable energy technologies. **Goals:** 1. Have a target, time frame, and strategy to achieving reductions in greenhouse gas emissions 2. Create a peer-to-peer mentoring network to support participants when addressing the challenges and problems associated with meeting greenhouse gas emission reduction goals. 3. Create an association to show the financing mechanisms available, and be able to purchase goods and services that will lead to reduced greenhouse gas emissions. 4. Provide and develop the tools necessary for participants to be able to measure their progress in greenhouse gas emissions. More information at the TCCPI site. Link: http://www.tccpi.org/home.html

Flood Resiliency Assistance	
FEMA's Flood Map Service Center (MSC) **Contact:** FEMA MSC **Phone:** MSC 1-877-336-2627 Federal Region II 26 Federal Plaza New York, NY 10278-0002 **Contact:** FEMA **Phone:** (212) 680-3600 **E-mail:** FEMA-R2-ExternalAffairs@fema.dhs.gov	**Description:** Maps are available to the public for flood hazard information. The MSC can find your official flood map, access a range of other flood hazard products, and provide other tools for better understanding flood risk. FEMA also has publications, resources, and funding information to help communities mitigate flood risks and respond to flood disasters. More information at the FEMA site. MSC Link: https://msc.fema.gov/portal FEMA Link: http://www.fema.gov/
Tompkins County GIS Division **Contact:** Dept. of Information Technology Services: GIS Division 128 East Buffalo Street Ithaca, New York 14850 **Phone:** 607-274-5418 **Fax:** 607-274-5420	**Description:** The Tompkins County GIS division serves as a GIS development and distribution program for Tomkins County communities. They are able to supply GIS project assistance, direction, and technology for county departments, municipalities, and even the public. **Services:** GIS applications for • Public safety and emergency response. • Geospatial datasets and mapping services as requested. Potential for watershed and stream mapping. More information at the Tompkins County NY site. Link: http://tompkinscountyny.gov/gis

EFC

2015

Stormwater Financing Feasibility Study for Wrightsville Borough, Pennsylvania

Prepared for

Wrightsville Borough, Pennsylvania

Prepared by

University of Maryland Environmental Finance Center for the U.S. Environmental Protection Agency Chesapeake Bay Program Office

July 2015

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Executive Summary

Project Overview and Approach

In 2014, the Environmental Finance Center (EFC) at the University of Maryland began working with Wrightsville Borough in York County, Pennsylvania to provide technical assistance to develop a more robust stormwater program financing strategy. Under the existing Phase II General Municipal Separate Storm Sewer System (MS4) permit, the Borough is required to develop a stormwater management program to reduce stormwater from discharging in receiving waters.

The EFC Project Team sought to use this project as an opportunity to (1) help the Borough develop an enhanced stormwater management program, (2) conduct a detailed analysis of the Borough's stormwater program, (3) identify costs associated with providing a desired level of service, (4) explore organizational structures within the context of the Borough, (5) develop a 5-year budget and financing strategy that would support program activities, and (6) identify and facilitate collaboration between the Borough and the Borough's Municipal Authority that will accelerate the ability to meet MS4 permit requirements and to reduce costs.

Under this framework, the EFC Project Team provided the following elements of technical assistance to the Borough:

- Assessed the Borough's current stormwater management program through a process of data gathering and informational interviews conducted with key municipal staff, consultants, municipal authority staff, and participants outside of the Borough including the York County Planning Commission and the York County Conservation District.
- Identified costs associated with the additional activities required to deliver the level of service under the MS4 permit. These costs have been examined in detail and have been organized by staffing, operations and maintenance, and capital costs.
- Developed a multi-year stormwater program budget under different asset management scenarios. Utilizing scenarios enabled the community to discuss and evaluate how the budget, cost, fees, and benefits change as choices are made about the length of time over which to manage, repair and replace the stormwater system.
- Gathered geographic information system (GIS) parcel data to estimate a stormwater fee that adequately supports the enhanced level of service budget.
- Met with key stakeholders throughout the project to gain feedback on the analysis, budget, and to inform the final recommendations.
- Developed a stormwater FAQ sheet for the Borough to use in outreach activities.

Findings and Recommendations

The key outcomes of this project include (1) a clearer understanding of the Borough's MS4 permit requirements and strategies for achieving a desired level of service, (2) a budget and plan to develop and finance a stormwater program, and (3) the identification of opportunities to continue to build partnerships and leverage technical resources to reduce costs. The EFC Project Team developed a road map to follow into the future containing the responsibilities, actions, and resources needed for the Borough to effectively manage stormwater and to deliver an adequate level of service to the community.

The EFC Project Team found that the Borough and Municipal Authority have very dedicated staff, consultants, and leadership with a strong sense of the community's past, as well as a strong belief in the future of the Wrightsville community. As with many small municipalities with limited resources, the Borough has had to be reactive rather than proactive to infrastructure needs and repairs. Consequently, repairs are funded via general funds, and the potential arises for cost effective

projects to be delayed, thus increasing costs. The Project Team found that existing Riverfront Revitalization efforts at the Riverfront Park in the Borough provide potential opportunities to transform the community's stormwater issues into an asset that will draw both local and regional visitors to the community.

Detailed recommendations are as follows:

- As permit requirements become more stringent in the future, additional staff activities will be needed and certain responsibilities shifted to be more effective and efficient.
- There is an opportunity to implement a proactive stormwater asset management program which will provide long term efficiencies for stormwater as well as other water infrastructure.
- Over time, an increase in staffing, operating, maintenance and capital budgets will be needed to meet the MS4 permit requirements and a dedicated financing mechanism should be implemented to support the program. Pending completion of engineering studies, and depending on the term of an asset management program implemented, the EFC Project Team developed an initial annual program budget just under $213,000. The estimated annual Equivalent Residential Unit stormwater fee to support this budget is $77.
- The EFC Project Team found that the Municipal Authority has internal capacity, expertise, and operations with which to conduct billing and stormwater infrastructure operations and maintenance.

Conclusion

Should the Borough adopt some, if not all of the recommendations contained in this report, the Borough will be in a better position to meet its stormwater program goals into the future. The EFC Project Team recommends the Borough takes the approach of managing the stormwater system as critical infrastructure with dedicated funding for capital investment, repair, and maintenance in order to minimize the community's risk and cost of emergency repairs and replacements.

In this report, the EFC Project Team explores and recommends the creation of a dedicated stormwater fee which funds an estimated annual stormwater program budget, developed as a 5 year budget, of approximately $213,000 annually. Even in the absence of a dedicated fee, the Borough can improve its stormwater program in the short term by beginning the dialogue to integrate stormwater management activities into the Municipal Authority staff's existing duties. The more the stormwater infrastructure maintenance and replacement is integrated into the sewer and drinking water maintenance, the more efficient and effective the program level of service delivered to the community will be overall.

By participating in this process, key stakeholders have already begun communicating on how to move forward, showing true commitment to improving stormwater management in the community along with an understanding of the opportunity to gain efficiencies by the Municipal Authority playing a role in managing stormwater infrastructure.

Introduction

Background

Effectively managing stormwater is one of the greatest resource management challenges faced by communities throughout the region. Like all infrastructure, stormwater management systems can have significant upfront capital costs and require long-term management and maintenance to function effectively. As communities struggle to best allocate limited resources, stormwater management systems are frequently overlooked until an emergency occurs, costing millions in damages and repairs, or until a mandate forces a community to take action.

While most communities rely on general funds for stormwater management activities, this means stormwater programs compete for dollars with other critical community priorities like public safety, public works, and general administration. Having a dedicated revenue stream that is specifically set aside for maintenance and upgrades is often critical to the effective management of stormwater systems at the local level.

The significance of this looms even larger as Chesapeake Bay communities constantly face more stringent regulations, from Municipal Separate Storm Sewer System (MS4) Permits to Total Maximum Daily Load (TMDL) allocations to Watershed Implementation Plans (WIPs). In Pennsylvania, MS4 permitted communities in the Chesapeake Bay watershed must also create Chesapeake Bay Pollutant Reduction Plans (CBPRP) and implement stormwater management plans. Although often an effective driver, federal and state mandates are not always accompanied by the type of technical assistance, information, and resources needed to successfully guide the development and implementation of sustainable stormwater management plans and programs.

Compounding this is the fact that the Chesapeake Bay region lags far behind the rest of the country in terms of the total number of communities who have established a plan to fund and finance their stormwater management, even though the region now has some of the greatest nutrient reduction expectations in the country. The local political landscape in Pennsylvania further complicates a locality's ability to manage stormwater, since there are more than 1,000 municipalities with MS4s located in urbanized areas across the state [1], each

Why regulate stormwater?

As precipitation flows over impervious surfaces, it picks up chemicals, debris, sediment, and other pollutants that left untreated, could harm local waterways. Municipalities often convey their stormwater through municipal separate storm sewer systems (MS4s), which discharge untreated runoff into local waterways. As part of the Clean Water Act, the National Pollutant Discharge Elimination Program regulates stormwater discharge from municipal sources. Municipalities must then obtain MS4 permits from the state regulatory agency to discharge stormwater and prevent other harmful pollutants from entering a MS4. The MS4 permit addresses and attempts to curtail non-point pollution.

MS4 permits are further divided by what type of community they cover, namely Phase I or Phase II. Phase I communities are medium and large cities or counties with a population density of 100,000 or more and obtain individual permits. Phase II communities are smaller communities in or outside urbanized areas and are regulated by general permits.

Source: Stormwater, U.S. Environmental Protection Agency, http://water.epa.gov/polwaste/npdes/stormwater/index.cfm

[1] MS4s within Urbanized Areas in Pennsylvania, Grouped by Region, Commonwealth of Pennsylvania Department of Environmental Protection, Bureau of Watershed Management

with significant looming costs to manage their stormwater. These communities strive to serve their stakeholders with limited resources while preserving their autonomy and local pride.

The Borough of Wrightsville, located along the Susquehanna River in York County, Pennsylvania faces many of the same challenges, as it is a small, historic river town with a population of 2,310[2]. Most of the infrastructure was designed and put in service years before the more stringent standards that exist today. The Borough must manage its stormwater under a General Phase II MS4 Permit, administered by the Pennsylvania Department of Environmental Protection (PA DEP). The Borough, like many communities in Pennsylvania, works closely with their consulting engineer, C.S. Davidson, Inc. to submit their MS4 Annual Report and ensure compliance with the permit's six Minimum Control Measures (MCMs).

In order to meet the requirements under the state's Chesapeake Bay Pollutant Reduction Plan, the Borough is paying into a regional plan, submitted by the York County Planning Commission (YCPC) and Center for Watershed Protection to the PA DEP as the "York County Regional Chesapeake Bay Pollutant Reduction Plan" in October 2014.[3] This plan, pending approval, includes $1 million of stormwater projects throughout the County that will be implemented over five years, and all participating municipalities will receive credit for these projects. Wrightsville Borough currently pays $867[4] per year into the county-led effort.

Project Goals

The goals of EFC's stormwater efforts in Wrightsville were to conduct a detailed analysis of the Borough's existing stormwater management program to comply with its MS4 Permit, identify costs associated with providing a necessary level of service to support the program into the future, and develop and recommend a long-term and sustainable financing strategy to support the stormwater program that is accountable, realistic, and transparent. Additionally, one of the goals of the study that was identified by Borough stakeholders was to analyze and recommend an organizational structure for the program which takes into account the context of the Borough and working relationships with the Wrightsville Borough Municipal Authority.

One of the unanticipated goals of the study, once the EFC Project Team began our analysis, was to examine how the Borough can incorporate asset management for its existing stormwater infrastructure and anticipated infrastructure needs in order to create a more proactive and strategic repair and replacement program. It is imperative that Wrightsville Borough enhance its existing stormwater management program and position itself to meet the continually more stringent stormwater management requirements imposed on communities. Stormwater programs of this nature will require the support of a more robust and reliable funding stream than current practices provide.

Project Approach

The Project Team took an in-depth approach to helping the Borough develop an enhanced stormwater management program. The technical process began with an assessment of Wrightsville's current stormwater management program through a process of data gathering and informational interviews conducted with key municipal staff, consultants, and municipal authority staff. The Project Team also met and interviewed participants outside of the Borough including representatives from the York County Planning Commission (YCPC) and the York County

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[2] "About Us," Borough of Wrightsville webpage, http://www.wrightsvilleborough.com/about.html

[3] York County Regional Chesapeake Bay Pollutant Reduction Plan, October 2014, Prepared for the PA Department of Environmental Protection

[4] The $867 fee was included in the stormwater program budget developed as part of this study

Conservation District (YCCD) (see Appendix A for a comprehensive list of all in-person meetings). Once the Project Team assessed the current program, a comparison was made to a projected level of service. This comparison, or gap analysis, detailed the stormwater management program components needed to achieve a comprehensive program, which includes achieving MS4 compliance and incorporating an asset management program for stormwater infrastructure.

The EFC Project Team then identified costs associated with the additional activities required to meet the necessary level of service, which were broken down into staffing, operations and maintenance, and capital costs. After identifying costs a multi-year budget was prepared.

Then the Project Team retrieved geographic information system (GIS) parcel data from the YCPC to conduct a rate structure analysis to estimate the revenues needed to support the enhanced level of service. The final recommendations reflect the needed revenue based on the cost estimates for the Borough to sustain a comprehensive stormwater management program. The Project Team met with key stakeholders throughout the project to gain feedback on our analysis and inform the final recommendations.

Providing residents and businesses the opportunity to understand and have a voice in the development of the stormwater management program is an integral part of the process. While a robust outreach strategy was outside the scope of this project, the EFC Project Team developed a stormwater FAQ sheet for the Borough to hand out at outreach events and the Borough office (see Appendix B), as well as participated in the Community Revitalization Day on May 2nd, 2015 (see Appendix C for photos from the event) to educate the community about the importance of stormwater management.

Project Funding

This project was funded by the U.S. Environmental Protection Agency (EPA) Chesapeake Bay Program Office, providing the EFC the opportunity to extend its technical assistance to communities through the EFC Stormwater Financing and Outreach Unit across the Chesapeake Bay watershed. The EFC intends to use the experience working with Wrightsville Borough as a model for other interested communities in Pennsylvania and eventually throughout the Mid-Atlantic region.

Stormwater Program Findings and Recommendations

Assessment of Wrightsville Borough's Existing Stormwater Program

Wrightsville Borough is comprised of a small but dedicated staff. Similar to many communities in Pennsylvania, the Borough contracts with an engineering firm, accounting firm, and legal firm to help fill resource and capacity gaps. The Borough also has an existing municipal authority that handles drinking water, sewer, and refuse. Because of the small size of the Borough, the municipal staff and authority staff work closely together. The EFC Project Team found that while the Borough is meeting its MS4 permit with substantial administrative and technical support from the Borough Engineer, there is a great need to ramp up program efforts as requirements are anticipated to become more stringent into the future. As part of the EFC Project Team's assessment, the team identified additional staff activities needed to help ensure compliance, as well as the possibility that some of these activities could be performed more effectively and efficiently within the operations of the Municipal Authority, assuming that a Memorandum of Understanding (MOU) is in place. The EFC Project Team also found that the existing Riverfront Revitalization efforts at the Riverfront Park in the Borough provides a potential opportunity to transform the community's stormwater issues into an asset that will draw both local and regional visitors to the community.

MS4 Permit Compliance: 6 Minimum Control Measures (MCMs) –

1. Public Education & Outreach
2. Public Participation & Involvement
3. Illicit Discharge Detection & Elimination
4. Construction Site Runoff Control
5. Post Construction Runoff Control
6. Pollution Prevention/Good Housekeeping

For each Minimum Control Measure (MCM) associated with the Borough's MS4 permit, there are specific stormwater best management practices (BMPs) that the Borough can implement to comply with its permit. Although there is flexibility to implement BMPs that fit the needs and resources within the community, there are significant costs associated with addressing the MS4 permit in order to sustain a high level of service into the future. The Project Team worked closely with municipal staff and consultants to determine the current level of service that focused on assessing how stormwater infrastructure is maintained, current funding levels, and the capacity for handling stormwater on all aspects of the permit. A discussion of the findings is below.

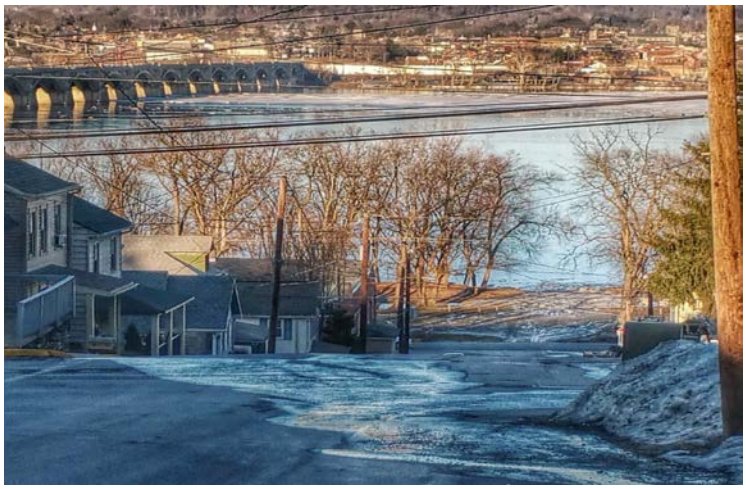
Stormwater Infrastructure

Wrightsville Borough is a small town along the Susquehanna River, comprised mostly of residential parcels (85% of total parcels[5]) and a mix of commercial, industrial, non-profit, and other land use. In meeting with Public Works staff, Municipal Authority staff, and the Borough Engineer, it became clear that the condition of the stormwater conveyance system, including the year the pipes were installed, maintenance records, and estimating remaining useful life is not well known across the entire system. Much of the system is old and has not had a lot of maintenance in 60 years. Limited staff capacity and resources is the reason the Borough has been unable to take a proactive approach to maintaining its infrastructure. However, approximately 90% of the storm sewer system is mapped, and therefore it is imperative to first complete the mapping, then conduct a condition assessment, and finally develop a plan for repairing and replacing assets using the results of the condition assessment. Throughout this project, the Project Team has seen the urgency with which

[5] Parcel data retrieved from GIS staff at the York County Planning Commission.

this needs to be addressed, and has included all components in the costs with developing a more robust stormwater program.

An additional area that will need to be developed in the long-term is identifying where additional stormwater infrastructure and/or stormwater practices will be needed to address flooding issues and accommodate future growth in and around Wrightsville.



Stormwater runoff in the Borough that is draining directly into the Susquehanna River; Photo credit – E. Reed

The Project Team found that the Borough staff inspect and maintain the stormwater infrastructure as time permits. One activity that is important, yet often overlooked, is street sweeping. Due to old equipment and limited staffing, sweeping all of Wrightsville's streets can take longer than one month making this an inefficient part of the overall stormwater management system in the Borough. This was a specific activity discussed with stakeholders throughout the process and the idea to contract out for street sweeping was well received. While the Project Team did not include street sweeping contract costs in its program budget specifically, the budget includes a $9,300 annual cost that was included in the Borough's 2015 budget for a street sweeping add-on. Instead of using these funds to purchase additional equipment, the EFC Project Team proposes using the funds to instead contract with a company to do its street sweeping, freeing up critical time for Public Works staff to complete other essential aspects of stormwater management on a more proactive schedule.

Current Funding for Stormwater

The total budget for Wrightsville Borough in 2015 is $1,041,323[6]. The Borough funds stormwater through its general fund, and specifically the Public Works budget (which represents 20% of the total budget) as well as general administrative and consulting staff time. Using general funds to support stormwater management is common practice around the country, and means that stormwater must compete with other higher priorities leaving the program vulnerable to budget cuts, particularly in future years when new stormwater regulations and nutrient reduction requirements will increase the price tag significantly.

The general fund is derived primarily from taxes and the issue of equity and fairness of who pays for stormwater and how much they pay is not taken into consideration. In other words, those paying into the general fund are not paying based on their contribution to the problem of stormwater. In fact, many large properties, such as churches, schools, and government properties are not paying any taxes and therefore not paying anything towards services related to stormwater. With general funds fluctuating from year to year and the revenue sources that make up the general fund varying in amount, stormwater management is unlikely to ever be adequately funded solely from this source.

This does not mean, however, that current funding levels for various activities now being covered by general fund dollars should be lessened or eliminated in future budgets. For example, existing staff

[6] Borough of Wrightsville – 2015 Budget, updated December 2014, Received from Borough Secretary

capacity at the Borough will continue to be supported by general fund dollars. With such a small community, it is recommended that such practices continue, but that in addition to using some general fund appropriations, another reliable and dedicated source of funding for stormwater infrastructure similar to how drinking water and sewer infrastructure is funded, will be needed.

Current Capacity for Handling Stormwater

While the Borough is small and comprised of a small staff, the staff are committed, dedicated, and cognizant of being cost effective and in leveraging time and resources. Case in point, the Municipal Authority Office Manager shares space with the Borough Secretary and Administrative Assistant, creating the opportunity for collaboration and seamless knowledge and resource sharing. Another example is that the Municipal Authority General Manager also serves as the Borough's Streets Director through an inter-municipal agreement. Staff and consultants generally communicate effectively and often.

Staff also wear many hats and do not have much additional capacity to spare for adding more stormwater management tasks on their 'to-do lists.' In the case of Wrightsville, creating additional opportunities to generate cost efficiencies is necessary to better manage stormwater since hiring additional staff is likely unfeasible in the short-term. One of the greatest opportunities the Borough has for creating efficiencies is to integrate stormwater management activities into the Municipal Authority, who already have staff well poised to handle administrative billing duties as well as technical staff who operate and maintain water infrastructure.

In the long-term, if dedicated financing is put in place for stormwater, there will be an opportunity to hire additional administrative and technical staff to improve the level of service in managing stormwater.

Operating Scenario Recommendations

The EFC Project Team developed four different operating scenarios to differentiate the administrative and technical activities that will be needed in order to develop a more robust stormwater program. The scenarios included categorizing which entity, the Borough or Municipal Authority should take operational responsibility for specific parts of the stormwater program. The Project Team vetted the scenarios through one-on-one meetings with staff and consultants, as well as through larger stakeholder meetings where varying opinions and concerns were voiced. The four scenarios that the Project Team analyzed were:

Operating Scenario 1:
Develop a MOU between Borough and Municipal Authority
Authority to take over billing once stormwater fee in place and operations and maintenance of the stormwater infrastructure

Operating Scenario 2:
Borough sets up non-operating stormwater authority for billing & collection of a stormwater fee
Borough will tap into Municipal Authority staff capacity informally and as needed

Operating Scenario 3:
Borough transfers MS4 permit to Municipal Authority
Authority to take over control of permit compliance program and develop MOU for Borough to support Authority activities

Operating Scenario 4:
Borough supports program through general fund taxes
Borough does not incorporate billing into program, and taps into Municipal Authority staff capacity informally and as needed

The Project Team identified the different costs associated with each scenario, and found minimal variances based on the operating scenario that the Borough ultimately chooses. The EFC Project Team strongly recommends the Borough works closely with the Municipal Authority, which has already begun with all parties engaged in this process, and adopt operating scenario 1 whereby the Municipal Authority will take over billing for stormwater and the operations and maintenance of the system, and the Borough will continue to maintain the MS4 Permit Program. While there are many issues that will need to be worked out, from financial to legal to organizational, the existing operational framework to handle both billing and water infrastructure creates an opportunity for efficiencies to be gained from adopting scenario 1 or 3. It is important to note that the EFC Project Team recommends scenario 1 over 3, given the feasibility, or lack thereof, of the Municipal Authority assuming all of the risk of taking over the MS4 permit, at least in the short term.

It is important to note that the legal framework for existing authorities to take on stormwater management in Pennsylvania has been established through the modification of the PA Municipal Authorities Act in 2013; however, there are still many concerns with the collectability and enforcement of a stormwater fee to support program costs. The Borough and Authority have strong legal and financial counsels that will help them identify the most feasible and appropriate entity that maximizes efficiencies and minimizes risk for the community to take on.

Stormwater Program Budget Recommendations

The EFC Project Team developed a program budget spanning five years for the Borough that is broken down into staffing, operations and maintenance, and capital costs. The following is a discussion of the EFC Project Team's recommendations for each cost category within the overall program budget:

Staffing Costs

Based on discussions and feedback, the Project Team developed an estimate of staffing needs based on interviews and a determination of activates currently being done by either the Borough or the Authority. The first step of this process was to develop an estimate by position of additional staff time that was needed to implement a higher level of service. The estimate of time can be found in Appendix D. The Project Team then broke down the type of duties into administrative and technical. Administrative duties include updating written plans, tracking, billing, and addressing MCMs 1 and 2. Technical duties include maintenance and operations of both the stormwater conveyance system and any existing and proposed green or gray BMPs. The Project Team then aggregated the additional staff time needed across current positions to arrive at a total increase in administrative staff time and total increase in technical staff time in order to meet the program needs. The total percent effort increase equals 294%, or roughly three full time equivalent (FTE) staff positions. Table 1 below shows the breakdown of the estimate between administrative and technical.

Table 1: Estimate of FTEs Needed by Staff Type

New Staff Type	FTE from Staffing Worksheet	Number of New Positions
Administrative	99%	1
Technical	195%	2

It is estimated that to increase the level of service in the program will take about 1 FTE administrative manager position and about 2 FTE technical positions.[7] It is anticipated that the administrative position and 1 technical position would be hired in year 1 and the second technical staff would be hired or contracted in year 2. The net result is an estimated staff cost which includes salaries and overhead of about $82,500 in year 1 and about $122,500 in year 2. Costs per position were derived from the midpoint of current salary ranges and are shown in Table 2.

Table 2: Full Time Equivalent New Hires

Position Type	Total Salary	Notes
Technical	$40,000	*Estimate from current salary position. It is assumed that this position would be hired in year 2 after the completion of Phase 1 capital engineering.*
Technical	$50,000	*Estimate from current salary position. It is assumed that this position would be hired in year 1.*
Administrative	$32,490	*Estimated new hire from staffing worksheet. It is assumed that this person would be hired in year 1.*

Operations & Maintenance (O&M) Costs

The next step in budget development and program analysis was to determine a level for operations and maintenance for the program and to determine what was currently being conducted in-house and identify the program gap in terms of activities and associated costs. Appendix E contains a list of all operations and maintenance items and a determination of costs. The estimated total O&M budget annually is just under $50,000, with a $30,130 program gap between future and existing costs currently being paid for by the Borough's general funds and/or Municipal Authority budget.

Capital Costs

The capital costs are comprised of two main categories of costs. The first is to map the system, assess condition, and determine hydrology. The second is to begin implementing a program to manage and make capital investments in stormwater projects. This includes an asset management and capital project program which prioritizes areas of deficiency and undertakes activities and projects to repair and replace stormwater infrastructure. Appendix F contains the complete list of all capital investment items.

Mapping, inventory, condition assessment and understanding hydrology

According to the Borough Engineer, approximately 90% of the work to perform a stormwater inventory mapping and infrastructure condition assessment has been completed. It will cost approximately $10,000 to complete. An inventory assessment, mapping and infrastructure condition assessment will be beneficial and is an important first step to undertake. It will enable the Borough to better identify BMPs, examine condition of the existing stormwater conveyance and treatment system, estimate costs, and prioritize areas within the system which are most in need of service. It will also enable the managers to prioritize areas within the system where the most benefits can be gained by improvements.

[7] It should be noted that it is possible that capacity exists within one or both entities to absorb some of the activities. As a result the line item budget cost of staff could be reduced. Expressing the additional activities in terms of staff time enables the parties to seek out efficiencies.

Additionally, a comprehensive drainage study for the Borough is needed to be able to prioritize projects in the Borough to address future infrastructure needs and flood control measures. A comprehensive drainage study examines and maps the hydrology. This is important as it identifies volume, flow rate, and storage within the system, both from a water quality and a water quantity standpoint. With this information, the Borough will be in a better position to understand the flow of stormwater within and around the Borough, and also be able to identify areas of maximum concern, as well as areas in which the non-stormwater benefits are greatest from stormwater investments and capital improvements. The EFC Project Team budgeted for the drainage study, which totals approximately $50,000, over the first two years at $25,000 per year.

The EFC Project Team included software to develop a graphical data collection system in year 1 that the Borough could purchase and use to begin developing an online inventory of all assets. C.S. Davidson, Inc. has developed an in-house software program called CS Datum, in which the EFC Project Team included as part of the capital budget. Ideally, the Borough would utilize this software to inventory and track all water infrastructure projects, creating great opportunities for an efficient asset management program across stormwater, drinking water, and sewer. The stormwater program would assume 1/3 the cost of the software, $10,000 in year 1, should it be split between other infrastructure programs, which is recommended by the Project Team in order to lead to a more integrated asset management approach for the Borough. Should the Borough assume all of the cost of CS Datum, it could phase in the software in layers over time and focus first on stormwater data. The annual costs of maintaining the software system was included in subsequent years.

Asset Management and Capital Improvements

The final items on the capital investment list concern the establishment of an asset management program. Asset management is defined as maintaining a desired level of service at the lowest life cycle cost. In simple terms, it provides a means of determining the best way to spend your limited dollars to achieve the maximum impact. In these times of "doing more with less," it's about "doing less better." There is no way to achieve everything you want to with a severely reduced budget, but it is possible with Asset Management techniques to achieve the maximum result within the available funding. Asset management provides a framework to make data driven decisions about how to operate, maintain, repair, rehabilitate, and replace assets.[8]

An asset management tracking program (i.e. CS Datum) is a system which provides updated data and mapping to staff and infrastructure managers. It enables the Borough to see the town as a whole and where to prioritize improvements, not just in stormwater. The information becomes even more valuable in that it enables information to be shared across departments and across different types of infrastructure projects. As a result this creates the opportunity for cost savings through efficiencies. For instance it enables different departments to see the schedule of work related to capital improvement projects. Thus, staff are able to recognize and react that a non-stormwater project may present an opportunity for co-scheduling with equipment and resources already deployed to an area. For instance, a stormwater program manager may get information from an agency of an upcoming road project. The area may be identified by stormwater as an area for work in the next few years, but it has not been scheduled yet. The fact that there is capital activity in the area for the road work, (i.e. another agency is excavating or deploying contractors), this may present an opportunity for the stormwater manager to move up the storm water project in order to realize significant cost savings.

[8] Information provided by the Southwest Environmental Finance Center

After the engineering work discussed above is completed, the Borough will have identified and prioritized areas of the system in need of repair. The final item in the budget assumes that a capital improvement program is undertaken to upgrade the system. The estimated cost to completely upgrade the stormwater system today is approximately $2.24 million.[9] While the percentage of the system which is performing and which is failing is unknown, the Borough can make an assumption for the desired time it would take to upgrade the entire system. The EFC Project Team established estimated annual costs based on a 20 year, 30 year, 40 year, and 50 year capital improvement schedule and are assuming the rate of replacement would be of an equal amount in each year. It is not likely that the costs would be equal in each year as there will be variance in the amount of upgrades needed each year and capacity and time available to implement projects, however, based on feedback received from officials and staff, the Project Team developed a budget using a 40 year time capital replacement schedule. Under this assumption, the system would be replaced in 40 years, at equal amounts annually. For comparison purposes, Table 3 contains a range of estimated annual costs for a 20-year to a 50-year program.

Table 3: Infrastructure Asset Management and Improvement Program Cost Variance, 20-50 Year Replacement Schedule

Time Frame	% Replaced Annually	Total Cost	Annual Cost
20 Year	5%	$2,245,141	$112,257
30 Year	3.33%	$2,245,141	$74,838
40 Year	**2.5%**	**$2,245,141**	**$56,129**
50 Year	2%	$2,245,141	$44,902

The estimated range of the annual cost of an asset management/capital improvement program varies with the term of the program. At a 20-year replacement period, the annual cost is $112,000 and at a 50-year time period the annual cost is estimated to be about $45,000. However, it is important to keep in mind these are estimates that do not take into account increased costs due to additional years of the program. For instance, in a 20 year program, the system would be completely replaced in year 21, while in a 40 year program, only half of the system would have been replaced by year 21. What this means, is that in a longer program, "older" assets remain in service longer, thus increase the risk of failure or risk of increased costs. As a result, the annual costs of a longer program have a higher risk on increasing in the outer years due to the fact that the assets in service will have a longer average life in service. The EFC Project Team included the 40-year annual cost to implement an asset management program beginning in year 3, and included 50% of the annual cost ($28,064) in years 1 and 2 to begin implementation through a phased-in approach.

The "length of time" of an asset management program is the assumed time it takes to repair and replace the entire system. The longer the term, the higher the uncertainty and the higher the risk of failure which can lead to increased costs in the long run.

Lastly, the EFC Project Team included a very minimal $1,000 reserve for water quality projects within the capital asset management component of the budget. Overall,

[9] Costs developed by C.S. Davidson, Inc.

Table 4 shows the total costs in years 1-5 by cost category, as well as the annual average cost which was used by the EFC Project Team to develop the financing strategy that would support all associated stormwater program costs. The EFC Project Team developed a robust budget that the Borough and Municipal Authority will need to determine how, if at all, to pare back to fit the needs and resources within the community, or to accelerate to develop a more advanced asset replacement schedule.

While the Project Team ultimately did not include any stormwater-related costs associated with loan pay-back for green infrastructure practices being proposed in the Riverfront Revitalization project due to the high costs associated given the relative capacity of the Borough to raise revenues, the Project Team encourages the Borough and Municipal Authority to consider integrating stormwater-related aspects of the park project, including long-term maintenance of any newly installed stormwater practices, into its stormwater program and budget in the future.

Table 4: Stormwater Program Total Budget, Years 1-5

Cost Category	Costs by Program Year					Average Annual Costs
	2016	2017	2018	2019	2020	
Staffing*	$82,490	$122,490	$126,165	$129,950	$133,848	$118,988
Operations & Maintenance*	$30,130	$31,034	$31,965	$32,924	$33,912	$31,993
Capital Engineering	$45,000	$27,500	$2,500	$2,500	$2,500	$16,000
Capital Asset Management	$29,064	$29,064	$57,129	$57,129	$57,129	$45,903
Total Costs	**$186,684**	**$210,088**	**$217,758**	**$222,502**	**$227,388**	**$212,884**

*Staffing and O&M costs assumed to increase by an inflation rate of 3% each year

Stormwater Financing Recommendations

Recognizing that the current funding method of having stormwater compete for general fund appropriations with other community priorities and relying on occasional grant awards is not sustainable, the Project Team explored the possibility of using other revenue and funding sources.

While a host of fee systems exist to pay for local stormwater programs, not all provide sufficient revenue to support the large costs associated with a comprehensive stormwater management program. While grants, loans, and permit review fees are useful in funding a specific portion of the entire stormwater management program, only the **general fund appropriations** and a **stormwater utility fee** are considered by the Project Team as large enough pots of money to be capable of funding the entire program.

Since the 1970s, one of the most popular methods of paying for stormwater has been a stormwater utility fee. A stormwater utility fee, sometimes called a service charge, is a separate accounting structure with a dedicated source of funds collected and used only for the purpose of managing stormwater. The national trend has been to move away from relying solely on taxes for these programs and charge a fee that is stable, adequate to cover the costs of managing the program, and most importantly, equitable. A utility has increasingly become the choice for supporting stormwater *programs* because it is the clearest way to connect level of service/use (runoff) with the fee to be imposed. This type of fee-for-service has been implemented successfully for water, sewer, and solid waste/recycling programs, and has proven highly effective for stormwater, as well.

The Project Team believes that a dedicated stormwater fee is the most equitable financing mechanism because it distributes program costs associated across all properties that contribute in some way to stormwater. Taxes and other fee systems often exclude certain properties from paying, such as those that are tax exempt, yet these properties are still contributing runoff to the system, and often at a rate far greater than that of the average residence.

How a Stormwater Fee Works

The basic premise behind a community's stormwater program is that all property owners receive some benefit from the system being maintained; therefore, all properties should be required to participate in the cost of maintaining that service. Most stormwater fee rates are therefore based on the size, or footprint, of the structural part of a property. This physical part of the property is known as ***impervious surface*** and includes all of the hard surfaces of a property such as a roof, patio, paved area, or sidewalk. The reason for basing a fee on impervious surface is that a hard surface does not allow water to infiltrate into the ground, thereby increasing the volume and flow of stormwater that a community must manage.

Effective stormwater fees make a direct connection between the anticipated expenses to properly manage the system and the revenue generated. In other words, the fee should be determined by the level of revenue needed to deliver stormwater management services to the community, with some allowance for the level to which a property contributes to runoff.

There are several ways to calculate a stormwater utility rate. The most simple, fair, and common method is based on a parcel's amount of impervious surface – the extent to which a parcel contributes to runoff. When implemented, the fee may take the form of a flat or tiered rate structure, or some combination of both. An Equivalent Residential Unit (ERU) is a unit of measure based on either the average impervious surface of a single family dwelling or residential parcel. A specific fee level is attached to an ERU, and the number of ERUs on a given property often serves as the basis for the stormwater charge.

In many cases for residential properties, a flat fee is often recommended over exact parcel based measurements due to the level of program development and administrative burden that would be involved. This flat fee becomes the rate charge for non-residential properties, since it is assumed that the typical residential property equals 1 ERU. Determining the fee for non-residential parcels is typically done by calculating the exact amount of impervious surface on the site and then dividing the amount of impervious surface that was calculated for residential properties to determine the number of ERUs for a particular property. The property is then charged a rate (often the same as the residential flat rate) per ERU.

Implementing a stormwater user fee is a national trend on the increase in the U.S., primarily because these fee structures, if designed correctly, will collect a sufficient amount of revenue to support program costs in the most equitable manner possible. Also, utility-based stormwater programs tend to be more efficient, as the responsibility for managing stormwater is coordinated in one program rather than piecemeal across several departments.

Stormwater Fee Rate Structure Development and Recommendations

Average Annual Budget (Years 1-5):
Staffing: $118,988
Operations & Maintenance: $31,993
Capital Improvements: $61,903
Total: $212,884

The EFC Project Team developed a fee structure that would balance the estimated budget discussed above. Once budget development was underway, the EFC Project Team gathered data from the YCPC on size and type of parcels in the Borough. Currently neither the Borough nor the County has data on impervious area of parcels or

property types, so the Project Team used national averages to estimate the amount of impervious area for residential and non-residential parcels[10]. For the impervious data utilized in this study, see Appendix G.

An ERU was established based on the average estimated imperviousness for residential properties, which is approximately **3,500 square feet**. The scenario assumes that each residential and farming parcel is charged one ERU.

For non-residential parcels the Project Team assumed that the fee would be assessed based on the actual impervious area, using national data to estimate parcel-based, Borough-specific data, and divided by the base ERU of 3,500 square feet. The next step was to determine the ERU rate which would result in total fees which would cover the estimated budget, ensuring the Borough set the rate to match the program needs over five years. This annual fee is **$77 per ERU**, where residential and farming properties pay a flat fee of one ERU which results in 836 properties generating total revenue of $64,203 annually. The 141 non-residential parcels (all other property types from Table 5) were charged based on the estimated impervious area of the property divided by the ERU, generating total revenue of approximately $148,681 annually. See Appendix H for the detailed process used to identify the stormwater fee rates needed to balance the average $212,884 annual stormwater program budget for five years.

Table 5: Borough Property Data

Property type	Number of properties
Apartment	10
Commercial	58
Exempt/Utility	44
Farming	7
Industrial	29
Residential	829
Total	**977**

It is highly recommended that the Borough and Municipal Authority develop in-house GIS data with more accurate impervious surface data for all non-residential properties and then assess the fee based on each property's total impervious surface. Since the YCPC maintains GIS data for the Borough and all municipalities in the County, it is recommended that the Borough work with YCPC, as the County is currently assessing the feasibility of a countywide, or regional, stormwater authority, and may already be in the process of establishing more robust impervious area data for all parcels across the County.

It is also recommended that a dedicated stormwater user fee be accompanied by a credit program, since users need an opportunity to reduce the fee by implementing stormwater management practices, both on residential and non-residential properties. It is difficult to estimate the effect of a credit system on revenue that will depend on the parameters of the system, how many residents participate, and to what extent. An estimate of the impact of these credits must be considered in future years, and the rate structure must be reevaluated to ensure that a credit system does not

[10] Since impervious data does not exist in the Borough, the Project Team applied national data on the average percent impervious surface by property type on all parcels to identify the estimated ERU and impervious area for all parcels. The data source for estimates comes from the U.S. Department of Agriculture Natural Resources Conservation Service TR-55, Urban Hydrology for Small Watersheds, June 1986.

infringe on meeting revenue needs. For more information about a credit system, please see Appendix I.

Lastly, while the EFC Project Team is recommending a 40 year asset management program, the team also estimated the total annual budget under scenarios with different Asset Management/Capital Improvement program lengths. The impact of different scenarios on the annual budget and the associated stormwater fee rates are shown in Table 6 below.

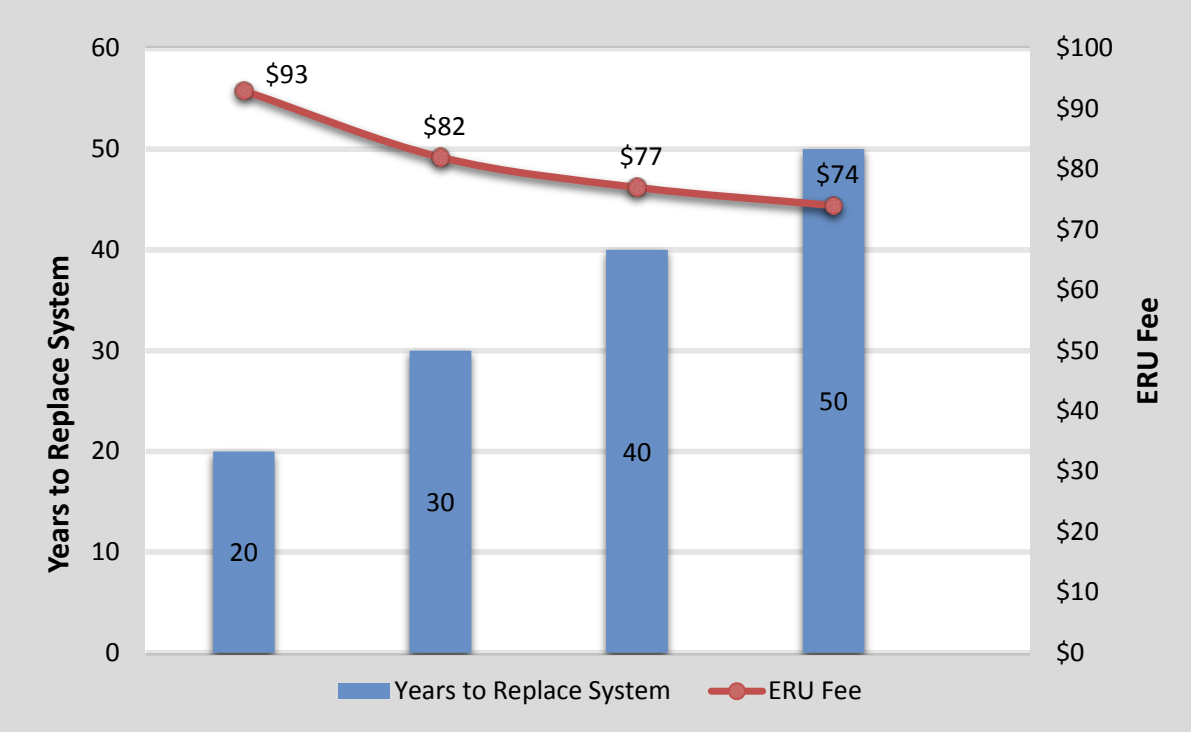
Table 6: Stormwater Fee Rate to Balance Budget Using Various Asset Management (AM) Program Timeframe Scenarios

5-Year Average Budget Scenario	Total Annual Budget	ERU Annual Rate to Balance Budget	Monthly Rate
Budget (20 Year AM)	$257,787	$93	$7.75
Budget (30 Year AM)	$227,852	$82	$6.83
Budget (40 Year AM)	**$212,884**	**$77**	**$6.42**
Budget (50 Year AM)	$203,904	$74	$6.17
For Comparison: Wrightsville 2014 Public Works Budget	$206,778	$75	$6.25

The annual difference in an ERU fee between a 40 year program and a 20 year program is $15 per ERU per year. This is illustrated in Figure 1 below. The implication is that **for $15 more per year per ERU, the stormwater system could be repaired and upgraded *20 years sooner*.**

Figure 1: Illustration of Change in ERU Fee and Corresponding Change in Years to Replace System

(Note: Left axis and bars are years to replace system. Right axis and line points are the corresponding annual ERU Fee)



Conclusion

This photo highlights the importance of maintaining Wrightsville's stormwater infrastructure which flows directly into the Susquehanna River; Photo credit – E. Reed

Should Wrightsville adopt some, if not all of the recommendations contained in this report, the Borough will be in a better position to meet its stormwater program goals into the future, and minimize the community's risk of emergency infrastructure repairs and replacements. The stormwater system must be treated as critical infrastructure with dedicated funding for capital investment, repair, and maintenance.

After exploring a suite of financing options, the Project Team recommends the creation of a dedicated stormwater user fee to support the MS4 compliance program and the development and implementation of a stormwater asset management program. The fee will support an estimated annual stormwater program budget just under $213,000, and rates would need to be set at $77 per ERU to balance the budget each year, resulting in a flat fee of $77 annually for residential and farming properties and $77 per ERU annually for all non-residential properties.

Even in the absence of a dedicated fee, the Borough can improve its stormwater program in the short term by beginning the dialogue to integrate stormwater management activities into the Municipal Authority staff's existing duties. By participating in this process, key stakeholders have already begun communicating on how to move forward, showing the true commitment to improving stormwater management with an understanding of the opportunity to gain tremendous efficiencies by the Municipal Authority playing a role in managing stormwater infrastructure.

The more the stormwater infrastructure maintenance and replacement is integrated into the sewer and drinking water maintenance, the more efficient and effective the program will be overall. While it may start with having Public Works staff and Municipal Authority staff work together more closely, it will hopefully lead to a more integrated asset management program across water infrastructure over time. By co-planning and co-scheduling stormwater and non-stormwater capital projects, the Borough and Authority may be able to create efficiencies and economies of scale by allocating fixed project costs such as site preparation, earthwork and equipment across multiple co-

Co-designing and **co-scheduling** projects also provides an opportunity to consider the multiple community benefits of stormwater projects. New stormwater projects can be targeted in areas which address road benefits, economic development benefits, or recreation benefits.

scheduled project objectives including stormwater, sewer, drinking water, and streets and sidewalks. The more aligned the stormwater and non-stormwater projects through co-design and co-scheduling become, the greater the opportunity to explore savings and benefits which could be yielded, and then regularly communicate the benefits in order to leverage funding sources.

As the Municipal Authority takes on greater responsibility to manage stormwater, a stormwater fee will be needed to maintain a proactive approach to managing the Borough's assets. The Municipal Authority already has the infrastructure in place to bill customers and collect fees. While this is not a small task, the Borough and Municipal Authority are well on their way to adopting the EFC Project Team's recommendations, and if the momentum continues will see greater returns on investment as efficiencies are created.

Appendix A: Meeting List

The following is a list of all formal in-person meetings held during the project timeline, as well as any formal phone interviews. In addition to this list, the EFC Project Team met often, held informal phone meetings and email communications with Wrightsville Borough staff, Borough Municipal Authority staff, and their consultants.

August 18, 2014 – Proposed project presentation to the Wrightsville Borough Council

October 30, 2014 – In-person project kickoff meeting with the Borough Mayor, Municipal Authority Chairman, municipal staff, and consultants[11]

December 2, 2014 – 1:1 meetings with the Borough Engineer and Riverfront Revitalization project consultant

December 10, 2014 – In-person meeting with Public Works staff

January 12, 2015 – 1:1 meeting with the Borough Streets Director/Municipal Authority General Manager; In-person meeting with York County Planning Commission staff

January 16, 2015 – In-person meeting with Borough and Municipal Authority finance and legal representatives

February 25, 2015 – In-person meeting with Borough Mayor, Municipal Authority Chairman, municipal staff, and consultants

March 2, 2015 – Presentation of interim recommendations to the Wrightsville Borough Council

March 12, 2015 – Presentation of interim recommendations to the Municipal Authority Board; 1:1 meeting with the Borough Engineer; In-person meeting with York County Conservation District staff

March 20, 2015 – 1:1 meetings with Borough Secretary, Municipal Authority Office Manager, and Borough and Authority finance representative

April 2, 2015 – 1:1 meeting with the Borough Streets Director/Municipal Authority General Manager

May 11, 2015 – In-person meeting with Borough Mayor, Municipal Authority Chairman, municipal staff, authority staff, and consultants

June 15, 2015 – Presentation and discussion of final recommendations to a joint committee of the Borough Council and Municipal Authority Board

[11] Consultants include any of the following: Borough Engineer, Riverfront Revitalization project lead, Borough and Municipal Authority finance representative, Borough legal representatives, and Municipal Authority legal representatives

Appendix B: Wrightsville Borough Stormwater FAQ Sheet

STORMWATER MANAGEMENT IN WRIGHTSVILLE BOROUGH

Why is stormwater management important in Wrightsville Borough?

*Heavy rainfall in recent years and likely to continue in the future, endanger livelihoods – from property to crops to lives.

*Wrightsville has strong historical, cultural, and economic ties to the Susquehanna River. Badly managed stormwater runoff pollutes the Susquehanna River and threatens the communities utilizing these waterways.

*Due to the impairment of local and regional waterways, many communities across the nation – including Wrightsville – are required to comply with Municipal Separate Storm Sewer (MS4) Permits that regulate stormwater management. Many activities, including public outreach and education, street sweeping, and operating and maintaining the storm sewer pipes, are required as part of the MS4 Permit.

STORMWATER MANAGEMENT IN WRIGHTSVILLE BOROUGH

As a citizen, what can I do to minimize the negative impact of stormwater?

*Limit the amount of solid surfaces or use permeable materials.

*Allow buffers of vegetation alongside waterways to filter and slow runoff, and plant native trees, shrubs and groundcover to absorb rainwater.

*Consider a rain garden or rain barrel to manage runoff on your property.

*Find ways to reduce the amount of litter, sediment, and other debris entering waterways.

*Use natural alternatives to chemical fertilizers and pesticides.

What are the efforts of the Wrightsville Borough Stormwater Financing Feasibility Study?

*Wrightsville is currently working with the Environmental Finance Center (EFC) at the University of Maryland to study the feasibility of effective and sustainable options to managing stormwater under the MS4 Permit.

**This study is supported by the US Environmental Protection Agency's Chesapeake Bay Program Office.*

Want to learn more or share your thoughts about stormwater?

Contact the Borough Office at 717-252-2768

EFC Program Manager Monica Billig at 240-786-8664 or mbillig@umd.edu

Appendix C: Photos from Community Revitalization Day

On May 2nd, 2015, the Borough held a Community Revitalization Day at the Riverfront Park to educate citizens about the Riverfront Revitalization Plan and the importance of stormwater management, engage volunteers to plant over 100 trees, and provide an opportunity to support local businesses and organizations. The day drew a number of local partners from watershed and recreational groups to neighboring communities. Elected leaders, municipal staff, and youth and families came together for a family fun-filled day.

Appendix D: Stormwater Program Staffing Worksheet

Position Title	Base Projected FTE	Base FTE Increase	Operating Scenario 1			Total Salary*	Existing	
			FTE Adjustments	Future Program Cost	Gap to Existing		FTE	Program Cost
Wrightsville Borough Staffing								
Borough Secretary	25%	0%	25%	$16,803	$0	$67,214	25%	$16,803
Borough Office Assistant	25%	25%	25%	$8,122	$8,122	$32,490	0%	$0
Borough Treasurer	12%	12%	0%	$0	$0	$15,775	0%	$0
Borough Zoning Officer	75%	0%	75%	$6,010	$0	$8,014	75%	$6,010
Borough Streets Director	30%	10%	30%	$5,626	$1,875	$18,753	20%	$3,751
Borough Engineer	100%	0%	100%	$8,000	$0	$8,000	100%	$8,000
Borough Public Works staff II	50%	30%	50%	$28,205	$16,923	$56,411	20%	$11,282
Borough Public Works staff II	50%	30%	50%	$29,934	$17,960	$59,868	20%	$11,974
Sub-total Borough Projected Increase in Staffing Costs				**$102,701**	**$44,881**			
Wrightsville Borough Municipal Authority Staffing								
Municipal Authority Office Manager	25%	25%	25%	$17,213	$17,213	$68,850	0%	$0
Municipal Authority Finance Officer	12%	12%	12%	$1,813	$1,813	$15,109	0%	$0
Municipal Authority Office Assistant *(potential hire)*	25%	25%	25%	$8,122	$8,122	$32,490	0%	$0
Municipal Authority GM	40%	30%	40%	$37,202	$27,901	$93,005	10%	$9,300
Municipal Authority staff I	25%	20%	25%	$10,473	$8,379	$41,893	5%	$2,095
Municipal Authority staff II	10%	10%	10%	$4,992	$4,992	$49,920	0%	$0
Municipal Authority staff III	10%	10%	10%	$8,135	$8,135	$81,347	0%	$0

Position Title	Base Projected FTE	Base FTE Increase	Operating Scenario 1			Total Salary*	Existing	
			FTE Adjustments	Future Program Cost	Gap to Existing		FTE	Program Cost
Municipal Authority staff IV	25%	20%	25%	$13,778	$11,022	$55,110	5%	$2,756
Municipal Authority staff V	10%	10%	10%	$9,674	$9,674	$96,743	0%	$0
Municipal Authority staff VI	10%	10%	10%	$7,045	$7,045	$70,448	0%	$0
Municipal Authority staff VII (part time)	19%	15%	19%	$4,215	$3,361	$22,183	4%	$854
Sub-total Municipal Authority Projected Increase in Staffing Costs				**$122,661**	**$107,657**			
Total Budget/Gap to Existing				**$225,363**	**$152,538**			

*Total salary is the sum of wages, workers' compensation, payroll taxes, employee medical benefits, and pensions identified during interviews with the Borough and Municipal Authority staff in the respective Borough and Authority 2015 budgets.

Appendix E: Stormwater Program Operations & Maintenance Worksheet

Description	Existing Program Cost	Future Program Cost	Program Gap	Comments
Administrative Budget				
Advertising	$300	$750	$450	Increase from 10% to 15% of Borough Budget + $300 based on $300/Authority fund
Dues & Subscriptions	$867	$1,542	$675	Annual cost for opting into County CBPRP (5 years) (existing and future) ; Accounting Software (VUB) -- 25% of total (from dues & subscriptions in Authority Budget of $2,700) (future cost only)
Materials + Supplies	$300	$3,650	$3,350	Increase from 10% to 15% of Borough Budget + $3,200 based on Authority Budget/fund
Auditing	$0	$4,200	$4,200	~ 4,200 per fund based on Authority budget
Postage	$0	$2,000	$2,000	~ 2,000 per fund based on Authority budget
Bank Service Fees	$0	$3,000	$3,000	~ 3,000 per fund based on Authority budget
Training/Education	$0	$1,500	$1,500	Training varies; estimated $1,500 needed for PW and Authority staff to be trained in year 1; cost likely less in future years
Legal	$0	$4,950	$4,950	$15,000 total for 2015 Borough Budget; took 1/3 for future costs
Communications -- cell phones	$0	$4,150	$4,150	Cell phones for staff; cost reducer for other Authority funds if SW fee pays for some of this (scenarios 1 and 3)
Insurance	$0	$2,500	$2,500	Included workers' comp in staffing costs; minimal liability cost included
Utilities	$1,782	$1,782	$0	Borough budget: $3,000 in PW budget + $2,400 in Admin budget; took 33% of total
Quickbooks	$0	$0	$0	Currently split 50/50 with the Borough
Contract for utility billing	$0	$500	$500	~$500 per fund based on Authority budget
Public Works Budget				
Equipment purchase	$9,300	$9,300	$0	Should the Borough contract this would go away; lessen the cost of repairs and operations; cost represents 2015 budget for street sweeper add on
Vehicle repairs	$1,333	$1,333	$0	Already being paid for under General Funds; decision about moving costs under stormwater budget
Vehicle operations	$2,333	$2,333	$0	

Description	Existing Program Cost	Future Program Cost	Program Gap	Comments
Debt service on truck	$1,610	$4,025	$2,415	Increase amount of debt service paid for if using SW revenue
General supplies	$100	$300	$200	Increase from 5% in Borough budget to 15%
Communications	$120	$360	$240	
Total Costs	**$18,046**	**$48,176**	**$30,130**	

Appendix F: Stormwater Program Capital Investments Worksheet

Description	% of Use	Total Cost	Program Cost	Comments
Inventory Mapping	100%	$5,000	$5,000	Costs provided by Borough Engineer. Costs included in year 1 only.
Infrastructure Condition Assessment	100%	$5,000	$5,000	
Comprehensive Drainage Study	50%	$50,000	$25,000	Costs provided by Borough Engineer. Costs divided equally over years 1 and 2.
CS Datum Asset Management Tracking Program	33%	$30,000	$10,000	Subscription is $2,400/year + $5,000/layer; total = $25-30,000, can be done incrementally over a few years. Assume that if total = $30,000, stormwater program could pay for 1/3 of total (costs spreads across Authority). Costs provided by Borough Engineer. $10,000 in year 1 included and $2,500 included in years 2-5.
Water Quality Project Reserve	100%	$1,000	$1,000	Costs included every year.
Asset Management Cost	2.5%	$2,245,141	$56,129	50% of program cost in years 1 and 2; full program cost included in years 3 on.

Asset Management Cost Depending on Length of Program Selected				
Infrastructure Asset Management and Improvement Program **(20 Year)**	5%	$2,245,141	$112,257	Program cost at 20 year replacement schedule; Costs provided by Borough Engineer.
*Infrastructure Asset Management and Improvement Program **(30 Year)***	3.33%	$2,245,141	$74,838	Program cost at 30 year replacement schedule
*Infrastructure Asset Management and Improvement Program **(40 Year)***	2.5%	$2,245,141	$56,129	Program cost at 40 year replacement schedule
*Infrastructure Asset Management and Improvement Program **(50 Year)***	2%	$2,245,141	$44,902	Program cost at 50 year replacement schedule

Appendix G: Borough Parcel Data, National Impervious Estimates Applied[12]

Impervious Surface Averages by Property Type

Urban districts	
Commercial and business	85%
Industrial	72%
Residential districts by average lot size	
1/8 acre or less (townhouses)	65%
1/4 acre or less	38%
1/3 acre or less	30%
1/2 acre or less	25%
1 acre	20%
2 acres	12%

Residential Property Analysis

Residential Property Size	% Impervious Applied to Total Lot Size	Number of properties	Average lot size (square feet)	Average impervious size(square feet)
1/8 acre or less	65%	334	5,250	3,413
Between 1/8-1/4 acre	38%	312	8,552	3,250
Between 1/4-1/3 acre	30%	109	12,330	3,699
Between 1/3-1/2 acre	25%	48	17,254	4,313
Between 1/2-1 acre	20%	21	27,155	5,431
Between 1-2 acres	20%	4	53,791	10,758
2 acres +	12%	1	149,413	17,930

Average lot size of all residential properties: 9,082 square feet

Average impervious area of all residential properties: 3,545 square feet – *rounded to 3,500 ERUs*

[12] Impervious area estimates based on USDA NRCS Urban Hydrology in Small Watersheds, TR 55, June 1986, http://www.cset.sp.utoledo.edu/~nkissoff/pdf/CIVE-3520/Modified-tr55.pdf.

Appendix H: Stormwater Fee Rate Structure Assessment

Rate Structure Scenarios

Inputs	
ERU Fee	$77
Total Fee	$212,884
Residential	30%
Non Res	70%

*Assumes 1 ERU per Residential and Farming. ERU per Non-Residential Depends on Estimated Imperviousness (Rounded to next whole ERU)

All Parcel Types by Impervious Area per ERU Rate

ERUs	Type	Number of Parcels	Total Fee	Per Parcel Fee
1	Residential and Farming	836	$64,203	$77
1	Non-Residential, Commercial	20	$1,536	$77
2	Non-Residential, Commercial	29	$4,454	$154
3	Non-Residential, Commercial	21	$4,838	$230
4	Non-Residential, Commercial	8	$2,458	$307
5	Non-Residential, Commercial	8	$3,072	$384
6	Non-Residential, Commercial	3	$1,382	$461
7	Non-Residential, Commercial	8	$4,301	$538
8	Non-Residential, Commercial	3	$1,843	$614
9	Non-Residential, Commercial	1	$691	$691
10	Non-Residential, Commercial	4	$3,072	$768
11	Non-Residential, Commercial	1	$845	$845
12	Non-Residential, Commercial	3	$2,765	$922
13	Non-Residential, Commercial	2	$1,997	$998
14	Non-Residential, Commercial	1	$1,075	$1,075
15	Non-Residential, Commercial	2	$2,304	$1,152
16	Non-Residential, Commercial	2	$2,458	$1,229
17	Non-Residential, Commercial	1	$1,306	$1,306
18	Non-Residential, Commercial	1	$1,382	$1,382
20	Non-Residential, Commercial	1	$1,536	$1,536
22	Non-Residential, Commercial	1	$1,690	$1,690
29	Non-Residential, Commercial	1	$2,227	$2,227
35	Non-Residential, Commercial	1	$2,688	$2,688
36	Non-Residential, Commercial	1	$2,765	$2,765
38	Non-Residential, Commercial	1	$2,918	$2,918
41	Non-Residential, Commercial	1	$3,149	$3,149
47	Non-Residential, Commercial	2	$7,219	$3,610
53	Non-Residential, Commercial	1	$4,070	$4,070
64	Non-Residential, Commercial	2	$9,830	$4,915

ERUs	Type	Number of Parcels	Total Fee	Per Parcel Fee
71	Non-Residential, Commercial	1	$5,453	$5,453
73	Non-Residential, Commercial	1	$5,606	$5,606
75	Non-Residential, Commercial	1	$5,760	$5,760
87	Non-Residential, Commercial	1	$6,681	$6,681
128	Non-Residential, Commercial	1	$9,830	$9,830
137	Non-Residential, Commercial	1	$10,521	$10,521
157	Non-Residential, Commercial	1	$12,057	$12,057
168	Non-Residential, Commercial	1	$12,902	$12,902

Appendix I: Credit System and Exemptions

Explanation of Credit System

A stormwater credit is a reduction in the portion of the stormwater user fee that is made available if certain approved practices are put in place to reduce the impact of stormwater generated on a property. Many stormwater utilities around the country are required by law to have some type of credit system in place; not all states have a legal requirement, however, and some communities prefer not to put a credit system in place.

There are many factors to take into account when a community decides whether or not to develop a credit program for their stormwater program. One reason some communities avoid a credit system is the administrative burdens associated with a fair, easily understood, and straightforward credit program. Another is the challenge of needing additional capacity to inspect installations and verify the information submitted on an application for credit is accurate. Lastly, it is difficult to gauge the level of credit system participation a community can expect and therefore equally difficult to determine the impacts a credit system may have on revenue generation. It takes several years of local data before a community is able to determine the difference in revenue collected with their program.

These challenges aside, there are also many reasons why communities move ahead with putting a credit program in place, even when not legally required by state law. To begin, the ability to reduce a property owner's stormwater charge helps to define these as a fee rather than a tax. In addition, credit systems give a community a way of encouraging behavior change on private property, because while local governments can go to great lengths to limit runoff on public lands, this will have little impact on a community's stormwater issues if it cannot be coupled with addressing runoff on private lands.

Rarely, if ever, is a credit program available at 100% reduction of the imposed fee. It is usually a certain percentage allowed for credit that correlates with the cost, size, and the degree of sophistication of the approved practice. Receiving credit is typically the responsibility of the property owner, who must apply for the credit. To be considered eligible for the credit, the property owner should be current in paying any tax and fee. A stated number of years that a credit is good are determined, as the general policy is that if the approved practice is not found to be well maintained or becomes non-functional during the eligible credit years then the credit can be terminated at any time. Supporting documentation is usually required when submitting an application and some communities charge a small processing fee to cover the cost of review, which may help offset the loss of revenue from imposing a credit system.

A clearly understood enforcement policy should be put in place right from the beginning of an approved credit program. For example, should the Borough decide to develop a credit program, it would reserve the right to review any application for accuracy and also have the right to inspect at any time. Appropriate action of consequences for failing to meet or maintain the approved practice should have some notification period to correct the deficiency followed by steps that are followed if not remedied within the appropriate amount of time.

A stormwater credit manual is usually developed and should be written to be easily understood. The same is done for the application process, thus limiting the time needed to answer questions regarding the program.

Types of Credits

Both residential and non-residential credits can be included in a credit system. Residential credits are made available to residents based on the installation of a typical BMP applicable to homes such as rain barrels and rain gardens. Non-residential credits are made available to all properties that are considered commercial, multi-family, education, or industrial for the installation of typical non-residential BMPs such as permeable pavement, tree canopy improvements, and other practices that treat runoff on-site or slow volume and allow infiltration. Common credits are usually broken up into categories as follows:

- Quantity credits: Credit can be made available to properties that reduce the rate and/or volume of stormwater runoff from a property. An example of this would be a retention or detention pond, storm sewers, storm culverts, or storm channels.
- Quality credits: Credit can be made available to properties that reduce pollutants in stormwater runoff through the deployment of BMPs and help manage stormwater. An example of a BMP would be vegetative swales, pervious pavements, infiltration basins, or constructed wetlands.
- Outreach: Credit can be made available to those who undertake a specific action to educate or engage on stormwater management issues.
- Education: Credit can be made available to those such as public and private schools who wish to get credit for including stormwater education into the curriculum or through school programs. This is not a very common credit but may be helpful, along with outreach, to help meet one of the six MCMs required within the MS4 Phase II Permit.
- Financial hardship: Credit can be made available to those considered to be unable to pay the stormwater fee based on economic need or some other financial hardship. This is not always a set dollar figure threshold but often used as a case-by-case basis. Other credits for elderly may fall under this category as well.

Exemptions

Occasionally, stormwater utilities will offer an exemption to a property that will clear the property owner of paying all or some of their stormwater fee. The general rule of thumb is to proceed with caution when granting exemptions. The basis for recommending a dedicated user fee in the first place is because it is the fairest and most equitable method of calculating a charge for the service needed to manage stormwater. Exemptions can be considered discriminatory in nature if not considered justifiable and fair. The other reason for proceeding with caution on granting exemptions is that it may severely restrict or reduce estimated revenue needed to maintain a certain level of service.

The most commonly exempted properties include undeveloped lots, vacant land, or agriculture. Other considerations for possible exemptions include public roads maintained by the state and county (popular exemption with many states), non-profits, federal or state properties, and elderly or welfare recipients (financial hardship). Finally, properties that were already designed and developed with on-site runoff management practices in place might also be candidates for an exemption.

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Innovative Financing For the Narragansett Bay

Forum Agenda

The following is an agenda for a financing forum to be implemented in partnership with the Environmental Finance Center at the University of Maryland, in partnership with Save the Bay in Providence, Rhode Island. The purpose of the forum is to explore opportunities for linking public and private financing resources in support of watershed restoration and protection efforts across the Narragansett Bay region. The forum will focus on the benefits of watershed protection and the potential impact of linking public and private financing, including expanding scale, reducing costs, and mitigating risks. Forum participants will work to identify opportunities for establishing the enabling conditions necessary for bringing watershed restoration and private investments to scale.

Forum Date: April 13, 2015

Time: 8:30AM – 2:00PM

Location: Save the Bay Center
100 Save the Bay Drive
Providence, RI 02905

Agenda:

8:30AM—9:00AM **Welcome**

Joanne Throwe, Environmental Finance Center
Jonathan Stone, Save the Bay

8:45AM—9:00AM **Opening Remarks**

Seth Magaziner, Rhode Island General Treasurer

9:00AM—9:20AM **Framing the Issue**

Dan Nees, Environmental Finance Center

- The water resources challenges facing coastal communities throughout the watershed
- The need for innovative approaches for implementing financing efforts at scale
- The potential role and benefit of public—private financing efforts

9:20AM—9:50AM **The Economic Benefits and Impact of Watershed Restoration and Protection**

Guest Speaker: Honorable Mayor Rick Gray, Lancaster, PA

9:50AM—10:30AM **Benefits of Linking Public and Private Environmental Financing**

Guest Speaker: Eron Bloomgarden, EKO Asset Management

- Bringing restoration projects to scale and building capacity
- Incentivizing innovation
- Reducing risks and creating cost efficiencies
- Accelerating implementation

10:30AM—10:45AM **Break**

10:45AM—11:45AM **Enabling Condition 1: The Role and Importance of Regulatory Structures**

Guest Speaker 1: Nick Dilks, Ecosystem Investment Partners (invited)
Guest Speaker 2: Elizabeth Scott, Rhode Island Department of Environmental Management (Invited)

- Reducing risk through consistency
- Incentivizing the marketplace
- Accelerating implementation

11:45AM—12:30PM **Enabling Condition 2: Establishing Sufficient and Sustainable Revenue Streams**

Joanne Throwe, Environmental Finance Center

- Local fees and tax incentives
- State-based bond and revenue initiatives

12:30PM—1:15PM **Lunch**

Keynote Speaker: Honorable Gina Raimondo, Governor

1:15PM—2:00PM **Moving Forward and Next Steps**

Dan Nees, Environmental Finance Center
Topher Hamblett, Save the Bay

- Creating political will
- Coordinating state and local efforts
- Reaching out to the private sector

2:00PM **Adjourn**

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Building a Resilient Community

A City-to-City Mentoring Workshop

Date: May 7, 2015

Time: 10:00AM – 2:00PM followed by a green infrastructure tour of Annapolis and a 2 hour boat trip based on weather and availability

Location: Annapolis, Maryland

The City-to-City Mentoring Workshop is the second in a two-day event that is being convened by the Environmental Finance Center at the University of Maryland (EFC) in partnership with the City of Annapolis. This forum series is part of EFC's *Watershed Investment Incubator Project*, which is supported through a grant from the US EPA Chesapeake Bay Program Office. The purpose of the project is to accelerate and bring to scale water quality restoration and protection financing in coastal communities within the Chesapeake Bay watershed. More specifically, our objective is to identify opportunities for communities to establish innovative partnerships with the private sector in support of watershed restoration and resiliency efforts.

Workshop format. The May 7 workshop will be conducted as an information-sharing event primarily between the cities of Annapolis and Newport. There will also be an opportunity for other Maryland municipalities and communities to engage in broader discussions relating to effective planning and financing for activities associated with climate change and water resources management. There will be approximately 20 local government officials as well as state agencies and nonprofits expected to participate in the workshop.

Goals and outcomes for the day. Our overarching goal for this workshop is to gain a better understanding of the challenges and opportunities to finance watershed restoration activities at the local level and begin laying down a foundation necessary for becoming a climate resilient community in Maryland. Specifically, we will use the examples of two very similar cities, Annapolis and Newport, to gain better insight into the different approaches and potential solutions for becoming "model resilient cities" when it comes to preparing for the impacts associated with climate change. The outcomes for the day's discussion will be to foster Annapolis and Newport's newly forged relationship into a longer-term and successful collaboration as these two cities begin the first of several steps leading to becoming a climate resilient community for the Mid Atlantic and New England. The information gathered throughout this process will be shared with other municipalities who are interested in understanding the challenges, solutions, resources, and process needed in effectively addressing the impacts of climate change to their cities.

Topics to be addressed: The workshop will have certain key topics that will be discussed in detail as part of the previously identified components for each city. They include:

- Improving the way water resources is managed at all levels of government. This includes a long-term strategy for communication, both internal and external, project implementation, partnerships, and most importantly, appropriate financing and funding mechanisms.
- Developing a plan for implementation of green infrastructure projects throughout the city that will include financing for operations and maintenance and will prioritize best management practices that will withstand the impacts of climate change.
- Exploring energy efficiency or alternative energy projects that can withstand the impacts of severe weather events.
- Approaching climate change and water resources management as an opportunity for economic growth rather than overwhelming financial obligation.
- Creating opportunities to mitigate risk to the city in terms of investments.
- Examining the role of cyber security, historic preservation, community engagement, and job training as essential elements of climate resiliency.

Questions to be addressed. It is our intention to ask some key questions of all the communities and organizations present at the workshop as a way of examining the potential financial challenges related to water resources management, particularly as it relates to stormwater, and climate change resiliency.

- What is the appropriate role of the public and private sector in addressing water resources and resiliency infrastructure needs?
- How can local governments take sound plans and turn them into attainable projects?
- How can we reduce the level of risk to the community?
- How can we effectively engage, educate and inform the community on the need to be proactive on implementing and financing a plan?
- How can we achieve buy-in from elected officials?
- How can state and local governments work together towards building climate resilient cities?
- How can we advance the lessons from Annapolis and Newport and apply them to other communities facing climate change concerns beyond coastal flooding?

Using these and potentially other questions as a guide, our goal is to identify the key issues that both the public and private sectors must address in order to become climate resistant cities. EFC and its project partners will us the results of our discussions as the basis for developing and implementing community-based technical assistance and outreach programs and resources.

The steps toward climate resiliency. The issues and ideas to be discussed at the forum are both timely and important. Communities in coastal regions as well as others are facing the impacts of climate change. Knowing that becoming a truly resilient community must be balanced with other community priorities and investments, our goal is to show that other public investment priorities such as transportation, schools, public safety and health, are all essential components of an effective community resiliency plan.

Project background. The Watershed Investment Incubator Project was established by EFC in 2014 with the goal of identifying and replicating innovative local approaches for restoring and protecting water resources within coastal communities. A key feature of the project has been creating linkages between coastal communities: Newport, RI within the Narragansett Bay, and Annapolis, MD, within the Chesapeake Bay. The goal has been to create “incubators” or direct

learning experiences and opportunities within these two communities where local and state leaders can develop and implement innovative public-private partnerships and market-based financing systems that can then be modeled and implemented in other communities across the region and the country.

Narragansett Forums. EFC, in partnership with Save the Bay in Providence, Rhode Island, convened two water resources financing forums on April 13 and 14. The April 13 forum, which was convened at the Save the Bay headquarters in Providence, RI, brought together more than 50 local, state, federal, and private sector leaders to discuss key stormwater financing issues and opportunities, specifically as they relate to engaging the private sector. The discussion focused on the enabling conditions necessary for incentivizing private investment in water resources infrastructure. The April 14 event took place in Newport, RI and provided leaders from Newport and Annapolis to discuss unique issues within their communities and the financing and economic development challenges associated with the combination of stormwater management and climate change. The discussions on April 13 and 14 in Rhode Island set the stage for the Chesapeake Forums on May 6 and 7 in Annapolis, MD.

Chesapeake Forums. The May 6 and 7 meetings in Annapolis, MD and will address long-term financing challenges associated with stormwater management and tidal flooding infrastructure needs. The May 6 event will be a roundtable type discussion, with around 20 local, state, and federal leaders, as well as experts from the private sector from a variety of industries. The results of that conversation will help provide a foundation for the follow up meeting on May 7, which will allow the two pilot communities—Newport, RI and Annapolis, MD—to continue their discussions and information transfer and share ideas to inspire and learn from other municipalities within the region.

Using the results of all four events as a foundation, EFC will identify key financing issues that require more extensive investigation within each community. EFC will then develop a strategy for creating targeted tools and resources designed to expand the capacity of decision-makers—public and private—to implement comprehensive financing systems within their communities.

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