



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





Chesapeake Bay Program
Science. Restoration. Partnership.

This report was prepared by the University of Maryland Environmental Finance Center with support from the U.S. Environmental Protection Agency Chesapeake Bay Program Office

Acknowledgements

Special thanks to all stakeholders who participated in this study on behalf of Wrightsville Borough and the Borough's Municipal Authority. Without the Borough and Authority staff, officials, and consultants collaborating, providing support and feedback, and a general willingness to participate in this study and provide the Project Team with relevant materials and data, this project would not have been possible. A very special thanks to the Borough Engineer, Riverfront Park Consultant, and Borough Secretary for their dedicated time, coordination, and feedback throughout this project.

Special thanks to Danielle Algazi, Senior Project Officer/Budget Officer, Environmental Assessment and Innovation Division, U.S. EPA Region 3, for general project support.

Special thanks to the York County Planning Commission GIS Analyst for sharing Borough-specific parcel data.

Environmental Finance Center Project Team

Monica Billig

EFC Program Manager
Stormwater Management
Pennsylvania Office

Eric Reed

EFC Research Associate
Fiscal and Financial Analysis

Table of Contents

Executive Summary.....	5
Introduction	7
Background	7
Project Goals	8
Project Approach	8
Project Funding	9
Stormwater Program Findings and Recommendations.....	10
Assessment of Wrightsville Borough’s Existing Stormwater Program	10
Stormwater Infrastructure	10
Current Funding for Stormwater.....	11
Current Capacity for Handling Stormwater.....	12
Operating Scenario Recommendations	12
Stormwater Program Budget Recommendations.....	13
Staffing Costs.....	13
Operations & Maintenance (O&M) Costs	14
Capital Costs.....	14
Stormwater Financing Recommendations.....	17
How a Stormwater Fee Works	18
Stormwater Fee Rate Structure Development and Recommendations	18
Conclusion.....	21
Appendix A: Meeting List	23
Appendix B: Wrightsville Borough Stormwater FAQ Sheet	24
Appendix C: Photos from Community Revitalization Day.....	25
Appendix D: Stormwater Program Staffing Worksheet.....	26
Appendix E: Stormwater Program Operations & Maintenance Worksheet.....	28
Appendix F: Stormwater Program Capital Investments Worksheet.....	30
Appendix G: Borough Parcel Data, National Impervious Estimates Applied.....	31
Appendix H: Stormwater Fee Rate Structure Assessment	32
Appendix I: Credit System and Exemptions.....	34

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 state¹, 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 2,310². 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 \$867⁴ 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

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

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

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.

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 parcels⁵) 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 \$1,041,323⁶. 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:

<p>Operating Scenario 1: <i>Develop a MOU between Borough and Municipal Authority</i> Authority to take over billing once stormwater fee in place and operations and maintenance of the stormwater infrastructure</p>	<p>Operating Scenario 2: <i>Borough sets up non-operating stormwater authority for billing & collection of a stormwater fee</i> Borough will tap into Municipal Authority staff capacity informally and as needed</p>
<p>Operating Scenario 3: <i>Borough transfers MS4 permit to Municipal Authority</i> Authority to take over control of permit compliance program and develop MOU for Borough to support Authority activities</p>	<p>Operating Scenario 4: <i>Borough supports program through general fund taxes</i> Borough does not incorporate billing into program, and taps into Municipal Authority staff capacity informally and as needed</p>

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 activities 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	<i>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.</i>
Technical	\$50,000	<i>Estimate from current salary position. It is assumed that this position would be hired in year 1.</i>
Administrative	\$32,490	<i>Estimated new hire from staffing worksheet. It is assumed that this person would be hired in year 1.</i>

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 parcels¹⁰. 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.

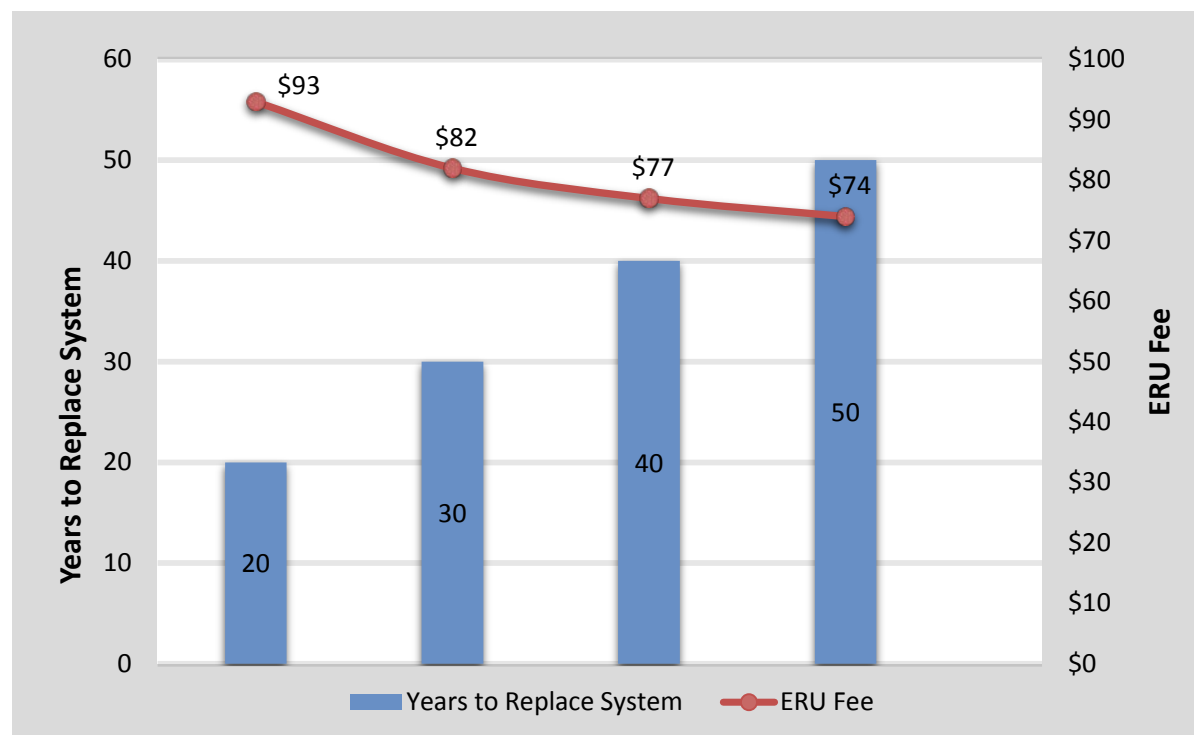
Table 6: Stormwater Fee Rate to Balance Budget Using Various Asset Management (AM) Program Timeframe Scenarios

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 consultants¹¹

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?



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.

*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



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 <i>(potential hire)</i>	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.
<i>Infrastructure Asset Management and Improvement Program (30 Year)</i>	3.33%	\$2,245,141	\$74,838	Program cost at 30 year replacement schedule
<i>Infrastructure Asset Management and Improvement Program (40 Year)</i>	2.5%	\$2,245,141	\$56,129	Program cost at 40 year replacement schedule
<i>Infrastructure Asset Management and Improvement Program (50 Year)</i>	2%	\$2,245,141	\$44,902	Program cost at 50 year replacement schedule

Appendix G: Borough Parcel Data, National Impervious Estimates Applied¹²

Impervious Surface Averages by Property Type

<i>Urban districts</i>	
Commercial and business	85%
Industrial	72%
<i>Residential districts by average lot size</i>	
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.