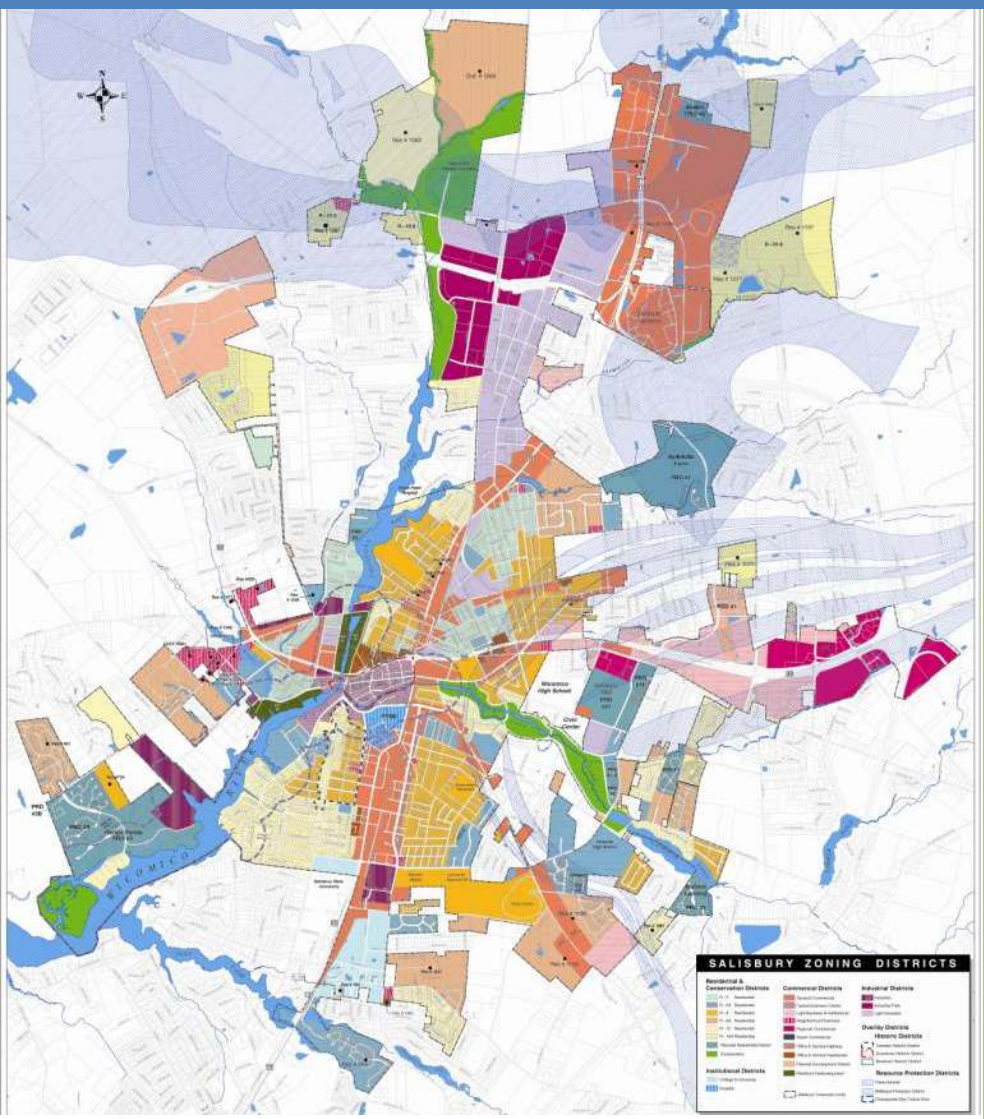
EFC

2013

Financing Feasibility Study for Stormwater Management in Salisbury, Maryland



Prepared for the City of Salisbury, Maryland

Prepared by the Environmental Finance Center (EFC) for the Maryland Department of Natural Resources

4/24/2013

This report was prepared by the Stormwater Financing & Outreach Unit at the Environmental Finance Center with support from the Maryland Department of Natural Resources and the Town Creek Foundation.

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Executive Summary

Background – At a special event held at Schumaker Pond in the summer of 2011, City of Salisbury Mayor James Ireton announced the *"Salisbury Environmental Summer,"* demonstrating the community's eagerness to embark on several new environmental initiatives focusing on reducing the municipality's carbon footprint and energy costs, and improving the health of the Wicomico River. During this event, City officials expressed hope that Salisbury would be selected to receive technical assistance from the Stormwater Financing and Outreach Unit (Stormwater Unit) at the University of Maryland's Environmental Finance Center (EFC) to help improve their capacity to initiate these new environmental efforts. Following the City's acknowledgement of the need for assistance in meeting its regulatory and nutrient reduction requirements, as well as local goals for improved water quality, the EFC met with Mayor Ireton and key staff from the Department of Public Works and other City departments to discuss the City's long-term stormwater management needs.

City staff reported that the municipal budget did not include dedicated funding for stormwater management activities and funds were being drawn on an as-needed basis from the general fund. Yet reliance on the general fund can leave gaps in local stormwater programs particularly when funds are tight and other community priorities take precedence. The compounding impacts of a stormwater system that has been underserviced for many years has left Salisbury in the position of needing a significant investment to bring its program to a level of service that meets both the escalating costs associated with the City's National Pollutant and Discharge Elimination System Municipal Separate Stormwater System (NPDES MS4) permit anticipated to be reissued in early 2013, as well as the community's water quality goals.

In September 2011, the EFC was contracted by the City of Salisbury to conduct a stormwater financing feasibility study as part of the Stormwater Unit, an effort made possible through the support of the Chesapeake and Coastal Service of Maryland's Department of Natural Resources (DNR). Additional funds from the Town Creek Foundation were provided for the Project Team to conduct outreach and education activities to support these efforts.

The immediate goal of EFC's stormwater efforts in Salisbury was to recommend a long-term dedicated funding stream that is equitable and effective in generating sufficient revenue for the City to maintain a comprehensive stormwater program. Such a financing stream is necessary to address the specific control measures that the City must implement in order to meet its NPDES MS4 permit requirements that come with significant costs. Other outputs of the study included outreach and educational activities targeted at the various stakeholders throughout the community to inform the public of the significance of addressing local stormwater management needs. The goal of this effort was to provide the City guidance for implementing a self-sustaining stormwater management program.

Process and Analysis – This year-long study incorporated information from various sources including City staff and officials, Salisbury University staff, business leaders, and the Wicomico River Project Team. Information was collected on the City's stormwater management needs and current stormwater activities, other taxes and fees charged to City businesses and residents, budget allocations, and the monetary costs of improving the stormwater program. Throughout the project period, the Project Team also engaged citizens through a series of public meetings, presentations to key stakeholders, and a presence at community events. Promotional materials such as flyers and a fact sheet were developed and distributed at these events.

As part of the study, the Project Team evaluated a series of funding options in terms of what would best fit Salisbury's needs for a fair, equitable, dedicated, and sustainable revenue source to support a comprehensive stormwater management program. While the community has proven skillful at

obtaining grants to cover the expenses of some projects, these funds are becoming more and more difficult to secure and do not provide a sustainable, long-term financing solution. Based on the unique characteristics within the City, the Project Team narrowed the field of potential financing mechanisms to two options: general fund allocation and a stormwater utility. At the end of this evaluation, the Project Team found a stormwater utility to be the most appropriate approach for the City of Salisbury.

Based on the needs assessed by the Project Team in this study, the City of Salisbury will need to spend approximately $23.2 million over the next ten years for repairs and improvements to their stormwater system. It is important to note that the approximate revenue needed to support a stormwater program is conservative, since it does not include costs associated with green infrastructure (GI) and Watershed Implementation Plan (WIPs) activities, as this data was not available to the Project Team during the course of this analysis. In addition, it is important to note that it will be necessary for Salisbury staff to reevaluate program costs as the stormwater program unfolds, as the $23.2 million represents the best estimates currently and may change over time.

Recommendations – This report recommends distributing the costs of paying for repairs and improvements in proportion to the types of land uses that are contributing to the problem. Just as a building owner or tenant is responsible for paying its share to process the wastewater and potable water it uses, or to provide the electricity it consumes, the Project Team recommends that building owners and tenants recognize and be accountable for the stormwater that is created from their portion of the built environment. However, since the current capacity within the City is limited in its ability to calculate the runoff from each property, the Project Team came up with a rate structure that balances administrative ease with a fee system that is both fair and equitable.

A stormwater utility fee allows for the assessment of the amount of impervious surface contributing to the stormwater problem on a per property basis. Creating a stormwater utility will allow Salisbury to:

- Allocate the costs of stormwater management in a manner that is fair and equitable;
- Assist in the reduction of stormwater runoff to address flooding and water quality issues;
- Generate adequate revenues for stormwater management activities;
- Have stronger accountability for stormwater management spending; and
- Address and reduce water quality stressors.

The Project Team recommends the use of a rate structure based upon Equivalent Residential Unit (ERU) (also known as an Equivalent Runoff Unit) where 1 ERU equals 3,344ft^2. It is further recommended that each ERU on a property be assessed $40 per year[1].

The Project Team calculated revenue based on a flat rate fee for residential properties and a fee structure for non-residential units based on land area in years 1 and 2 and impervious surface beginning in year 3.

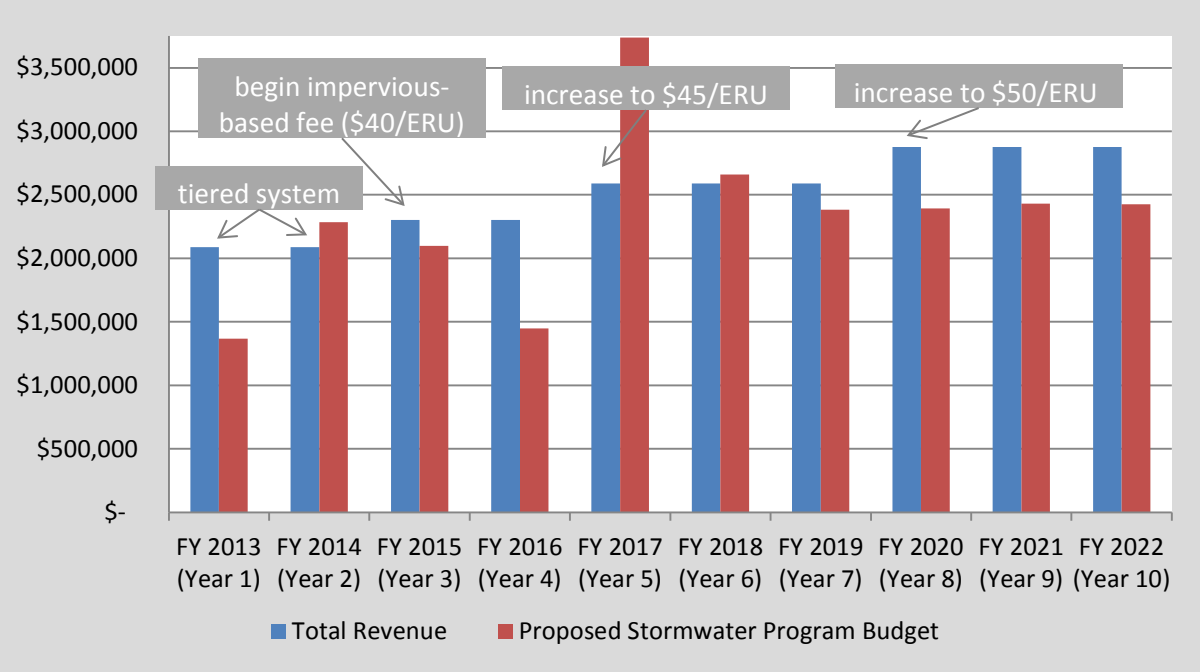
Residential --The residential fee is based on the assumption that an average property has about 3,344ft^2 of impervious surface and, therefore, all properties are billed for 1 ERU per year. The average impervious surface for residential properties was determined using the data provided by City staff. ***Thus, it is recommended that all residents will be charged $40 per year regardless of***

[1] The $40 per year fee should be reevaluated each year to ensure it generates ample revenue. As discussed in Chapter 5, this fee will increase in years 5 and 8 to support the program's expenditures.

property size or amount of impervious surface. Revenue from residential properties will yield a total of $319,960 per year based on $40 multiplied by 7,999 properties[2].

Non-residential -- Due to capacity issues and the administrative and technical burden of calculating impervious surface for all non-residential properties, **the non-residential fee should be based on a tiered system in years 1 and 2, and slowly transition to a fee that is based directly on the amount of impervious surface on a property.** In years 1 and 2, the tiered fee will allow for properties to be billed based on their land area, increasing in increments of 20,000 ft^2. Once City staff has a handle on the impervious surface data, the non-residential tiered system should transition to an impervious fee structure. Thus, if a commercial property is estimated to be 15,000 ft^2 with an impervious surface of 10,000 ft^2, the property will be charged $200 per year in years 1 and 2 and $120 (3 ERUs) per year in year 3. All commercial properties, regardless of status (governmental, non-profit, etc.) should be assessed a stormwater utility fee based on its contribution to the problem. Revenue from all non-residential properties will yield an estimated total of $1,742,280 per year in the first two years and $1,982,173 per year beginning in year 3[3], based on 2,464 non-residential properties[4] each paying an average fee of approximately $615 per year (beginning in year 3)[5].

Figure 1: Proposed Stormwater Budget & Utility Revenue, Years 1-10



[2] The total number of residential properties (7,999) is the sum of residential parcels (7,042), residential condominium parcels (210), townhouse parcels (743), and agricultural parcels listed as single-family homes (4). The raw data used to determine the total number of properties for all property types was extracted from the Salisbury_Parcels_LU_Analysis database provided by City staff.

[3] The total revenue will increase as the per year per ERU fee increases in years 5 and 8.

[4] The total number of non-residential properties (2,464) is the sum of commercial parcels (1,386), apartment parcels (118), agricultural parcels not listed as single-family homes (4), exempt commercial parcels (337), commercial condominium parcels (51), residential commercial parcels (30), industrial parcels (414), and exempt parcels (124). The raw data used to determine the total number of properties for all property types was extracted from the Salisbury_Parcels_LU_Analysis database provided by City staff.

[5] The $40 per year per ERU fee should be reevaluated each year to ensure it generates ample revenue. As discussed in Chapter 5, this fee will increase in years 5 and 8 to support the program's expenditures.

Figure 1 above shows the estimated total revenue generated each year utilizing the recommendations provided in this report *against* the proposed stormwater budget proposed. As discussed in Chapter 5, these recommendations include an increase in the $40 per year fee in year 5 to $45, and then again in year 8 to $50 in order to fully support the comprehensive stormwater management program for the City of Salisbury.

Conclusions – By implementing a flat fee for residential properties and slowly integrating an ERU-based fee for non-residential properties, **a stormwater utility in the City of Salisbury is estimated to generate the necessary $23.2 million by the end of year 10 in order to properly repair and maintain the stormwater system.**

Chapter 1: 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 cost 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 schools, emergency services, and roads. Having a dedicated revenue stream that is specifically set aside for maintenance and upgrades is critical to the effective management of stormwater systems.

The significance of this looms even larger as Chesapeake Bay communities prepare to deal with more stringent National Pollutant and Discharge Elimination System Municipal Separate Stormwater System (NPDES MS4) Permit regulations, Total Maximum Daily Load (TMDL) requirements, and Watershed Implementation Plans (WIPs). Although often an effective driver, these 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.

Compounding this is the fact that Chesapeake Bay region lags far behind the rest of the country in terms of the total number of communities who have established a how-to-pay plan for their stormwater management, yet now has some of the greatest nutrient reduction expectations in the country. These factors led the Environmental Finance Center (EFC) at the University of Maryland, with support from the Chesapeake and Coastal Service of Maryland's Department of Natural Resources (DNR), to develop a Stormwater Financing and Outreach Unit (Stormwater Unit). The goal of the Stormwater Unit is to help communities identify sustainable stormwater financing strategies that meet local priorities.

Because of differences in geography, hydrology, community priorities, regulatory requirements, and political climates, each stormwater financing strategy is as unique as the location it serves, and financing recommendations must be specifically designed to reflect the nature and characteristics of a jurisdiction as well. This report chronicles the Stormwater Unit's work with the City of Salisbury, identifies the needed level of service for a comprehensive stormwater program for the City, and recommends a structure for generating the revenue needed to support enhanced stormwater programming.

Goals of the Salisbury Stormwater Program

The goal of EFC's stormwater efforts in Salisbury is to enhance the existing program, thus raising the level of service in a way that helps the City meet its permit requirements more thoroughly, addressing community water quality priorities, and preparing for future nutrient reduction expectations.

Although the City's new permit has yet to be issued, the pending 2013 NPDES MS4 Permits in general are anticipated to require a greater level of activity and more stringent regulatory compliance. It is imperative that Salisbury enhance its existing stormwater management program to position the City to readily meet these requirements when they are imposed. A stormwater program of this nature will require the support of a more robust and reliable funding stream than current practices provides. The following outlines the project approach, objectives, and criteria used

by the EFC Project Team to help ensure that the long-term stormwater program goals for the City are met.

Project Approach

The Project Team took an in-depth approach to helping the City of Salisbury plan for a sustainable stormwater management program. This approach included both technical and public outreach processes, and the following summarizes each. A step-by-step outline of both processes can be found in Appendix A.

The technical process began with an assessment of Salisbury's current stormwater program. The Project Team gathered all relevant data from appropriate staff and consultants and worked with municipal staff to evaluate the existing program structure, determine current capacity, and identify trends in funding levels. Once the Project Team assessed the current program, the team worked with public works staff to develop a projected level of service that detailed the stormwater program components needed to achieve a comprehensive stormwater management program and the costs associated with these components. Once expenditures were estimated, the Project Team retrieved parcel data from municipal staff 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 to sustain a comprehensive stormwater management program for the City of Salisbury.

An integral part of this process is to provide residents and businesses the opportunity to understand and have a voice in the development of the stormwater program and inform the final recommendations. The outreach process in Salisbury began with a meeting to engage the Wicomico River Project Team, an existing stakeholder group familiar with the community and issues at play, for their guidance and assistance in moving forward with the outreach project. This input was used to craft an outreach and marketing plan that defined what audiences to engage, when, and how. Once the timeline was finalized, the Project Team worked with appropriate staff to develop outreach materials to help spread the word of the City's stormwater issues and proposed recommendations. See Chapter 3 for more details on specific outreach activities conducted throughout the study.

Project Objectives and Criteria

The purpose of this stormwater financing feasibility study is to develop an equitable, adequate, and dedicated funding mechanism for the City of Salisbury to properly manage stormwater beyond 2013. This must take into account the escalating costs associated with meeting their TMDL and WIP obligations associated with their new NPDES MS4 permit anticipated to be reissued in early 2013. Although the City of Salisbury currently funds stormwater management primarily through its general fund, this source of funding is not sufficient to cover the costs anticipated with a comprehensive stormwater management program, and is not necessarily the fairest method for addressing this need. As part of the study, the Project Team developed a set of objectives and criteria for stormwater management funding as follows:

- Objective 1: To allocate the costs associated with managing stormwater in a way that is fair and equitable to all residents and businesses located within the City limits.
    - Criteria: Allocate costs relative to use of the stormwater system by each property regardless of tax-exempt status and based on contribution to the problem.
- Objective 2: Generate an adequate estimate of revenue on an average yearly basis needed to maintain an appropriate level of service for managing stormwater.

  - Criteria: Fund stormwater in a way that does not negatively impact other services or raise property taxes, while at the same time is estimated to yield enough revenue to meet current and future stormwater obligations.

- Objective 3: Recommend a funding level that is accountable, appropriately sufficient, and realistic.
  - Criteria: Fund stormwater management in a way that enables property owners to fully understand the level of service realistically necessary to meet current and future obligations towards managing stormwater.
  - Criteria: Provide a clear accounting based on best available data of recommended expenditures needed beyond 2013.
- Objective 4: Engage the Salisbury community in a way that allows for information sharing, data gathering, and education about the need for adequately managing and funding stormwater in Salisbury in the future.
  - Criteria: Host public gatherings and conduct outreach activities as deemed appropriate throughout the year.

With the above objectives and criteria guiding the team's approach throughout this study, the EFC has developed recommendations designed to assist the public, community leaders, and elected officials with a better understanding of the current funding and capacity of managing stormwater in Salisbury to date; the level of service and costs associated with future stormwater management in Salisbury; and the best and most appropriate way to fund stormwater management in the long term in order to meet the proposed level of service needed for the City. Throughout the study, the team's approach engaged citizens and businesses in a way to ensure that they were part of the process in informing the EFC's final recommendations.

Project Funding

The Stormwater Unit's work in the City of Salisbury was made possible through the support of the Maryland Department of Natural Resources (DNR). Additional funds from the Town Creek Foundation have enabled the Project Team to conduct outreach and education designed to support these efforts. The EFC intends to use the experiences of working in Salisbury as a model for other interested communities in Maryland and eventually throughout the Mid-Atlantic region.

Chapter 2: Salisbury's Current Stormwater Management Program

Why Stormwater is a Concern in the City of Salisbury

Whether a community calls it stormwater, urban runoff, precipitation, or just simply rain, too much of a good thing can cause significant damage including flooding, erosion, and water quality impairment. The City of Salisbury is responsible for collecting, conveying, and discharging stormwater in a manner that is safe for the public and not harmful to the environment. However, like many cities across the United States, Salisbury's stormwater system suffers from a lack of infrastructure upgrades and repairs, minimal maintenance, and an underfunded and understaffed stormwater program. The compounding impacts of a stormwater system that has been underserviced for many years has left Salisbury in the position of needing a significant investment to bring its program to a level of service that meets current and new regulations, as well as the community's water quality goals. Currently, much of what is needed is to fill the gap in services and repair and upgrade the old system, while future regulations are becoming more stringent in their guidelines and will require additional funds.

Like most communities, allocating funding towards the management, upgrades, and operations and maintenance of the City's stormwater system is a challenge for the City but remains a pressing issue. Because of the City's size, Salisbury has a Phase II NPDES MS4 permit that defines how the City is required to address its stormwater runoff. There are costs associated with compliance, which are likely to increase soon when a new permit is issued in 2013. Continuing to treat runoff, improve water quality, and control water quantity must remain a high priority for Salisbury.

Increasing Costs to Manage Stormwater

With the timing of the recommendations found in this feasibility report along with Salisbury's new NPDES MS4 stormwater permit being issued by the State of Maryland Department of the Environment (MDE) in 2013, Salisbury has a prime opportunity to be proactive and manage stormwater before its costs are beyond being managed.

In the new NPDES MS4 permit being issued to Salisbury, there will be six minimum control measures (MCMs) consistent with those found in the old permit. The following six MCMs are the elements contained in Salisbury's NPDES MS4 permit that outline specific areas the community must address:

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

The impending 20% restoration requirement in the City's new permit will require additional financial resources and capacity not currently in the City's stormwater budget.

For each MCM, there are specific stormwater best management practices (BMPs) that Salisbury 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 each MCM.

The new permit being issued in 2013 will also feature a new requirement – a **20%** impervious area restoration requirement. MDE anticipates that this impervious area restoration, designed to increase the level of runoff managed from existing impervious areas, will require implementing a number of stormwater BMPs. These BMPs will be either nonstructural practices (like diverting

runoff from impervious areas to vegetated areas, bioswales, and tree planting) or more traditional structural practices (i.e. stormwater ponds, bio-retention facilities)[6]. Putting in practices such as permeable pavers, green roofs, and other BMPS will also be a viable option for Salisbury to help meet the 20% impervious restoration requirement. All of these are expenses not currently being budgeted for by the City.

Salisbury's Stormwater Infrastructure

In addition to the anticipated new requirements, there are improvements to the management of the existing system that would benefit the City. Based on data collected by the Project Team, it was found that portions of the City's current stormwater infrastructure date back to 1910 or 1920, and at one time, Salisbury did have a combined sewer system (CSS) which had stormwater and wastewater running together through the same pipes.

Some expansions have been completed as a result of annexations and additional development over the years. There have also been several relief projects completed such as storm drain retrofitting to alleviate flooding on Waverly Drive, a street that was developed in the 1950s and was in need of an immediate upgrade. During the late 1990s and early 2000s, commercial development began occurring in the northern part of the City, and by 2005, a substantial amount of new development had begun to take place around the outskirts of the City.

The City of Salisbury Department of Public Works (DPW) indicated that although most of the existing stormwater infrastructure was aging and there were areas in need of repair, the overall system could be sufficient if a formal program could be set up to maintain what was now in place. The DPW staff has a water resources map that shows pipe size and location, as well as where outfalls are located in the City which is used for MS4 reporting purposes. However, DPW staff also recognizes the value of having a stormwater master plan similar to what was recently completed for the sewer system in the City.

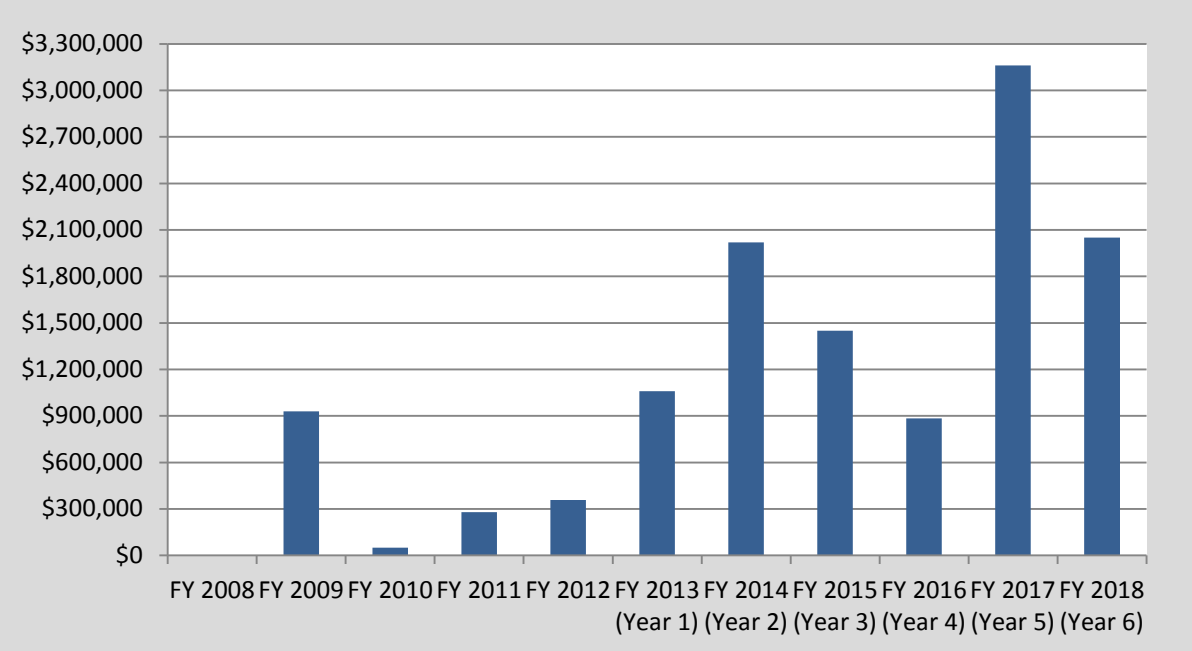
The 2010 City of Salisbury Comprehensive Plan suggests that the City would like to encourage broader use of practices that reduce runoff in the community. The commitment to addressing stormwater issues through implementation of new projects and maintenance of existing infrastructure is a necessary component to ensuring a robust and comprehensive stormwater management program.

Current Funding for Stormwater in Salisbury

Preparing for new permit requirements and maintaining the existing stormwater system bears significant costs. Currently, funding for the City's stormwater program primarily comes from general funds, a practice common throughout the country, with some supplementation from public and private grants. Based on the available data collected by the Project Team during the study, capital spending since 2008 is funded primarily through grants such as the American Restoration and Recovery Act (ARRA) and small amounts of bond funding. Figure 2 below reflects stormwater spending incorporated into Salisbury's Capital Improvement Plan (CIP) from 2008-2018 at the time of the project, the main mechanism used to direct general fund spending to the City's stormwater program. It should be noted that the CIP in Salisbury, as in many communities, changes each year to reflect the priorities and needs identified by the City. Therefore, the CIP should be evaluated and any changes reflected in the stormwater budget on an annual basis.

[6] Information derived from email correspondence with MDE on July 9, 2012.

Figure 2: Capital Spending, 2008-2018



In terms of calculating similar expenses for operations and maintenance spent by the City of Salisbury on a yearly basis, the Project Team was unable to collect data in a meaningful way. The primary reason for this is that operations and maintenance is done "as needed" and not in a way where cost information can be easily verified.

Salisbury's Current Capacity for Handling Stormwater

DPW's workload is significant. There are 175 full and part time staff in the department that work on everything from water and sewers, to traffic and streets, to parks and the City's zoo. In terms of staff dedicated to stormwater, the Project Team found some inconsistencies when gathering and analyzing information. Several of the DPW personnel had some aspect of their job dedicated to stormwater, but it was relatively small considering the amount of work necessary to meet existing permit requirements.

Salisbury has one full-time GIS staffer currently implementing a management program called CityWorks, a work order management system. This system is similar to what could be found in an asset management system which prioritizes the replacement and repairs of a system in order to maintain a sustainable water infrastructure program. Although CityWorks is relatively new to Salisbury, it is currently being set up to include services such as necessary operations and maintenance repairs needed around the City.

Hiring freezes, limited staffing, and budget cuts have made it increasingly difficult for Salisbury to implement a truly preventive maintenance program for the stormwater system. This lack of capacity is a significant challenge to properly administering an effective stormwater program, and this level of capacity is extremely unlikely to be adequate in handling the requirements of the new stormwater permit. Maintenance on the system has been reduced, even on the work that is completed – for example clearing the top of a catch basin rather than vacuuming that basin out completely. The maintenance crew in charge of these activities is often forced to shift focus to other efforts and is not able to devote much time to maintain the stormwater system.

Limited capacity can create serious lapses in customer service, as well, which will likely become an even bigger issue as the existing infrastructure continues to age. The Project Team found that the

majority of the approximately 150 calls that DPW receives each month are for water and sewer repairs, and few are stormwater related. Funding and capacity limitations make addressing the stormwater calls that come in a significant challenge, and often these requests must wait until the need becomes more urgent and the funds become available.

Chapter 3: Public Outreach

Rarely is a community willing to invest in a resource if they do not understand the value of that resource. One of the most important ways to build community consensus and develop a stormwater management plan reflective of the goals of the community is to engage local businesses and residents throughout the process, ensuring that they recognize the benefits of a proactive approach to addressing stormwater needs. This requires a well thought out plan to collect feedback, inform the public, and incorporate community members' ideas into the final recommendations.

The public education and outreach component of the development and implementation of a stormwater program is included as one of the six MCMs listed in the Phase II NPDES MS4 permit. A feasibility study that does not incorporate significant input from the community will have little chance of success in gaining support from decision-makers.

Recognizing the importance of community engagement in this process, public outreach was a major component of the Project Team's work in Salisbury, both to develop a thorough understanding of the issues at play on the part of the residents and businesses in the City, as well as to ensure the public remain informed about the study's progress. The goal of outreach efforts was to make certain that stakeholders in the community had accurate information about the City's stormwater infrastructure problems and financing challenges, enabling them and their local decision-makers to make informed choices on how best to move forward in addressing these issues.

In working with other communities, successful public outreach has relied on establishing a stormwater working group. In the City of Salisbury, however, a group focused on environmental protection and knowledgeable of stormwater management issues already existed. Therefore, the Project Team utilized the Wicomico River Project Team[7] to share input on what the outreach plan should include, help disseminate information to the public, provide feedback on outreach materials, and inform the community on the study's progress.

The Project Team began its public outreach component of the study by creating an outreach and marketing strategy to span from February-July 2012. The intended audience included citizens, businesses, and elected officials. An Outreach and Marketing Strategy Timeline can be found in Appendix B while highlights of this strategy are described below.

Community Engagement

The outreach and marketing strategy for Salisbury called for a series of meetings with stakeholders across all sectors of the community. Thus, the Project Team gathered a list of names, organizations, and events recommended by City staff and knowledgeable associations and organizations. From this list, the team conducted telephone and in-person meetings with representatives from the business community, environmental organizations, neighborhood associations, and faith-based organizations.

Leveraging the existing Wicomico River Project Team was an important initial step in the outreach process. In November 2011 the Project Team began a dialogue with key Wicomico River Project Team member Dr. Judith Stribling, a professor at Salisbury University heavily involved in Wicomico River protection and restoration efforts. As a result of this dialogue, the EFC was invited to participate in the January 2012 monthly meeting of the Wicomico River Project Team to share information on the nature of the study and solicit input from team members. This group provided a great deal of direction as to potential points of contact and meetings and events that might provide

[7] The Wicomico River Project Team is dedicated to conserving the Wicomico River for the future.

opportunities to engage the public on a broader scale. One suggestion in particular, to host a logo-slogan contest for the stormwater program, was well liked by the Wicomico River Project Team.

This team was also willing to review and provide comments on all outreach materials developed. This included the outreach timeline as well as a stormwater fact sheet and announcement for the logo-slogan contest. All feedback was incorporated into the materials prior to distribution. In addition to the Outreach and Marketing Strategy Timeline in Appendix B, the Salisbury Stormwater Fact Sheet can be found in Appendix C, and Logo-Slogan Contest Flyer is described in the subsection below.

As a follow up to the suggestions of the Wicomico River Project Team and City staff, a series of interviews with representatives from Salisbury's commerce community were conducted in an effort to learn more about the connection between stormwater management in Salisbury and the business sector. Interviews conducted in February 2012 included conversations with the Salisbury Chamber of Commerce, Salisbury-Wicomico Economic Development, and the Greater Salisbury Committee. Over the course of these conversations it was made clear that a community-wide event to engage the business community, which met with great success in other communities, was not likely feasible in the City and that additional one-on-one conversations should be the focus to engage the business community. All three organizations suggested others in the business community that could provide helpful insight, and additional conversations with representatives of the engineering firms McCrone, Inc. and AWB Engineers took place in April 2012.

Earth Day Event at the Salisbury Zoological Park

In support of the logo-slogan contest concept suggested by community members, the Project Team created promotional materials and shared them with the Wicomico River Project Team and the Mayor's office for distribution, both electronically and in hard copy, to the broader Salisbury community. Promotional materials were also shared with community contacts and *Delmarva Now* materials. The Logo-Slogan Contest Flyer can be found in Appendix D.

All entries were to be judged by park visitors as a part of the EFC's participation in the Salisbury Zoological Park's earth day event. As the submission deadline approached and the contest showed little response, the EFC worked closely with the Mayor's office to develop an alternative plan. The focus for our involvement shifted to making the most of the opportunity to engage families, as this event was geared primarily towards children. While young participants were encouraged to create artwork about what a "clean river" meant to them, the Project Team members spoke with parents about pollution threats to the Wicomico River and the role stormwater plays in this scenario. Many of the parents asked to be kept informed about future informational sessions and a contact list of residents was developed. The stormwater fact sheet and a save-the-date announcement with preliminary information about the public meeting were also displayed at the event. Pictures from the event can be found in Appendix E, and a collage of the drawings done by youth participants during the event can be found in Appendix F.

Public Meeting and the Mayor's Neighborhood Roundtable

While targeted community engagement provided an essential component of public outreach throughout the study, the Project Team believed that engaging the community in a broader sense was essential as well. Again, the Wicomico River Project Team, our business community contacts, and City staff were crucial in disseminating announcements and information on two public meeting opportunities where community members could learn more about the stormwater program and enhancement opportunity underway.

On May 15, 2012, the Project Team presented at the Mayor's Neighborhood Roundtable, which provided the opportunity to speak with a small, active community group tied mostly to

neighborhood associations. The EFC provided a brief background on stormwater impacts to the City, the nature of the center's study, and an opportunity for the community to comment on the direction of the recommendations. On the same day the Project Team hosted a public meeting at the Wicomico Youth & Civic Center, designed for a broader audience. Both public sessions resulted in lively discussions of the project, activities to date, and potential outcomes. Participants in both sessions were interested in ensuring that the stormwater program be transparent and accountable. See Appendix G for a copy of the public meeting flyer.

Chapter 4: Consideration of Funding Methods for Stormwater

Properly managing stormwater is considered an essential service, but one that is often unseen or misunderstood by residents and businesses in a community. Stormwater infrastructure requires upgrades and maintenance that is on par with the needs, costs, and annual maintenance as similar services such as wastewater, drinking water, or transportation. However, stormwater is rarely funded to the extent that any of these other services typically are, thus leaving a considerable gap in a stormwater program's level of service to the community.

Current Method of Funding Stormwater in Salisbury

The current method of funding stormwater in Salisbury is partially through grant funding, but with the majority of the revenue derived from general fund appropriations. Salisbury's general fund comes from several sources such as property taxes, sales and use taxes, licenses, permits, and other types of charges and fines. This revenue is then distributed to sources as appropriate and deemed necessary. General fund allocations for stormwater programming in Salisbury, however, has been woefully under budget in recent years, potentially putting Salisbury in jeopardy of noncompliance with their NPDES MS4 permit in future years and potentially stalling any plans for improving water quality and controlling water quantity the City may have. The most logical next step, therefore, is to ensure there is a dedicated funding stream which will allow Salisbury officials to enhance the level of service and manage stormwater in a way that is both adequate and reliable.

Assessment of Possible Revenue Sources and Funding Methods for Salisbury

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 clearly not sustainable, the Project Team explored the possibility of using other revenue and funding sources. Although many financing options were explored, only a few cover the costs of capital and operations and maintenance, as highlighted in Table 1 below:

Table 1: Funding Sources, Coverage of Costs, and Features

Funding Source	Coverage of Cost Type		Features
	Capital Improvements	Operations & Maintenance	
Grants	Yes	No	Not guaranteed, highly competitive, not sustainable in the long-term
Maryland Loan Programs	Yes	No	Not guaranteed, highly competitive, must repay often with interest
Bond Financing	Yes	No	Dependent on fiscal capacity, can utilize for large, long-term expenditures, must repay with interest
General Fund	Yes	Yes	Not equitable, competes with other community priorities, changes from year-to-year
Permit Review Fees	No	No	Not significant revenue, may deter development
Inspection Fees	No	No	Not significant revenue, may deter development
Stormwater Utility Rates	Yes	Yes	Generates ample revenue, sustainable, dependable, equitable, requires significant public dialogue

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 all of the above were found to be useful in funding a specific portion of the entire stormwater management program for Salisbury, only the **general fund appropriation** and a **stormwater utility fee** were considered by the Project Team as large enough pots of money to be capable of funding the entire program.

The only exception to this is a possible credit and offset program which is not currently a viable option for Salisbury but may become more feasible in the future should Maryland's trading program become more rigorous. If this does become an option in the future, a market assessment would be needed to determine whether adequate revenue could be generated from implementing a trading program.

It should also be noted that Salisbury has been fairly effective in paying for several smaller projects with grant funds from federal and state sources. However, this funding has been sporadic in nature and only covered a small portion of the total revenue needed to manage stormwater. Continuing to seek out opportunities to apply for grants in the future should not be discounted as a way to fund stormwater with the understanding that it will remain just a small slice of the total revenue needed.

Consideration for Using General Fund Appropriations for Stormwater

As mentioned above, reliance on the general fund as the primary resource for Salisbury's stormwater program means that stormwater continues to compete with other higher community priorities leaving the program stagnant and vulnerable, 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.

The stormwater management program being recommended by the Project Team for the City of Salisbury will need to be significantly enhanced in order to be in compliance with the new NPDES MS4 permit and other pending nutrient reduction requirements. This includes successfully treating and maintaining water quality and managing water quantity properly and will require an adequate, long-term source of funding that will be stable, fair and not subject to cuts and funding gaps from year to year. 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; it means that in addition to using some general fund appropriations, another reliable and dedicated source of funding will be required in the near future for Salisbury to properly manage stormwater. The ultimate financing strategy will require a combination of funding sources to fully round out and adequately fund the entire recommended program to the extent that is needed in the future. The most appropriate mechanism to consider in addition to using some general funds and seeking grants whenever possible is through implementation of a stormwater utility fee.

Consideration of a Stormwater Utility Fee for Salisbury

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. Over 1,000 stormwater utilities are reported to exist across the country and many more are developed every year.[8]

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 stormwater utility is the most equitable financing mechanism because it distributes program costs associated across all properties who 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 crate far greater than that of the average residence.

How a Stormwater Utility 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 utility 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 utilities make a direct connection between the anticipated expenses to properly manage the system and the revenue to be 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 the average single family dwelling. 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.

Determining the Rate

While residential parcels are typically charged a flat annual fee, non-residential rates are often determined by the number of average residential parcels that exists on a given property, also called an ERU.

Example: *Impervious surface of an average size single family dwelling is calculated to be 2,000 square feet. The ERU is set at $40 for one year. Residents pay $40 a year as a stormwater fee. A commercial building that has 10,000 square feet of impervious surface must pay 5 ERUs (10,000ft^2/2,000=5). The bill for 5 ERUs is therefore $200 for a year.*

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

[8] Campbell, C. Warren (2011). Western Kentucky University 2011 Stormwater Utility Survey, Western Kentucky University, Bowling Green, 51 pp.

involved. Determining the fee for commercial properties, or 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 utility is a national trend on the increase in the US, 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. In the case of Salisbury, a utility would create an adequate and stable source of funding dedicated solely to stormwater and allow for a comprehensive program, consistent in funding from year to year, and meets all regulatory requirements, nutrient reduction needs, and community goals.

Table 2 below shows current stormwater utilities in Maryland, including their ERU rate and total revenue collected.

Table 2: Stormwater Utility Fee Examples, Maryland Communities

Municipality	Year Fee Established	Population	Fee Structure	Revenue Generated/Year
Takoma Park	1996	18,027	Single family = $4/month Commercial & multifamily[9] = $4/month/ERU, where 1 ERU = 1,228ft^2 impervious surface	$350,000
Rockville	2009	60,734	Single family = $4.10/month All other properties = $4.10/month/ERU, where 1 ERU = 2,330ft^2 impervious surface	$1,927,928
Montgomery County	2002	971,777	Residential = $92.60/year Townhomes = $30.87/year Condominiums, apartments, and associated non-residential = $92.60/year/ERU, where 1 ERU = 2,406ft^2 impervious surface	$17,430,790[10]

Legal Basis in Maryland Allowing a Stormwater Utility Fee

Having a dedicated source of funding devoted to providing a level of service to the public is at a critical point in Maryland. Enabled by Maryland Statute 4-204 (Annotated Code of Maryland), which allows a system of charges to be adopted to fund the implementation of stormwater management programs, communities, such as Takoma Park, Montgomery County, and Rockville have made it

[9] The twenty-three largest non-residential properties in Takoma Park, MD pay an average of $4,222.87/year.
[10] Actual FY 2012 revenue; Montgomery County Environmental Protection Budget, http://www6.montgomerycountymd.gov/csltmpl.asp?url=/content/council/budget_summary/te_2013.asp, April 18, 2012.

easier for others to follow their lead in effectively setting up a dedicated source of revenue for stormwater. Statute 4-204 sets the following parameters:

"(d) System of charges. –

1. Each governing body of a county or municipality may adopt a system of charges to fund the implementation of stormwater manager programs, including the following:
    (i) Reviewing stormwater management plans;
    (ii) Inspection and enforcement activities;
    (iii) Watershed planning;
    (iv) Planning, design, land acquisition, and construction of stormwater management systems and structures;
    (v) Retrofitting developed areas for pollution control;
    (vi) Water quality monitoring and water quality programs;
    (vii) Operation and maintenance of facilities; and
    (viii) Program development of these activities."[11]

In some communities, like Washington DC and Montgomery County, federal buildings account for a significant portion of impervious surface. Senate Bill 3481, which was enacted in January 2011, provides jurisdictions the legal right to charge the federal government a stormwater utility fee.

Recently in the 2012 Maryland legislative session, House Bill 987 passed, which requires that all Phase 1 NPDES stormwater permits for larger counties must implement a stormwater utility fee by July 2013. This legislation will begin to change the landscape of how Maryland communities pay for stormwater and will likely influence future actions of Phase II NPDES MS4 Permit communities like Salisbury and Bowie. It should be noted that Bowie, like Salisbury, is considering alternative funding for stormwater as they began their own stormwater financing feasibility study with the EFC in August 2012.

[11] Section 4-204(d), Environmental Article, of the Annotated Code of Maryland.

Chapter 5: Salisbury Stormwater Management Program

Program Funding Needs

To identify the necessary components of an enhanced stormwater program for Salisbury, the Project Team worked with Salisbury staff to conduct a comprehensive review of all aspects of current spending on stormwater management. When considering the level of level of stormwater management service identified as necessary in the City, the Project Team found that current budgeting practices significantly underfund the stormwater program.

The Project Team found that a 10-year revenue stream totaling approximately $23.2 million, when adjusted for inflation at a rate of 2.5% per year, will be needed to fully support a comprehensive stormwater program.[12] However, it is important to note that the approximate revenue needed to support a stormwater program is conservative, since it does not include costs associated with green infrastructure and WIP activities.

The total cost of implementing a comprehensive program has been broken down into the following categories: personnel costs, capital improvement costs, and operations and maintenance costs. See Appendix H for an itemized list of the proposed budget for years 1-3. See Appendix I for a breakdown of costs by category projected over a ten year period. The following section describes the expenditures associated with each category in years 1-3.

Level of Service Expenditures

Personnel

Total personnel costs include expenditures for the administrative and technical positions needed to run and sustain a comprehensive stormwater management program. The salary and benefit estimates were calculated using the midpoint salary for the proposed appropriate grade structure salary range and the total fringe benefits spreadsheet provided by City staff. It is assumed that salaries and wages will increase each year with inflation.

The personnel needed to build and sustain a stormwater program will be phased in over three years in order to provide the necessary time to plan and hire appropriate staff. The following lists anticipated personnel costs for years 1-3:

Year 1 Personnel Costs:

- 1 full time Stormwater Utility Manager @ $88,838
- 1 part time CAD Operator @ $5,649
- 1 full time GIS position @ $64,031

Year 2 Personnel Costs:

- 1 full time Stormwater Utility Manager @ $91,059
- 1 part time CAD Operator @ $5,790
- 1 full time GIS position @ $65,632

[12] Inflation was taken into account for all expenditures in years 2-10; Inflation = 2.5% based on 10 year percent change in consumer price index (CPI). The % change in annual CPI since 1999, from December-December = 2.45%. The percent change in the annual average CPI since 1999 = 2.47%. (U.S. Department Of Labor Bureau of Labor Statistics, Washington, D.C. 20212, Consumer Price Index, All Urban Consumers, U.S. City Average, All Items, 1982-84=100, Retrieved from: ftp://ftp.bls.gov/pub/special.requests/cpi/cpiai.txt

- 1 part time Survey position @ $8,516 *(new hire)*
- 1 full time Project Engineer @ $79,703 *(new hire)*

Year 3 Personnel Costs:

- 1 full time Stormwater Utility Manager @ $93,336
- 1 part time CAD Operator @ $5,935
- 1 full time GIS position @ $67,273
- 1 part time Survey position @ $8,729
- 1 full time Project Engineer @ $81,696
- 1 full time BMP Maintenance Inspector @ $67,273 *(new hire)*
- 1 full time Utility Technician for cleaning inlets, ditches, and drains @ $46,736 *(new hire)*
- 1 full time IDD&E Program Inspector @ $67,273 *(new hire)*
- 1 full time Outreach & Staff Training Project Manager @ $76,513 *(new hire)*

Table 3: Total Personnel Costs, 10 Year Projection

Year 1	$158,519	Year 6	$554,344
Year 2	$250,701	Year 7	$568,203
Year 3	$514,764	Year 8	$582,408
Year 4	$527,633	Year 9	$596,968
Year 5	$540,824	Year 10	$611,892

Capital Improvements

Capital improvements consist of expenditures on equipment, project installation, and inspection of stormwater infrastructure. This includes the current CIP costs; module home office purchased to house personnel; vehicles; materials; and software for adequate management of the stormwater program. It is assumed that all capital improvement costs will increase each year with inflation. As the personnel costs will be phased in during the first three years of the program, so too will the capital costs to support hired staff. The following lists anticipated capital improvement costs for years 1-3:

Year 1 Capital Costs:

- CIP Project Costs @ $1,060,000[13]
- Purchasing a modular home office @ $130,000
- Software (GIS, Office Suite, AdobePro) @ $3,449[14]
- Camera for Stormwater Utility Manager @ $250
- Projector for all staff's use @ $500

[13] As in many communities, the CIP changes each year to reflect the priorities and needs identified in the community. Therefore, the CIP should be evaluated and any changes reflected in the stormwater budget on an annual basis. This figure represents the best estimate of CIP costs at the time of the study.

[14] ARC Editor = $2,500 (for concurrent license that can be used on multiple computers, only one running at a time, 25% maintenance fees every year after); AdobePro = $449; Office Professional Suite = $500.

- Laptop for Stormwater Utility Manager @ $1,000
- Desktop for GIS capabilities @ $1,000
- Tools[15] for CAD Operator @ $250
- Uniform[16] for CAD Operator @ $20

Year 2 Capital Costs:

- CIP Project Costs @ $2,020,000
- GIS software maintenance @ $641
- Cell phone for Project Engineer @ $256
- Laptop for Project Engineer @ $1,025
- Tools for CAD Operator @ $256
- Uniform for CAD Operator and Survey position @ $41

Year 3 Capital Costs:

- CIP Project Costs @ $1,450,000
- BMP Maintenance Truck @ 40,000
- John Boat @ $15,000
- IDD&E Program Vehicle @ $20,000
- GIS software maintenance; AdobePro & Office Suite for BMP Inspector and IDD&E Inspector @ $2,555
- Cell phone for BMP Inspector, Utility Technician, and IDD&E Inspector @ $788
- Camera for Training Manager, BMP Inspector, and IDD&E Inspector @ $788
- Laptops for Training Manager, BMP Inspector, Utility Technician, and IDD&E Inspector @ $4,203
- Tools for CAD Operator, BMP Inspector, Utility Technician, and IDD&E Inspector @ $1,051
- Uniform for CAD Operator, Survey position, BMP Inspector, Utility Technician, and IDD&E Inspector @ $105

Table 4: Total Capital Improvement Costs, 10 Year Projection

Year 1	$1,196,429	Year 6	$2,054,781
Year 2	$2,022,219	Year 7	$1,778,343
Year 3	$1,534,489	Year 8	$1,773,181
Year 4	$887,666	Year 9	$1,777,200
Year 5	$3,164,388	Year 10	$1,775,174

[15] A yearly allowance is set aside for each position where tools are needed.
[16] A yearly allowance is set aside for each position where a uniform is needed.

Operations and Maintenance (O&M)

Operations and maintenance costs consist of expenditures for vehicle maintenance, brochure development, staff training, and material testing. It is assumed that all operations and maintenance costs will increase each year with inflation. The following lists anticipated operations and maintenance costs for years 1-3:

Year 1 O&M Costs:

- Modular home office O&M @ $5,000
- Program-related costs for public involvement program[17] @ $7,500

Year 2 O&M Costs:

- Modular home office O&M @ $5,125
- Program-related costs for public involvement program @ $7,688

Year 3 O&M Costs:

- Modular home office O&M @ $5,253
- Program-related costs for public involvement program @ $7,880
- BMP Maintenance Truck O&M @ $5,253
- John Boat O&M @ $8,405
- IDD&E Program Vehicle O&M @ $3,152
- Testing materials for IDD&E Program @ $2,101
- Staff training fund[18] @ $15,759

Table 5: Total Operations & Maintenance Costs, 10 Year Projection

Year 1	$12,500	Year 6	$51,479
Year 2	$12,813	Year 7	$35,371
Year 3	$47,803	Year 8	$36,255
Year 4	$32,845	Year 9	$55,437
Year 5	$33,666	Year 10	$38,090

[17] Program-related costs consist of the production and distribution of brochures, web design, and event hosting.

[18] It is estimated that three staff will participate ($5,000/staff member), and training provided every three years beginning in year three.

Total Expenditures

Table **6** shows the projected total expenditures for 10 years, including personnel costs, capital improvement costs, and operations & maintenance costs are as follows:

Table 6: Total Expenditures, 10 Year Projection

Year 1	$1,367,488	Year 6	$2,660,603
Year 2	$2,285,732	Year 7	$2,381,916
Year 3	$2,097,055	Year 8	$2,391,844
Year 4	$1,448,144	Year 9	$2,429,605
Year 5	$3,738,878	Year 10	$2,425,156
		Total cost	**$23,226,422**

Figure 3: Proposed Stormwater Budget, Years 1-10

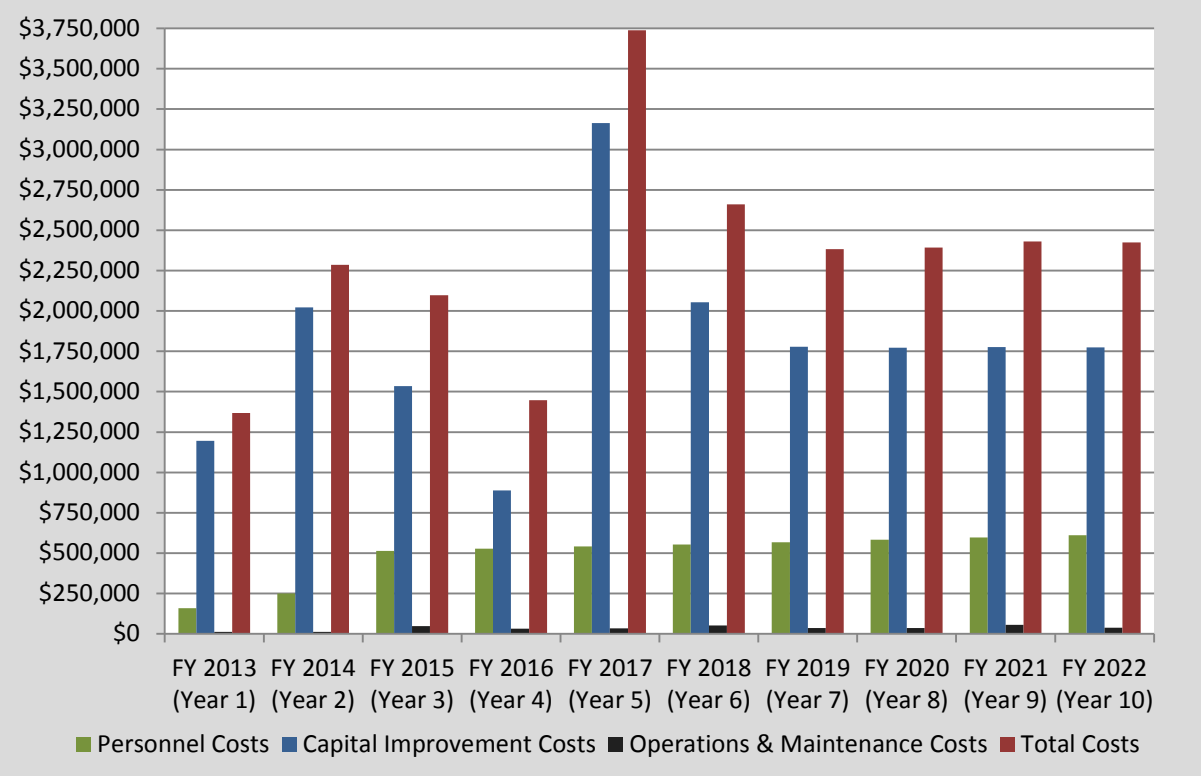


Figure 3 above shows the breakdown of costs by the three categories over 10 years. In each year, operations and maintenance costs are the lowest, while the majority of costs are budgeted for capital improvements. Based on the total expenditures for 10 years, a discussion of the necessary revenue to maintain a sustainable stormwater management program follows.

Stormwater BMPs Needed to Implement Green Infrastructure & Watershed Implementation Plan Activities

Due to the limited information available, the total costs represented in the proposed stormwater budget did not include the necessary costs associated with implementing green infrastructure improvements and Watershed Implementation Plan (WIP) activities. In order to adequately meet regulatory needs and community priorities, the City will need to factor additional activities into the total costs of the program. The excerpt below from the *Stormwater Cost Estimate Worksheet* prepared for the Maryland Department of the Environment by Dennis King and Patrick Hagan, University of Maryland, Center for Environmental Science provides *unit cost** estimates for implementing impervious urban surface reduction and urban tree planting (UMCES). When the City of Salisbury has a clearer vision of the scope and scale of additional BMPS to be implemented, these estimates can be used to determine which BMPs are most cost effective and feasible and how these will impact total program costs.

Stormwater BMP**	Cost per Impervious Acre Treated			
	Initial Cost	Average Annual Maintenance Cost	Total (Over 20 Years)	Annual Costs (Over 20 Years)
Impervious Urban Surface Reduction	$96,250	$885	$113,957	$5,698
Urban Tree Planting	$33,000	$1,210	$57,207	$2,860
Permeable Pavement w/o Sand, Veg. (New)	$239,580	$2,188	$283,347	$14,167

*Unit costs are costs per impervious acre treated, not per acre of BMP.
**The stormwater BMPs provided in this table represent the most relevant sample for Salisbury based on data provided to EFC; however, this is not an exhaustive list of BMPs to mitigate runoff. For a full list of all BMPs www.mde.state.md.us/programs/Water/TMDL/TMDLImplementation/Pages/PhaseIIBayWIPDev.aspx.

Utility Revenues: Rate Structure Analysis

Why This Study is Recommending a Stormwater Utility for Salisbury

Based on the needs identified by the Project Team, the City of Salisbury will incur approximately $23.2 million in stormwater expenses over the next ten years (a conservative estimate based on the best available information). Our key recommendation is to create a stormwater utility fee that will distribute the costs of paying for repairs and improvements in proportion to the types of land uses that are contributing to stormwater management needs.

As discussed earlier, the more impervious surface that a property has, the more stormwater it generates and the more responsible the property owner is to help the city manage stormwater. As private driveways, parking lots, swimming pools, decks, and other such structures allow residents and businesses to enjoy additional living and working conveniences, the burden of maintaining and repairing the infrastructure that supports those additional structures and surfaces should be shared by those contributing to the problem rather than the community at large. Just as a property owner is responsible for paying its share of waste disposal, water use, or electricity consumed, so should they recognize and be accountable for the stormwater created from their built environment.

Once it became clear that there was a significant need to have a dedicated funding source to cover the growing stormwater costs of the City, the Project Team considered what financing mechanism would be most appropriate to generate these funds. The Project Team initially considered assessing a property tax, but since the value of a property is not an indicator of the amount of runoff, the property tax was not seen to be the most equitable way to pay for a stormwater program for the City.

A stormwater utility fee allows for the assessment of the amount of impervious surface contributing to the stormwater problem. Since a large and growing percentage of the City is covered in impervious surface, it is appropriate to charge properties that contribute significant runoff more and properties that contribute insignificant runoff less. The major concern with this approach is the capacity within Salisbury's government to ensure properties are billed accurately based on runoff contribution. Therefore, the utility fee must be structured with respect to Salisbury's unique characteristics.

Salisbury Stormwater Utility Goals

In the early stages of this study, the Project Team was able to assess that there were large expenditures associated with managing the City's stormwater program. It became abundantly clear that a utility was potentially going to be the best option for consideration as a way to secure dedicated funding for the stormwater program. The immediate goal of this study was to recommend a long-term dedicated funding stream that is equitable and effective in generating ample revenue for the City to maintain a comprehensive stormwater program. The long-term goal of the EFC's stormwater efforts in Salisbury is to enhance the existing program, raising the level of service in a way that helps the City meet its permit requirements more thoroughly, addressing community water quality priorities, and preparing for future nutrient reduction expectations. This requires the support of a more robust and reliable funding stream than current practices provide.

Please note, the Project Team estimated the City's revenue needs utilizing a pay-as-you-go financing system, and the City would incur no debt using this method. However, a debt-financing scenario could be feasible as well, given the City's current financial obligations and its capacity to incur debt. As of 2011, the City had $70.6 million in bonds, notes, and leases outstanding[19] creating a debt margin of approximately $40 million. In 2012 the City entered into two additional bonds totaling approximately $10 million, leaving the City at an approximate $30 million debt margin in 2012.[20] If the City is unable to raise the necessary revenue to sustain its municipal stormwater program, then it may issue additional bonds to ensure important needs are not neglected or immediate opportunities can be capitalized upon, although personnel costs would not be eligible expenses under this scenario.

Billing Recommendations

There are two options to consider for billing of a stormwater utility for the City of Salisbury. One is to put it as a separate line on the tax bill and the other is to include it on the water and sewer bill. Each option has advantages and disadvantages. If stormwater is listed as a line item on the property tax bill, it is less likely to be contested since the amount would be very small compared to the larger assessment of the total tax bill. The drawback, however, is that Salisbury taxes are paid to Wicomico County and so the revenue would have an extra step of processing before it was returned to the City. In contrast, if billing occurs as a separate line on the water and sewer bill, it is easier for

[19] City of Salisbury, Maryland, Audit Report, June 30, 2011.

[20] Correspondence between EFC Project Team and John Pick, City Administrator, Loré Chambers, Assistant City Administrator, Gerri Moore, Acting Finance Director, and Jana Potvin, Public Works Engineer, August 21st, 2012.

Salisbury to collect since it would not be a considerable additional administrative burden. In speaking with City staff, the Project Team learned that the City already collects and bills residents for sewer and water in-house by sending utility bills quarterly based on property owners' consumption of water. Currently, the City enforces utility payments by charging a 5% penalty for late payments (after 45 days), and cutting off the water supply after approximately 60 days.[21]

It is recommended that the City apply the stormwater utility fee billing to the water and sewer bill as a separate line on the bill that would indicate exactly how much is being applied towards stormwater. When discussing billing recommendations with City staff, they agreed that adding a stormwater bill on the water and sewer bill would be the fairest and easiest option.

Since the City already enforces non-payment of utility bills, the City should also prepare to enforce stormwater non-payment. The Project Team recommends adopting a policy to ensure that non-payment be addressed for stormwater in addition to water and sewer. Leniency on payments should be avoided from the inception of the utility. Based on the experience of other communities, when a city becomes known for not enforcing their fee collection, word spreads very quickly and expected revenue is lost. A stated action policy for non-payment should be set up in advance with strict penalties put into place, similar to the penalties faced for non-payment of the water and sewer bill.

For example, interviews with program staff in Takoma Park, Maryland revealed that the City had a high rate of non-payment in the initial years of implementing their utility. Because no penalty was assessed to non-payers, loss of anticipated revenue began to affect the program. Program staff finally created a policy that stated after three late notices a lien would be placed on the property. They also instituted penalties, including accrued interest, for non-payment. The City was thus able to remedy the non-payment situation very quickly. Salisbury should avoid this mistake by making sure to enforce its program and create a policy for non-payment that results in official action by City officials.

Finally, based on the experience of other communities, it is recommended that the City set up a strong administrative structure to deal with public questions and concerns, particularly when the utility is first launched. Other communities who have implemented stormwater utilities report that the outreach need is very high at first but declines as the utility rolls out. A help line and City staff members should be made available to quickly address customer concerns.

Rate Structure Analysis

In determining an equitable funding strategy for collecting approximately $23.2 million in revenue over the next 10 years to pay for stormwater related expenditures, the Project Team reviewed available data on all parcels located in the City provided by City staff. The Project Team calculated potential revenue using a flat rate fee for parcels classified residential, residential condominium, townhouse and a combination of a tiered fee and ERU-based fee structure for all other units.

Summary of recommended rate structure for residential properties

The decision to recommend a flat rate fee for residential properties was not made lightly. After reviewing the large number of residential units and the many different types of residential properties located within the City, the Project Team became concerned that a parcel-specific fee structure would require additional capacity on the part of the City to properly estimate the total

[21] Correspondence between EFC Project Team and John Pick, City Administrator, Loré Chambers, Assistant City Administrator, Gerri Moore, Acting Finance Director, and Jana Potvin, Public Works Engineer, August 21st, 2012.

impervious surface for all residential properties in the community. Based on our experience working in other communities, it was agreed that calculating the level of impervious surface on every residential property would cause significant administrative burden. In addition to this being an overwhelming effort, the Project Team agreed that the risk of errors on bills could cause confusion about the billing calculation and increase the risk of complaints from the residential population. Additionally, the Project Team found that there was not a large enough spread among the sizes of the residential units to make taking on the task of developing unique bills for 7,999 residential parcels[22] worthwhile. Apartment units are suggested to be handled as non-residential, however, meaning that an apartment building's management firm will be billed as a commercial property and can then determine how best to recuperate these costs from their buildings' residents.

Summary of recommended rate structure for non-residential properties

Because the size and nature of non-residential units vary widely, the Project Team suggests that a parcel-based rate structure that takes a parcel's specific level of impervious surface into account to be the fairest method of assessing the stormwater fee on these properties. [23] However, due to the time and capacity needed to develop the mapping and administrative processes to bill non-residential properties accurately, it is recommended that in the first two years the City utilize a tiered fee system to bill its non-residential properties. After the first two years of issuing utility bills, municipal staff will have a better grasp on the technical, mapping, and administrative requirements necessary to administer unique bills for all non-residential properties based on actual impervious surface.

Calculating the impervious surface for non-residential properties is a feasible, practical, and appropriate task for the utility manager and GIS staff, and the administrative cost to conduct this analysis is incorporated into the enhanced stormwater program for the City. Salisbury does not currently have adequate GIS in place to estimate the impervious surface for each commercial building, thus it is essential for the City to invest in GIS software and training. In many communities, the Project Team recommends investing in GIS software and training prior to issuing its first utility bill, however since we suggest the City use a tiered system initially, thorough training can be delayed until year 2. Although the size of many properties may be significant, the total number of properties being assessed would not prove difficult for City staff compared to that of assessing residential properties.

__All__ non-residential properties should be assessed a fee that is based on their contribution to stormwater runoff.

For all 2,464 non-residential parcels[24], it is recommended that a utility fee be assessed based on the land area of a property in years 1 and 2. Research conducted by the Project Team found that many communities utilize a tiered system for residential and/or non-

[22] The total number of residential properties (7,999) is the sum of residential parcels (7,042), residential condominium parcels (210), townhouse parcels (743), and agricultural parcels listed as single-family homes (4). The raw data used to determine the total number of properties for all property types was extracted from the Salisbury_Parcels_LU_Analysis database provided by City staff.

[23] Non-residential units include parcels categorized as: agricultural, apartment, commercial, exempt commercial, commercial condominium, residential commercial, industrial, and exempt, based on the City's Salisbury_Parcels_LU_Analysis database provided by City staff.

[24] The total number of non-residential properties (2,464) is the sum of commercial parcels (1,386), apartment parcels (118), agricultural parcels not listed as single-family homes (4), exempt commercial parcels (337), commercial condominium parcels (51), residential commercial parcels (30), industrial parcels (414), and exempt parcels (124). The raw data used to determine the total number of properties for all property types was extracted from the Salisbury_Parcels_LU_Analysis database provided by City staff.

residential properties. For example, Olathe, Kansas charges non-residential properties starting at $5.35 per month for properties less than 20,000 ft^2, and increases its fee in increments of 20,000 ft^2.[25] The Project Team recommends using a similar method for Salisbury in the first two years of the program. Using a tiered system, the land area will be assessed based on national impervious surface estimates to calculate the property owner's bill. For example, all non-residential properties that are less than 40,000 ft^2 will be charged $400 since all tiers will be assessed based on 85% impervious surface[26], and thus all properties in this tier are charged based on 34,000 ft^2 [27] impervious surface (34,000 ft^2/3,344 ft^2 = 10 ERUs x $40 = $400).

It is then recommended, following the first two years of billing using a tiered system, a utility fee be assessed based on each property's total impervious surface. For example, if a commercial property is estimated to have an impervious surface of 10,000 ft^2 and each ERU is equal to 3,344 ft^2, the property will be billed for 3 ERUs. If each ERU is worth $40 a year, the total bill per year for this business is $120. All non-residential properties, regardless of status (governmental, non-profit, etc.) should be assessed a stormwater utility fee based on its contribution to stormwater runoff.

After conducting a sensitivity analysis[28] using various fee structures, the Project Team found that **$40** a year per ERU of impervious surface[29] was the lowest rate found to yield revenue sufficient to maintain a sustainable and comprehensive stormwater management program. Since the City has not yet decided which BMPs will need to be implemented to meet its GI Plan and WIP requirements, and the BMPs have varying costs, a utility rate adjustment may be needed (in addition to the year 5 and 8 adjustment recommended in this report). It is recommended that the utility be reviewed and adjusted as needed after year 1 and again in year 3. Another variable to be considered in terms of rate adjustment is the impact of a credit system, if it is implemented as recommended later in this document, by year 3.

Estimated total revenue from all properties

The estimated total revenue generated is distributed between residential and non-residential properties and is calculated as follows:

Residential – The residential properties yield a total of $319,960 per year in years 1-4 based on a fixed rate of $40 for a total of 7,999 residential properties; a total of $359,955 per year in years 5-7 based on a fixed rate of $45 for a total of 7,999 residential properties; and a total of $399,950 per year in years 8-10 based on a fixed rate of $50 for a total of 7,999 residential properties.

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[25] Stormwater Utility Fee Memorandum, from Mary Marshall, Budget Analyst, to Mayor and City Council, Dodge City, KS, November 14, 2011.

[26] National data on the average percent impervious surface by property type were provided by City staff (Source data TR-55, 1983).

[27] 85% of 40,000 ft^2 is 34,000 ft^2

[28] A sensitivity analysis is defined as "a technique used to determine how different values of an independent variable will impact a particular dependent variable under a given set of assumptions." (Source: http://www.investopedia.com/terms/s/sensitivityanalysis.asp#axzz24Ck0N3rj). In order to determine the appropriate fee structure to raise the amount of revenue necessary to fund a comprehensive stormwater management program, the Project Team created different scenarios using different rates and ERUs, therefore conducting a sensitivity analysis.

[29] This includes an increase in year 5 to $45 a year per ERU, and an increase in ear 8 to $50 a year per ERU to support the entire program.

The residential fee is based on the assumption that an average property has about 3,344 ft^2 [30] of impervious surface and, therefore, all properties are billed for 1 ERU per year. The increase from $40 to $45 to $50 is based on the necessary revenue needed to sustain the program over 10 years.

Non-Residential – According to data provided by the City, there are 2,464 non-residential properties in Salisbury. Since in the first two years the stormwater utility bill will be based on the land area of each property, the bill will be sent to the property owner or property manager of that building. It will be the property manager's responsibility to disburse the billing to the business clients as they see fit. The shift to an impervious surface-based fee is suggested for year 3.

Based on 2,464 non-residential properties, the total revenue yield is estimated to be $1,742,280 per year in years 1 and 2. Table 7 shows the tiered rate structure recommended by the Project Team, to be implemented in years 1 and 2.

Table 7: Non-residential Property Tiered Rate Structure, Years 1 & 2

Lot Area (ft^2)	Annual Fee	Lot Area (ft^2)	Annual Fee
<20,000	$200	<280,000	$2,840
<40,000	$400	<300,000	$3,040
<60,000	$600	<320,000	$3,240
<80,000	$800	<340,000	$3,440
<100,00	$1,000	<360,000	$3,680
<120,000	$1,240	<380,000	$3,880
<140,000	$1,440	<400,000	$4,080
<160,000	$1,640	<420,000	$4,280
<180,000	$1,840	<440,000	$4,480
<200,000	$2,040	<460,000	$4,680
<220,000	$2,240	<480,000	$4,880
<240,000	$2,440	<500,000	$5,080
<260,000	$2,640	>500,000	$5,280

The City provided the Project Team with the total square footage of each property. Using this data, the Project Team determined the number of properties in each tier by property type (also see Appendix J):

Agricultural (Number of properties = 4)

- <20,000 ft^2 = 2 properties
- <160,000 ft^2 = 1 property
- >500,000 ft^2 = 1 properties

Apartment (Number of properties = 118)

- <20,000 ft^2 = 82 properties
- <40,000 ft^2 = 4 properties
- <60,000 ft^2 = 7 properties
- <220,000 ft^2 = 1 property
- <260,000 ft^2 = 1 property
- <280,000 ft^2 = 2 properties

[30] The average impervious surface for each residential property was calculated using national data, where townhouse and residential condominiums = 65% impervious and single-family homes = 30% impervious. Based on the spreadsheet provided by the City, the Project Team calculated the average impervious surface for each property type. Thus, the average impervious surface for residential properties = 3,344 square feet.

- <100,000 ft^2 = 3 properties
- <120,000 ft^2 = 2 properties
- <140,000 ft^2 = 2 properties
- <160,000 ft^2 = 1 property
- <180,000 ft^2 = 1 property
- <200,000 ft^2 = 2 properties
- <300,000 ft^2 = 2 properties
- <340,000 ft^2 = 2 properties
- <360,000 ft^2 = 1 property
- <420,000 ft^2 = 1 property
- >500,000 ft^2 = 4 properties

Commercial (Number of properties = 1,386)

- <20,000 ft^2 = 735 properties
- <40,000 ft^2 = 261 properties
- <60,000 ft^2 = 126 properties
- <80,000 ft^2 = 61 properties
- <100,000 ft^2 = 38 properties
- <120,000 ft^2 = 19 properties
- <140,000 ft^2 = 16 properties
- <160,000 ft^2 = 11 properties
- <180,000 ft^2 = 13 properties
- <200,000 ft^2 = 8 properties
- <220,000 ft^2 = 10 properties
- <240,000 ft^2 = 6 properties
- <260,000 ft^2 = 4 properties
- <280,000 ft^2 = 5 properties
- <300,000 ft^2 = 6 properties
- <320,000 ft^2 = 6 properties
- <340,000 ft^2 = 3 properties
- <360,000 ft^2 = 1 property
- <380,000 ft^2 = 1 property
- <400,000 ft^2 = 5 properties
- <420,000 ft^2 = 3 properties
- <440,000 ft^2 = 3 properties
- <460,000 ft^2 = 1 property
- <500,000 ft^2 = 1 property
- >500,000 ft^2 = 43 properties

Exempt Commercial (Number of properties = 337)

- <20,000 ft^2 = 185 properties
- <40,000 ft^2 = 35 properties
- <60,000 ft^2 = 30 properties
- <80,000 ft^2 = 7 properties
- <100,000 ft^2 = 10 properties
- <120,000 ft^2 = 9 properties
- <140,000 ft^2 = 4 properties
- <160,000 ft^2 = 3 properties
- <180,000 ft^2 = 5 properties
- <200,000 ft^2 = 5 properties
- <220,000 ft^2 = 4 properties
- <280,000 ft^2 = 3 properties
- <300,000 ft^2 = 2 properties
- <340,000 ft^2 = 1 property
- <360,000 ft^2 = 2 properties
- <400,000 ft^2 = 1 property
- <420,000 ft^2 = 1 property
- >500,000 ft^2 = 30 properties

Commercial Condominium (Number of properties = 51)

- <20,000 ft^2 = 50 properties
- <40,000 ft^2 = 1 property

Residential Commercial (Number of properties = 30)

- <20,000 ft^2 = 27 properties
- <60,000 ft^2 = 2 properties
- <80,000 ft^2 = 1 property

Industrial (Number of properties = 414)

- <20,000 ft^2 = 219 properties
- <40,000 ft^2 = 50 properties
- <60,000 ft^2 = 35 properties
- <80,000 ft^2 = 9 properties
- <100,000 ft^2 = 15 properties
- <120,000 ft^2 = 9 properties
- <140,000 ft^2 = 10 properties
- <160,000 ft^2 = 5 properties
- <180,000 ft^2 = 14 properties
- <200,000 ft^2 = 9 properties
- <220,000 ft^2 = 1 property
- <240,000 ft^2 = 2 properties
- <260,000 ft^2 = 5 properties
- <280,000 ft^2 = 2 properties
- <320,000 ft^2 = 3 properties
- <360,000 ft^2 = 2 properties
- <380,000 ft^2 = 1 property
- <400,000 ft^2 = 2 properties
- <460,000 ft^2 = 1 property
- <480,000 ft^2 = 3 properties
- <500,000 ft^2 = 1 property
- >500,000 ft^2 = 16 properties

Exempt (Number of properties = 124)

- <20,000 ft^2 = 113 properties
- <40,000 ft^2 = 6 properties
- <60,000 ft^2 = 2 properties
- <80,000 ft^2 = 1 property
- <120,000 ft^2 = 1 property
- <280,000 ft^2 = 1 property

To determine the total revenue, the Project Team added all properties by type to determine the total number of properties by tier, and then multiplied the number of properties in each tier by the appropriate annual fee to determine the total revenue generated per year from a tiered rate structure[31]:

- <20,000 ft^2: 1,413 properties x $200 = $282,600
- <40,000 ft^2: 357 properties x $400 = $142,800
- <60,000 ft^2: 202 properties x $600 = $121,200
- <80,000 ft^2: 79 properties x $800 = $63,200
- <100,000 ft^2: 66 properties x $1,000 = $66,000
- <120,000 ft^2: 40 properties x $1,240 = $49,600
- <140,000 ft^2: 32 properties x $1,440 = $46,080
- <160,000 ft^2: 21 properties x $1,640 = $34,440
- <180,000 ft^2: 33 properties x $1,840 = $60,720
- <200,000 ft^2: 24 properties x $2,040 = $48,960
- <220,000 ft^2: 16 properties x $2,240 = $35,840
- <240,000 ft^2: 8 properties x $2,440 = $19,520
- <260,000 ft^2: 10 properties x $2,640 = $26,400

[31] The fee was determined by the following equation: ((Land area by tier (ft^2))(85%))/3,344 ft^2 = # ERUs x $40 = tiered annual fee.

- <280,000 ft^2: 13 properties x $2,840 = $36,920
- <300,000 ft^2: 10 properties x $3,040 = $30,400
- <320,000 ft^2: 9 properties x $3,240 = $29,160
- <340,000 ft^2: 6 properties x $3,440 = $20,640
- <360,000 ft^2: 6 properties x $3,680 = $22,080
- <380,000 ft^2: 2 properties x $3,880 = $7,760
- <400,000 ft^2: 8 properties x $4,080 = $32,640
- <420,000 ft^2: 5 properties x $4,280 = $21,400
- <440,000 ft^2: 3 properties x $4,480 = $13,440
- <460,000 ft^2: 2 properties x $4,680 = $9,360
- <480,000 ft^2: 3 properties x $4,880 = $14,640
- <500,000 ft^2: 2 properties x $5,080 = $10,160
- >500,000 ft^2: 94 properties x $5,280 = $496,320

Beginning in year 3, the total revenue yield is estimated to be $1,982,173 per year. Beginning in year 5, the total revenue yield is estimated to be $2,229,945 per year. Finally, beginning in year 8, the total revenue yield is estimated to be $2,477,716 per year. From data provided by the City, the Project Team calculated the average lot size of each non-residential property type, and using national data estimated the average impervious surface by property type[32], shown in Table 8 below.

Table 8: Non-residential Property Data used to Calculate ERU-based Fee

Property Type	Average Lot Size (ft^2)	% Impervious Surface	Average Impervious Surface (ft^2)	Number of properties
Agricultural	466,745	77%[33]	359,394	4
Apartment	68,617	65%	44,601	118
Commercial	72,738	85%	61,827	1,386
Exempt Commercial	164,450	85%	139,783	337
Commercial Condominium	4,230	85%	3,596	51
Residential Commercial	11,962	75%	8,972	30
Industrial	82,175	72%	59,166	414
Exempt	11,979	85%	10,182	124

[32] *Urban Hydrology for Small Watersheds*, Technical Release 55, United States Department of Agriculture, Revised June 1986. The average impervious surface for each non-residential property was calculated using national data, where agricultural, commercial, exempt commercial, commercial condominium, and exempt properties = 85% impervious; apartment properties = 65% impervious; residential commercial properties = 75% impervious; and industrial properties = 72% impervious.

[33] Ibid. The average percent impervious for agricultural properties was determined by computing the average of all types of agricultural properties with different soil types in TR-55.

For each property type, the average impervious surface was divided by 3,344ft^2 (as stated earlier equals 1 ERU), which yields an average ERU for each property type, as follows:

- Agricultural = 107.47 ERU
- Apartment = 13.34 ERU
- Commercial = 18.49 ERU
- Exempt Commercial = 41.80 ERU
- Commercial Condominium = 1.08 ERU
- Residential Commercial = 2.68 ERU
- Industrial = 17.69 ERU
- Exempt = 3.04 ERU

Each average ERU by property type was then multiplied by $40, and then again by the total number of properties, thus determining the average each property type will pay by year (years 3 and 4[34]):

- Agricultural = 107.47 ERU x $40 x 4 = $17,196
- Apartment = 13.34 ERU x $40 x 118 = $62,954
- Commercial = 18.49 ERU x $40 x 1,386 = $1,025,032
- Exempt Commercial = 41.80 ERU x $40 x 337 = $563,477
- Commercial Condominium = 1.08 ERU x $40 x 51 = $2,193
- Residential Commercial = 2.68 ERU x $40 x 30 = $3,219
- Industrial = 17.69 ERU x $40 x 414 = $292,999
- Exempt = 3.04 ERU x $40 x 124 = $15,103

The total revenue for each property type was then added to determine the total revenue for all non-residential properties ($1,982,173). When adding the anticipated revenue totals over the next ten years from residential and non-residential properties, taking into account all of the recommendations in the report, the Project Team found that the City of Salisbury will raise approximately $25.1 million. Table 9 below shows the total revenue generated each year for residential and non-residential properties.

Table 9: Total Revenues, 10 Year Projection

	Residential	**Non-residential**		**Residential**	**Non-residential**
Year 1	$319,960	$1,742,280	Year 6	$359,955	$2,229,945
Year 2	$319,960	$1,742,280	Year 7	$359,955	$2,229,945
Year 3	$319,960	$1,982,173	Year 8	$399,950	$2,477,716
Year 4	$319,960	$1,982,173	Year 9	$399,950	$2,477,716
Year 5	$359,955	$2,229,945	Year 10	$399,950	$2,477,716
				Total revenue	**$25,131,444**

[34] For later years, will multiply by ERU rate ($45 in years 5-7, $50 in years 8-10).

It is difficult to estimate the effect of a credit system being imposed on the program. However, based on a credit system imposed in year 3, revenues may decrease depending 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 utility rate structure must be reevaluated to ensure that a credit system does not infringe on meeting revenue needs. It is unclear just how effective the credit system will be and there are no data that supports an average amount to consider. For more information about a credit system, please see Chapter 6.

More on how the ERU was calculated for Salisbury – As stated earlier in this report, an Equivalent Runoff Unit (ERU) is the amount of impervious surface, usually measured in square feet, of a typical property. An ERU is often calculated by collecting the impervious square footage of a random sample of properties across an area of a city. The resulting numbers are then analyzed and an average or median impervious surface value for the data set is used to determine the value of an ERU.

Currently, the City of Salisbury does not have adequate software or capacity in place to calculate an exact ERU for all of the properties located in the City. Because of this, estimating the total revenue yields proved difficult, and thus, estimates are based on national data provided by City staff.[35] In order to calculate a fair and equitable ERU rate for the City, the Project Team began by collecting information about the total number of residents and businesses in the City. Because of the wide variety of housing options, the Project Team decided not to choose a random sample within the City but rather, examined the total number of dwellings of all the property types provided in the spreadsheet. With this information, the Project Team was able to determine an appropriate ERU to set for the City. Based on this data collection, it was determined that one ERU should be equal to 3,344 ft^2 of impervious surface.

Table 10: Average Impervious Surface by Dwelling Type

Dwelling Type	Average Impervious Surface (ft^2)
Residential units	4,774
Residential condo units	2,404
Townhouse units	2,855
Agricultural properties	359,394
Apartment properties	44,601
Commercial properties	61,827
Exempt commercial properties	139,783
Commercial condo properties	3,596
Res. commercial properties	8,972
Industrial properties	59,166
Exempt properties	10,182
Average total impervious surface (residential & non-residential):	63,414
Average total impervious surface (residential only):	3,344

The justification for an ERU being set at 3,344 ft^2 is that this is the average impervious surface for residential properties (see Table 10 above), and therefore ties the level of payment to the extent to

[35] National data on the average percent impervious surface by property type were provided by City staff (Source data TR-55, 1983).

which a property contributes to runoff. Since residential properties are similar in size compared to non-residential properties, and since calculating impervious surface for all properties proves a large administrative task, it is recommended that all residential properties be billed at one ERU. In addition, after conducting a sensitivity analysis that used different ERU calculations to compare the average impervious surface for all property types, 3,344 ft^2 stood out as an equitable number that is fair for all dwelling types.

Finally, the Project Team recommends that when explaining the fee structure to property owners with smaller properties (who may not literally have 3,344 ft^2 of property, much less 3,344 ft^2 of impervious surface), it should be emphasized that the structure was set up based on **average contribution to stormwater runoff**. It also should be noted that additional structures beyond the units themselves, such as swimming pools, paved parking lots or cement landings, sheds, patios, courtyards, tennis courts, recreational and/or workout rooms, and other such structures are part of calculated total impervious surface. Regardless of individual ownership, some of these amenities and storage spaces must be shared by all owners of the buildings.

Chapter 6: Credit System and Exemptions

Explanation of Credit System

A stormwater credit is a reduction in the portion of the stormwater utility 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. In Maryland, under House Bill 987, a credit system is required but only for Phase I counties to which this law applies, which does not include the City of Salisbury. For others, such as Takoma Park, Maryland, not having a credit system made sense for a time, but now that the stormwater program is well-established, just this year consideration is being made to develop a credit program.

There are many factors to take into account when a community decides whether or not to develop a credit program for their stormwater utility fee 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 Salisbury decide to develop a credit program, the City 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 NPDES MS4 Phase II Stormwater 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.

Recommendations for a Credit Program for Salisbury

Based on the Project Team's year-long analysis of the current stormwater management program and reviewing the capacity of the City to implement a credit program, the City of Salisbury should not consider developing a program until year 3 or later to enable stormwater staff to focus on establishing the program and developing the parcel-based fee system for non-residential properties. The only possible exception that may be considered for Salisbury would be the financial hardship example listed above. This should be done on a case-by-case basis with an application form made available on the City website.

In future years when the recommendation to move towards an ERU-based utility is running smoothly and the watershed master plan has been completed showing more complete data about the City and the possible credits that would be beneficial for properties, only then should a program be designed and implemented.

When a credit program is finally ready to be developed, emphasis should be placed on quality credits rather than quantity credits. This recommendation is currently being made based on available information but may change with the new permit. Currently, the encouragement of installing more BMPs in Salisbury will help offer credits to larger property owners such as Salisbury University, the hospital, and others. As the credit program begins to be developed for the City of Salisbury, looking to programs and manuals developed by similar communities who implemented a program will be helpful and save the City time. For example, when Lynchburg, Virginia was required

by law to put a credit program in place prior to issuing its first utility fee bill in July 2012, Lynchburg utilized Richmond as a model for credits and made modifications to reflect their own community.

Although it is often the case where non-residential credits are only available and none are offered for residential, it is the recommendation of the Project Team to offer some type of credit to residential to encourage the installation of rain barrels, rain gardens, and other small-scale practices. If this credit becomes too administratively burdensome for the City to manage, an alternative would be to develop an incentive program or rebate program that encourages residents to adopt certain BMPs on residential properties. One of the models for rain garden programs can be found in Howard County, Maryland with their successful residential program through the Columbia Association. Engaging the Watershed Assistance Collaborative through the DNR and asking for guidance from the Watershed Specialist assigned to the Eastern Shore area would provide additional capacity for initiating a residential program. Coordinating with Master Gardeners, existing non-profits, and Salisbury University can also leverage resources, expand capacity, and build support for this system.

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 utility 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 fair candidates for an exemption.

The Project Team recommends that the City of Salisbury limit allowable exemptions once a stormwater fee structure is put in place. Out of the above mentioned categories, the most appropriate exemption for Salisbury to consider is that of undeveloped land, financial hardship, and possibly public roads maintained by the state and county.

In House Bill 987 which Phase I jurisdictions have been directed to implement by July 2013, municipal/county owned properties and firehouses are exempt, which can represent a significant percentage of the land use in a community. Although these exemptions are under consideration by the House Bill 987 communities, the general consensus is to restrict the number of exemptions.

Chapter 7: Summary of Recommendations

In summary, the Project Team strongly urges the City of Salisbury to invest in their stormwater program now to avoid potentially costly emergency repairs or abatement in the future. 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 stormwater utility.

As stated in Chapter 5, the Project Team recommends the use of a rate structure based upon Equivalent Residential Unit (ERU) (also known as an Equivalent Runoff Unit) where 1 ERU equals 3,344 ft^2. It is further recommended that each ERU on a property initially be assessed $40 per year, with a recommended increase to $45 per year in year 5 and again to $50 per year in year 8 to support the program's costs.

The Project Team calculated revenue based on a flat rate fee for residential properties and a fee structure for non-residential units based on land area in years 1 and 2 and impervious surface beginning in year 3.

Residential --The residential fee is based on the assumption that an average property has about 3,344 ft^2 of impervious surface and, therefore, all properties are billed for 1 ERU per year. The average impervious surface for residential properties was determined using the data provided by City staff. Thus, it is recommended that all residents will be charged $40 per year in years 1-4, $45 per year in years 5-7, and $50 per year in years 8-10, regardless of property size or amount of impervious surface. Revenue from residential properties will yield a total of $319,960 per year in years 1-4, $359,955 per year in years 5-7, and $399,950 per year in years 8-10[36].

Non-residential -- Due to capacity issues and the administrative and technical burden of calculating impervious surface for all non-residential properties, the non-residential fee should be based on a tiered system in years 1 and 2, and slowly transition to a fee that is based directly on the amount of impervious surface on a property. In years 1 and 2, the tiered fee will allow for properties to be billed based on their land area, increasing in increments of 20,000 ft^2. Once City staff has a handle on the program, the non-residential tiered system should transition to an impervious fee structure. Thus, if a commercial property is estimated to be 15,000 ft^2 with an impervious surface of 10,000 ft^2, the property will be charged $200 per year in year 1 and 2 and $120 (3 ERUs) per year in year 3. All commercial properties, regardless of status (governmental, non-profit, etc.) should be assessed a stormwater utility fee based on its contribution to the problem. Revenue from all non-residential properties will yield an estimated total of $1,742,280 per year in years 1 and 2, $1,982,173 per year in years 3 and 4, $2,229,945 per year in years 5-7, and $2,477,716 per year in years 8-10[37].

The report concludes that by utilizing a flat fee for residential properties and slowly integrating an ERU-based fee for non-residential properties, the utility will be able to collect the necessary $23.2 million by the end of year 10 in order to properly repair and maintain the stormwater system.

[36] Based on the flat fee multiplied by 7,999 residential properties.

[37] Based on all non-residential properties (2,464) paying $40/ERU per year in years 3-4, $45/ERU per year in years 5-7, and $50/ERU per year in years 8-10.

Project Team

Joanne Throwe, Director – jthrowe@umd.edu

Hired in 2005 as the EFC's Agricultural Program Leader, Joanne Throwe became Assistant Director in 2007, Associate Director in 2008, and Director in 2009. In addition, she completed an 18-month assignment working with USDA/CSREES as shared-faculty to assist in the coordination of special agriculture projects. Ms. Throwe works with communities in the Mid-Atlantic region implementing innovative financing solutions for environmental protection. Her work experience includes extensive knowledge about agriculture, green infrastructure, biofuels, ecosystem services and solid waste management. Prior to joining the EFC, Ms. Throwe spent several years as a Development Resource Specialist at USDA's Foreign Agriculture Service and two years as an Agriculture Extension Agent for Peace Corps in the South Pacific. She holds a M.A. in Public Policy and Private Enterprise from the University of Maryland.

Jennifer Cotting, Assistant Director – jcotting@umd.edu

Jennifer Cotting joined the EFC in 2004 to manage an EPA funded program designed to help communities and organizations in Region 3 overcome barriers to implementing and financing their watershed protection efforts. As a Program Manager she coordinated a number of the EFC's core programs, with a particular focus on urban greening, tree canopy, and green infrastructure. Her current work as Assistant Director includes these program management tasks, as well as responsibilities for the day-to-day operations of the center and the management of staff and student employees. In addition, Ms. Cotting serves as the EFC's representative to the Green Infrastructure Community of Practice. Prior to joining the EFC, Ms. Cotting worked as an independent consultant developing and implementing environmentally based education and outreach programs for nonprofit organizations and government agencies. She received her M.S. in Sustainable Development and Conservation Biology from the University of Maryland and her B.A. in Communications from Marymount University.

Monica Billig, Program Manager – mbillig@umd.edu

Monica Billig joined the EFC as a program assistant in September 2010 at the start of her graduate student experience at UMD. She attended UMD's School of Public Policy, concentrating in social policy and received her Master in Public Policy (MPP) in May 2012. Prior to attending UMD, Ms. Billig worked for two years as a Research Associate at edCount, LLC, a Washington, DC based education policy consulting firm specializing in policy related to assessments, standards, and accountability. Ms. Billig received her B.A. in Economics and a minor in Mathematics from Smith College in Northampton, MA.

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Special thanks to the **City of** Salisbury, in particular the **Department of Public Works** staff, for their collaboration, support, and willingness to participate in this study and provide the Project Team with relevant materials and data.

Special thanks to **Judith Stribling**, professor at Salisbury University, and the **Wicomico River Project Team** for their feedback and willingness to provide local insight of Wicomico County.

Appendix A: A Step-by-Step Process for Planning a Comprehensive Stormwater Management Program

The following steps will provide general guidelines for a municipality when planning for a comprehensive stormwater management program. The EFC will lead each municipality in conducting each step in the process.

Technical process

Step 1: Conduct an assessment of current stormwater management program through data gathering

- Gather all relevant written information from appropriate staff and consultants on existing stormwater program. This information may include all permits, memos, annual reports, existing policies and procedures, and budget materials dating back at least five years where possible.

Step 2: Evaluate existing stormwater management program structure, evaluate current capacity, and identify trends in funding levels

- Conduct in-depth interviews with appropriate departments, staff, and consultants such as planners, engineers, GIS personnel, water resources directors, etc.

Step 3: Begin to identify gaps in existing program and evaluate future needs

- Using information collected from steps 1 and 2, EFC will begin to develop a Level of Service (LOS) document that includes the minimum control measures (MCM) deemed necessary by EPA for a comprehensive stormwater program.
    - The LOS document should include the following categories: Operations & Maintenance, Stormwater Quality, Water Quality/Quantity Management, Green Infrastructure, Program Leadership, Design, Engineering, & Enforcement, and Capital Improvements.

Step 4: Review LOS document with municipal staff

- Meet with municipal staff to determine where their current program fits into the LOS document, and what costs are associated with each element. Agreement will be reached in terms of final costs and recommendations about filling gaps in service.
- When meeting with municipal staff, determine what needs to be put in place to meet stormwater regulatory requirements and develop an estimation of all costs associated with providing the appropriate level of service.

Step 5: Develop proposed stormwater program budget for year 1

- Based on steps 1-4, develop the LOS expenditures, categorized into the following: personnel costs, capital improvement costs, and operations & maintenance costs.
- Once the year 1 expenditures are estimated, send to municipal staff for their review.
- After municipal staff review and provide feedback, finalize year 1 costs and then project costs for a minimum of 5 years.

Step 6: Retrieve all parcel data from municipal staff

- The more data available to EFC, the more accurate our revenue estimates will be.
- The following data is needed for analysis:

- Total number of properties within municipality by property type (residential, commercial, industrial, and any other land use categories used within municipality);
- Average lot size by property type; and
- Average impervious surface by property type[38].

Step 7: Estimate revenues using information retrieved in step 6

- Conduct sensitivity analysis using various fee structures using a mix of equivalent residential units (ERU) and flat fees.

Step 8: Meet with municipal staff to review funding recommendations

- Discuss incorporating credit and exemptions into the stormwater program, beginning in year 2 or later.
- Finalize revenues to match expenditure needs.

Step 9: Draft final report and share with the municipality near the end of the project

Step 10: Make Stormwater Feasibility Study recommendations to officials and communities

Outreach process

Step 1: Establish an ad-hoc community stormwater working group

- Successful public outreach relies on stakeholders from the community coming together from a variety of sectors to provide valuable insight on community-specific goals, priorities, concerns, and norms.
- Municipal staff should pull together a list of 10-15 individuals representing residents/"concerned citizens", business community, faith-based organizations, nonprofit organizations, and environmental groups.
- Once the list is finalized, email group with background information and ask for feedback on what type of outreach activities we should participate and on material we develop.

Step 2: Craft outreach and marketing plan with estimated timeline

- Determine specific outreach strategy, including how and who to engage.
- Create a month-by-month itemized list of outreach activities that includes: 1-3 public meetings; neighborhood association outreach; fun community event; specific events that would be good to attend; and press releases.
- Once outreach and marketing plan draft is finished, send to working group for their review.

Step 3: Develop outreach materials

- Examples of different outreach materials include: stormwater fact sheet, stormwater 101, promotional flyer, press releases to inform community as study progresses.

Step 4: Conduct outreach activities included in outreach and marketing timeline

[38] If this data is not available, we will use national estimates to determine impervious footprint by property type; however, to provide accurate estimates specific to a municipality, such data is necessary.

Appendix B: Outreach and Marketing Strategy

EFC Stormwater Unit

Salisbury Marketing and Outreach Strategy: Timeline

February 21, 2012

Where: The City of Salisbury, Maryland

When: February 2012 – July 2012

Partners: UMD Environmental Finance Center, City of Salisbury, Mayor's River Project Team

What: A public outreach, education and marketing plan that communicates stormwater issues, including water quality/quantity, infrastructure problems, and solutions for sustainable financing.

Why: To improve stormwater and water quality conditions in the City and create a dedicated, reliable funding source for infrastructure, operations, maintenance, and compliance needs.

Audience: Citizens, businesses, elected officials

Ongoing Activities

- Marketing activities listed below may be on-going throughout the project as appropriate or opportunities arise:
  - TV, radio, newspaper ads or announcements
  - Magazine articles regarding stormwater efforts in Salisbury
  - Include stormwater project and information on the City's website and/or other web-based media
  - Presentations to HOAs, nonprofits, and other groups
  - Highlighting City projects
  - Provide fliers or other information on stormwater at library, Farmers Market, and other locations as appropriate
  - Have presence/hand out flyers during one or more *3rd Fridays*
  - Maintain presence at Wicomico River Project Group's monthly meetings as appropriate – present all updated materials

February 2012

- Send draft outreach plan and materials for logo-slogan contest to Wicomico River Project team for review
- Have initial calls with Chamber of Commerce, Salisbury-Wicomico Economic Development, and the Greater Salisbury Committee to identify best way to engage the business sector
- Have initial conversations to determine feasibility of logo-slogan contest

March 2012

- Develop overall outreach and education messaging and marketing strategy for the public and events, to include multi-purpose two-pager on this project
- Forward two-pager on stormwater and EFC's work with the City to HOA list as provided by Mayor's staff (see attached) with offer to speak if of interest to their community
- Kick-off logo-slogan contest, giving participants at least one month to complete contest
- Promote logo-slogan contest flyer through local media outlets
- Pitch our work and logo-slogan contest to *Metropolitan* magazine
- Brief City Council on our progress and outreach efforts as appropriate

April 2012

- Host table at the Earth Day Festival at the Salisbury Zoo with display to include visitor voting for best logo-slogan contest entry
- Announce logo-slogan contest winner at Salisbury Festival
- Host listening session for the local business community (if deemed the most appropriate structure for engagement)
- Present stormwater project to key HOAs and community groups

May 2012

- Update City staff, Wicomico River Project team, and City Council on our efforts as appropriate

June 2012

- Send draft recommendations to stakeholders for review

July 2012

- Deliver final report

Salisbury Homeowners Associations to receive email flyer:

- Newtown
- Camden
- East Main Street
- Johnson's Lake
- Harbor Pointe
- Sleepy Hollow
- Schumaker Manor
- Village at Tony Tank Creek
- Northeast Neighborhood Association
- Canal Woods
- Spring Chase
- Schumaker Pond
- Mallard Landing Retirement Village

Appendix C: Fact Sheet

STORMWATER IN THE CITY OF SALISBURY

Why does stormwater matter?

- **Because the river matters.**
  - The Wicomico River is one of Salisbury's most valued assets for both its natural beauty and its ties to the local economy. Poorly managed stormwater can pollute the river, cause erosion and flooding, and damage property and habitats.
- **Stormwater systems require long-term management and maintenance.**
  - The City's aging infrastructure is in need of repair to mitigate heavy rainfall, manage runoff, and meet regulatory requirements.
  - The City of Salisbury is close to sea level—so drainage can be a big issue when it rains or with a storm surge.

Source: Justin Karp, news21.com

- **Stormwater systems are overlooked.**
  - Neglecting stormwater systems can cost the City millions in damages and repairs if an emergency strikes or fines if regulations are not met.
  - Stormwater in Salisbury can create public health, safety, and economic concerns.

What is the City doing about this?

- **Coordinating, planning, and implementing projects that improve local stormwater management.**

Source: www.news.ncsu.edu

  - Prioritizing projects that address stormwater management needs in the City's Capital Improvement Plan
  - Implementing the practices outlined in the City's stormwater permit and the Wicomico County Watershed Implementation Plan.
  - Tapping into the knowledge, skills, and capacity of community stakeholders the public-private partnership with the formation of the Wicomico River Project Group.
  - Working with the Center for Watershed Protection to characterize the watershed and identify cost-effective stormwater management practices.

What can WE do?

- **Encourage activities that minimize stormwater runoff.**
  - Limit the amount of solid surfaces – parking lots, large buildings, and roadways – or use permeable materials that allow rain to naturally soak into the ground.
  - 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 from your property.
  - Find ways to reduce the amount of litter, sediment, and other debris entering waterways through the stormwater collection system.
  - Use natural alternatives to chemical fertilizers and pesticides to reduce the amount of debris being discharged into streams via a storm event.

How do we pay for all of this?

- **A sustainable stormwater financing strategy helps cover costs.**
  - Most communities simply rely on the local budget to pay for stormwater, where these needs must compete for limited resources.
  - Setting aside funds for maintenance and upgrades is critical to the effective management of stormwater systems.
  - Many communities use a minimal utility fee, so there are dedicated funds solely to financing stormwater management.
- **The City of Salisbury and other stakeholders are working with the University of Maryland Environmental Finance Center (EFC) to find long-term solutions to managing stormwater in the City.**
  - The EFC is talking to the residential, business, and other sectors of the community to learn more about how stormwater impacts them and determine viable solutions.
  - The EFC is working with City staff to ensure Salisbury has a stormwater program that addresses local infrastructure and regulatory needs in a long-term and sustainable manner.
  - The EFC will provide financing recommendations designed to support stormwater program needs in a way that reflects the nature and characteristics of the City of Salisbury.

Want to learn more or share your thoughts on stormwater in the City of Salisbury?

Source:http://www.destination360.com/north america/us/maryland/salisbury

Contact:
Jennifer Cotting
Environmental Finance Center
University of Maryland
1208 Preinkert Field House, Bldg 054
College Park, MD 20742
301-405-5495
jcotting@umd.edu

Appendix D: Logo-Slogan Contest Flyer

City of Salisbury Stormwater Logo-Slogan Contest

When stormwater is not managed properly, it washes pollution into the river and can cause flooding and other damage.

The City of Salisbury is working to improve the way stormwater is managed in our community and **YOUR DESIGN** could be the new face of our efforts.

SUBMISSION GUIDELINES:

- ✓ **Maximum of *one* 8 1/2" by 11" submission per person**
- ✓ **Artwork and wording must be the original art of the entrant**
- ✓ **Entrants do not need to be Salisbury residents**

The winning logo-slogan will become the new face of stormwater efforts in Salisbury. Submissions will not be returned to the entrant at the completion of the contest.

Bring artwork to: **The Mayor's Office** at the **City Government Building,** 125 N. Division Street, Salisbury MD, Monday through Friday, 8:30 am to 4:30 pm. Submissions will be accepted through Wednesday, April 18th, 2012.

~OR~

Send to: **The Environmental Finance Center at the University of Maryland,** 1218 Preinkert Hall, 054, College Park, MD, 20742, postmarked no later than April 13th, 2012.

Not an artist? No problem, you can still participate!

Stop by our booth at the **Salisbury Zoo's Earth Day** celebration to vote for your favorite logo-slogan combination and get your very own seed packet — Saturday, April 21st from 10 am to 4 pm.

The Salisbury Zoo is located at 755 South Park Drive.

Winner will be announced and prizes awarded at the **Salisbury Festival** on April 28th!

Hosted by the City of Salisbury and the Environmental Finance Center at the University of Maryland

Funded by Town Creek Foundation

EFC

Town Creek Foundation

CITY OF SALISBURY MARYLAND 1732

Artwork Authorization and Release Form

I, the undersigned Rights-holder, hereby grant the Environmental Finance Center (EFC) at the University of Maryland a nonexclusive, fully paid, right and license to reproduce, distribute, modify, and publicly display the artwork in connection with any EFC activity, in any medium and using any technology now known or hereafter developed provided the EFC does not sell or license any of the artwork to third parties to use for any purpose. I represent that the submitted artwork is my original work and do not infringe the copyright or other proprietary rights of any third person and that I have obtained any permissions that may have been required in connection with the artwork. If Rights-holder is under the age of 18, I represent and warrant that I am the parent/guardian of the exclusive copyright holder.

I forever discharge and release the EFC and its employees, officers, agents, students and other persons acting under its authority from all claims and causes of action, liabilities and damages arising out of or related to authorized uses of the artwork, including but not limited to claims for invasion of privacy or misappropriation, and I forever waive any right I might have to receive compensation of any kind based on the EFC's authorized use of the artwork.

In exchange for this license, the EFC agrees to identify the Rights-holder and copyright owner of the artwork in print and online publications and will use its best efforts to acknowledge the Rights–holder in public relations or promotional materials.

I have read and understand the above authorization and have had the opportunity to consult with legal counsel of my choosing.

Print name **as you wish to be identified in acknowledgements**

Signature Date

If under 18, parent/guardian signature Date

EFC

Town Creek Foundation

Appendix E: Earth Day Pictures

Salisbury stormwater feasibility study booth

Kids drawing pictures of rain and flooding

Kids drawing pictures of rain and flooding

Appendix F: Earth Day Collage

Appendix G: Public Meeting Flyer

Please join us!
Tuesday, May 15th
Wicomico Civic Center – 6-8PM

Salisbury Public Meeting:

Stormwater Run-off

Photo Source: www.arng.army.mil/News/Pages/MarylandGuardTacklesLeeStormFloods.aspx

Please join us for an open discussion about water quality and flooding in Salisbury. We want to hear from you about how we can improve and fund infrastructure & keep our city green and clean!

Light refreshments will be served.

Let us know you'll be joining us: Contact Jessie Cocci jcocci@ci.salisbury.md.us

City of Salisbury
MD Department of Natural Resources
Town Creek Foundation
University of MD Environmental Finance Center

EFC

Appendix H: Level of Service Expenditures, Years 1-3

Salisbury Proposed Stormwater Personnel Budget*				
	Year 1 Cost	**Year 2 Cost**	**Year 3 Cost**	**Comments**
SW Utility Manager	$88,838	$91,059	$93,336	1 FTE; Grade 13 = $66,367 salary; $22,471.29 fringe
Outreach & Staff Training Project Manager	*anticipated hire in year 3*		$76,513	1 FTE; Grade 10 = $52,684; $20,142.45 fringe
CAD Operator	$5,649	$5,790	$5,935	1 PTE (0.1); Grade 6 = $38,725; $17,766.63 fringe
GIS	$64,031	$65,632	$67,273	1 FTE; Grade 8 = $45,168; $18,863.22 fringe
Survey	*anticipated hire in year 2*	$8,516	$8,729	1 PTE (0.1); Grade 12 = $61,451; $21,634.59 fringe
Project Engineer		$79,703	$81,696	1 FTE; Grade 11 = $56,899; $20,859.84 fringe
BMP Maintenance Inspector	*anticipated hire in year 3*		$67,273	1 FTE; Grade 8 = $45,168; $18,863.22 fringe
Utility Tech 1 (cleaning)			$46,736	1 FTE; Grade 2 = $28,464; $16,020.20 fringe
IDD&E Program Inspector			$67,273	1 FTE; Grade 8 = $45,168; $18,863.22 fringe
Total Costs by year	**$158,519**	**$250,701**	**$514,764**	

Salisbury Proposed Stormwater Capital Improvement Budget				
	Year 1 Cost	**Year 2 Cost**	**Year 3 Cost**	**Comments**
CIP costs	$1,060,000	$2,020,000	$1,450,000	FY 2013 costs from CIP
Modular home office	$130,000			Estimate provided by Salisbury staff
BMP Maintenance Truck			$40,000	
John Boat			$15,000	Boat & trailer
Vehicle			$20,000	For IDD&E Inspector; estimate for standard vehicle
Software (GIS, Office Suite, Adobe)	$3,449	$641	$2,555	Year 1 - GIS; Year 3 - AdobePro & Office for BMP Inspector and IDD&E Inspector ARC Editor = $2,500 (for concurrent license that can be used on multiple computers, only one running at a time, 25% maintenance fees every year after); AdobePro = $449; Office Professional Suite = $500
Cell phone		$256	$788	Year 2 - Project Engineer; Year 3 - BMP Inspector, Utility Tech, IDD&E Inspector
Camera	$250		$788	Year 1 - Utility Manager; Year 3 - Training Manager, BMP Inspector, IDD&E Inspector
Projector	$500			Provided for all staff's use
Laptop	$1,000	$1,025	$4,203	Year 1; Utility Manager; Year 2 - Project Engineer; Year 3 - Training Manager, BMP Inspector, Utility Tech, IDD&E Inspector

	Year 1 Cost	Year 2 Cost	Year 3 Cost	Comments
Desktop	$1,000			Year 1 - GIS
Tools	$250	$256	$1,051	Year 1 - CAD Operator; Year 3 - BMP Inspector, Utility Tech, IDD&E Inspector
Uniform	$20	$41	$105	Year 1 - CAD Operator; Year 2 - Survey; Year 3 - BMP Inspector, Utility Tech, and IDD&E Inspector Uniform allowance is yearly One uniform ranges from $10-$40; Source: http://www.alibaba.com/product-gs/534315543/Engineering_Work_Uniform.html
Total Costs by year	**$1,196,469**	**$2,022,219**	**$1,534,490**	
Salisbury Proposed Stormwater Operations & Maintenance Budget				
	Year 1 Cost	**Year 2 Cost**	**Year 3 Cost**	**Comments**
Modular home office O&M	$5,000	$5,125	$5,253	$5,000/year (plus inflation) for non-City utilities, insurance, and maintenance Estimate provided by Salisbury staff
BMP Maintenane Truck O&M			$5,253	$5,000/year (plus inflation) for gas, insurance, and maintenance costs
John Boat O&M			$8,405	$8,000/year (plus inflation) for operations and maintenance costs
IDD&E Vehicle O&M			$3,152	$3,000/year (plus inflation) for gas, insurance, and maintenance costs
Testing materials			$2,101	
Program-related costs	$7,500	$7,688	$7,880	Brochure development (production & distribution), web design, and event hosting
Training fund available to staff			$15,759	Beginning in year 3, funds available for an estimated three staff to participate
Total Costs by year	**$12,500**	**$12,813**	**$47,803**	
Total Program Costs	**$1,367,488**	**$2,285,732**	**$2,097,057**	

*Salaries determined using proposed midpoint for grade salary structure; total fringe benefits calculated using Fringe_Detail spreadsheet from Salisbury.

Appendix I: Level of Service Expenditures, 10 Year Projection

	Year 1	Year 2	Year 3	Year 4	Year 5	Year 6	Year 7	Year 8	Year 9	Year 10
Personnel Costs										
SW Utility Manager	$88,838	$91,059	$93,336	$95,669	$98,061	$100,512	$103,025	$105,601	$108,241	$110,947
Outreach & Staff Training Project Manager	--	--	$76,513	$78,426	$80,387	$82,396	$84,456	$86,568	$88,732	$90,950
CAD Operator	$5,649	$5,790	$5,935	$6,084	$6,236	$6,392	$6,551	$6,715	$6,883	$7,055
GIS	$64,031	$65,632	$67,273	$68,955	$70,678	$72,445	$74,257	$76,113	$78,016	$79,966
Survey	--	$8,516	$8,729	$8,947	$9,171	$9,400	$9,635	$9,876	$10,123	$10,376
Project Engineer	--	$79,703	$81,696	$83,738	$85,831	$87,977	$90,177	$92,431	$94,742	$97,110
BMP Maintenance Inspector	--	--	$67,273	$68,955	$70,679	$72,446	$74,257	$76,113	$78,016	$79,966
Utility Technician 1	--	--	$46,736	$47,905	$49,102	$50,330	$51,588	$52,878	$54,200	$55,555
IDD&E Program Inspector	--	--	$67,273	$68,955	$70,679	$72,446	$74,257	$76,113	$78,016	$79,966
Total Personnel Costs	**$158,519**	**$250,701**	**$514,764**	**$527,633**	**$540,824**	**$554,344**	**$568,203**	**$582,408**	**$596,968**	**$611,892**
Capital Improvement Costs										
CIP Costs	$1,060,000	$2,020,000	$1,450,000	$885,000	$3,160,000	$2,050,000	$1,770,833	$1,770,833	$1,770,833	$1,770,833
Modular home office	$130,000	--	--	--	--	--	--	--	--	--
BMP Maintenance Truck	--	--	$40,000	--	--	--	--	--	--	--
John Boat	--	--	$15,000	--	--	--	--	--	--	--
Vehicle	--	--	$20,000	--	--	--	--	--	--	--
Software (GIS, Office Suite, Adobe)	$3,449	$641	$2,555	$673	$690	$708	$725	$743	$762	$781
Cell phone	--	$256	$788	--	$276	$849	--	$297	$914	--

	Year 1	Year 2	Year 3	Year 4	Year 5	Year 6	Year 7	Year 8	Year 9	Year 10
Camera	$250	--	$788	$269	--	$849	$290	--	$914	$312
Projector	$500	--	--	$538	--	--	$580	--	--	$624
Laptop	$1,000	$1,025	$4,203	--	$1,104	$1,131	$4,639	--	$1,218	$1,249
Desktop	$1,000	--	--	--	$1,104	--	--	--	$1,218	--
Tools	$250	$256	$1,051	$1,077	$1,104	$1,131	$1,160	$1,189	$1,218	$1,249
Uniform	$20	$41	$105	$108	$110	$113	$116	$119	$122	$125
Total Capital Costs	**$1,196,469**	**$2,022,219**	**$1,534,489**	**$887,666**	**$3,164,388**	**$2,054,781**	**$1,778,343**	**$1,773,181**	**$1,777,200**	**$1,775,174**
Operations & Maintenance (O&M) Costs										
Modular home office O&M	$5,000	$5,125	$5,253	$5,384	$5,519	$5,657	$5,798	$5,943	$6,092	$6,244
BMP Maintenance Truck O&M	--	--	$5,253	$5,384	$5,519	$5,657	$5,798	$5,943	$6,092	$6,244
John Boat O&M	--	--	$8,405	$8,615	$8,831	$9,051	$9,278	$9,509	$9,747	$9,991
IDD&E Vehicle O&M	--	--	$3,152	$3,231	$3,312	$3,394	$3,479	$3,566	$3,655	$3,747
Testing materials	--	--	$2,101	$2,154	$2,208	$2,263	$2,319	$2,377	$2,437	$2,498
Program-related costs	$7,500	$7,688	$7,880	$8,077	$8,279	$8,486	$8,698	$8,915	$9,138	$9,366
Training fund available to staff	--	--	$15,759	--	--	$16,971	--	--	$18,276	--
Total O&M Costs	**$12,500**	**$12,813**	**$47,803**	**$32,845**	**$33,666**	**$51,479**	**$35,371**	**$36,255**	**$55,437**	**$38,090**
Total Costs	**$1,367,488**	**$2,285,732**	**$2,097,055**	**$1,448,144**	**$3,738,878**	**$2,660,603**	**$2,381,916**	**$2,391,844**	**$2,429,605**	**$2,425,156**

Assumptions: (1) vehicles replaced every 10 years; (2) cell phones, cameras, and projectors replaced every 3 years; (3) computers replaced every 4 years; (4) tools and uniform allowance yearly; GIS software 25% maintenance yearly; (5) staff training provided every 3 years; (6) CIP costs were only projected to year 6, therefore, years 7-10 CIP costs were calculated taking the average CIP cost in years 1-6

Inflation was taken into account for all years; inflation = 2.5% based on 10 year percent change in consumer price index (CPI). The % change in annual CPI since 1999, from December-December = 2.45%. The % change in the annual average CPI since 1999 = 2.47%. (U.S. Department Of Labor Bureau of Labor Statistics, Washington, D.C. 20212, Consumer Price Index, All Urban Consumers, U.S. City Average, All Items, 1982-84=100, Retrieved from: ftp://ftp.bls.gov/pub/special.requests/cpi/cpiai.txt)

Appendix J: Non-residential Number of Properties by Tier, Years 1 & 2

Property Type	# of Properties	<20,000*ft2*	<40,000*ft2*	<60,000*ft2*	<80,000*ft2*	<100,000*ft2*	<120,000*ft2*	<140,000*ft2*	<160,000*ft2*	<180,000*ft2*	<200,000*ft2*	<220,000*ft2*	<240,000*ft2*	<260,000*ft2*	<280,000*ft2*	<300,000*ft2*	<320,000*ft2*	<340,000*ft2*	<360,000*ft2*	<380,000*ft2*	<400,000*ft2*	<420,000*ft2*	<440,000*ft2*	<460,000*ft2*	<480,000*ft2*	<500,000*ft2*	>500,000*ft2*
Agricultural	4	2							1																		1
Apartment	118	82	4	7		3	2	2	1	1	2	1		1	2	2		2	1			1					4
Commercial	1,386	735	261	126	61	38	19	16	11	13	8	10	6	4	5	6	6	3	1	1	5	3	3	1		1	43
Exempt commercial	337	185	35	30	7	10	9	4	3	5	5	4			3	2		1	2		1	1					30
Commercial condo	51	50	1																								
Res. commercial	30	27		2	1																						
Industrial	414	219	50	35	9	15	9	10	5	14	9	1	2	5	2		3		2	1	2			1	3	1	16
Exempt	124	113	6	2	1		1								1												
ALL	2,464	1,413	357	202	79	66	40	32	21	33	24	16	8	10	13	10	9	6	6	2	8	5	3	2	3	2	94