

CAMDEN COUNTY STORMWATER UTILITY BUSINESS PLAN

CAMDEN COUNTY STORMWATER PROGRAM

This business plan is presented to provide a basis for creating a stormwater utility enterprise fund that will provide reliable source of revenue to carry out stormwater system maintenance and water quality monitoring activities. The plan describes the primary goals, level of services, costs, rate structure methodology, organization, and implementation of the program.

Definitions

Best Management Practices - (BMP) Natural and man-made improvements to reduce pollution in stormwater runoff, which also influences drainage characteristics. Examples include grass swales, bio retention ponds, rain gardens, sand filters, permeable pavement, rain barrels, cisterns, riparian buffers, vegetated roofs, etc...

Conveyance – Ditch, creek, canal or other type of waterway that allows the channelized flow of water from one point to another. For the purposes of this report conveyance refers to the primary waterways, and does not include field ditches or road side ditches.

Easement – Legal document recorded in the Register of Deeds office that gives one person the right to enter and use another person’s property.

Enterprise Fund – Dedicated fund whereby revenues and expenses are collected held and reported separately from general funds.

Equivalent Residential Unit – (ERU) Basic unit of measurement of impervious area representing the average amount of impervious area located on a single family residential lot, including house, driveway, out buildings, garage, and any hard packed surface that a reasonable amount of water will not penetrate in a reasonable amount of time. For this report impervious areas of multiple single family lots from throughout the county were measured and determined to average approximately 4500 square feet of impervious area

Fixed Costs Per Account – (FCPA) Indirect administrative costs that are incurred to operate the program, and are not dependent on the watershed, gross acres, or impervious areas of a property.

Geographic Information System – (GIS) Computer software system designed to capture, store, manipulate, analyze, manage, and present all types of geographical data.

Gross Acreage – (GA) - Total square feet within the boundaries of a property.

Impervious Area – (IA) - That portion of a property where water cannot penetrate directly into the ground. Includes all buildings, driveways (concrete, asphalt, or gravel), patios, silos, hard packed storage areas. Does not include slatted decks or swimming pools.

Level & Extent of Services – Description of type and degree of services provided, along with where the services will be provided.

Master Account File – Database file that integrates all information about each individual property.

Non-Single Family Residential Property – (NSFR) Any property that does not have a single family house as the primary use of the property. For example the list includes, but is not limited to: commercial businesses, storage units, schools, government offices, churches, salvage yards, car sales lots, and farms that may have a single family house but farming is the primary use.

Ortho-photography – Digitized aerial photography of the land and improvements. Photos are registered and integrated with other property information through the GIS system.

Outfall – Last segment of a stream or other waterway that drains into a larger body of water such as a river or sound.

Rate Structure - Methodology for calculating the service fees, based on customers' use of the utility services.

Single Family Residential Property – Property on which a single family house is the primary use.

Watershed – Land surface containing multiple parcels where all property generally flows in the same direction to a given waterway or outfall.

Need

Camden County North Carolina consists of 150,557 acres, or 242 square miles. It is the second peninsula inland from the Atlantic Ocean and is surrounded on three sides by water. The North River is the eastern boundary, the Pasquotank River is the western boundary, and the tip of the peninsula extends into the Albemarle Sound. The County's northern boundary is the Virginia state line. The county is basically flat, with the highest elevation of 22 feet above sea level in the Dismal Swamp in the northwestern corner of the county, and sea level at the southern tip and surrounding rivers. Sixty three percent (63%) of the county is in the 100 year flood plain.

The majority of the county is rural farm land, forest, and swamps, with some concentration of population in three unincorporated village core areas of South Mills (northern part of county), Camden Courthouse (central), and Shiloh (southern). With a 2012 population of 10,000 and a growth rate of 45% from 2000 to 2012, the county is becoming a bedroom community for the Hampton Roads Virginia metropolitan area. This residential growth has been in moderate size subdivisions in proximity, but outside the core villages. This development has been subject to increasing Coastal Stormwater Rules required by the state Division of Water Quality. There is currently very little commercial development, but the increasing population, a road widening project, and increased attention to economic development is beginning to attract attention to the US 158 corridor through the central part of the county, and to the US 17 corridor leading from South Mills to the Virginia border.

The county has no curb and gutter, no underground storm pipes, and no county owned stormwater conveyances. The stormwater system consists of natural creeks, tributaries, manmade canals and ditches, totaling approximately 578 miles. Another 285 miles of public roads add another 570 miles of road side ditches, for a grand total of 1148 miles.

Frequent flooding is not uncommon. Depending on wind tides, as little as 2 inches of rain can flood roadway, residential properties, and crop land. A ten year storm of 5 ½ inches over 24 hours can cause significant damage. If the creeks, canals, and ditches are impeded by debris, fallen trees, dams, excessive vegetation, the natural drainage of the system is impeded which increases and prolongs flood conditions. Additionally, the flatness of the topography results in very slow flows that allow sediment to drop to stream bottoms further backing up the flows. It is critical that the waterways draining the county be maintained to minimize impediments to water flowing through them to major outfalls. Finally, as development occurs the volume and speed of stormwater flows are being altered, requiring more attention to the overall system to deal with both flooding and water quality issues.

While flooding is the obvious stormwater problem, water quality is also important. The Albemarle/Pamlico sound is the second largest estuary in the country. In a large part of North Carolina potable water is derived from surface water, and pollutants in stormwater have adverse effects on human consumption. In these areas the state and federal governments are expanding and increasing stormwater rules to limit and actually reduce the amount of stormwater pollution. Although Camden and most of the surrounding counties derive potable water from ground water wells, the same pollutants that affect drinking water elsewhere are very damaging to the aquatic life supported by the estuary. The food chain supported by the estuary is critical to economic development through the commercial fishing industry as well as recreation and tourism.

The Pasquotank River Basin, of which Camden is a part, has only a few locations that are currently considered polluted under state regulations. Part of the reason for the limited regulation is our reliance on ground water rather than surface water for consumption. The primary reason is that the Department of Environment and Natural Resources has focused on more developed parts of the state because attention on water quality has related more to pollution caused by development and impervious areas. As Camden and surrounding counties become more developed, as the regulators realize the water quality impacts of farming operations, and as the importance of the estuary is promoted, it is highly likely that more regulations can be expected in the future. By establishing a water quality monitoring program the county can be proactive and possibly avoid or minimize future expenditures to correct problems created by either poor stormwater management or new regulations.

Fragmentation

Solving existing drainage issues and overall watershed issues remains a patchwork of responsibilities. The NCDOT has responsibility for roadside ditches, and in the past has maintained some peripheral channels. Now they are limited to roadside maintenance. Private property owners are responsible for ditches on their property and the farmers generally cooperate for economic reasons to keep the drainage working properly for their crop production. As large tracts are divided either through estates or sales of individual parcels, the private responsibility is also becoming fragmented. The swamps and creeks present additional problems. Keeping creeks free flowing is subject to regulations of the Army Corps of Engineers, NC Department of Wildlife, and the Division of Marine Fisheries that restrict when, how much, and what type of maintenance can be accomplished without upsetting the fish hatcheries and other ecological balances.

One exception to these problems is the Joys Creek Drainage District which includes a relatively large geographic area where property owners are taxed \$0.02 to fund maintenance efforts. This District was established in 1973 to maintain Joys Creek and the two (2) main channels that flow into the creek. The problem here is that there are many other ditches and small tributaries in the taxing area for which the District does not have responsibility.

The state and federal government regulates and may have grant and loan funding for stormwater projects. However, their concerns are all about water quality, not drainage. In laymen's terms the agencies would prefer to have water stand and/or flow slowly so it will drop and filter pollutants and percolate into the ground before entering water bodies. In the long term it is critical to all of us that we put a priority on water quality as we see what happens when streams and bays become polluted.

The key to a successful stormwater management program is to find solutions that address both water quality and drainage. Dealing with stormwater issues is everyone's' responsibility.

It is important to note that the County does not currently have responsibility for any ditch or stream maintenance, and can only regulate stormwater through our land development regulations. In recent years as property is developed, owners are required to submit stormwater plans prepared by professional engineers or surveyors. These plans must be in compliance with both state and local requirements. Major subdivisions plans are reviewed and approved by the state Division of Water Quality and the County's consulting engineer. They are also required to establish homeowners associations to maintain the drainage ways within their subdivision.

History

In 2004 Camden County received a grant from the Rural Conservation and Development Council to conduct a Drainage and Floodwater Management Study. The study by Hobbs and Upchurch Engineering firm provided a foundation of information about the watershed catchment areas; identified most of the creeks, canals, and ditches; evaluated a few problem areas; and recommended the establishment drainage management ditches. The Board of Commissioners received the study in 2005 and directed staff to further research stormwater issues and the possibility of establishing districts. In 2006 the county GIS Technician and Pasquotank/Camden Soil & Water Technician conducted field studies and interviewed local farmers to refine data about the waterways of the drainage system throughout the county. Following this update report the commission directed staff to research legal mechanisms to implement a stormwater program and seek out volunteers from each of the watershed areas. Assistance was requested and obtained from the UNC School of Government (SOG), Department of Environmental Finance. The SOG recommendation was to consider creating a stormwater utility instead of special assessment tax districts. In May of 2011 the Board of Commissioners the Board of Commissioners established four (4) Stormwater Advisory Committees and appointed initial members.

Over the last year the committees have met several times as a whole as well as separately to discuss stormwater management issues including identification of problem areas and which waterways are maintained by private property owners. They also received information about the differences between special assessment tax districts and a county operated stormwater utility. Beginning in FY 2012 the Camden County Soil & Water Conservation Board entered into an agreement that the county would provide office space and provide approximately 50% costs to employ a full time Soil & Water Conservation Technician. In return the S&W Board agreed that 50% of the technician's time could be devoted to stormwater issues. The Planning staff, GIS Technician, and Soil & Water Conservation Technician are providing support to the Stormwater Committees and developing the proposed Stormwater Management Program as outlined in this business plan. The Board of Commissioners received a presentation outlining the level of services and general rate structure on September 6, 2012. At that time they directed staff to proceed to prepare the needed ordinances, review and refine the data in the Master Account File, and proceed according to the following schedule:

September

Develop standard criteria for stream segments to be included in the program, and modify map and data accordingly. **Completed**

Review & finalize budget -water quality monitoring, collections, rate allocation percentages

October

Obtain 3rd party review of rate model & legal considerations. **Completed**

Test run rate model for all parcels. **Completed**

Analyze results versus expectations. Debug if needed.

November

Prepare private legislation to permit enforcement through liens. **Completed**

Develop impervious surface appeal process. **Completed**

January – March 2013

Submit private legislation to state legislators.

Develop & distribute public information materials.

Discuss with state agencies for participation through agreements.

Consider & develop a credit program for Best Management Practices and other situations.

Spring 2013

Prepare and approve utility ordinance (public hearing).

Prepare and approve utility fee schedule (public hearing).

Summer 2013

Prepare and mail billing.

Fall 2013

Begin maintenance.

Stormwater Ordinance was approved June 17, 2013 and amended May 5, 2014 to reflect a revised rate structure.

Rates for 2014 were approved May 5, 2014 after public hearing.

GOAL & OBJECTIVES

To plan & implement a countywide stormwater/drainage program administered for each of the 5 watersheds that meets reasonable expectations of the citizens to minimize flooding of farms, homes, businesses AND meets or exceeds state & federal water quality standards

Objectives

- To have a 5 year rotating maintenance program for each of the five watersheds that
 - keeps ditches clear of debris, vegetation, and dams;
 - includes a major drainage conveyances (creek outfalls & major forested tributaries);
 - Is implemented by both private property owners and the county.
- To strengthen regulations on new development that includes adequate stormwater infrastructure and BMPs to minimize negative impacts on the existing drainage systems.
- To consider and plan for capital projects for critical problem areas.
- To educate the citizens about the importance of individual responsibilities and Best Management Practices (**BMPs**) that can help avoid public expenditures to meet regulatory requirements.
- To monitor existing water quality conditions.
- To monitor and meet or exceed the ever changing regulatory environment of state & federal standards

LEVEL & EXTENT OF SERVICE

The level of service of the stormwater program describes the type and frequency of activities that are anticipated to be undertaken. The extent of services describes the stream segments where the services will be provided.

The drainage level of service for the stormwater program anticipates conducting inspections of major outfalls, creeks, canals and limited tributaries of the primary stormwater conveyances to identify drainage maintenance problems, and take appropriate maintenance actions to resolve the problems. Actions that may be needed include: clearing and snagging debris; spaying herbicides to control invasive aquatic weeds; removing silt build ups where permitted by state and local agencies; and removing beaver dams. In locations where these activities require an easement in order to access and/or maintain the problem area, property owners will be asked to voluntarily deed the easement to the county. The County may negotiate easement purchases based on the severity of the needs and available budget. The goal of the drainage efforts is to address at least a fifth (1/5) of all the streams included in the program each year, thereby establishing a five year rotation.

The water quality level of service for the stormwater program anticipates first establishing protocols and procedures to develop a data base of information describing the level of various pollutants in the major outfalls to the Pasquotank and North Rivers. The implementation of the procedures would include: collection of water samples through grab sampling and instrument sampling, and submitting to laboratories for analysis. Depending on which pollutants are being measured, analysis may be conducted by county public works staff, Department of Agriculture labs, or private laboratories. In view of the cost of private testing, every effort will be made to establish protocols to use public testing resources. The results of all sampling and analysis will be maintained by county staff, and used to develop outreach programs to encourage implementation of Best Management Practices by all citizens, business, and agencies within the county. The exact number of sampling stations, the frequency of sampling, and the identification of target pollutants has not been determined at the beginning of the stormwater program, but will be the first activity initiated.

The regulatory level of service at this time includes activities related to enforcing the 100 year flood plain requirements of the Federal Emergency Management Agency (FEMA), the North Carolina Department of Environment and Natural Resources (DWQ), and the Camden Unified Development Ordinance (UDO). Each of these regulations applies primarily to new construction. All zoning, subdivision, and building permits for development are reviewed for compliance prior to issuance of the permit, during construction, and prior to final approval of the development. Additionally the Planning Department monitors, researches, and refines recommendations to the Board of Commissioners regarding local regulations to minimize stormwater impacts of new development, and ensure that inspection and/or maintenance occurs on a regular basis.

As stated in the introduction Camden has approximately 578 miles of creeks and ditches, and another 570 miles of roadside ditches. It would be virtually impossible for the county stormwater program to be responsible for the totality of the system.

The Department of Transportation carries out the state's responsibilities within and associated with the state rights of way, and to a very limited extent the lead ditches conveying water to streams and intermediary outfalls. Privately developed subdivisions and commercial properties are required by state and local law to obtain approval of stormwater water plans, construct, and maintain best management practices to achieve specific drainage and water quality standards.

The extent of service for the county stormwater program is identified as the primary outfalls, creeks, canals and limited tributaries of the primary stormwater conveyances as identified on the official stormwater program map. Determinations of which conveyances to include are as follows:

- Outfalls at river intersection, Creeks & Natural Tributaries, Canals, Lead ditches

The program will include the swamp inlets and creeks that intersect with the rivers and are forested on both or one side of the out fall. Canals that are developed on both sides of outfall will not be included. If developed on one side and forested on the other a petition for inclusion will be considered by the advisory committees.

- Laterals (perpendicular to lead ditch) are the responsibility of the private property owners.
- Road side ditches along public roads with state system numbers are the responsibility of the North Carolina Department of Transportation (NCDOT). County staff will work with NCDOT to coordinate maintenance activities to maximize effectiveness of both organizations efforts. Road side ditches on private roads and in subdivisions where NCDOT has not yet accepted the roads onto the state system will not be included in the program and are the responsibility of the private property owner, the developer, or a homeowner association.
- Development related BMPs (ditches swales, ponds, wetlands) will not be included in the program and are the responsibility of the private property owner, the developer, or a homeowner association.
- County BMPs which may be initiated by the county, or as may be petitioned from the public as needed capital improvements, will be included in the program.

County's responsibilities for those conveyances will be to contract with private company to: 1) inspect, 2) clear and snag, 3) remove beaver dams, 4) spray herbicide for invasive aquatic weeds. Where there is evidence that sedimentation is creating a substantial problem, the County will request permission from the Army Corp of Engineers to dredge, and will contract to perform the work depending on funds availability, or include the project in the next fiscal budget. The goal is to look at and perform work as needed for each conveyance at least once per 5 year period.

Petitions for maintenance assistance

In cases where new problems are evident outside the 5 year rotation; or property owners petition to add segments to the ongoing program, the advisory committee for the respective watershed will review the request based on consideration of the following:

- i. Evidence and observation of problem
- ii. Level of impact of problem on the system and surrounding properties based on GIS hydrology mapping of the sub-catchment area directional flows
 - a. Size of area impacted
 - b. Type, number, & value of property
- iii. Cost of solution
- iv. Available funds & effect on planned projects

The Committee's recommendations will be forwarded to the Board of Commissioners for consideration.

In cases where property owners petition to add segments to the program they will be required to pay a fee to cover the cost of evaluating the request, and to donate required easements.

The advisory committees will also accept petitions for capital Best Management Practices projects to serve sub-catchment areas that will benefit multiple property owners within the watershed, and will make recommendations to the County Commission for funding and related rate adjustments as part of the County's annual budget process.

Private property owners are responsible for performing maintenance on all other ditches, except along DOT ROWs.

Organization & Staffing

The Camden County Stormwater Program is operated under the authority of Board of County Commissioners as stated in North Carolina General Statutes

§ 153A-274. Public enterprise defined.

....."(7) Stormwater management programs designed to protect water quality by controlling the level of pollutants in, and the quantity and flow of, stormwater and structural and natural stormwater and drainage systems of all types." And

§ 153A-277. Authority to fix and enforce rates.

....."(a)A county may establish and revise from time to time schedules of rents, rates, fees, charges, and penalties for the use of or the services furnished by a public enterprise"

The Board has established and appointed members to a Stormwater Advisory board for each of the 4 watersheds. These boards are responsible for reviewing the program and making recommendations to the Board of Commissioners related to the Level and Extent of Services, and the annual budget.

The staffing for the program is provided under the management of the County Manager through the Departments of Planning; Soil & Water Conservation; Tax, and Public Works.

The Planning Department has provided the initial program design, data compilation, rate structure, interface with the Stormwater Advisory Committees, and presentations. Upon program approval and start up the Department will continue to provide data compilation for impervious areas and the master account, public outreach, and will coordinate with overall program design.

The Soil & Water Conservation office has assisted the initial program design with field observations and interface with farming community and the general public, resulting in identification of appropriate level and extent of service. This office will have primary responsibility for implementing the stormwater program primarily through procurement for maintenance services, hands on water sampling, staff support for the Committees, public education/outreach, negotiating easement purchases, and annual work program budgeting.

The Tax department will provide billing and collection services through annual tax bills. The Public works Department may be called on to assist in water sampling and analysis.

No new staffing is anticipated in the first few years of implementation, however as the program matures, or as new regulations or needs require additional activities, additional staff or 3rd party consultants may be needed.

Stormwater Advisory Boards

The Board of Commissioners formally established a formal Watershed Advisory Committee and appointed members for each of the 4 watersheds – South Mills, Shiloh, Sawyers Creek, and North River.

Successful implementation and continuation of the Stormwater Utility Program requires that each board and its members understand their responsibilities, limitations, and commitments of time. This plan recommends:

- establish 2 year terms, with 2 members appointed in even years and 3 members in the odd years;
- prepare a written mission statement and identification of roles, responsibilities, and reporting;
- establish a quarterly meeting schedule

COST OF SERVICES

The Stormwater Program budget includes legal fees, billing, collections, creek and ditch maintenance, easement purchases, public outreach, and water quality monitoring. While the formula remain constant for each watershed, some of the costs are distributed evenly among the watersheds, some evenly among all accounts in the county, and some based on the gross acreage and impervious surfaces variables of each watershed. The description and cost distribution for each line item is listed below.

Staffing

Flood Plain Program – The Planning Department Permit Officer serves as the flood plain manager for the county. Approximately 25% of his time is spent reviewing permit applications for compliance, inspecting construction, making flood plain determinations, and answering questions related to FEMA regulations.

Soil & Water Conservation – The Soil & Water Conservationist budget is funded by both county funds and a grant from the Soil & Water Conservation fund. The Soil & Water Conservation Board has agreed for the county to utilize approximately half of the Technician’s time dedicated to the stormwater program.

Creek & Ditch Maintenance

The maintenance of creeks and ditches is the primary activity of the stormwater program. The cost for each watershed was derived by first identifying the flow segments that correspond to the extent of service as described in the previous table. These segments were then measured using GIS and aerial ortho-photography

Easement Purchases

Although the county will attempt to have drainage easements donated wherever possible, funds may be budgeted to purchase easements when critical to maintenance activities. If recommended in a work program the budget would be based on actual prior negotiation with property owners or estimated by assuming a 30 ft. wide easement times total measured stream length in the program, to determine total square feet, then divided by 43,560 (1 acre) to convert square feet to acres. Since most easements would be on non-productive lands, the cost per acre was projected on “farm use value” of \$740 per acre.

Other Administrative Expenses

Billing & Collections – The billing and collections for the Stormwater Program will be accomplished through the annual tax bill. The County’s tax services provider will modify the tax bill to include the fee based on the fee information provided through a Master Account File created by the Planning Department. The initial budget for this service is projected to be \$0.50 per account. This cost is part of the fixed administrative expense and is allocated equally per each account in the county. This cost may need to be modified after the first year to reflect actual cost incurred.

Legal Fees – The initial approval and implementation will require legal assistance to review the program for conformity to state law; draft local ordinances, and to prepare a draft of a local private act of the legislature related to enforcing collections through tax liens. Other possible legal duties may include easement agreements, contracts review, and possible legal challenges.

Public Education and Outreach – Public information is and will continue to be a critical component of the stormwater program. Initially the public will need to learn about the program and what the fees accomplish. After implementation public information will be directed to educating citizens about the importance of both drainage control and water quality issues.

Data Maintenance & GIS Mapping

The Master Account Data file will need to be updated on an annual basis to account for changes in number and size of properties and impervious areas. This is accomplished through the GIS interface with the tax records and permit records.

Water Quality Monitoring

Water Quality Monitoring may be budgeted for each watershed.

Other Future Costs

Other key areas where costs may be incurred in future years include planning for and construction of capital improvements, increased water quality monitoring, public education and outreach, and credits for implementing Best Management Practices.

The budget in this plan is for the first year of operation and does not include any increase to accommodate inflation or less than 100% collection ratio.

RATE STRUCTURE ANALYSIS

This rate structure analysis discusses the basic rate methodology that will be employed to fund stormwater services, and identifies the secondary funding methods and rate modifiers recommended by staff. Basic rate structure and fee calculation policies are presented. Examples of the fee calculation method for different classes of users are shown.

There are a number of ways to raise funds for stormwater programs, most of which generate only insignificant amounts of revenue. The three most common effective ways of funding the core of a stormwater program are from general fund revenues, special district tax assessments, and from user fees.

Ad Valorem Tax

The general fund and special assessment funds are derived from property taxes. As such the rates would be based on value of properties rather than the property's contribution to stormwater problems, or program benefits. This structure creates a disincentive to construct or implement stormwater best management practices as there is no feasible way for granting credits for such activities. In fact, if a BMP increases the value of the property, owners would realize even higher taxes in response to their efforts to manage stormwater more effectively. Funding of the stormwater program at appropriate levels would necessitate a significant increase in property taxes.

Public Enterprise Fee

For many public water and wastewater utilities, costs associated with their operation and maintenance are paid for out of an enterprise fund, which is in turn funded by revenue from fees for that service. Similarly, stormwater management programs can use this structure and maintain a separate public enterprise fund.

One primary benefit of a stormwater utility is that its fee structure can inherently incorporate differences in property characteristics as they relate to stormwater runoff, rather than as they relate to value. The North Carolina enabling legislation allows rates to vary based on property type, area, pervious vs. impervious coverage, land use, and characteristics of the encompassing watershed. The resulting fee schedule is more equitable to users than an ad valorem tax. In addition, it tends to place a smaller burden on the typical homeowner than does an ad valorem tax increase. Landowners that choose to implement BMPs on their properties can be rewarded under this structure by receiving credits

A stormwater utility fee has significant advantages over use of the tax generated funds including:

- Equity – there is a direct causal link between the fee a property owner pays and the impact of their property on the stormwater system or their use of that system. (“The more you pave, the more you pay.”);
- Stability – the stormwater revenue stream is tied to land use and not to the variability of the annual general fund budget approval;
- Flexibility – the stormwater user fee has the ability to be adjusted to reflect individual property differences, watershed locations, and other factors;
- Adequacy – the stormwater fee is sufficient to cover most of the costs of the stormwater program while remaining relatively small compared to other fees and charges.

Overview of rate structure

Utility funding is based on an independent revenue stream that is dedicated to a specific purpose such as water supply, wastewater treatment, solid waste management, or stormwater management. Service fees provide the bulk of a utility’s revenue. A methodology for calculating the service fees, based on customers’ use of the utility services, must be identified in order to establish the basis for the revenue stream.

In the case of stormwater services, a user fee recognizes properties’ impact and use of the stormwater system for discharging runoff. The stormwater system is a system of natural streams and manmade structures that carries runoff away from both public and private properties. The framework that describes how much each property pays is called the “rate structure”.

The rate structure developed for a particular utility is divided into three modules:

- Basic rate methodology
- Modification factors, which can be applied to any of the rate concepts to enhance equity, reduce costs, and meet other objectives’
- Secondary funding methods that can be adopted in concert with the service charges.

A key attribute of utility service fee funding is that the governing body of a utilities’ jurisdiction has broad authority to design its rate methodology to fit local circumstances and practices and achieve an allocation of the cost of services and facilities that it desires while staying within legal boundaries. There are no absolute rules or proscriptions. The goal of this analysis is to provide a rate structure that reflects the character and desires of the community and:

- Is equitable and reasonable;
- Is not discriminatory or confiscatory;
- Has costs that are substantially related to provision of facilities and services;
- Has a rate that is related to demand/use of the stormwater systems and services for each individual property (rational nexus);
- Reflects the authority inherent in the state constitution and legislation.

Camden Basic Rate Structure

The basic rate methodology defines the basis for the rate that users will be paying. The three main impacts on surface water are increases in peak flow, volume of the discharge, and amount of pollution. All impacts can fit into these three basic categories.

Stormwater impacts all properties. In urban areas the variable most positively associated with each of these three major impacts is the conversion of pervious area (forests and fields) to impervious areas (pavement, roof tops, and other hard surfaces), which increases peak rates of runoff contributing to flooding and pollution. In rural areas with limited amount of impervious surfaces but significant amounts of farm land, the runoff from large cultivated fields contributes significantly to the volume of runoff contributing to flooding and pollution.

Based on the above influences on stormwater runoff, Camden County has chosen to establish a basic rate structure with components for both Gross Acreage (GA) and the amount of Impervious Area (IA) for each property.

Gross acreage is defined as the acreage as listed on the county GIS parcel record.

Impervious Area is defined as all surfaces that will not allow a reasonable amount of water to penetrate into the ground in a reasonable amount of time, including but not limited to:

- Pavement
- Roof tops
- Driveways
- Private roads
- Compacted gravel (parking lots)
- Heavily compacted soil

State maintained roads and roadways dedicated to the public are impervious, but are not included in impervious calculations.



In addition to costs directly related to program activities, the rate includes indirect fixed costs related to billing and collecting the fee, and other costs related to administering the program. These costs are totaled and divided evenly to each property in the county. It is referred to Fixed Cost Per Account (FCPA)

Policy Statement:

The rate methodology basis for the calculation of user fees for all properties shall include three components: 1) Gross Acreage; 2) Impervious Area; and 3) Fixed Cost per Account.

Rate Modifiers

Rate modifiers are the policies that change the user fee that properties are charged to appropriately increase simplicity or enhance equity.

Location of watershed within the county

The county has multiple stormwater catchment areas where runoff flows to different outfalls. Each catchment area is considered a separate watershed with different stormwater needs based on topography, number of major outfalls, and receiving rivers. In order to accomplish an equitable nexus between the fee and stormwater program activities, the gross acreage and impervious area components of the fee have been calculated separately for each of the four (4) watersheds: Shiloh, North River, Sawyers Creek, and South Mills.

The Joys Creek and South Mills watersheds are particularly unique in that Joys Creek is a Service Tax District within the South Mills watershed. Property owners within the Joys Creek Tax District are already paying a special assessment tax for maintenance of only Joys Creek and limited portion of two (2) canals running into the creek. Joys Creek is the only outfall for the entire South Mills watershed, and the stormwater program activities will be carried out both inside and outside the tax district boundaries. It should be noted that this stormwater program will include maintenance activities for other additional minor tributaries within the Joys Creek Service District boundaries. The Joyce Creek Special Assessment Tax for property owners within the tax district boundaries shall be eliminated, and replaced with the Stormwater Utility Fee for the South Mills Watershed, provided, however in the event that the stormwater utility fee for South Mills Watershed is itself eliminated or discontinued, the Joyce Creek special assessment tax for property owners within the tax district boundaries would be automatically reinstated under the same terms and conditions as it currently exists. Other specific provisions related to replacement of the tax with a utility fee are fully defined in the Ordinance.

The following language in the authorizing ordinance describes the relationship between the South Mills watershed and the Joyce Creek District:

§ 53.11 JOYCE CREEK ADDENDUM.

(A) The Joyce Creek Special Assessment Tax for property owners within the tax district boundaries shall be eliminated, and replaced with the Stormwater Utility Fee for the South Mills Watershed, provided, however in the event that the stormwater utility fee for South Mills Watershed is itself eliminated or discontinued, the Joyce Creek special assessment tax for property owners within the tax district boundaries would be automatically reinstated under the same terms and conditions as it exists at the time this Ordinance is approved.

(B) The Joyce Creek Management Board shall remain in place to and shall have complete autonomy and discretion in carrying out maintenance activities on Joyce Creek, and the Cypress and Mill Run tributary canals in accordance with standards established by the Army Corp of Engineers. The Joyce Creek Management Board will use its best efforts to coordinate activities with the South Mills Watershed Advisory Committee but shall not be controlled by nor answer to said Committee.

(C) The South Mills Watershed budget shall include a line item referred to as the Joyce Creek Project equal to a two cent (\$0.02) per One Hundred Dollar value which will be an annual fee based on the value of all property, both real and personal, with all current and/or future improvements as same may change each year, located within the boundaries of the Joyce Creek service area and a Any balances remaining at the end of each fiscal year shall be carried forward in that line item from year to year in addition to the annual tax calculation fee to be utilized for the Joyce Creek Project in the sole discretion of the Joyce Creek Management Board.

(D) The Camden County Tax Department shall maintain and manage the Joyce Creek Service Area fee information. The Joyce Creek serviced area fee shall be calculated annually by the Camden County Tax Department for the property located in the Joyce Creek Service Area. The calculated fee information will then be forwarded by the Tax Department to the South Mills Watershed District for their budget line item called the Joyce Creek Project.

(D E) The Joyce Creek Management board shall have sole autonomy and discretion in the utilization of the Joyce Creek Project line item. The Joyce Creek Management Board shall continue to be elected and operate in the same manner as it has operated in the past pursuant to the Camden County Ordinance establishing said management board.

Single Family Residential Rate Policy

The majority of Camden's single family homes are located on lots less than 2 acres, and the variation of impervious surface is relatively small and difficult to measure accurately for every such property. In order to gain simplicity and equity, a flat rate has been established for all single family residential properties equal to or less than 2 acres. In this manner 2 acres is established as the lowest Gross Acreage Unit (GAU), and the average impervious area of a single family property is established as the basic unit of impervious area commonly referred to as one (1) Equivalent Residential Unit (ERU). The average impervious area for a single family property was determined by measuring and analyzing samples of residential properties various neighborhoods and subdivisions throughout the county. The analysis resulted in an ERU of 4500 square feet.

The impervious area rate component for each Non-Single Family Residential (NSFR) property will be based measuring the total impervious area and divided by 4500 to determine the number of ERUs for that property.

Gross Acreage Rate Policy

The policy of including a gross area component of the fee is based on the fact that it does contribute to the cost of stormwater management, and represents a significant proportion of the jurisdictions' service areas. The Gross Acreage Rate will be established by determining the budget for the respective watersheds and dividing the budget by the total number of gross acres in the watershed.

The calculation of Gross Acreage Component for each parcel shall not include the number of acres of the parcel which are at or below 0.00 foot elevation as these areas provide storage and filtering areas for their respective watersheds

Secondary Funding Mechanisms

County staff will actively research alternative funding to supplement ongoing activities, and for special projects that may be needed. This will be especially important following major storm events. Possible sources may include the Clean Water Management Trust Fund, Department of Environment and Natural Resources, Soil & Water Conservation Funds, USDA, and other federal or state programs.

RATE STUDY & CASH FLOW ANALYSIS

The Rate Study (RS) applies the above described Rate Structure Analysis (RSA) to the program costs for a determination of the final rate. This provides the means for calculation of the program rates and fees

Rate Components

FCPA Rate Component: Based on the Rate Structure the Fixed Cost rate component is based on the overall administrative costs of the stormwater program and remains constant throughout all watersheds. The FCPA rate is calculated by adding the total costs allocated to FCPA for all watersheds and divided by the total number of accounts (parcels) in the county.

IA Rate Component: Based on the Rate Structure the Impervious Area rate component is based on Equivalent Residential Units (ERUs) of 4500 square feet of impervious area. The 4500 square feet represents the average impervious areas for a single family residential lot in Camden County. It includes the house, out buildings, garages, driveways, and any heavily compacted ground. It does not include slatted decks or swimming pools. Each single family residential parcel was given a value of one (1) ERU. The rate per ERU shall be 40 times the gross acreage rate.

The total impervious area of all non-single family properties (NSFR) are measured and divided by 4500 and given a corresponding ERU value rounded to the nearest tenth (450 sq. ft.). The basic IA component is then calculated by multiplying the total number of ERUs in the watershed.

GA Rate Component:- Based on the Rate Structure the Gross Acreage component is based the total yearly budget divided by the number of acres in the respective watersheds.

Policy Statements:

- 1. The ERU size will be set at the representative residential median value of 4500 square feet of impervious area.***
- 2. The GA portion of the stormwater fee will be charged based on the total yearly budget divided by the number of acres in the respective watersheds.***
- 3. The IA Rate component for all Single Family Residential properties will be 1 ERU.***
- 4. The IA Rate Component for Non Single Family Residential (NSFR) properties will be charged on the basis of the number of ERUs. The rate per ERU shall be 40 times the gross acreage rate.***
- 5. The actual annual fee paid by a property owner is the sum of FCPA; plus IA multiplied by the number of ERUs; plus GA based on size of parcel.***
- 6. The IA rate component and the GA rate component will be calculated separately for each of the 4 watersheds based on the budgeted costs and parcel data within the boundaries of the respective watersheds***

PROGRAM IMPLEMENTATION

Implementation of the Stormwater Program will commence in July 1, 2014. The first billing will be mailed in August 2014. The ordinance (Ord. 2013-05-02) establishing the stormwater utility program was approved by the County Commission on June 17, 2013 and approve the fee schedule (Appendix I) was approved on May 5, 2014 after multiple public hearings. If the rates are to be changed based on various annual budgets for each watershed the required public hearing can be either a separate hearing specific to the Stormwater Program, or included in the public hearing on the county budget.

A private act of the legislature to give Camden County the local authority to collect delinquent stormwater fees through the placement of property liens in the same manner as property taxes are collected was passed by the General Assembly and enacted into law through Session law 2013-253 house bill 404 (Appendix G D) passed on July 9, 2013.

Billing and Collection

A stormwater user fee will be charged for stormwater services provided to all properties within each watershed. The fee will be included on the annual tax card and as such will be subject to the same deadlines as property tax. Information used to calculate the fee will be based on the property characteristics and ownership as it exists on January 1. The tax/fee bill will be mailed in August, due by September 5, and considered overdue if not paid by January 5 of the following year. The fee calculation will be generated by a Master Account File.

The Master Account File is the tool used to match fees to customers and it is the file from which bills are generated. To create the Stormwater Master Account File the GIS Technician has added an "Impervious Area" attribute field to the tax parcel database account. In this manner the Gross Acreage and Impervious Area information is directly linked to the property owner, address, and parcel identifier number. For properties that are exempt from property taxes and have not heretofore received tax bills, stormwater fees will be billed in one of two ways. Either a typical tax bill will be generated showing the amount of stormwater fees due, and \$0.00 taxes due; or a separate stormwater bill will be created and mailed on the same schedule as tax bills.

After implementation the Master File Account will need to be updated to reflect changes in ownership, subdivision of properties, and changes in impervious areas. Ownership and subdivision changes are routinely updated by the tax and GIS departments, and officially updated each January. Impervious area changes will be tracked throughout the year through issuance of building permits and will be added to the Master Account File each January. As new aerial photography becomes available the GIS technician will review and refine impervious area information.

Customer service

The primary staffing for the Stormwater Program will be the Soil & Water Technician and the Planning Department, however it is anticipated that property owner inquiries will originate in the Tax Department. All three departments will be trained to describe the general structure and activities of the program, but complaints about the program, petitions for including specific stream segments, and disagreements about fee calculations will be the responsibility of Planning Department.

All information used to generate the Stormwater Utility fee is open to the public. Disagreements about gross acreage assigned to parcels will be researched through the tax and GIS departments and if discrepancies are discovered, they will be corrected according to the regulations and procedures of the tax department. Disagreements about the impervious area calculations will be include the following:

Impervious Surface Appeals

Camden County GIS has calculated impervious surfaces for each parcel using ortho imagery flown in February of 2010. Impervious surfaces include roof tops (houses, barns, silos), driveways & parking lots (including gravel crush & run), and any compacted ground that will not allow water to penetrate. Each parcel was reviewed and a polygon shape drawn around what appeared to be impervious surfaces, and the polygon was measured to determine square feet of impervious surface. To obtain information about new impervious surfaces constructed after February 2010, building permits from that date forward have been reviewed and surfaces measured from permit applications.

An average impervious surface for a single family house was calculated to be 4500 square feet, and that figure was established as 1 equivalent residential unit (ERU). All single family residential properties were assigned 1 ERU notwithstanding the actual amount of impervious surface. All non-single family properties were re-measured for accuracy.

Individual property owners may appeal the county calculations through a three step process.

Over the shoulder appeals – Property owners are welcome to visit the Planning Department and view their own individual properties to see what was drawn and measured as impervious surface. Obvious errors will be corrected administratively.

Formal Appeal - Contested areas will be identified and the owner may complete a petition form and pay a fee to initiate a formal appeal. Upon a formal appeal planning staff will visit the property and physically measure impervious surfaces. The staff measurement will be used to correct the calculation whether there is a decrease of increase.

Final Appeal - If the owner still contests the measurement, the owner may submit a survey performed and sealed by a NC licensed professional a surveyor or engineer, or landscape architect. The surveyor shall use the definition of impervious surface from the state Division of Water Quality.

Public Information & Outreach

Prior to implementing the Stormwater Utility Fee it will be important to inform Camden citizens about the program and the stormwater fees. In addition to the required advertising and public hearings on the ordinance and the fee schedule, the following actions will be taken.

A PowerPoint presentation is already on the county web site, including contact information for Planning Director and Soil & Water Technician. **Completed**

Staff will brief each Stormwater Advisory Committee and enlist their support in explaining and promoting the program. **January**

A community meeting will be held at locations in each watershed to explain the program and answer questions. General minutes will be taken and provided to the Board of Commissioners prior to the public hearings. The schedule of meetings will be advertised at least one time in the local newspaper. **February/March**

A direct mail will be delivered to each address in the county. The mailing will give a very brief program description and provide the schedule of community meetings. **February/March**

A press release will be prepared and distributed to attract possible media coverage. **February/March**

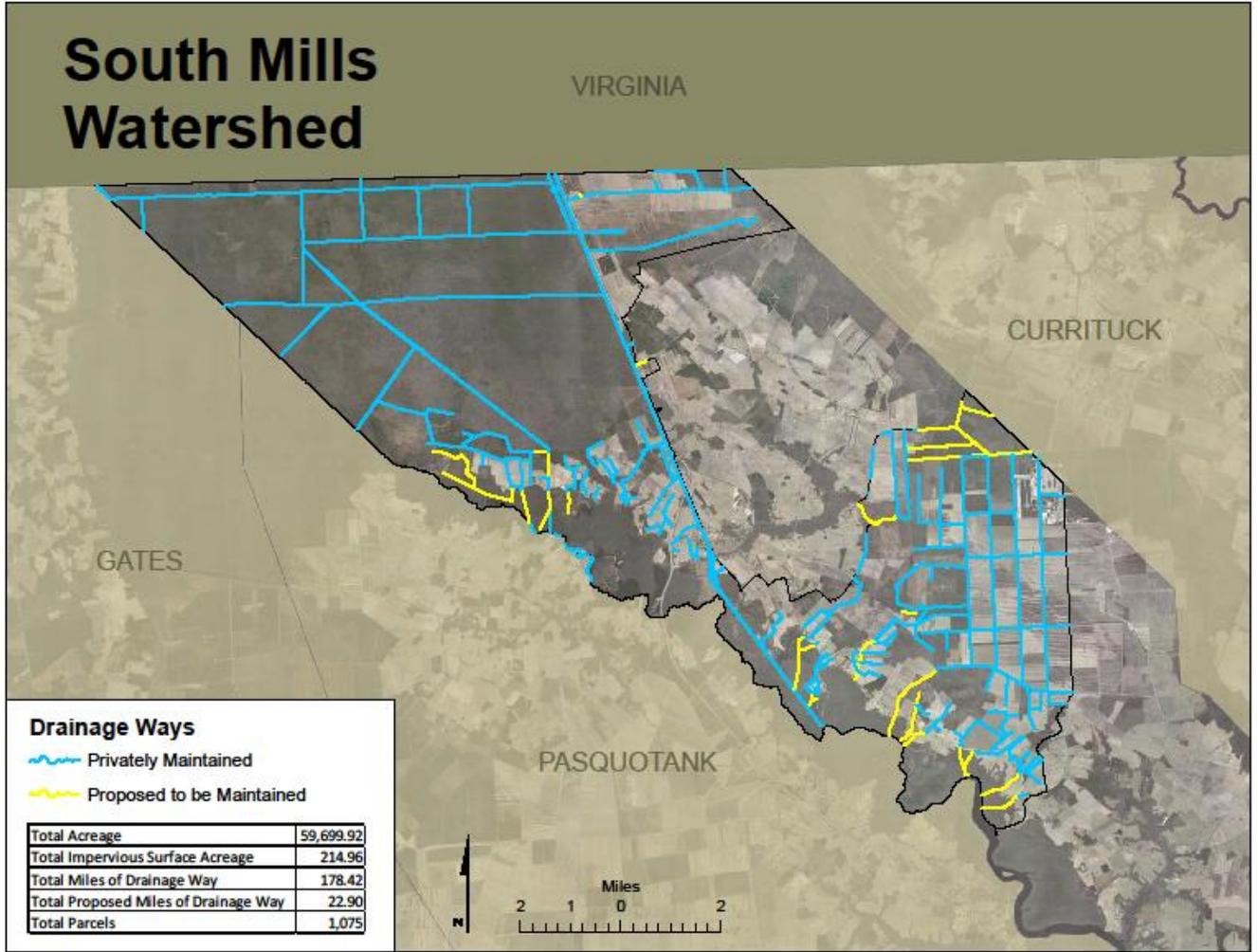
Advertise and hold public hearings. **April May**

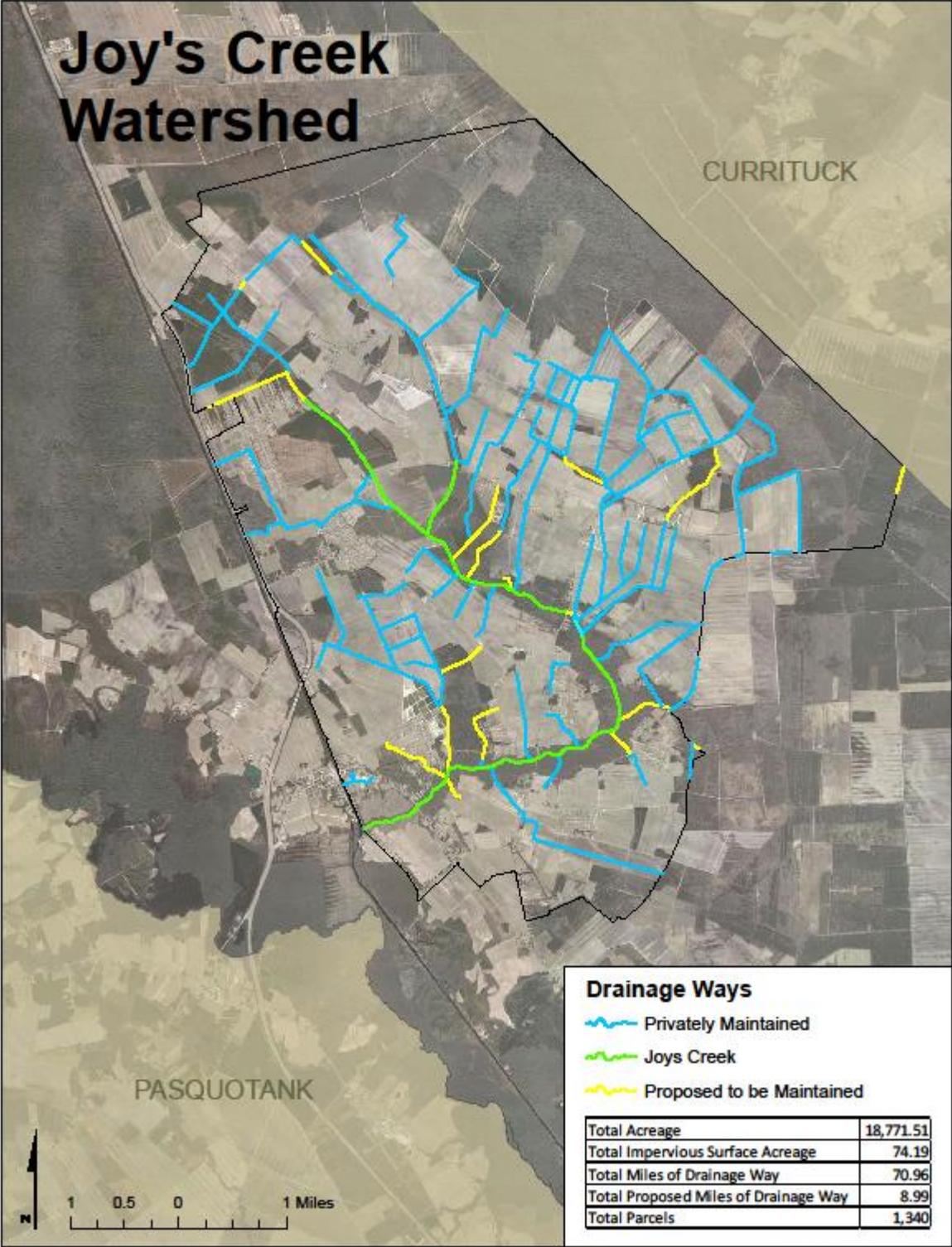
Annual Reporting

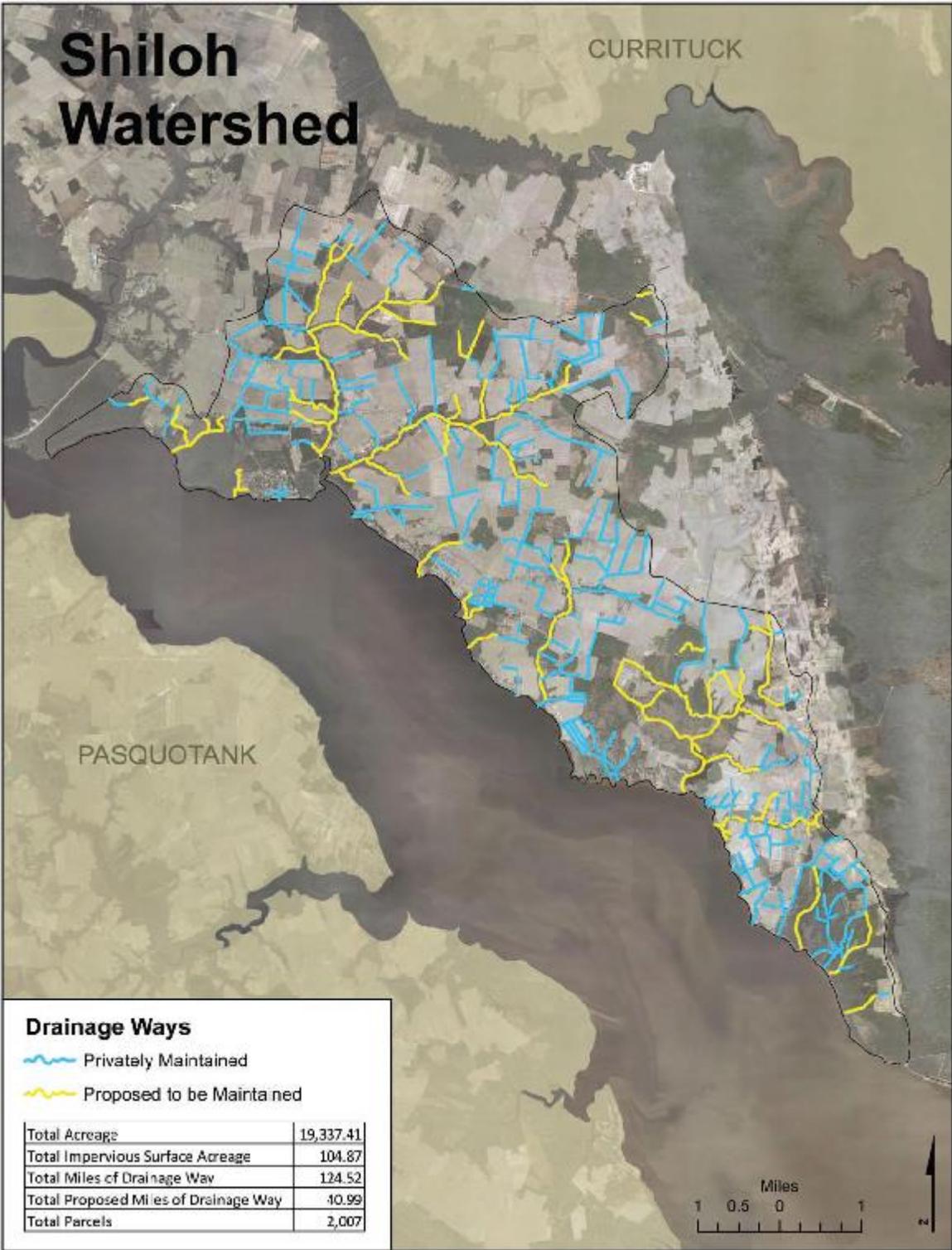
The Soil & Water Conservationist and the Planning Director will submit a written annual report to the Stormwater Advisory Committees and the County Board of Commissioners as part of the annual budget process. The report will include at a minimum

- The status of the stormwater management program in each watershed
- The fee structure imposed to fund the implementation of the stormwater program.
- The adequacy of funds to implement the program.
- Any changes to the level and extent of services recommended by the Stormwater Advisory Committees.
- A proposed annual budget.

APPENDIX A
WATERSHED BOUNDARIES







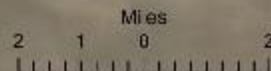
North River Watershed

CURRITUCK

Drainage Ways

-  Privately Maintained
-  Proposed to be Maintained

Total Acreage	40,446.91
Total Impervious Surface Acreage	92.96
Total Miles of Drainage Way	140.63
Total Proposed Miles of Drainage Way	29.39
Total Parcels	1,583



Sawyer's Creek Watershed

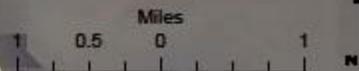
CURRITUCK

PASQUOTANK

Drainage Ways

-  Privately Maintained
-  Proposed to be Maintained

Total Acreage	12,465.98
Total Impervious Surface Acreage	174.00
Total Miles of Drainage Way	69.87
Total Proposed Miles of Drainage Way	19.67
Total Parcels	1,236



APPENDIX B

WATERSHED RATES APPROVED MAY 5, 2014

	Ratio	40				
North River Watershed			Individual Parcel Fee			
	#	Rate	\$	#	\$	
FCPA Parcels	1,170	\$0.64	\$748.80	1	\$0.64	
GA net acres	28,476	\$0.25	\$7,119.00	1	\$0.25	
ERU units	1,037	\$10.00	\$10,370.00	1	\$10.00	
Project Revenue			\$17,489.00			
Total Watershed Revenue			\$18,237.80			\$10.89
Sawyer's Creek Watershed			Individual Parcel Fee			
	#	Rate	\$	#	\$	
FCPA parcels	762	\$0.64	\$487.68	1	\$0.64	
GA net acres	9,436	\$0.25	\$2,359.00	1	\$0.25	
ERU units	1,969	\$10.00	\$19,690.00	1	\$10.00	
Project Revenue			\$22,049.00			
Total Watershed Revenue			\$22,536.68			\$10.89
Shiloh Watershed Revenue			Individual Parcel Fee			
	#	Rate	\$	#	\$	
FCPA parcels	2,394	\$0.64	\$1,532.16	1	\$0.64	
GA net acres	17,765	\$0.25	\$4,441.25	1	\$0.25	
ERU units	1,397	\$10.00	\$13,970.00	1	\$10.00	
Project Revenue			\$18,411.25			
Total Watershed Revenue			\$19,943.41			\$10.89
South Mills Watershed Revenue			Individual Parcel Fee			
	#	Rate	\$	#	\$	
FCPA parcels	2,917	\$0.64	\$1,866.88	1	\$0.64	
GA net acres	73,345	\$0.32	\$23,470.40	1	\$0.32	
ERU units	3,414	\$12.80	\$43,699.20	1	\$12.80	
Joyce Creek Project			-\$50,000.00			
Other Project Revenue			\$17,169.60			
Total Watershed Revenue			\$69,036.48			\$13.76
	Parcels	ERUs	Net Acres			
North River	1,170	1,037	28,476			
Sawyer's Creek	762	1,969	9,436			
Shiloh	2,394	1,397	17,765			
South Mills	2,917	3,414	73,345			
	7,243					

APPENDIX C

MASTER FILE DATA SOURCES

PIN

The Property Identification Number is a unique eighteen digit number derived from geographic coordinate values and is assigned to each parcel in the county for the purpose of its identification. This number is also used to join the GIS parcel data records with the tax parcel data records.

ELU

Areas of Existing Land Use were determined using aerial imagery, land use zones and tax information. Parcels were assigned an ELU attribute value based on these areas. All possible values include Apartments, Church, Commercial, Farm Use or Wooded with House on Property, Farm with No Housing, Fire Station, Government, Industrial, Manufactured, Mining, Mobile Home Park, School, Single Family and Vacant Land.

Total Acres

GIS was used to calculate the area of each parcel in acres. GIS was used to calculate the info.

Total Square Feet

GIS was used to calculate the area of each parcel in square feet.

Impervious Square Feet

Impervious surface areas were delineated through a visual examination of aerial imagery. To qualify, the area must appear as gravel, driveways, sidewalks, rooftops, etc. GIS was used to identify the intersection of parcels and impervious surface areas and then calculate the total areas of impervious surface associated with each parcel impervious surface data.

Drainage Districts

Drainage Districts were identified according to sub-watersheds or Hydrologic Units established by the United States Geological Survey except for Joys Creek Drainage District which is identified according to the established Joys Creek Watershed District. The Drainage Districts are listed below along with their corresponding HUCs (Hydrologic Unit Codes). Parcels are considered as a part of the Drainage District in which their geometric center lies. Some exceptions were made on the south side of the causeway (US 158 W).

North River- 030102051001, 030102051002, 030102051003 Shiloh- 030102050709, 030102050708

Sawyers Creek- 030102050706, 030102050705

South Mills- 030102050606, 030102051102, 030102050701, 030102050703, 030102050704

Residential Status

Residential Status for each parcel is based on its ELU value. Parcels with an ELU value of 'Manufactured' or 'Single Family' have a Residential Status of 'YES' and the rest have 'NO.'

Name1

This is simply Name1 from each tax parcel's tax data.

Name2

This is simply Name2 from each tax parcel's tax data.

Taxable Value

This is simply Taxable Value from each tax parcel's tax data.

Assessed Value

This is simply Assessed Value from each tax parcel's tax data.

APPENDIX D

GENERAL ASSEMBLY OF NORTH CAROLINA SESSION 2013
SESSION LAW 2013-253
HOUSE BILL 404

H404-v-3

AN ACT TO ALLOW CAMDEN COUNTY TO COLLECT DELINQUENT STORMWATER UTILITY FEES IN THE SAME MANNER AS DELINQUENT PERSONAL AND REAL PROPERTY TAXES.

The General Assembly of North Carolina enacts:

SECTION 1. Section 1(c) of S.L. 2012-55 reads as rewritten:

"**SECTION 1.(c)** This section applies only to the Counties of Camden, Granville and Person."

SECTION 2. This act is effective when it becomes law.

In the General Assembly read three times and ratified this the 9th day of July, 2013.

s/ Daniel J. Forest

President of the Senate

s/ Thom Tillis

Speaker of the House of Representatives