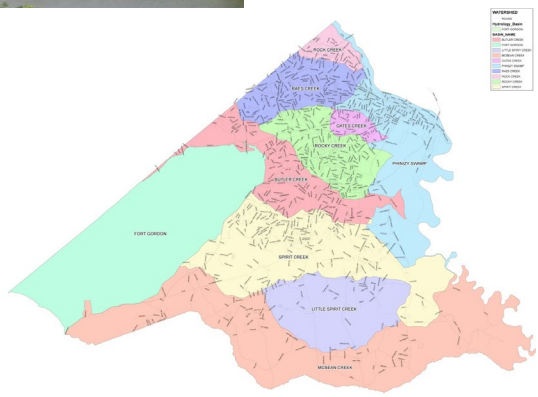

Augusta
GEORGIA

White Paper: Funding Recommendations for the Augusta-Richmond County Stormwater Program

Augusta-Richmond County has real, growing, and unresolved stormwater infrastructure problems. The Augusta Engineering Department (AED) has studied these problems and has developed a fact-based, thoughtful, and reasonable plan to address these problems. This white paper summarizes the existing stormwater challenges facing Augusta-Richmond County and the evaluation process that led to the recommended stormwater utility.

Augusta-Richmond County has real, growing, and unresolved stormwater infrastructure problems. The AED is responsible for building and maintaining a stormwater system that covers 329 square miles and includes 731 miles of ditches, 568 miles of storm drains, over 12,600 catch basins, and nearly 1,000 flood detention ponds. This stormwater system must safely collect, treat, and convey runoff from every part of the county including the greatly increased run-off from developed properties. Runoff from homes, subdivisions, and businesses flows from smaller ditches and pipes into gradually larger infrastructure that flow under and along Augusta's roadways and into local streams. The public stormwater system benefits everyone who lives or works in Augusta-Richmond County. We all benefit from safe roads, upstream stormwater systems that protect us from flooding, water quality treatment that protects stream integrity, and the routine maintenance that helps keep Augusta the "Garden City".

Figure 1. Patterson Bridge Sinkhole


Figure 2. Mims Road Sinkhole


Figure 3. Colony Park Culvert Collapse

Augusta-Richmond County is currently facing an unusual combination of issues, each in itself a major concern: (1) aging and failing infrastructure; (2) local flooding of homes, businesses, and roadways that includes erosion and under-sized channels in the vast rural areas; and (3) growing demands from residents and businesses to keep the ditches and pipes along roadways trimmed and attractive.

(1) Aging and Failing Infrastructure

First settled in 1736, Augusta-Richmond County is one of the oldest cities in Georgia. The stormwater infrastructure is also some of the oldest in the state. Unexpected and sudden stormwater infrastructure failures such as the Patterson Bridge Sinkhole, Mims Road sinkhole, and the Colony Park culvert collapse are proof that the system is aging. Thankfully nobody was hurt as a result of these failures but they were expensive to repair and disrupted normal traffic patterns. The historic lack of adequate stormwater infrastructure funding delayed the routine maintenance and repairs that could have avoided these failures.


Figure 4. Flooding in Downtown Augusta (1888)

AED has an estimated backlog of over $240 million in stormwater infrastructure repairs, of which $100 million are rated as critical projects. The current funding from the General Fund and Special Purpose Local Options Sales Tax (SPLOST) is insufficient to address the needs in the system. Major capital projects must compete against citizen concerns and other non-stormwater maintenance priorities for attention and frequently lose out.

(2) Local Flooding of Homes, Businesses, and Roadways

Flooding is not a new problem in Augusta-Richmond County. Images of devastating flooding, such as Figure 4, date back to 1888. The creation of Clark Hill Dam upstream of Augusta in the early 1950's and other efforts have mitigated the flooding from the Savannah River, but major flooding challenges as recent as 1990 (Figure 5) and routine flooding of homes and roads still exist.


Figure 5. Gordon Highway Flooding (1990)

Development increases runoff. The conversion of forest to yard increases the volume of runoff almost tenfold and conversion from yard to pavement increases the volume, pollution, and flood flows about three times. The AED has stringent new development requirements designed to protect against downstream

flooding. More recently, the Augusta Planning and Development Department updated the floodplain maps, notified property owners of potential flood risks, and even bought several floodprone properties. Despite these efforts, flooding challenges devastate some homeowners and create unsafe roadway conditions for residents and businesses during heavy rains.

Currently, 107 of our neighbors live in harms way and are eligible for federal funding due to their high and growing risk of flooding. SPLOST funds have been used to match federal funds to permanently remove 30 homes and allow the properties to act as flood storage to protect downstream properties; however more demand for property acquisitions remain.

While the catastrophic flooding (Figures 5 and 6) gets more media coverage, routine nuisance flooding (Figures 7 and 8) also impacts the quality of life and safety of transportation corridors in Augusta. More frequent maintenance of the stormwater system such as removing debris from ditches, pipes, and traps can often address nuisance flooding issues. With current staffing, AED must balance routine maintenance with addressing customer requests. Therefore, damage has to already have happened or be imminent for Augusta to be able to respond.

Part of the additional funding will be used to help protect Augusta residents through construction of projects to minimize flood impacts and reduce repetitive losses and interruptions to local commerce. In addition, hiring more staff dedicated to routine preventative maintenance would allow AED to better address citizen requests as well as catch potential flooding problems before they happen. Finally, funds would support programs such as a proactive dredging of several lakes in the Augusta Canal Basin to maintain storage volume for peak rainfall and construction of flood reduction projects in the Rocky Creek Basin.

(3) Growing Demands from Residents and Businesses.
Responding to customer concerns is a strong priority for the Augusta Engineering Department. On average, they receive 3,300 stormwater-related complaints per year to either the Augusta Cares call center or from direct phone calls. Figure 9 shows the location of calls and Figure 10 shows the number of calls received over the past 10 years. Over half of these work orders were related to stormwater maintenance activities such as mowing right-of-way areas, trash cleanup, and addressing unsightly erosion.

The AED is able to address approximately 68% of these calls (Figure 11), typically within one month. That leaves over 1,000 complaints, most of which are legitimate, with no resolution. Given the scarcity of funds, AED must choose between more visible complaints, such as unsightly drainageways, or more invisible pipe system rehabilitation. The gap between need and ability to respond is now too big to be bridged. As the demands of aging infrastructure and routine maintenance increase, the ability of AED to respond to customer needs will likely decrease under existing staff and funding levels.

Figure 6. Residential Flooding

Figure 7. Commercial Flooding

Figure 8. Roadway Flooding

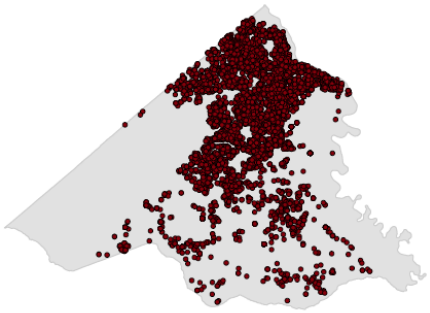

Figure 9. Location of Customer Concerns

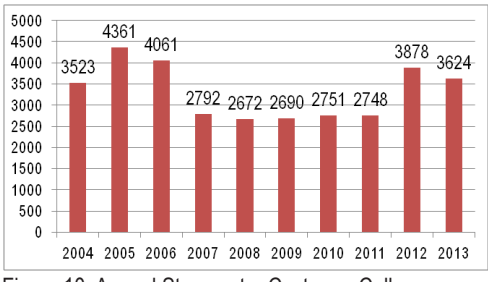

Figure 10. Annual Stormwater Customer Calls

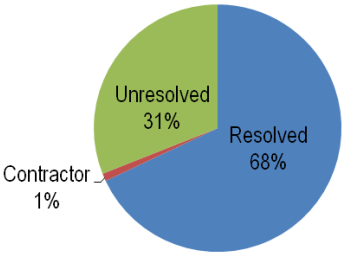

Figure 11. Type of Customer Concerns

The Augusta Engineering Department has a plan to address these challenges. The plan is moderate, not extravagant, and strikes a balance between preventing stormwater damage and minimizing stormwater program cost. The plan emphasizes "on the ground" results – fixing, cleaning, rebuilding, enlarging, and protecting our citizens and property. The enhanced stormwater program would focus on the following three priorities:

1. *Manage Augusta's Stormwater Assets in a Sustainable Manner.* AED will implement a sustainable asset management program that minimizes the necessary expenditures on maintaining stormwater assets by extending their lifecycle. This focus includes collecting and maintaining the information needed to support sound asset management decision making (see Figure 13). Sufficient staff and funding to perform routine maintenance is critical to addressing this priority.

2. *Protect Health, Safety, and Well Being of the Community.* Proper stormwater planning and management can reduce the risk of flooding events that impact residents and businesses. Impacts of flooding can range from reduced safety resulting from ponding on local streets to the inundation of family homes. Addressing areas where the stormwater pipes are not properly sized to handle storms and performing routine maintenance to keep the system working as designed are critical to protecting the community.

3. *Support Realization of the Garden City.* The phrase "realize the Garden City" was coined as part of Augusta's 2010 Sustainable Development Agenda. As it relates to stormwater, this means addressing customer concerns in a reasonable timeframe. This also includes promoting green infrastructure, as well as maintaining a routine schedule for street sweeping, right-of-way maintenance, and fixing trap lids.

These priorities shaped the recommended increase in staffing, operational costs, and capital improvement expenditures described in the following pages.

Figure 12. Historic Flood Markers along the Riverwalk

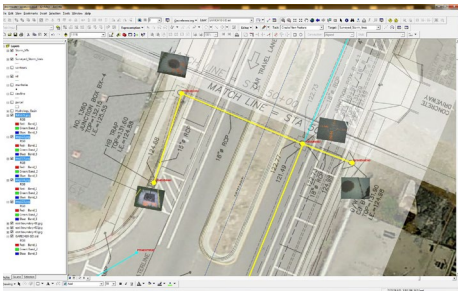

Figure 13. Sample of Augusta's Infrastructure Inventory

Figure 14. Paddling on the Savannah River

Common Stormwater Definitions and Acronyms:

Stormwater = water that originates during precipitation events and snow/ice melt. Stormwater can soak into the soil (infiltrate), be held on the surface and evaporate, or runoff and end up in nearby streams, rivers, or other water bodies. The type of land use determines what percentage infiltrates and what percentage becomes stormwater runoff.

Impervious area **=** Hard surfaces such as rooftops, driveways, and parking lots that do not absorb stormwater.

Equvalent Residential Unit (ERU) = Representative impervious area for single family properties in Augusta. In Augusta, an ERU is 2,200 square feet of impervious area.

Single-Family Residential (SFR) = Single-family, detached dwellings as defined by the tax assessors office.

Non-Single Family Residential (NSFR) = Any property that is not classified as a single-family residential by the tax assessors office.

A More Robust Stormwater Program Requires Additional Funding

Currently, the General Fund is unable to provide sufficient funds for stormwater infrastructure maintenance, even when combined with voter-approved SPLOST funds. The proposed funding levels for addressing infrastructure are not extravagant but are sufficient to fund the three stated priorities and begin to reduce the $240 million backlog of known stormwater infrastructure problems.

Existing Stormwater Program

Currently, Augusta-Richmond County only has 6 crews dedicated to stormwater maintenance which is less than one crew per Commission district. Funding for staff and projects comes primarily from the General Fund and Special Purpose Local Options Sales Tax (SPLOST) with a small percentage of funding generated from permitting fees.

Total Stormwater Program Cost	$10,480,000
Revenue from NPDES Permit Fees	$15,000
Revenue from SPLOST - Salaries & Benefits	$820,000
Revenue from SPLOST - Vehicle Cost Allocations	$760,000
Revenue from SPLOST - Consulting/Contracting	$1,000,000
Revenue from SPLOST - Capital Infrastructure Projects	$5,000,000
Stormwater Program from General Fund	$2,885,000

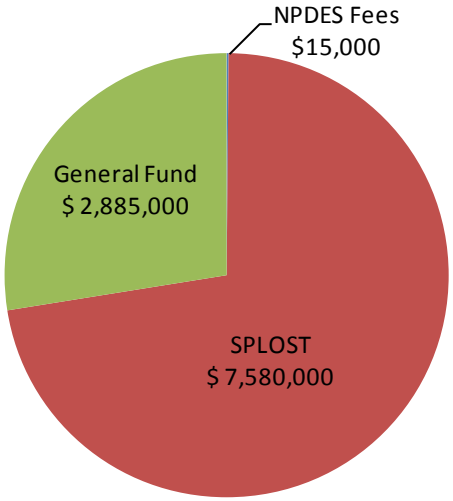

Figure 15. Current Blend of Stormwater Funding

Approximately 75% of the total stormwater program costs are currently funded by SPLOST funds (Figure 15). While SPLOST funds are important, the amount available to stormwater projects is unpredictable. Stormwater projects still must compete for SPLOST funds with other infrastructure projects. The uncertainty and insufficiency of the current stormwater program funding is not sustainable to meet the community's needs as evidenced by recent infrastructure failures.

Recommended Stormwater Program

In order to increase the level of maintenance, the future program doubles the number of crews for a total of 12 crews. These crews will provide services such as right-of-way mowing, trash cleanup, street sweeping, trap cleaning, and small maintenance projects.

Total Stormwater Program Cost	$19,020,000
Revenue from NPDES Permit Fees	$15,000
Revenue from SPLOST - Salaries & Benefits	$0
Revenue from SPLOST - Vehicle Cost Allocations	$0
Revenue from SPLOST - Consulting/Contracting	$0
Revenue from SPLOST - Capital Infrastructure Projects	$5,000,000
Stormwater Program from Stormwater Fee	$14,005,000

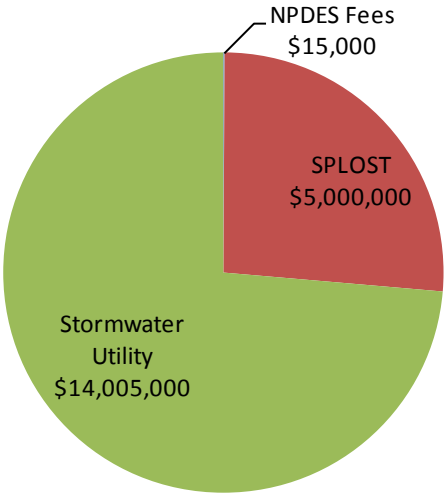

Figure 16. Future Blend of Stormwater Funding

SPLOST will remain an important component of the future program and will primarily be used to accelerate construction of the $240 million of known and unfunded infrastructure projects. However, staff and funding for routine maintenance will be funded by the proposed stormwater utility. Bonds (Revenue or General Obligation) may also be used to expedite construction of the priority infrastructure projects with the stormwater fee paying debt service.

A Stormwater Utility is the Most Equitable Funding Mechanism

A stormwater utility, similar to a water and wastewater utility, charges a fee proportional to the services provided. The proposed stormwater utility was tailored to Augusta-Richmond County to create an equitable rate structure that was not overly complex. This section describes some of the key aspects of the stormwater utility rate structure.

In Augusta, the proposed stormwater utility will be based on impervious area, since the development of property has a direct correlation to the amount of stormwater a property generates and Augusta must manage. This is more equitable than a tax-based system which is tied to property value and not related to runoff contribution. Properties with over 400 square feet of impervious area are considered developed and would receive a stormwater fee.

The billing unit for the stormwater fee is called an Equivalent Residential Unit (ERU) which is the representative impervious area for single family properties in Augusta. In Augusta, an ERU is 2,200 square feet of impervious area. Augusta's data shows that the percentage of the parcel dedicated to impervious area for single-family residential properties (SFR) is typically half of the percentage for non-single family residential (NSFR) properties. The fee structures for SFR and NSFR reflect this difference, as outlined below, where SFR properties are charged less per unit of impervious area but do not have the fee-reducing crediting opportunities of NSFR properties. NSFR properties can reduce their impacts through on-site stormwater management and attain a significant fee reduction.

Single-Family Residential Properties

There is a great deal of variety in the amount of impervious area for the housing stock in Augusta. To reflect this, a two-tiered residential structure is recommended with higher charges for the SFR properties with the greatest impervious area. Over 90% of all SFR properties fall into the low tier.

Tier	Impervious Area	Bill Rate
Low Tier SFR	≤ 4,400 square feet	1 ERU = $6.40/month
High Tier SFR	> 4,400 square feet	2 ERU = $12.80/month

Non-Single Family Residential Properties

The impervious area for each NSFR property was determined based on Augusta's aerial photographs. The rate is calculated by taking the total impervious area, dividing by the ERU of 2,200 square feet, and then rounding to the nearest whole number. Credits, or reductions in the stormwater fee, will be available for NSFR properties that provide and maintain stormwater controls that provide beneficial peak flow reductions and/or water quality treatment.

Figure 17 shows an example NSFR property that is fully developed and has 42,800 square feet of impervious area or about 19 times the amount of the average home (42,800 / 2,200 square feet = 19.4 which rounds to 19 ERU). The monthly base fee would be 19 ERU x $6.40/month = $121.60/month. The example property has and maintains a detention pond and therefore is eligible for a 40% credit, reducing the fee to $72.96/month, or an equivalent charge of $3.76 per ERU.

Rate Calculation

The stormwater utility rate was carefully calculated as follows:

1. Calculated the amount of funding that was needed to provide the desired level of infrastructure maintenance and rehabilitation.
2. Determined the number of total billing units by summing the total ERUs associated with SFR Tier 1 properties, the SFR Tier 2 properties, and NSFR properties.
3. The total funds needed divided by the total number of ERUs equals the proposed rate of $6.40 per ERU.

Figure 17. Example NSFR Property Impervious Area

Credits

The specific credits offered include:

- 40% reduction for stormwater detention
- 5% reduction for meeting additional requirements in impacted watersheds
- 15% reduction for meeting water quality requirements

Other notable items for credits:

- Credits are cumulative, so a NSFR property could receive up to a 60% credit.
- A credit application is required to certify that the stormwater controls were designed and maintained in accordance to design guidelines.

Next Steps In Augusta

The stormwater fee, if adopted by Commission, will be added to the monthly water and sewer bills. There will be a separate stormwater line item. The plan is to complete the rate setup process and send draft bills to all property owners in Spring 2015 with the first official bills being distributed in July 2015. The draft bill will provide customers with an opportunity to resolve concerns prior to receiving their first bill.

Figure 18. Example Dtrainage Project

The Augusta Engineering Department will be ready July 1, 2015 to begin the more robust maintenance program. Although the intent is to eventually hire maintenance staff, initially subcontractors will be used to perform routine maintenance such as street sweeping, right-of-way mowing, ditch cleaning, and trap cleaning.

Figure 19. Example Drainage Project

In addition to the planned maintenance activities, the Augusta Engineering Department has identified some of the priority capital projects that will be funded by the stormwater fee with supplemental SPLOST funds to support the stormwater program. Figure 20 shows some of the priority capital projects.

In Summary

Augusta has growing, real and unresolved stormwater infrastructure challenges as demonstrated by recent system failures, a $240 million backlog, and high volume of citizen calls. The AED has a thoughtful and reasonable plan to address infrastructure problems that focuses on asset management, public safety, and the realization of the Garden City. It will cost more money to tackle these unresolved problems, but a stormwater utility is the most equitable way to fund needed maintenance and repair activities. Maintenance of the stormwater infrastructure is a community priority and needed to protect residents and thriving local commerce.

Figure 20. Highlights of Planning Priority Capital Stormwater Infrastructure Projects

Planned Priority Capital Projects

1. Downtown Street and Drainage Improvements
2. East Augusta Roadway and Drainage Improvements (8 phases)
3. Hyde Park Street and Drainage Improvements and Wilkerson Gardens
4. Old Savannah Road and Street and Drainage Improvements
5. Forest Hill Drainage Improvements and Flood Reduction
6. Heirs Pond, Lake Aumond Dredging and Restoration
7. Walton Farms Subdivision Drainage
8. Rocky Creek Flood Hazard Mitigation
9. Milledgeville Road Widening (North Leg to Barton Chapel Road)
10. Dover-Lyman Street and Drainage Improvements
11. Dennis Road Widening and Drainage Improvements
12. National Hill Area Streets and Drainage Improvements
13. Old Waynesboro and Goshen Drainage