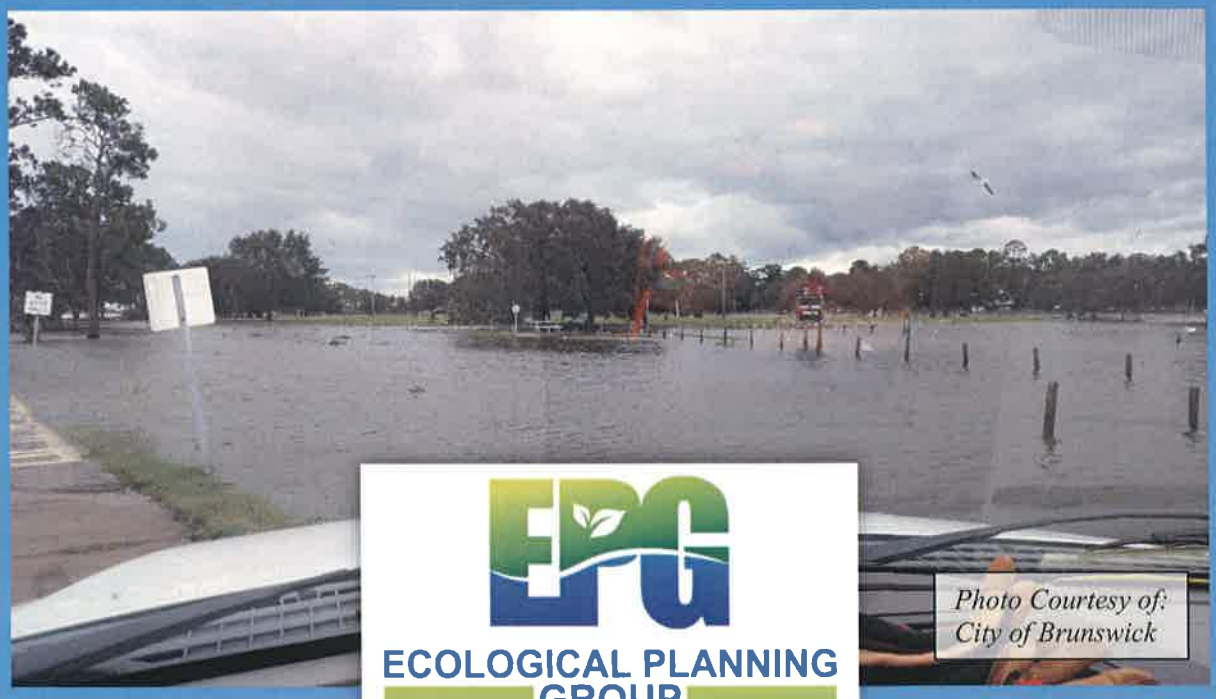
CITY OF BRUNSWICK STORMWATER UTILITY RATE STUDY



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1. INTRODUCTION

The City of Brunswick (the City) wishes to expand its stormwater management program (SWMP) to address high priority issues, including drainage system operation and maintenance (O&M) and capital improvement project (CIP) funding, and to comply with the National Pollutant Discharge Elimination System (NPDES) Phase II Municipal Separate Storm Sewer System (MS4) Permit and associated Stormwater Management Plan. The City desires to develop and implement a more proactive drainage system O&M program to comprehensively address the aging drainage infrastructure systems throughout the City. Additionally, the City has established that it needs to undertake the necessary actions to address high priority drainage CIPs that have been deferred for implementation due to insufficient funding. The City currently has limited resources to address high priority SWMP issues, comply with the NPDES Phase II MS4 Permit, and implement the desired level of service (LOS) related to O&M and CIP. The City currently depends primarily on General Fund revenues to fund the SWMP annually, and it has also used Special-Purpose Local-Option Sales Tax (SPLOST) revenues, when allocated, to fund CIPs. As such, the current funding capacity of the General Fund is not adequate to address the increasing demands of the SWMP, including the high priority O&M and CIP needs, and the SPLOST is not a guaranteed annual funding source. Accordingly, the City has elected to establish a stormwater utility and charge a stormwater user fee to developed properties to more adequately and equitably fund the SWMP.

1.1. PROJECT SCOPE OF WORK

To identify and assess the needs and issues associated with stormwater management in the City of Brunswick, and to develop an implementation strategy for the future SWMP, the City hired Ecological Planning Group (EPG) to complete a Stormwater Utility Rate Study. In general, the Stormwater Utility Rate Study includes the following elements:

1. Drainage CIP List
2. Extent of Service (EOS) policy
3. SWMP Level of Service (LOS)
4. SWMP Cost of Service (COS)
5. Impervious Surface GIS Delineation
6. Stormwater Utility Rate Model

1.1.1 Drainage CIP List

City staff has previously identified 9 large, priority drainage CIPs that need to be addressed by the future SWMP. The total estimated cost is $17.77 million. These locations were identified by City staff based on local knowledge of hotspot areas prone to flooding.

1.1.2 Development of an Extent of Service (EOS) Policy

The EPG Project Team and City staff developed a formal EOS policy recommendation for the City's SWMP. This policy outlines the City's operational responsibility for various elements of the drainage system and the SWMP overall.

1.1.3 SWMP Level of Service (LOS)

EPG reviewed the City's existing LOS as it relates to the SWMP including applicable regulatory compliance, the existing drainage system O&M program, the CIP program, land development and services. Based on this assessment, EPG and the City staff established recommendations for the future SWMP LOS, which will serve as the basis for the future SWMP funding analysis. Recommendations were developed regarding the most viable approach for the City to consider for implementation based on the needs and priorities of the future SWMP and the desired LOS.

1.1.4 SWMP Cost of Service (COS) Analysis

An analysis of the current SWMP spending was conducted by EPG to establish the baseline program COS. EPG then conducted a future COS analysis in order to establish the future funding needs of the City's SWMP. A projection of the total cost to provide SWMP services at the recommended LOS was developed for the initial five-year SWMP planning period of FY 2019 to FY 2023.

1.1.5 Impervious Surface GIS Delineation

As part of a Coastal Incentive Grant from Georgia DNR, Coastal Resources Division, the City's consultant, Stantec Consultants, performed a desktop GIS exercise to establish an impervious area database layer for the City by using the existing aerials. In total, 72% of 1,737 Non-Single Family Residential (NSFR) developed parcels and 81% of 5,123 single-family residential (SFR) parcels were delineated. Stantec's report noted that some parcels were not delineated due to excessive tree cover or other issues that limited the ability to accurately delineate the impervious area.

EPG reviewed the GIS database created by Stantec using the most recent aerial imagery and completed the impervious surface delineation for the remaining NSFR parcels. EPG staff also performed a cursory review of the land use designations assigned to the parcels by Stantec.

1.1.6 Stormwater Utility Rate Model

Utilizing the impervious area data developed as part of this project and the future desired LOS and COS, EPG prepared a preliminary revenue model for the proposed Stormwater Utility (SW Utility) which identified a recommended stormwater user fee rate.

1.2. SWMP GOALS

On behalf of the City, EPG has undertaken a detailed and comprehensive SWMP Assessment and Funding Analysis work effort to accomplish the following: (1) assess and prioritize key SWMP priorities and issues; (2) develop a future SWMP to address these issues and priorities; and (3)

identify the fairest, most equitable and stable method to fund the City's proposed future SWMP. Development and implementation of the future SWMP and dedicated funding mechanism should enable the City to reduce and/or minimize flooding and reduce stormwater runoff pollution from urbanized areas, construction sites and other potential sources, by achieving the following goals:

- Implement the citywide drainage masterplan and drainage CIP, as funding is available.
- Complete a detailed inventory and condition assessment of the City's public drainage system and critical components of the private drainage systems within the City.
- Develop a formal EOS policy that identifies which parts of the drainage system are the responsibility of the City and then schedule operations and maintenance activities based on this policy.
- Comply with applicable State and Federal regulatory requirements associated with water resources management within the community [(i.e. National Flood Insurance Program (NFIP), and National Pollutant Discharge Elimination System (NPDES)].
- Implement stormwater management ordinances and design standards that address the impacts of stormwater runoff from new development and re-development projects and that better regulate the design, construction and maintenance of public and private stormwater management systems in accordance with applicable provisions in the Georgia Stormwater Management Manual (GSMM) and Coastal Stormwater Supplement (CSS) to the GSMM.
- Utilize the inventory and condition assessment data to develop and implement a proactive drainage system O&M program for the City's public drainage system.
- Enhance public education and awareness efforts related to stormwater management runoff and water quality.

2. DRAINAGE CIP

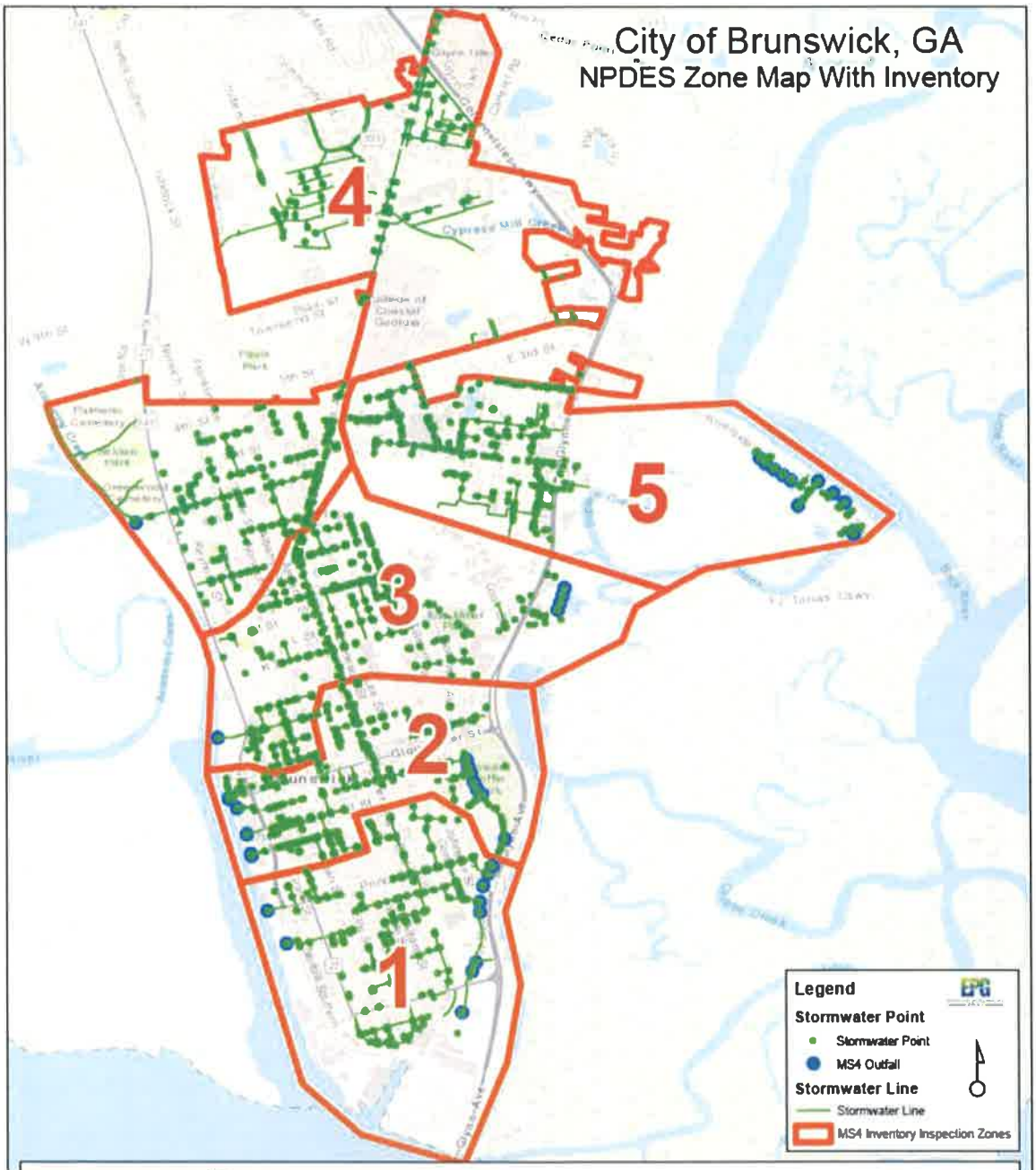
As part of the "Stormwater Utility Feasibility Study" Coastal Incentive Grant, the City worked to complete a detailed geographic information system (GIS) inventory and condition assessment of the stormwater system by verifying structures in the field that had been identified through aerial imagery. A total of 2,979 out of 3,266, or 91.2%, of the stormwater points were field-verified. This count includes City, State, and privately-owned stormwater points. There are still 287 stormwater points within the City limits that need to be field-verified and inspected. Upon completion of this inventory, the information will be used to identify maintenance needs and responsibility and to develop a proactive maintenance program for the public drainage system.

As part of the City's recent SWMP update in June 2018 for their NPDES MS4 Permit, ownership was assigned to each of these points and inventory data available from Glynn County was merged with City data where missing infrastructure was present. It was determined that City-owned stormwater infrastructure totals 11.7 miles of ditches, 33.5 miles of pipe, and 2,490 stormwater points. City-owned stormwater infrastructure is presented in the map in Figure 1. This map also includes inspection zones per the City's NPDES MS4 Permit.

City staff has previously identified 9 large, priority drainage CIPs that need to be addressed by the future SWMP and a preliminary cost assessment has been created for each CIP, as presented in Table 1. The total cost of these projects is $17.77 million. These locations were identified by City staff based on local knowledge of hotspot areas prone to flooding.

Table 1: CIP Project List and Estimated Costs

PROJECT NO.	PROJECT NAME	TOTAL ESTIMATED PROJECT COST
1	College Park Subdivision	$6,000,000
2	Magnolia Park Subdivision	$1,320,000
3	Albany Street Drainage	$1,000,000
4	L Street Improvements	$950,000
5	G Street Drainage	$1,000,000
6	South End Storm Rehab	$4,000,000
7	N Street Basin – East	$1,500,000
8	N Street Basin – West	$1,500,000
9	Parkwood Avenue & Altama Avenue	$500,000
Total Estimated Cost of Capital Improvements		**$17,770,000**



NPDES Features by Zone

Zone	Ditch Count	Ditch Length (Linear ft)	Pipe Count	Pipe Length (Linear ft)	Catch Basins	MS4 Outfalls to State	Total NPDES Features
1	22	9757.84	339	36915.52996	2	10	373
2	1	112.02012	517	33070.82641	53	12	583
3	3	449.563465	504	37568.33176	55	5	567
4	104	40547.4179	483	43138.04788	33	1	621
5	62	10871.77113	371	26146.72537	115	10	558

Figure 1: Map of City-owned Stormwater Infrastructure, per NPDES SWMP (June 2018).

3. STORMWATER MANAGEMENT EXTENT OF SERVICE POLICY

A formal SWMP should define the geographical and legal extent to which the local government will provide SWMP services under its EOS Policy. The EOS policy should be clearly defined to ensure it is understood by all potentially affected parties including the local government staff, the citizens of the community, the property owners and the business owners.

3.1. EOS OVERVIEW

The development and implementation of the expanded SWMP will necessitate that the City of Brunswick establish an EOS policy related to the proposed, future SWMP LOS. Drainage and stormwater infrastructure components can be owned, operated and/or maintained by either the local government as part of the public system/MS4 or by private entities such as property owners, businesses and/or homeowner's associations.

The EOS policy for the SWMP defines the geographical limits of the City's responsibilities with regard to the various drainage system components and SWMP programs, based on several factors including:

- Location – Is the stormwater infrastructure part of the public system inside the right of way or is it outside the right of way but directly connected to the public system?
- Ownership – Is the stormwater infrastructure publicly or privately owned and maintained?
- Function – What service does the stormwater infrastructure provide (i.e. conveyance, storage, etc.) and who does the facility provide service for (i.e. public, private or both)?
- Legal Standing – Is the stormwater infrastructure located within a dedicated easement or shown as an easement on a development plat?

3.2. CITY OF BRUNSWICK EOS POLICY

3.2.1 Current EOS:

The City of Brunswick was originally laid out in a grid plan similar to that in Savannah, with large, public squares at given intervals. There is a large number of City-owned streets, so delineation of public versus private property is relatively clear. The City does have some easements in neighborhoods to access City-owned and maintained drainage infrastructure

There are several large impervious areas with drainage infrastructure that is private/non-City, and these include: Georgia Ports Authority, Pinova (formerly Hercules), Southeast Georgia Health System (hospital and other medical buildings), Board of Education, College of Coastal Georgia, Brunswick Mall, Glynn Isles Shopping Center, Glynn County, and Lanier Plaza. In addition to these properties, Brunswick contains several state highways, in which the infrastructure and drainage features are owned by the Georgia Department of Transportation. The state highways include: Hwy 17 on the east, Hwy 25/341 on the west and south, and Hwy 25 Spur (Golden Isles Parkway) and Hwy 303 (Community Road and Cypress Mill Road) towards the northern end of the City.

The lack of dedicated financial resources has led the City to follow a very limited EOS policy for the drainage system that can be generally described as follows:

- Drainage operations and maintenance responsibility limited to public property, public rights-of-way (ROW) for City streets, and easement dedicated and accepted by the City.
- No responsibility for private stormwater control facilities, or for drainage structures without a clearly dedicated and accepted easement.

At this time, the City operates under the EOS Policy as outlined above. It should be noted that most local government SWMPs operate under this scenario. Put simply, the City maintains the stormwater drainage system in the public ROW, and in publicly dedicated easements that have been accepted by the City for perpetual maintenance.

3.2.2 Future Recommended EOS: Expanded Local Responsibility

In the future, should adequate resources become available, the City may wish to transition its EOS over time and expand the current EOS Policy so that it aligns more closely with the Future Expanded EOS Policy described below:

- Complete the drainage system GIS inventory, including condition assessment and ownership identification for the drainage system components.
- Proactively maintain stormwater infrastructure on public property, within publicly dedicated and accepted drainage easements and within public ROWs for City streets.
- Dedicate sufficient City crew resources to stormwater system maintenance in order to address the expanded EOS responsibility.
- Work with private property owners to procure drainage easements for the City to perform necessary maintenance where stormwater from the public ROW impacts private drainage systems.

Local governments that have recently established a SW Utility have in some cases implemented an EOS policy consistent with this Expanded EOS Policy recommendation. The City Attorney should be consulted with regard to development and adoption of the future SWMP EOS Policy to ensure that the applicable legal considerations are incorporated into the EOS policy and any future City ordinances.

If the City elects to pursue a Stormwater Utility, they may wish to consider future expansions as their program matures. One consideration is to expand EOS responsibility for private drainage facilities that meet one of the two following categories: (1) private systems that accept drainage and stormwater runoff from public property, i.e., drainage from City streets, and (2) critical private systems that could adversely impact the public system if a failure occurred (i.e., private detention ponds that accept stormwater runoff from public streets).

4. SWMP Level of Service (LOS) Policy

The SWMP LOS Policy defines the specific types and frequencies of activities that will be provided for each SWMP operational element for which the local government will have responsibility. A clear definition of the City's LOS for the various drainage system components will make it easier to identify the specific responsibilities of the local government SWMP and the specific tasks that will be addressed by non-local government entities (i.e. private property owners). To that end, the City should coordinate the LOS and EOS policy definition efforts as part of the SWMP development and implementation process. It should be noted that both the EOS and LOS can be incrementally expanded/modified over time as additional resources are secured and as future SWMP funding levels allow. For example, a local government that is implementing a SW Utility may slowly assume responsibility for additional private stormwater infrastructure components that are interconnected to the public system and convey "public water" as well as increase the type and frequency of drainage system O&M activities undertaken by the SWMP.

The City's SWMP has several primary functional and operational areas that are listed below. For each area, the current LOS has been described to document the existing activities of the SWMP. The future LOS is then described to define the proposed/recommended activities that would be implemented as part of a future, expanded SWMP.

Programmatic Elements

- Administration & Organization
- Regulatory Compliance
- Inter-jurisdictional Coordination
- Water Quality Management
- Land Development Project Regulation

Drainage System Management Elements

- Drainage System Inventory & Condition Assessment
- Drainage System Inspections
- Street Sweeping
- Drainage System O&M

Drainage System CIP Elements

- Drainage Masterplanning
- CIP Design & Construction

The following sections summarize the City SWMP current LOS and the proposed, future LOS. It is anticipated that the future LOS will address SWMP implementation for an initial five-year planning period encompassing FY 2019 to FY 2023.

4.1. ORGANIZATION, MANAGEMENT AND OPERATION

The administrative and organizational elements are important functions of the City SWMP to ensure successful coordination of the day to day SWMP operations.

Organizational, Management and Operational (OMO) Options: A local government's OMO options for a SWMP generally can fall under three basic configurations:

1. *Organization within an Existing City Department* – Under this organization configuration, the SWMP is organized and operated under an existing department such as Public Works. This is the most common organizational configuration utilized by local governments for SWMP implementation.

2. *Stand-Alone Organization* – A local government SWMP (and typically a SW Utility) can be established as an independently operating City department if so desired. Under this organizational configuration, a dedicated funding source such as a stormwater user fee is typically implemented to generate a stable revenue stream for the SWMP.

3. *Multi-matrix Organization* – Under this organizational configuration, the SWMP responsibilities are shared internally among multiple departments and various local government personnel.

Current OMO: The City currently operates a limited SWMP under several departments including: Public Works, Engineering, and Community Development. As such, the current SWMP primarily operates under OMO Configuration #3.

Future OMO: In the near future, it is recommended that the City Engineer manage the SWMP through the appropriate departments under OMO Configuration #3, and that sufficient resources be allocated to fund its operational responsibilities: O&M, CIP, Regulatory Compliance, and SWMP Administration. As the City's SWMP matures, the City may elect to form a Stormwater Department where most of the SMWP functions could be housed, under OMO Configuration #2.

Primary SWMP Responsibility: Engineering Department, City Engineer

- Oversee the budgeting process for the SW Utility Enterprise Fund.
- Manage the City's future SW Utility Enterprise Fund.
- Assist the City's finance and accounting efforts associated with the SWMP and future SW Utility.
- Lead the City's efforts related to update and implementation of the City's stormwater management ordinances and design criteria/standards.
- Support the City's land development site plan review efforts.
- Manage implementation of City's drainage CIP.
- Provide engineering assistance with design and construction of City-owned projects.
- Review proposals and construction plans for work on City projects and projects for the general public.

- Lead the City's data collection and management efforts related to the ongoing maintenance of the City's drainage system inventory and condition assessment.

Secondary SWMP Responsibility: *Public Works Department (including the following Divisions, Administration, Streets, Ditches and Drains, and Equipment Support)*

- Implement the day-to-day operational aspects of the SWMP and SW Utility.
- Conduct O&M on the City's MS4, and document activities.
- Maintain equipment used for O&M of the MS4.
- Coordinate with the City Engineer and Code Enforcement Officer regarding the City's field inspection efforts related to regulatory compliance and development regulation.
- Assist with the implementation of the City's SWMP public education and awareness activities.

Secondary SWMP Responsibility: *City Manager's Office*

- Oversee the activities of all staff and departments to ensure efficient operation and implementation of the SWMP on behalf of the City.
- Establish and institute City policy per the directives of the Mayor and Board of Commissioners with regard to the overall framework for the future SWMP.

Secondary SWMP Responsibly: Planning and Zoning, Code Enforcement

- Lead the City's regulatory compliance efforts.
- Lead the City's development regulation efforts.

Secondary SWMP Responsibly: Finance Administration

- Support the billing and management of the SW Utility Enterprise Fund.

Secondary SWMP Responsibly: Information Technology

- Provide general information technology support for the City's SWMP.

Secondary SWMP Responsibly: Human Resources

- Provide human resources support for employees working on the City's SWMP.

4.2. REGULATORY COMPLIANCE

The City's current and future SWMP is subject to certain regulatory requirements overseen by the Georgia Environmental Protection Division (EPD) and other agencies. The City has been designated as a NPDES Phase II MS4 Permit community, so the City must address certain water resources management related regulatory compliance requirements.

Current LOS: The City's current regulatory compliance responsibilities include the Georgia Department of Natural Resources, Environmental Protection Division's National Pollutant Discharge Elimination System (NPDES) Phase II Municipal Separate Storm Sewer System (MS4) Permit, and compliance with the National Flood Insurance Program.

Future LOS: In the future, the City will need to perform compliance activities associated with the programs noted above and ensure that these regulatory requirements, as well as any new requirements, are addressed as part of the future SWMP. The proposed strategy to address the future regulatory requirements discussed herein will attempt to achieve compliance in the most cost effective, systematic and well-coordinated manner. This will be accomplished by identifying ways to achieve compliance with different regulations that have similar requirements through coordinated efforts.

In the future, the City should consider pursuing its Local Issuing Authority (LIA) status for Land Disturbance Activity (LDA) permitting and enforcement. This designation will require the City to comply with the Georgia Erosion and Sedimentation Act (GESA), which may necessitate the addition of staff.

4.2.1 NPDES Phase II MS4 Permit

The City of Brunswick has been designated as a NPDES Phase II MS4 permittee by the Georgia Environmental Protection Division (EPD). In accordance with this permit, the City must develop a Stormwater Management Plan that complies with six minimum control measures and specific BMPs that are identified in Table 2. The City recently submitted an updated Stormwater Management Plan to comply with new requirements included within the NPDES Phase II MS4 Permit, issued in December 2017. The EPD reissues this permit, often with new requirements, every five years, and it is likely that the responsibilities associated with permit compliance will continue to expand in the future.

Table 2: NPDES Phase II MS4 Permit Requirements

Minimum Control Measures	Best Management Practices
Public Education and Outreach	Public Presentations; Educational Handouts; Public Service Announcements; Stormwater Website.
Public Involvement / Participation	Community Litter Pick-Up Program; Bring One for the Chipper; Citizen Complaint Hotline; Great American Cleanup.
Illicit Discharge Detection and Elimination (IDDE)	Legal Authority
	MS4 Outfall Map and Inventory
	IDDE Plan
	Illicit Discharge Education
	Citizen Complaint Response
Construction Site Stormwater Runoff Control [1]	Legal Authority
	Site Plan Review
	Erosion & Sedimentation (E&S) Inspections

Minimum Control Measures	Best Management Practices
	Enforcement Procedures for E&S Violations
	Citizen Complaint Response
	Employee E&S Certification
Post-Construction Stormwater Management in New Development & Redevelopment	Legal Authority
	Stormwater Management Structure: (1) Inventory, (2) Inspections, & (3) Maintenance
	Green Infrastructure / Low Impact Development (GI/LID): (1) Inventory, (2) Program, & (3) Inspections and Maintenance
Pollution Prevention / Good Housekeeping for Municipal Operations	MS4 Control Structure: (1) Inventory and Map, (2) Inspection Program, & (3) Maintenance Program
	Street and Parking Lot Cleaning
	Employee Training
	Waste Disposal
	New & Existing Flood Management Projects Evaluated for Water Quality
	Municipal Facility Inspections
Additional Permit Requirements and Information	
Enforcement Response Plan	Enforcement Mechanisms for City Ordinances
Impaired Waters Monitoring & Implementation Plan	Monitoring of Pollutants of Concern for Impaired Waters, Assessment of Effectiveness of BMPs
Reporting Requirements	Annual Report by February 15th
	Updated SWMP (every 5 years)

[1] BMPs under this Minimum Control Measure are not required because the City is not a LIA. Should the city elect to obtain its LIA status, these regulations will apply.

4.2.2 National Flood Insurance Program (NFIP)

The City will continue to participate in the NFIP, administered by the Federal Emergency Management Agency (FEMA). The City Engineer is the Floodplain Manager, and the Engineering Department administers NFIP and Floodplain Management Program within City limits in compliance with the requirements of the Federal Emergency Management Agency (FEMA) and the Georgia EPD.

← 5% drop for every Number

* 1-10 rate system
GBwk is @ 9 now

"CRS rating" = lower Flood insurance rates
(est. Through FEMA's Ins. Serv. Office)

Services included in this program can include the following:

- Grant writing for repetitive loss properties
- Issuance of Elevation Certificates
- Floodplain/way determination letters
- Review site plans for compliance with the Flood Damage Prevention Ordinance
- Implementation of a local floodplain management/flood damage prevention program that meets the applicable standards of the Georgia EPD and the NFIP.
- Participation in the Glynn County's emergency planning and preparedness activities.
- Maintenance of digital flood insurance rate maps (DFIRM)

The City also participates in the Community Rating System (CRS) program for the NFIP. The CRS program allows property owners to secure a reduction in their flood insurance rate premiums if their community implements floodplain management activities that exceed the minimum NFIP standards. The City currently has a CRS Rating of '9' which entitles all residents to a 5% discount on their flood insurance premiums (both within and outside Special Flood Hazard Areas). Implementation of a dedicated funding source for the City's SWMP would provide the resources and programmatic elements necessary to achieve additional CRS credits, thus improving the CRS Rating and qualifying residents for additional discounts on flood insurance. The City Engineer is the CRS Coordinator.

4.3. LAND DEVELOPMENT REGULATION

The City's land development regulation activities related to stormwater management consist of site plan review, ordinance enforcement and field inspection activities that are undertaken by City staff or their contractors to regulate land development projects within the City. The land development regulation activities are performed primarily by in-house City personnel within the Planning and Zoning Department, with the exception of engineering site plan review, which is performed by the City Engineer.

Since the City is not a LIA, EPD and the Natural Resources Conservation Service (NRCS) are responsible for reviewing all Erosion, Sedimentation, and Pollution Control (ES&PC) Plans for qualifying and development projects.

Current LOS: The City's existing ordinances regulate land development primarily related to the following:

- Stormwater Runoff Control
- Flood Damage Prevention
- Soil Erosion, Sedimentation, and Pollution Control

Future LOS: The future LOS for this programmatic area should be expanded through the adoption of more comprehensive post-construction stormwater management regulations, engineering design criteria, and construction standards as well as the associated site plan review and approval process. The City has identified the following goals for the future development regulation:

- Ensure that future capital drainage project improvements are protected from the impacts of additional development.
- Update the City's Stormwater Management Ordinance to adopt the CSS and ensure design criteria and performance standards are consistent with the latest version of the GSMM.
- Formulate a watershed-based plan to construct and operate regional detention facilities at strategic locations within the City to better manage the control of stormwater runoff quantity and quality.
- Require that a Stormwater Management Facility Operation and Maintenance Agreement (Agreement) be executed for all private, on-site stormwater controls. The Agreement would require that the property owner assume responsibility for the ongoing maintenance of stormwater control facilities. The Agreement will include language that would allow City staff (or their designated representative) to access the site for inspection purposes. Execution of the Agreement should be addressed as part of the site plan review and approval process.

Coastal Stormwater Supplement ↓ Part of MS4 permit (req.)

4.4. DRAINAGE SYSTEM INVENTORY & CONDITION ASSESSMENT

In order to implement a successful drainage system O&M program that will proactively address the drainage system priorities and needs, a complete inventory of the entire public drainage system (and critical parts of the private system) is necessary. The City is currently in the process of completing a drainage system inventory. Once completed, the GIS inventory will serve as the foundation for not only the O&M program, but the future CIP as well, such that CIP projects can be prioritized, planned and implemented.

Current LOS: The City has information regarding the location and condition for a majority of the drainage system components; however, there are still several unverified structures that do not have a condition assessment. Inspections of drainage system components as part of the NPDES Phase II MS4 permit as well as citizen complaints have been used to determine maintenance needs.

Future LOS: Once the GIS inventory is complete, the City can utilize this data to begin implementation of a complete and proactive O&M program that will improve the functionality of the City drainage system and network. The City should strive to maintain and update the inventory database so that it can serve as a valuable tool regarding ongoing drainage system O&M and to better address recurring flooding issues within the City. This approach will allow the SWMP to focus its available financial resources on those drainage system components that are the highest priority need for action/attention.

4.5. DRAINAGE SYSTEM O&M

The ongoing O&M of the various drainage system components is one of the most critical elements of a successful SWMP. O&M activities include maintaining and cleaning of catch basins, inlets, ditches, swales, culverts, detention ponds and other structural stormwater controls. Other activities include street sweeping, system inspections, and pollution prevention/good housekeeping for municipal operations. Inadequate or ineffective O&M of the drainage system

can reduce both the hydraulic capacity and pollutant removal efficiency of stormwater controls and conveyance systems. However, implementation of an enhanced LOS for the SWMP O&M elements will assist the local government in achieving the following O&M goals and objectives:

- Reduce non-point source pollutant discharges to the public drainage system and waters of the United States
- Reduce flooding and pollution and improve the City's responsiveness to citizen complaints
- Enhance the conveyance capacity of drainage system components
- Extend the life cycle of the drainage system infrastructure components

Current LOS: The City's current drainage system O&M program is implemented primarily by the City's Public Works staff and has mostly been reactive. The current O&M program is still primarily focused on citizen complaint-driven maintenance with some proactive tasks being undertaken, such as sweeping of City streets.

In general, a primarily reactive O&M program is defined as a program whereby maintenance is performed as a result of complaints and/or system failures which often results in unacceptable consequences such as flooding, pollution discharge, etc. The drainage system maintenance efforts are under "Highways and Streets" of Public Works Department. This group is responsible for streets, storm water drainage systems, tree trimming, sidewalk maintenance, and heavy equipment operations. There are two divisions "Ditches and Drains" and "Streets" that conduct stormwater-related activities. According to City staff, the Ditches and Drains crew spend 100% of their time on drainage O&M issues, and the Streets crew spend 25%. The Ditches and Drains Division has 8 positions, although only 5 are currently filled, and the Streets Division staff consists of a 7-person crew. Maintenance of equipment used for stormwater-related activities is supported under the "Maintenance and Shop" category of Public Works, and specifically, the Equipment Support Division. City staff estimated that about 10% of its time is used to maintain equipment used for drainage O&M issues.

Future LOS: The primary goal of the future SWMP will be to transition the current O&M program from primarily reactive to primarily proactive over time. City staff indicated that transition to a more proactive O&M program could be accomplished if additional resources and funding were made available. The benefit of moving to a more proactive O&M program includes a reduction in the future potential cost of capital improvement projects, capital maintenance projects, and emergency repairs. As such, this approach should extend the life cycle of the drainage system components. The City indicated that they want to fill all positions with the Ditches and Drains Division as well as adding two additional positions by FY 2020 to allocate more resources to begin implementing a proactive maintenance program (25% increase in personnel costs in FY 2020).

The LOS policy for the various system components will be dependent on several factors including ownership, condition, priority and cost. A final standard operating procedures (SOP) for proactive drainage system O&M can be developed using a combination of the stormwater inventory and condition assessment data combined with the future drainage CIP program. It is recommended that the O&M program follow the LOS standards described below and these

standards will likely have to be revised as the full system inventory and condition assessment work is completed.

- **Public Drainage System (as defined in the EOS Policy)**
  - Manage and maintain a comprehensive drainage system inventory and condition assessment database
  - Develop and maintain geographically based O&M zones within the City
  - Perform routine inspections of public drainage systems
  - Undertake priority-based maintenance of the drainage system
  - Comply with applicable regulatory requirements
  - Create a City-specific Emergency Response Plan for priority drainage systems

- **Private Drainage Systems (as defined in the EOS Policy)**
  - Perform limited drainage system inventory and condition assessment of critical private systems
  - Enforce ordinances, design standards, maintenance agreements, etc.
  - Periodically inspect high priority private drainage system components
  - Comply with applicable regulations
  - Provide technical assistance to private property owners regarding drainage system and water quality issues
  - Create a City-specific Emergency Response Plan for high priority drainage systems

The following is a summarized list of drainage system O&M program recommendations related to the City's future SWMP. Implementation of the following list of recommendations will enable the City to move towards a more proactive O&M program that should result in a long-term cost savings to the City over time.

- Complete the drainage structure inventory and condition assessment of the public drainage system as well as the key private infrastructure components that could adversely impact the public system if they failed.
- Review, categorize and prioritize the drainage system components inventoried on an ongoing basis for routine maintenance, replacement, and/or structural repair.
- Set O&M zones to more effectively schedule inspections and maintenance of the drainage system.
- Develop a SOP related to drainage system O&M to ensure: (1) acceptable system operation and (2) citizen/customer issues are addressed.
- Perform more frequent O&M of the drainage system in flooding hot spots around the City.
- Develop an inventory of City-dedicated and accepted drainage easements, as well as drainage systems for which the City would like to procure an easement and attempt to work with property owners regarding the legal aspects of these issues.

- Formalize the City's emergency response procedures and provide training to City staff on the implementation strategy for critical systems in the event of a major flooding event.
- Implement the drainage compliant response program to be more responsive to citizen issues, especially if a SW Utility fee system is instituted by the City.

4.6. DRAINAGE MASTERPLANNING AND CIP

Capital Improvement Project

The foundation of a well-planned and comprehensive CIP is a detailed and comprehensive masterplanning effort. Masterplanning is a tool which enables a local SWMP to assess current and future drainage conveyance LOS issues and to analyze/identify potential capital improvements within each drainage basin. A comprehensive drainage masterplan for each basin within a community also can result in a reduction in the long-term capital and O&M costs for the basin drainage system through reduced flooding, optimal conveyance system sizing and reduced non-point source pollution discharge.

Current LOS: The City has not undertaken a comprehensive drainage masterplanning effort in the past but is in the process of finalizing a comprehensive inventory and condition assessment of the public drainage system. The City has utilized available inventory data and local knowledge regarding areas prone to flooding and drainage deficiencies to formulate an initial CIP project list.

Future LOS: The City has identified 9 CIPs with a projected cost for engineered solutions of more than $17 million. The recommended solutions for the currently identified CIPs include capital improvements, capital maintenance, and/or further engineering study. It is anticipated that additional projects exist within the City, but they have not been identified at this time. Completing the inventory and condition assessment as well as creating a Stormwater Masterplan will likely identify additional CIP project needs.

4.7. SWMP LEVEL OF SERVICE (LOS) SUMMARY

The table below provides a summary of the current and future LOS for the following major SWMP elements: (1) Program Administration/Regulatory Compliance, (2) Development Regulation, (3) Operations and Maintenance, and (4) Capital Improvement Program.

Table 3: SWMP LOS Summary

Level of Service	*Program Coordination/ Regulatory Compliance*	*Development Regulation*	*Operations and Maintenance*	*Capital Improvement Program*
Current LOS	• NFIP Participation • NFIP Community Rating System (CRS) Participation • NPDES Phase II MS4 Permit Compliance	• Existing stormwater ordinance and standards • Development review and construction inspections	• Reactive O&M • Complaint response • Emergency response • O&M record keeping • Majority of a GIS inventory/condition assessment	• SPLOST Annual Budget allocation • Critical projects only • Deferred capital project funding
Future LOS	• Formal organization structure • Improve CRS Rating • LIA compliance • Address new NPDES permit requirements and regulations	• Adopt Coastal Stormwater Supplement o Encourage Green Infrastructure/ Low Impact Development o Private Stormwater Control Maintenance Agreements	• Complete comprehensive GIS inventory / condition assessment • Routine and proactive O&M of open and closed systems • Increase enforcement of private system maintenance responsibility	• Expand CIP Program • Drainage Masterplan • Implement prioritized CIP

5. SWMP Cost of Service Analysis

The SWMP Cost of Service (COS) Analysis is a critical part of the overall funding needs assessment. The future COS establishes the SWMP budget that will be utilized to implement the future comprehensive SWMP at the desired LOS. The enhanced LOS correlates to an increased COS for the SWMP, and the increased LOS and COS serves as a basis for the future SWMP funding needs of the City. The City anticipates that the future needs of the SWMP will continue to expand and that the current funding levels are not adequate to fund the desired LOS for the City's SWMP. Review of the current and future LOS issues outlined in this document indicates that the City SWMP will require additional funding in the future to address ongoing O&M needs as well as the identified drainage CIPs.

5.1. CURRENT SWMP COS

As discussed above, the City does currently provide limited stormwater services, and there is a cost associated with provision of those services. The COS for the City's existing SWMP was developed through discussions with City staff and an analysis of the budget for Fiscal Year (FY) 2018. There are currently no formal financial or operational organization or tracking system for the SWMP. Therefore, expenses for personnel, operating costs, capital operating costs, and General Fund services from each City Department cost center are allocated to the SWMP in accordance with the departmental responsibilities that can be attributed to SWMP functions. The allocations are presented in Table 4 as a percentage. Table 4 includes a summary of the COS for the SWMP in FY 2018. Based on this current SWMP COS, the City will spend approximately $1.4 million on SWMP operations in the current fiscal year (FY18). This funding is currently allocated primarily from the General Fund, but SPLOST provided about $600,000 for CIP implementation in FY 2018. The current SPLOST, SPLOST VI, began collections in January 2017, and it has anticipated collection period for 3 years, for a total of $3.24 million.

jumps to $1.8M per year

Table 4: Current SWMP COS

Line No.	Line Item	Stormwater Allocation	Annual Cost (FY 2018)	FY 2018
	Personnel Costs[1]			
1	City Engineer	50%	$134,766	$67,383
2	Public Works Administration	50%	$202,821	$101,411
3	Ditches & Drain Crew	100%	$243,786	$243,786
4	Streets Crew	25%	$283,801	$70,950
5			***Personnel Subtotal***	***$483,530***
	Operating Costs			
6	Engineering Professional Services	50%	$39,400	$19,700
7	Engineering Supplies/Materials	50%	$3,875	$1,938
8	PW Admin Technical Services	50%	$19,900	$9,950

Line No.	Line Item	Stormwater Allocation	Annual Cost (FY 2018)	FY 2018
9	PW Admin Supplies /Materials	50%	$30,850	$15,425
10	Streets Repair/Maint. Building	25%	$7,500	$1,875
11	Streets Supplies & Materials	25%	$58,225	$14,556
12	Streets Machinery & Equipment	25%	$38,100	$9,525
13	Ditches & Drains Consultants	100%	$28,600	$28,600
14	Supplies Materials	100%	$36,500	$36,500
15	DOC Contract	100%	$39,504	$39,504
16			***Operating Subtotal***	***$177,573***
	Capital Improvement Program			
17	Capital Project Implementation[1]			$600,000
18	Capital Equipment Expense			$0
19	Masterplan			$0
21			***Capital Subtotal***	***$600,000***
	General Fund Services			
22	City Manager's Office	5%	$397,509	$19,875
23	Finance Administration	10%	$378,343	$37,834
24	Information Technology	5%	$183,915	$9,196
25	Human Resources	5%	$100,011	$5,001
26	Equipment Support	10%	$431,628	$43,163
27	P&Z Code Enforcement	20%	$107,883	$21,577
28			***General Fund Service Subtotal***	***$136,645***
29			**Total Annual Expense**	**$1,397,748**

[1] Capital Project Implementation is currently funded through SPLOST VI, and current collections are expected to continue through December 31, 2019.

5.2. FUTURE SWMP COS RECOMMENDATIONS

The future SWMP COS was developed through review of the departmental SWMP responsibilities, future recommended SWMP LOS, discussions with the City staff, and budgetary information provided by the City. This proposed budget takes into consideration the following SWMP recommendations:

- Associated costs to expand the drainage system O&M efforts from the existing levels noted earlier in this report.
- An increase to the annual dedication of funding for CIP implementation.
- Cost to complete a Citywide Drainage Masterplan.
- Construction of a CIP, including regional detention facility or facilities.

Based on review of the future LOS and SWMP needs of the City and the associated implementation activities identified under the proposed future LOS designation, a preliminary

five-year COS has been developed for the planning period (FY 2019 to 2023) as shown in Table 5. The future COS includes cost allocations for the staffing, equipment, resources and technical assistance needed to implement the future proposed LOS for each element of the SWMP outlined in this document. The proposed LOS and associated COS should be adequate to ensure that the City can accomplish the following key needs: (1) procurement of the needed resources to transition to a proactive program for drainage system O&M and (2) secure CIP funding for priority projects. Over the first five years of the SWMP, it is anticipated that this SWMP budget will increase to approximately $1.84 million, in order to fully fund daily SWMP operations and future CIP construction. To achieve the future LOS, as defined herein, without placing undue burden on the City's annual budget and staff resources, it is recommended that the SWMP should be transitioned from the current LOS to the future LOS over the five-year planning period of FY 2019 to 2023.

The City has currently identified stormwater capital improvements as an approved activity in SPLOST VI, which will end on December 31, 2019. If a new SPLOST referendum is not passed to fund stormwater CIP, this could result in additional funding needs of about $750,000 per year to maintain a similar level of CIP implementation. Otherwise, CIPs will need to be delayed or funded through alternative sources.

Table 5: Future SWMP COS

Line No.	Line Item	[1]FY 2019	[1,2]FY 2020	[1]FY 2021	[1]FY 2022	[1]FY 2023
	Personnel Costs[1]					
1	City Engineer	$69,068	$70,794	$72,564	$74,378	$76,238
2	Public Works Administration	$103,946	$106,544	$109,208	$111,938	$114,737
3	Ditches & Drain Crew	$249,881	$320,160	$328,164	$336,368	$344,777
4	Streets Crew	$72,724	$74,542	$76,406	$78,316	$80,274
5	***Personnel Subtotal***	***$495,618***	***$572,040***	***$586,341***	***$601,000***	***$616,025***
	Operating Costs					
6	Engineering Professional Services	$19,996	$40,000	$40,600	$41,209	$41,827
7	Engineering Supplies/Materials	$1,967	$1,996	$2,026	$2,056	$2,087
8	PW Admin Technical Services	$10,099	$10,251	$10,404	$10,561	$10,719
9	PW Admin Supplies /Materials	$15,656	$15,891	$16,130	$16,372	$16,617
10	Streets Repair/Maint. Building	$1,903	$1,932	$1,961	$1,990	$2,020
11	Streets Supplies & Materials	$14,775	$14,996	$15,221	$15,449	$15,681
12	Streets Machinery & Equipment	$9,668	$9,813	$9,960	$10,109	$10,261
13	Ditches & Drains Consultants	$29,029	$50,000	$50,750	$51,511	$52,284
14	Supplies Materials	$37,048	$50,000	$50,750	$51,511	$52,284
15	DOC Contract	$40,097	$40,698	$41,308	$41,928	$42,557
16	***Operating Subtotal***	***$180,236***	***$235,577***	***$239,110***	***$242,697***	***$246,338***
	Capital Improvement Program					
17	Capital Project Implementation[3]	$600,000	$700,000	$700,000	$750,000	$750,000
18	Capital Equipment Expense[4]	$0	$76,959	$76,959	$76,959	$76,959
19	Masterplan	$120,000	N/A	N/A	N/A	N/A
21	***Capital Subtotal***	***$720,000***	***$776,959***	***$776,959***	***$826,959***	***$826,959***
	General Fund Services					
22	City Manager's Office	$20,174	$20,476	$20,783	$21,095	$21,412
23	Finance Administration	$38,402	$38,978	$39,563	$40,156	$40,758

Line No.	Line Item	[1]FY 2019	[1,2]FY 2020	[1]FY 2021	[1]FY 2022	[1]FY 2023
24	Information Technology	$9,334	$9,474	$9,616	$9,760	$9,906
25	Human Resources	$5,076	$5,152	$5,229	$5,307	$5,387
26	Equipment Support	$43,810	$44,467	$45,134	$45,811	$46,499
27	P&Z Code Enforcement	$21,900	$22,229	$22,562	$22,901	$23,244
28	***General Fund Service Subtotal***	***$138,695***	***$140,776***	***$142,887***	***$145,030***	***$147,206***
29	**Total Annual Expense**	**$1,534,549**	**$1,725,352**	**$1,745,298**	**$1,815,687**	**$1,836,527**

[1] CPI increase is calculated annually at 1.5%; personnel costs are assumed to have an annual increase of 2.5%

[2] Assumption is that Ditches and Drainage Department will increase capacity in FY 2020.

[3] While Capital Project Implementation is funded through SPLOST VI, it is not guaranteed to be available for FY 2022 and FY 2023. Total CIP cost for 9 current projects is $17.77 million.

[4] Amortize a Vac Truck for $450,000 for 7 years at 5.5%.

Increased cost for personnel, equipment, design & engineering CIPs

5.2.1 Future COS Discussion

The future SWMP COS breakdown above includes a line number for each expenditure. The following discussion addresses each of these line items.

Line Items 1-4: (Personnel): These costs are associated with the City Engineer, Public Works Administration, Public Works Ditches and Drain Crew, and Public Works Streets Crew to conduct SWMP activities. In the second full year, FY 2020, the Ditches and Drain crew increases by 25% (2 additional crewmembers) to provide the resources necessary to implement the future LOS.

Line Items 6-15: (Operating Costs): These costs represent operating costs associated with implementation of the future SWMP. These costs include costs for engineering design, drainage system improvements, regulatory compliance, and operations that should be funded through increased budget allocations. In the second full year, FY 2020, Engineering Professional Services, Ditches and Drains Consultants, and Supplies Materials all have to begin an effort to address the City's O&M and CIP needs.

Line Items 17-19: (Capital Improvement Program): These costs address the increased allocation associated with funding CIP drainage improvements. There is funding allocated for a Masterplan in FY 2019 as the first step to begin prioritizing the SWMP. Additionally, a capital equipment expense is included for a new vac truck that is amortized for 7 years at 5.5%, starting in FY 2020.

Line Item 22-27: (General Fund Services): These line items represent contribution from other City staff to support the SWMP, including, the City Manager's Office, Finance Administration, Information Technology, Human Resources, Equipment Support, and Code Enforcement.

5.2.2 Future COS Assessment

When reviewing the future recommended COS breakdowns for the SWMP, it is important to note that the most substantial increase is recommended for SWMP activities with the identified highest priority needs which include drainage system O&M, development of a Stormwater Masterplan, and CIP implementation. These proposed budget allocations should enable the City to perform the necessary masterplanning work and implement the CIP in a systematic and well-coordinated manner. Future O&M and CIP will comprise a significant portion of the future total projected budget, which will allow for implementation of a proactive maintenance program as well as a comprehensive CIP. If SPLOST revenue is not available in the future, a stormwater utility could keep the CIP operational and moving forward.

6. STORMWATER UTILITY FUTURE REVENUE ANALYSIS

Based on our assessment of the City of Brunswick's SWMP and future funding needs, we recommend that the City further evaluate the potential for implementing a SW Utility and user fee to fund the future SWMP at the desired LOS. A SW Utility would be the most fair, equitable and stable method to fund the future SWMP in Brunswick. The preceding sections of this document elaborate on the future recommended SMWP within the City, the cost associated with the recommended SWMP LOS, as well as the various funding options including implementation of a SW Utility and user fee. This section provides the following information regarding the specific policies associated with a future SW Utility set up and implementation.

Over the last 20 years, numerous local governments in Georgia have implemented the SW Utility concept as the favored approach for SWMP funding and operation. In 2004, approximately six SW Utilities were in operation in Georgia and by 2018 that number has increased to over 60.

6.1. STORMWATER UTILITY USER FEE RATE DESIGN AND DEVELOPMENT

A SW Utility is typically funded by a user fee system that is based on a sound rate structure and methodology. The rate methodology should attempt to quantify the use of the City's drainage system by the different parcels or "customers" connected to that drainage system. Use of the City drainage system can be defined by utilizing two methods. The first and most common method is to define the demand that a property places on the storm drainage system. The demand is directly related to the amount of runoff leaving the property (i.e. the larger the impervious area and corresponding rate and volume of runoff, the greater the demand that is placed on the drainage conveyance system). The conveyance system and facilities assist in protecting the customer's property and downstream properties by safely conveying the flows into the receiving waters. As the flow rate and volume increase and the demand on the system increases, the user fee becomes larger. An example of a large parcel generating a significant amount of runoff would be a shopping center. Clearly, a shopping center should pay a higher user fee as compared to a single-family residence since the shopping center generates significantly more runoff. The second method for defining use of the drainage system is to determine the services received by the property. Each property owner benefits, either directly or indirectly, from reduced flooding, improved water quality, etc. as a result of the services provided by the local SWMP.

6.1.1 Stormwater Utility Rate Methodology Options

Creation of the rate methodology must follow several legal parameters. It must have a detailed and sound SWMP COS as its basis. In adopting a rate methodology, the City must be fair and equitable. In order to be perceived as fair and equitable to customers, the preferred rate methodology should be easy to understand as well as technically defensible. Both public and judicial acceptance will be predicated primarily on whether the basic rate concept is perceived by the customer as a fair and equitable means of distributing the costs of stormwater management.

The nexus or relationship between the runoff (i.e. demand) and the corresponding user fee charge needs to be maintained (i.e. the greater the demand the higher the fee). The primary rate methodology that has been implemented in Georgia is the impervious area methodology, whereby stormwater utility customers are charged per unit area of impervious surface on their property. This methodology is considered the most equitable and easiest for SW Utility customers to understand. Essentially, the more impervious surface existing on a developed parcel, the more stormwater runoff will be generated and directed to the City's MS4. The more stormwater runoff directed to the City's MS4, the more the benefit (direct or indirect) the customer receives from the City's SWMP, and the higher their corresponding user fee should be.

Rate modification factors are often used to enhance equity or improve ease of SW Utility implementation and management without unduly sacrificing equity. Typical modification factors might include:

- A flat rate single-family residential (SFR) charge;
- A base rate for certain costs which are fixed per account;
- Credits against the monthly service charge for properties that reduce their impact on the SWMP.

6.1.2 Stormwater User Fee Credits

The SW Utility should provide a mechanism for customers to secure credits against the stormwater user fee charge where appropriate. The primary intent of credits is to recognize reductions in the cost to the City to deliver stormwater services that can be attributed to the customer's properly designed, constructed and maintained stormwater controls and activities. Credits are typically conditional and allowed when a customer demonstrates that they have mitigated the runoff contribution impacts from their parcel or otherwise reduced their cost burden on the City's SWMP.

Stormwater user fee credits are most commonly provided for parcels/customers that have onsite detention ponds or similar runoff mitigation controls. These types of stormwater controls mitigate the impacts of downstream discharges and theoretically reduce the downstream systems costs associated with conveyance. These controls may, if properly designed and maintained, enhance downstream water quality as well. This is especially true with regard to non-residential parcels that conduct industrial type activities onsite, or similar. Credits have also been issued to selected customers (such as local school systems) that augment the ongoing water resources education efforts of the local government as required by applicable regulatory permit requirements.

Stormwater user fee credit policies should reflect local conditions and stormwater program needs and can be designed to encourage the types of stormwater behavior desired by an individual community. For example, credits for tree plantings and low impact development have been offered by several SW Utilities who place a value on these types of practices, in recognition of the benefit afforded to the SWMP by implementation of these features.

6.1.3 Rate Methodology Considerations and Preliminary Recommendation

The Columbia County SW Utility successfully utilized the impervious area methodology, and this rate methodology was upheld by both the Columbia County Superior Court and Georgia Supreme Court rulings in 2003 and 2004. In 2013, the Athens Clarke County SW Utility, which also utilizes an impervious surface rate methodology, received an equally favorable ruling from the Georgia Supreme Court. As such, we recommend that an ***impervious area rate methodology*** should be utilized, if the City elects to implement a SW Utility in the future. It is our recommendation that the City utilize and impervious methodology for the following reasons:

- Impervious area is directly correlated to the amount of stormwater runoff contributed by a parcel to the drainage system. It is therefore the most equitable way to quantify the demands placed by a parcel on the drainage system and the services provided by the SWMP to that parcel.
- The City has sufficient GIS data available to identify the amount of impervious area on individual parcels.
- It is a straight forward methodology that should be easy for future SW Utility customers to understand (i.e. the more you pave the more you pay).

6.2. STORMWATER UTILITY RATE STUDY

6.2.1 Stormwater Utility ERU Development

In a SW Utility, the base billing unit is often referred to as the Equivalent Residential Unit (ERU). The ERU is based upon the median amount of impervious area for a typical single family residential (SFR) parcel. The ERU value is used to calculate the charges for the non-single family (NSFR) properties by equating the NSFR parcel as an equivalent number of residential parcels or ERUs. An analysis was performed on the impervious area of 4,067 SFR parcels, that ranged in size from 250 to 11,000 square feet. The results of this analysis determined that the median impervious area for the SFR parcels within the City is approximately 2,220 square feet. As such, an ERU value of 2,220 square feet has been established for the purposes of the analysis shown below.

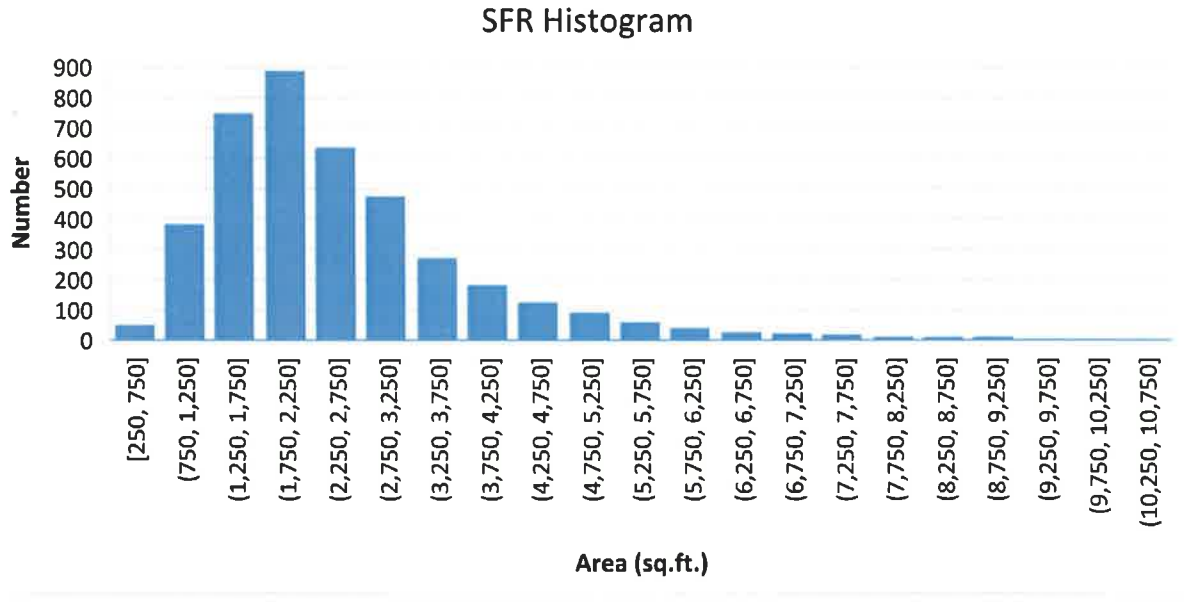
Table 6: Impervious Area Data Analysis

Data	SFR
Median Impervious Area =	2,221 ft^2
Recommended ERU =	2,220 ft^2
Parcels/Records Evaluated =	4,067

Many utilities in Georgia utilize an impervious surface methodology with a flat rate charge of 1.0 ERU for SFR customers. This concept is similar to a flat-rate sanitation charge for residential customers. Under such a flat rate user fee structure, SFR customers would typically pay 1.0 ERU. However, in some communities, there can be such a wide distribution in the SFR housing stock (or impervious surface footprint) that a single flat rate user fee charge is not sufficient to maintain

equity. In these instances, the establishment of flat rate residential "tiers" may be a more equitable means of billing the stormwater user fee.

However, based on the histogram below, it does not appear to be necessary for the City of Brunswick to implement SFR "tiered" user fee because the majority of SFR parcels hover around the median or calculated ERU of 2,220 square feet. Therefore, for the proposed ERU projection, we have assumed that the City will utilize a flat rate structure of 1.0 ERU for all SFRs.



6.2.2 ERU Projection

The data provided indicates that there are approximately 4,232 SFRs that will be assigned 1.0 ERUs a piece. EPG has completed a detailed analysis of the impervious area delineations for the NSFR properties within the City, including multi-family properties. The impervious data was utilized to project the number of ERUs associated with the NSFR customer class based on an ERU of 2,220 square feet. The total number of projected ERUs (or billing units) using the flat rate billing approach for residential parcels described above and a custom calculation for NSFR parcels is shown in the table below.

Table 7: ERU Data (Flat Rate SFR Billing Approach)

Land Use Classification	Impervious Surface	ERU (Billing Unit)	Total ERUs
NSFR	34,828,309 sq. ft.	2,220	15,688
SFR	n/a	2,220	4,232
		Total	**19,920**

6.2.3 Preliminary Stormwater Utility Revenue Projection & User Fee Rate

As stated earlier in this report, the City would need to move towards an annual SWMP budget of $1.84 million per year within the next five years to achieve the desired SWMP LOS. The table on the following page contains the preliminary rate model that was developed to assess the capacity of a Stormwater User Fee to fund the SWMP at the desired LOS. The data/assumptions that were utilized to create this model are as follows:

1. The ERU will be 2,220 square feet.
2. The number of ERUs will be 19,920 or billing units. TOTAL THROUGHOUT CITY (res. & comm.)
3. The initial user fee rate will be $3.95/ERU/month, increasing to $4.50 in year two and then to $4.75 in year three.
4. The delinquency rate for stormwater user fees will be 8%, and 25% of delinquencies will be collected in the same year they occur, 25% of delinquencies will be collected in the next year, and the remaining 50% of delinquencies will be written off.
5. Stormwater User Fee Credits will reduce gross revenues by 7% per year.
6. User fee revenues will increase by 1% per year due to new development.
7. SPLOST will cover all Capital Improvement Program costs and will be renewed in 2019 for the duration of the 5-year period of this model.

Table 8: Stormwater Utility User Fee Revenue Model

	Total Revenue FY 2019	Total Revenue FY 2020	Total Revenue FY 2021	Total Revenue FY 2022	Total Revenue FY 2023
ERU	19,920	20,119	20,320	20,524	20,729
Rate	$3.95	$4.50	$4.75	$4.75	$4.75
Gross Revenue	***$944,208***	***$1,086,437***	***$1,158,262***	***$1,169,845***	***$1,181,543***
Delinquencies (8%)	$75,537	$86,915	$92,661	$93,588	$94,523
Credits (7%)	$66,095	$76,051	$81,078	$81,889	$82,708
Collections	$18,884	$26,450	$29,778	$30,841	$31,341
Net SW Utility Revenue	**$821,461**	**$949,921**	**$1,014,301**	**$1,025,210**	**$1,035,653**
SPLOST Allocation[2]	$720,000	$776,959	$776,959	$826,959	$826,959
Program Cost	$1,534,549	$1,725,352	$1,745,298	$1,815,687	$1,836,527
Net Annual Income	$6,911	$1,528	$45,962	$36,482	$26,085
Fund Balance	$6,911	$8,440	$54,401	$90,884	$116,968

If the City were to implement a SW Utility with an initial user fee charge of $3.95 per ERU per month, growing to a user fee charge of $4.75 over the next five years, our preliminary analysis has indicated that the City would likely generate approximately $820,000 - $1,000,000 per year of net user fee revenue per year as shown above. This rate structure and funding approach would be sufficient to fund the SMWP over the 5-year period of this model.

6.2.4 SW Utility User Fee Rate Comparison

The table below compares the proposed City of Brunswick user fee rate for an average residential customer and a 50,000 square foot NSFR customer to some other existing stormwater user fee rates in Georgia.

Table 9: Georgia SW Utility User Fee Rates Comparison

Community	Billing Rate	ERU (Sq. Ft.)	Typical Monthly Residential Bill	Example NSFR Monthly Bill (50,000 Sq. Ft. impervious)
Roswell	$3.95/ERU	4,100	$3.95	$48.17
Statesboro	$3.95/ERU	3,200	$3.95	$61.72
Brunswick	***$3.95/ERU***	***2,220***	***$3.95***	***$88.88***
Americus	$4.00/ERU	3,000	$4.00	$66.67
Camilla	$4.00/ERU	3,360	$4.00	$59.52
Douglasville	$4.00/ERU	2,543	$4.00	$78.65
Holly Springs	$4.00/ERU	2,700	$4.00	$74.07
Fairburn	$4.08/ERU	3,300	$4.08	$61.82
Canton	$4.08/ERU	2,000	$4.08	$102.00
Fayetteville	$4.37/ERU	3,800	$4.37	$57.50
Cornelia	$4.50/ERU	3,300	$4.50	$68.19
Griffin	$4.65/ERU	2,200	$4.65	$105.68
Garden City	$4.75/ERU	3,000	$4.75	$79.17
Richmond Hill	$4.75/ERU	3,300	$4.75	$71.96
Albany	$4.75/ERU	2,700	$4.75	$87.96
Decatur	$5.00/ERU	2,900	$5.00	$86.21
Hinesville	$6.42/ERU	2,635	$6.42	$121.82
Augusta	$6.40/ERU	2,200	$6.40	$145.45
Peachtree City	$6.89/ERU	4,600	$6.89	$74.89

6.2.5 Stormwater Utility User Fee Rate Analysis

While this study indicates that a SW Utility user fee charge could generate sufficient revenue to fund the recommended LOS expansion, it is important to recognize that there is an associated cost to the City's residents and all other developed parcels regardless of their tax status. As such, the City will need to carefully consider the future customers' "willingness to pay" the proposed stormwater user fee charge amount. This consideration is based on the relationship between the customer's expectations for provision of stormwater services and the associated fee that is deemed "acceptable" for delivery of those services by the City.

The final user fee billing rate will be dependent on the total number of ERUs, the projected cost of the future SWMP, and any General Fund or SPLOST contributions to the SW Utility Enterprise Fund. The application of user fee credits and the likelihood of billing delinquencies will affect the total revenue generated.

Typically, the monetary needs are not constant during the first five to ten years of a SW Utility, and often times a fund balance carry over from the initial SW Utility years can help offset higher SWMP costs for later years. Developing a healthy fund balance carry over from early years can help to "level out" the user fee rate charged in later years. Utilization of the appropriate user fee rate based on the final number of ERUs or billing units should enable the SWMP to be adequately funded for the next five years.

6.2.6 SW Utility Billing Recommendations

Based on our discussions with City staff, we understand that the City wishes to include the future SW Utility User Fee charge on the property tax bill for all properties. The City will utilize the existing property tax billing systems to deliver the stormwater user fee charge to customers through the addition of a "stormwater fee" line item.

The City should be considerate of the risk associated with placing user fees on the property tax bill as they move forward with implementation of the SW user fee. During Georgia's 2017 legislative session, House Bill (HB) 204 was proposed to prohibit the local Tax Commissioner, local governments, or other fiscal authorities from charging fees for service on property tax bills. While this legislation met with a great deal of resistance from the Georgia Municipal Association (GMA) and the Association of County Commissioner Governments (ACCG), and ultimately failed to be passed into law in 2017, it is likely that it will reappear in future legislative sessions. If the City moves forward with charging stormwater user fees on the property tax bill, and this legislation passes in the future, the City will have to move to a monthly utility billing system instead.

Regardless of the ultimate billing mechanism, the SW Utility master billing account file (MAF) will be created and maintained in a GIS database format. The City's current GIS database includes parcels and impervious area information (created as part of this project), both of which are necessary to build the MAF.

7. CONCLUSIONS AND RECOMMENDATIONS

Based on the information provided in this document, the following summarizes the findings and recommendations related to development and implementation of an enhanced SWMP at the proposed LOS and the future COS:

- The City has completed a SWMP Assessment through its consultant EPG which has identified the SWMP issues, priorities and needs as well as the funding considerations associated with current and future SWMP implementation.

- The primary issues that the City SWMP must address at this time and in the future include the following:

    - Proactive drainage system O&M
    - Regulatory compliance
    - Citywide drainage masterplanning & CIP implementation to address flooding
    - Floodplain Management and CRS improvement
    - Land development regulation via enhanced ordinances, standards and criteria

- The City currently has a list of 9 large, priority drainage CIPs. The estimated cost to address and remedy the current project list is approximately $17.77 million. The City's past and current funding levels via General Fund allocations and SPLOST are not adequate to address this project list in a timely manner. Furthermore, additional capital projects and O&M activities will likely be added to the current list as the drainage system inventory is completed, the masterplan work is performed, and the system continues to expand, age and deteriorate over time.

- The City has established that additional resources and an increased LOS are needed within the SWMP to better address the City's overall SWMP issues, priorities and needs in the future.
    - Enhancement of the City SWMP LOS will enable the City to address the various City SWMP issues, needs and priorities.
    - The City's SWMP COS should be increased to fund the proposed SWMP LOS as outlined herein.

- The City should formulate a long-term funding strategy that apportions the future SWMP costs to parcels within the City in the most fair, equitable and stable manner.
    - It is recommended that the City develop and implement a SW Utility and user fee system as the primary funding source to procure the additional resources needed for the future SWMP.

- The City should identify and endeavor to secure appropriate secondary funding sources as appropriate.
- The resulting long-term strategy that is implemented by the City should provide a combination of adequate and consistent funding in the form of revenue, money and resources for the future SWMP.

- The recommended/proposed SW Utility rate structure should be based on the impervious area rate methodology and would apply to all developed property within the City. Allocation of the SWMP costs via the impervious surface methodology is the most fair and equitable method to apportion costs in relation to the demands and services associated with provision of SWMP services to each property.
- The ERU should be consistent with the median impervious footprint for SFR property, which is calculated to be 2,220 square feet.
- An initial stormwater user fee charge billing rate of $3.95 per month per ERU growing to $4.75 per month per ERU over the next five years is recommended to a fund the proposed SWMP LOS outlined herein. Based on the estimated number of ERUs (or billing units) and using an initial billing rate of $3.95/ERU/month, a SW Utility user fee system would likely generate approximately $820,000 per year for the City of Brunswick in the first year of operation, growing to $1,000,000 in annual net revenue over a period of five years.
- Eligible customers of the SW Utility should be afforded the opportunity to secure credits for the implementation of onsite stormwater controls, or other eligible activities that mitigate/reduce the runoff impacts from their developed parcel.
- The City staff should implement a public education and outreach program to educate the Mayor and Board of Commissioners as well as the future customers regarding the future SWMP (i.e. regulatory compliance, operations & maintenance, capital projects, water quality management, etc.) and SW Utility.

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