

City Council Workshop

October 8, 2018



Greenville
NORTH CAROLINA

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Item 1

Information regarding the City of Greenville's Stormwater Management Program in preparation for the Stormwater Utility Rate Study presentation



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10.08.2018

Stormwater Management Program



Clean Water Act

- Established 1948 – (overhauled in 1972) regulates the discharge of pollutants into the waters of the United States
- Unlawful to discharge pollutants into navigable waters
- Criminal charges possible for violations

Clean Water Act

Former Owner of American Waste, Inc. Sentenced to 18 Months Imprisonment for Illegal Dumping

Columbia, South Carolina---- Acting United States Attorney Beth Drake stated today that _____, age 51, of Greer, South Carolina was sentenced yesterday in federal court in Anderson, South Carolina, for Violating Pretreatment Standards of the **Clean Water Act**, in violation of 33 U.S.C. § 1317 and 1319.

Ordinance Timeline

- 1971 – Storm Drainage Code Adopted
- 1974 – Resolution Adopting Maintenance Policy
- 1980 – Stormwater Ordinance Requiring 10-yr Detention for Commercial Properties

Federal/State Mandates

- Tar-Pamlico Stormwater Rule (2004) & NPDES Phase II MS4 Permit (2005) require the following:
 - Management of Nutrient Loading (Nitrogen and Phosphorus)
 - Protection of Stream Channels from Erosion
 - Good House Keeping Measures
 - Public Involvement/Education

Ordinance Timeline

- 2001 – Stormwater Utility Established
- 2003 – Utility Fee Charged
- 2004 – Stormwater Ordinance Revised to meet Tar-Pamlico Rule and NPDES requirements
- 2013 - Detention of the 1, 5, & 10-yr storm events; also 25-yr storm event in critical areas identified through the WSMP

Stormwater Management Program

Title 9, Chapter 9:
Stormwater Management & Control Ordinance

- Six different components
- Required program per Federal/State mandates
- Funded by the Stormwater Utility

Public Education and Outreach

- General pollution prevention
- Greenville's Program
- Technical workshops
- Capital projects



Public Involvement and Participation

- Stenciling Program
- Adopt-a-Street
- Surveys
- SWAC
- EAC Grant



Illicit Discharge Detection and Elimination

- Illegal connection or non-stormwater discharge to the storm system
- Citizen complaints
- Outfall inspections
- Exemptions



Construction Site Runoff Controls

Sedimentation and Erosion Control Program

- Plan Review
- Inspections
- Reporting



Post-Construction Site Runoff Controls

Stormwater Control Measures (SCMs)

- Plan Review
- Inspections
- Enforcement
- Reporting



Pollution Prevention and Good Housekeeping

- Street sweeping
- Cleaning Catch Basins
- Vegetation Maint.
- Stormwater Pollution Prevention Plan



Inventory Maintained by the City

- 237 Miles of Pipe
- 17,000 Drainage Structures
- 97 Culverts
- 2,913 Outfalls
- 68 Miles of Open Channel

Stormwater Utility Fund

- Intent of Fund
 - “SEC. 8-3-3(A) There is hereby established a stormwater management utility...which shall provide for the management, protection, control, regulation, use and enhancement of stormwater and drainage systems.”
- The fee was implemented July 2003

Equivalent Rate Unit

- ERU = 2,000 sq ft impervious area
- Includes roof, driveway, patios, etc.
- Not based on heated square feet

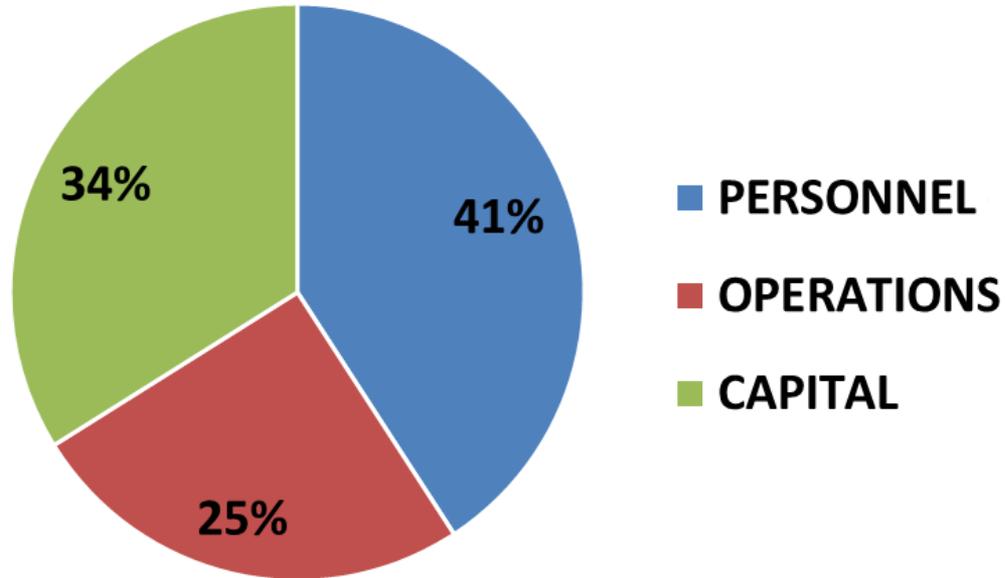


Utility Rate

- Utility is billed by GUC on all electric accounts
- Approximately 40,400 accounts (103,000 ERUs)
- Rate of \$5.35 per ERU
- Projected revenue of \$6.1 M for FY 2019

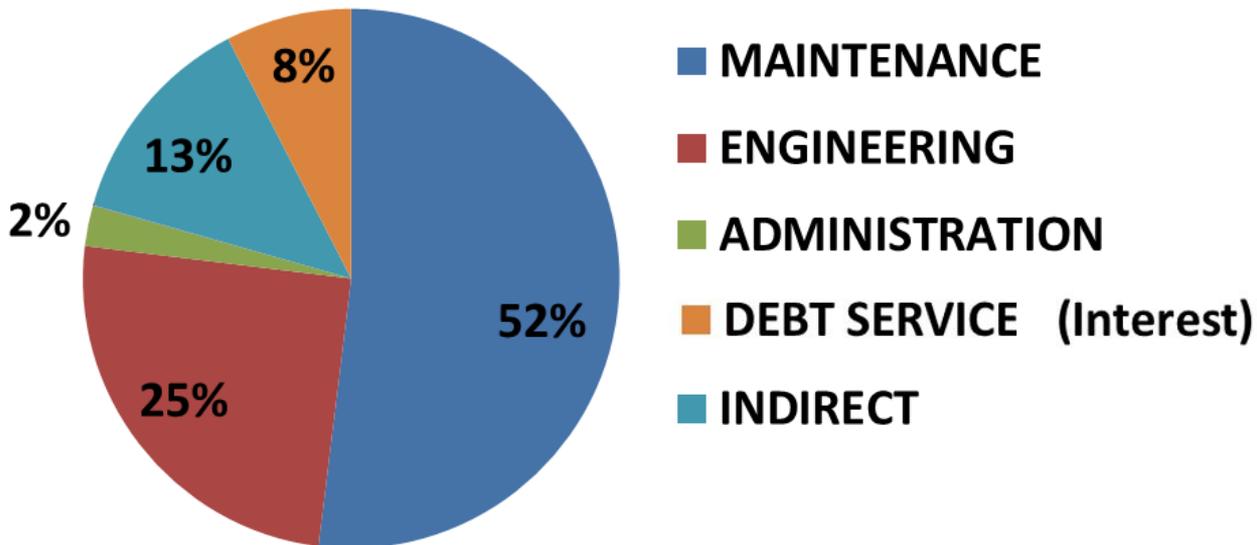
STORMWATER UTILITY FUND

FY11 - FY17 Average



STORMWATER UTILITY FUND

FY11 - FY17 Average Personnel & Operational Expenses per Division



Street Maintenance

Open Channel (1 FTE/15 miles)

- Maintain Flow
- Inspect/Maintain Streambank Projects

Closed System (1 FTE/55 Miles)

- Pipe Cleaning
- Basin Cleaning
- System Repairs
- Camera

Engineering

Permit Requirements

- Six components
- Sedimentation & Erosion Control Program

Capital Improvement Program

- Infrastructure Projects
- Town Creek Culvert
- Property Acquisition
- Streambank Stabilization Projects

Engineering

Design

- Bank Stabilization
- Remove and replace

Floodplain Management

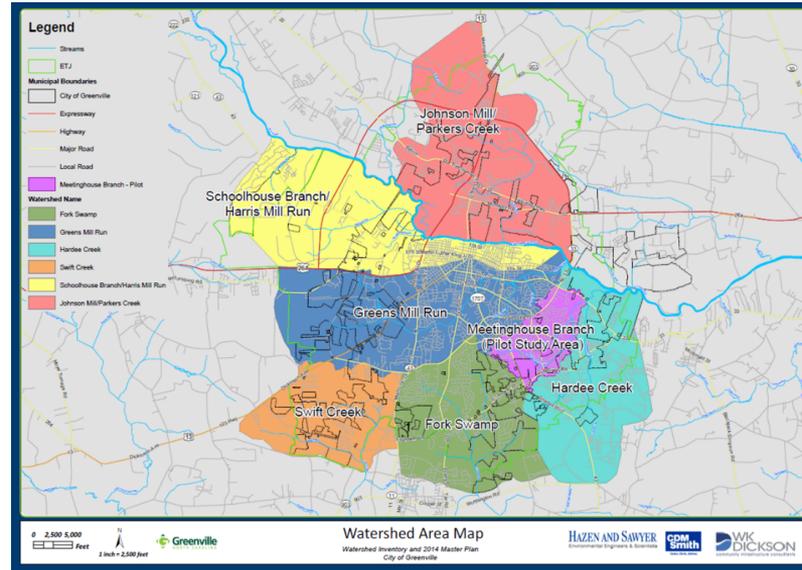
- Development Review
- CRS (15% reduction)

Manage Utility Billing

- Policy/Procedures
- Credits

How do we optimize our revenue?

Citywide Watershed Master Plans



Benefits of Inventory

Moving from reactive to proactive

- Debris blockages removed
- Broken structures repaired
- Illicit discharges
- System connectivity
- Increased efficiency for maintenance and service calls



Modeling

- Model results show existing and future level of service (LOS)
- Results for existing LOS validated against data collected in public outreach efforts
- Future build-out conditions based on City and County zoning, land use plans, and feedback from City Planning

Level of Service

- Closed Pipe Systems – 10-year
(10% chance/year, 5.8" rainfall)
- Minor Thoroughfare Crossings – 25-year
(4% chance/year, 7.2" rainfall)
- Major Thoroughfare Crossings – 50-year
(2% chance/year, 8.5" rainfall)
- Structural Flooding and Railroads – 100-year
(1% chance/year, 9.8" rainfall)

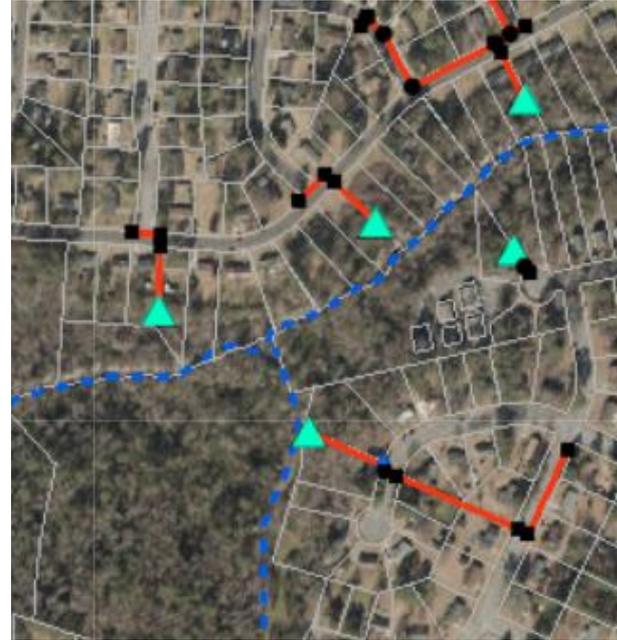
Primary/Secondary systems

Primary (Blue line)

Typically open channel,
carries water out of City

Secondary (Red line)

Typically closed systems,
carries water out of
neighborhoods to
primary system



GMR North Fork

- 3 issues: flow volume, water backing up, structural dimensions
- Railroad culverts back up water on Spring Forest
- Cannot improve LOS without imp. at RR and downstream
- RR improved – can release water downstream
- Increased flows downstream:
 - Must be accounted for in improvement designs
 - Will result in increased WSE which must be mitigated with channel improvement

GMR North Fork

- Norfolk Southern RR
 - No LOS violation
 - Cost \$1.4M
- Spring Forest Rd (DS)
 - Cost \$2.3M
- Ellsworth Drive
 - Cost \$1.9M
- Floodplain Benching
 - Mitigate increased WSE
 - Cost \$1.4M



TOTAL COST: \$8.1M

Recommendations



Culvert/Bridge Improvements

Recommendations

Floodplain Storage/Benching



Recommendations



Closed System Improvements

Recommendations



Detention



Recommendations

Stream Stabilization



Prioritization

- Projects within each watershed prioritized based on 9 categories
- Four prioritization lists for each watershed created based on project type
- Primary flood control projects may be grouped based on dependency on other projects
- Prioritization consistent across watersheds to create Citywide Prioritization lists

Prioritization

Prioritization can be adjusted for numerous reasons:

- Development
- Failures
- Funding (MOAs, grants, loans, etc.)



Summary of Annual Needs

Replace Existing Storm Sewer (\$300M/50YRS)	\$6M
Capital Improvements (\$ 150M/25YRS)	\$6M
Operational Costs	<u>\$3M</u>
Total	\$15M/YR

Current Utility Revenue = \$6M/yr

Results from WSMP

- Asset inventory
- Prioritized list of Capital Projects
- Recommendations for development regulations (10 vs. 25 year)
- Assessment of stream health and water quality on impaired streams

Benefits from WSMP

- Immediate impacts to Operations
- Immediate impacts to Stormwater Ordinance
- Stormwater Advisory Committee (stakeholder group)

Stormwater Advisory Committee (SWAC)

Tom Best - Chair
Drake Brinkley
Michelle Clements
Donnie Brewer
Beth Ward
Matt Butler

Landon Weaver
Joni Torres
Jon Day
Don Edwards
Cassius Williams

Stormwater Advisory Committee (SWAC)

- Meetings & Objectives
 - 14 SWAC Meetings since February 2017
 - Level of Service
 - Capital Project Implementation
 - Impacts to Utility Rate
- Recommendations will be presented at the November Council Workshop

Town Creek Culvert



Town Creek Culvert



Town Creek Culvert



Recent storm event



Greenfield Terrace



8th and Washington



Martinsborough



Stantonsburg Rd

Thank You

Item 2

Update on the Sycamore Hill
Gateway Project at the Town
Common



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Sycamore Hill Gateway Plaza

October 08, 2018



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Location Map



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90% Construction Documents

ILLUSTRATION



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Community Gallery – West View



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Interpretive Wall Design

Section Elevations

- Glass feature wall elevation patterns are derived from the neighborhood's original urban form.
- Existing trees are maintained, creating a mature natural backdrop to the gateway.
- Sustainable strategies are implemented, including the use of a native plant palette, regionally sourced materials, and localized stormwater management.



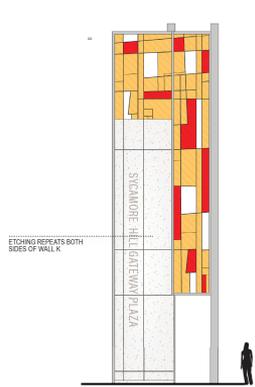
SECTION A - looking east



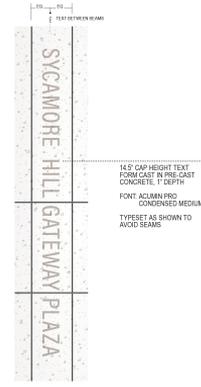
SECTION B - looking west

- 1 Gateway Tower
- 2 Community Gallery
- 3 Faith Gallery
- 4 Remembrance Gallery
- 5 Reflective Terrace + Native Plant Mix
- 6 Ramp to Park Trails
- 7 Existing Trees Protected + Maintained
- 8 Streetscape + Stormwater Treatment





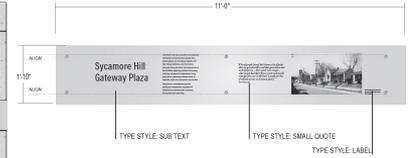
① COMMUNITY - WALL K EAST
3/8"=1'-0"



② COMMUNITY - WALL K EAST - DETAIL
3/8"=1'-0"



③ COMMUNITY - WALL A WEST
3/8"=1'-0"



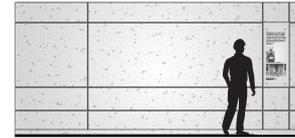
④ COMMUNITY - WALL A WEST - DETAIL
3/8"=1'-0"



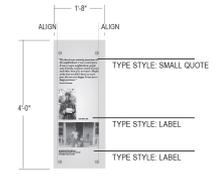
⑤ COMMUNITY - WALL A EAST
3/8"=1'-0"



⑥ COMMUNITY - WALL A EAST - DETAIL
3/8"=1'-0"



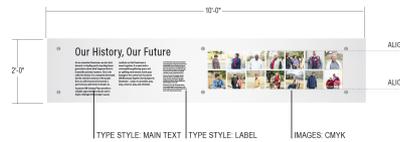
⑦ COMMUNITY - WALL B SOUTH
3/8"=1'-0"



⑧ COMMUNITY - WALL B SOUTH - DETAIL
3/8"=1'-0"



⑨ COMMUNITY - WALL J SOUTH
3/8"=1'-0"



⑩ COMMUNITY - WALL J SOUTH - DETAIL
3/8"=1'-0"



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1 FAITH - WALL H SOUTH
3'8"-1'-0"



2 FAITH - WALL H SOUTH - DETAIL
3'4"-1'-0"



3 FAITH - WALL J NORTH
3'8"-1'-0"



4 FAITH - WALL J NORTH - DETAIL
3'4"-1'-0"



5 FAITH - WALL F SOUTH
3'8"-1'-0"



6 FAITH - WALL F SOUTH - DETAIL
3'4"-1'-0"



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① REMEMBRANCE - WALL C EAST
3/8"=1'-0"



② REMEMBRANCE - WALL C EAST - DETAIL
3/4"=1'-0"



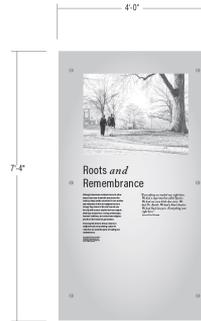
③ REMEMBRANCE - WALL B NORTH
3/8"=1'-0"



④ REMEMBRANCE - WALL B NORTH - DETAIL
3/4"=1'-0"



⑤ REMEMBRANCE - WALL C WEST
3/8"=1'-0"



⑥ REMEMBRANCE - WALL C WEST - DETAIL
3/4"=1'-0"



⑦ REMEMBRANCE - WALL E SOUTH
3/8"=1'-0"



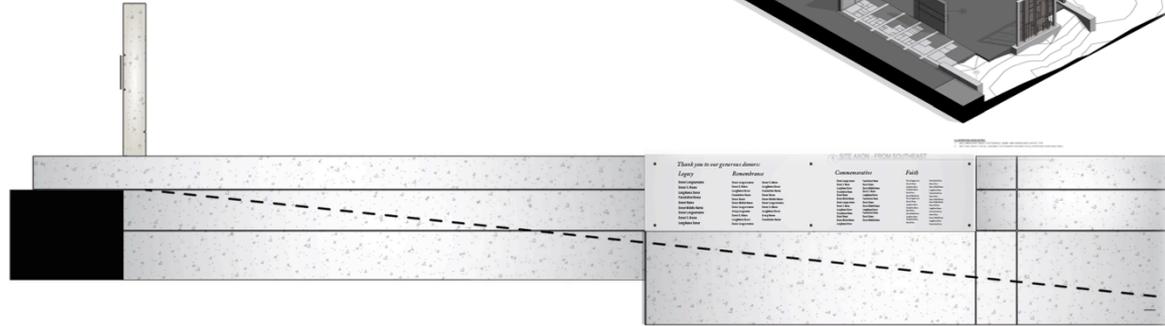
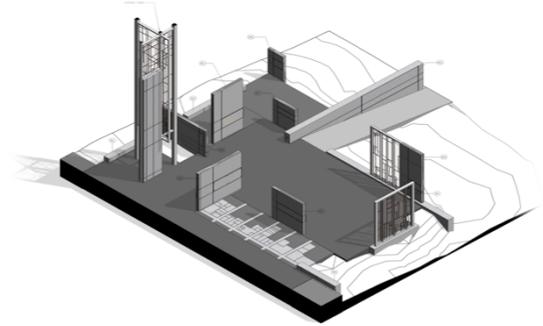
⑧ REMEMBRANCE - WALL E SOUTH - DETAIL
3/4"=1'-0"



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Donor Wall



1 DONOR - WALL G EAST
3/8"=1'-0"



2 DONOR - WALL G EAST - DETAIL



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Tentative Project Schedule

- 1). **Sycamore Hill Homecoming / Gateway Celebration & Fundraising – October 27th**
- 2). **Advertisement for Bids – October 29th**
- 3). **Pre-Bid Conference – November 15th**
- 4). **Receive Sealed Bids – November 29th**
- 5). **City Council Approval – December 13th**
- 6). **Contract Negotiations – 20 Days**
- 7). **Construction begin Mid-January 2019 – 10 – 12 Month Duration**

BIDS & RFPS | CAREER OPPORTUNITIES | CONTACT US | EGOV | STAFF DIRECTORY

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Sycamore Hill Gateway Plaza

Government > Recreation & Parks

Sycamore Hill Gateway Plaza

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Planning Design Construction Completed

Project Details Project History Public Participation Work Products

The proposed Sycamore Hill Gateway Plaza will be built on the site where the prominent Sycamore Hill Baptist Church once stood. Incorporating iconic features, the gateway plaza will become a prominent western entrance to Town Common. Not only will the gateway plaza become a centerpiece to the park, it will also

90% Construction Documents:

<https://www.greenvillenc.gov/Home/ShowDocument?id=17512>

100% Interpretive Wall Design:

<https://www.greenvillenc.gov/Home/ShowDocument?id=17414>



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Faith Gallery – West View



ILLUSTRATIVE PERSPECTIVE FROM FAITH GALLERY, LOOKING WEST.



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