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Watershed Master Plan (WSMP) Overview

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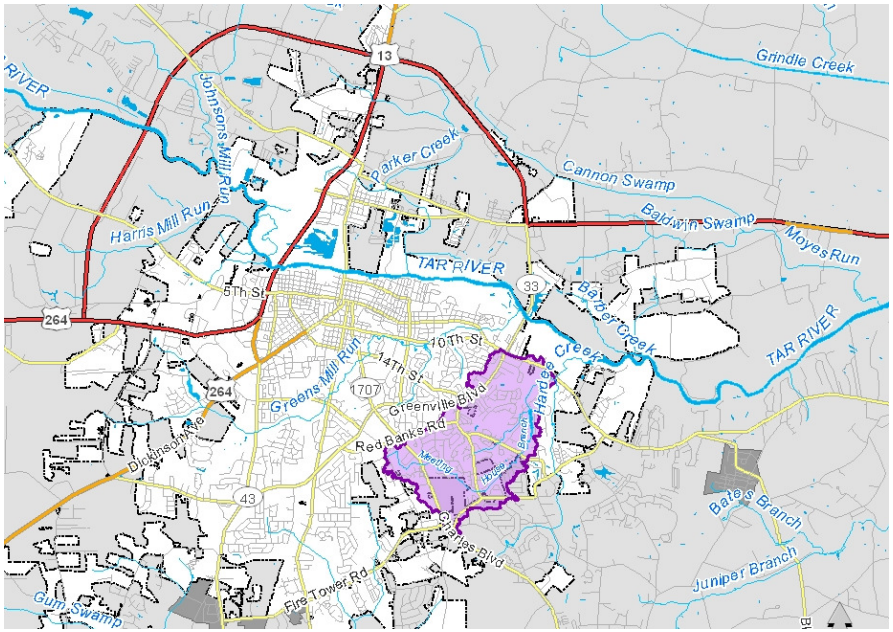
Meetinghouse Branch Pilot Project

- Watershed
  - 3 square miles
  - 90%+ build out
  - Entire basin is within city limits
- Common Issues
  - Ditch flooding
  - Street flooding
  - Severe Erosion



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Results

Modified Maintenance Practices

Revised Development Regulations

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Results

- Standard Operating Procedures
- Prioritized list of capital projects
- Utility Fee Increase
  - $0.50/ERU per year for 5 years
  - Equates to $1.00/month for typical house
- Commitment to expedite and complete citywide Master Planning

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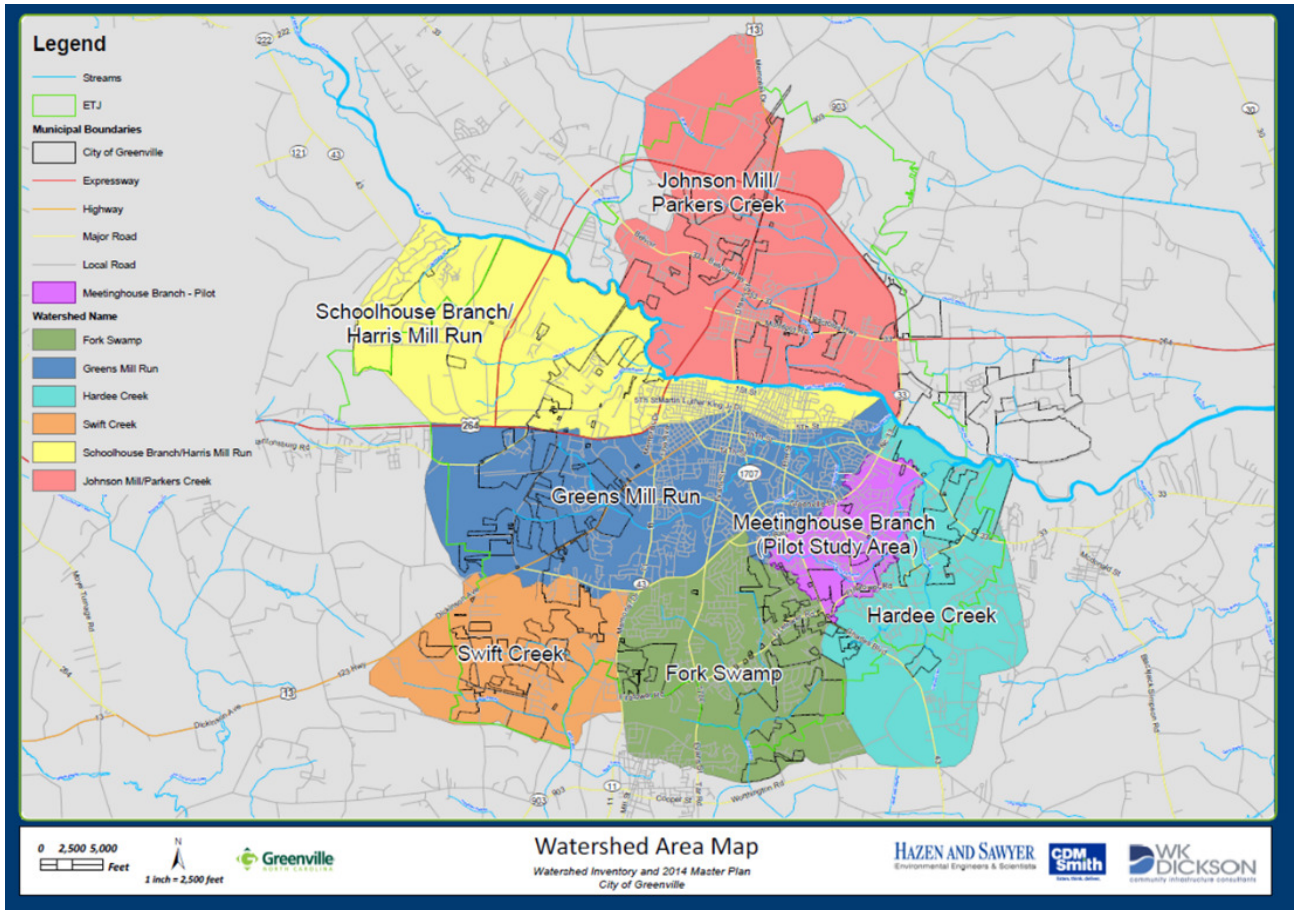
Citywide WSMP Overview



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Level of Service

- Closed Pipe Systems – 10-year
  (10% chance/year, 5.8” rainfall/24 hrs)
- Minor Thoroughfare Crossings – 25-year
  (4% chance/year, 7.2” rainfall/24 hrs)
- Major Thoroughfare Crossings – 50-year
  (2% chance/year, 8.5” rainfall/24 hrs)
- Railroads Crossings– 100-year
  (1% chance/year, 9.8” rainfall/24 hrs)

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Data Collection

No inventory of the closed system and had just begun mapping open system being maintained by the City…

The following was collected for project:

- 1.25 M linear feet (lf) of pipe – 237 miles
- 17,000 drainage structures
- 236,000 lf of stream walks – 44 miles

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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

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Public Outreach

- Stakeholder Meetings
- Project website
- Public meetings - 9
- Local events
  - Sunday in the Park
  - Freeboot Fridays
- Neighborhood Advisory Board
- Survey questionnaires - 230

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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

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Recommendations

Culvert/Bridge Improvements

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Recommendations

Floodplain Storage/Benching

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Recommendations

Closed System Improvements

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Recommendations

Detention

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Recommendations

Stream Stabilization

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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

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Prioritization

Prioritization can be adjusted for numerous reasons:

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

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Summary of Costs

Maintenance Costs ($230M/40YRS)	$6M
Capital Costs ($ 150M/25YRS)	$6M
Operational Costs	$3M
Annual Needs =	$15M/YR

Annual Utility Revenue = $5.9M

Prioritization is paramount!

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Impaired Waters

Swift Creek and Greens Mill Run considered impaired by the State and EPA for benthos

What are benthos?

- Insects, crustaceans, mollusks, and worms
- Require suitable habitat for stable, diverse population
- Sensitive to pollution typically associated with stormwater runoff

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Impaired Waters

- Impaired waters ultimately require TMDLs by EPA, although no timeline established for these waterbodies
- TMDLs include costly implementation actions and likely stricter development regulations on impervious areas
- TMDLs enforced by State and EPA

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Results

- Asset inventory
- Prioritized list of Capital Projects
- Recommendations for development regulations
- Assessment of stream health and water quality on impaired streams

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What do we do with this information?

- Immediate impacts to Operations
- Immediate impacts to Stormwater Ordinance
- Stormwater Advisory Committee (stakeholder group)
  - Development Regulations
  - Project Implementation
  - Impacts to Utility Rate Structure

Operational Impacts

- Inventory/Video
- Condition Assessment
- Infrastructure Inspection
- Asset Management

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Ordinance Impacts

- Identify areas for 25 year detention
- Require inspections during construction

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Questions and/or Comments

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2017 SWAC
Goals and Objectives

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Extent of Service

- What part of the physical system will the City's program take responsibility for and in what way.
- What are the geographical limits of the service area.
  - City Limits/ETJ
  - Public (City/State)/Private
  - Pipes/Ditches/Streams
  - Flow vs Aesthetics/Nuisance
  - Easements

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Level of Service

- Defines system performance objectives.
- Dictates how system performance and conditions should be judged, measured, estimated, or otherwise validated.
  - Closed System Capacity
  - Flood reduction (property, structure, infrastructure
  - Water Quality (nutrients, sediment, impairments, bacteria)
  - 303d Impairment Restoration

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New Infrastructure

- Acceptance / Approval Process
- Maintenance Bonds/Warranty
- Encroachments for private improvements in City right of way
- Construction Inspections
- Easements for improvements outside right of way

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BMP Maintenance

- Acceptance / Approval Process
- O&M Agreements (automatic transfer)
- Maintenance Bonds/Warranty
- Enforcement (violations, city contract, assessments, liens)
- Inspections / Audit
- Regional (city-owned, multi-owner, POA/HOA)

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Utility Rate

- Structure (Impervious vs development, other)
- Residential / Commercial / Multifamily
- Minimum/Maximums
- Credits
- Vacant Properties
- Collections and Enforcement
- Consider fees for plan review and inspections

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Example of Improvements Outside R/W

Project pipes open ditch between homes.

- 381LF of 42” RCP installed
- Install 4 structures
- Cost = $430K

- 4 Properties benefit from improvements
- Total contribution to Utility = $2,668.80

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Capital Projects

- Prioritization (Detention, WQ, Stabilization)
- Equitability across the City
- Bond Package
- Long-term Planning

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Development Regulations

- Low Impact Development
- Buffers
- Exemptions
- Cumulative Development
- Water Supply Watershed
- Update MSDD
- Fee in Lieu

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Questions and/or Comments

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Thank you for your COMMITMENT !

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