

Northeast Creek and Crooked Creek Watershed Improvement Project

Sandi Wilbur, PE, City of Durham Stormwater and Engineering Services
Mike Fowler, PE, Brown and Caldwell

City of Durham Environmental Affairs Board Meeting
June 1, 2011



Meeting Agenda

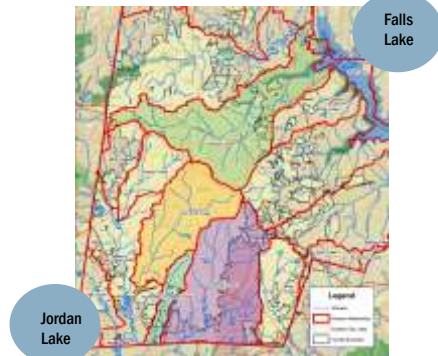
- Why Watershed Improvement Plans?
- Introduction to the Northeast Creek and Crooked Creek Watershed Improvement Plan
- Residential Rain Garden Program Update
- Breakout Discussions for Northeast Creek and Crooked Creek

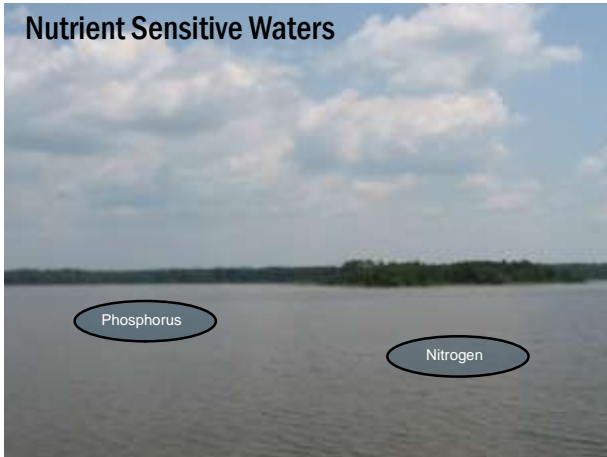


Why Watershed Improvement Plans?

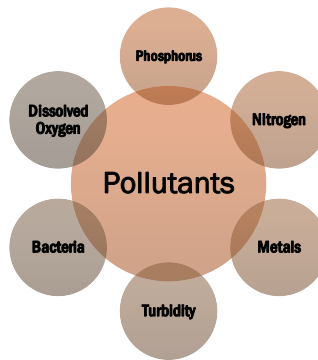


Watershed Improvement Plans





Northeast Creek



Watershed Improvement Program

- Focus on water quality and watershed health
- Prioritize projects throughout the City
- Assesses a variety of control measures on water quality pollution
 - Sanitary sewer rehab
 - Upgrades to WWTP
 - Stormwater treatment
 - Stream restoration
 - Stormwater performance standards for new development and redevelopment
 - Stream buffer preservation
 - Improved City maintenance



What's next?

- Watershed Approach:
 - **Elerbe Creek** - completed in 2010
 - **Third Fork Creek** - ongoing
 - **Northeast and Crooked Creeks** - 2012
 - *Implement water quality improvement projects - ongoing*
 - *Little Lick Creek - 2014*





Northeast and Crooked Creek Watershed Improvement Plan



Brown
Caldwell

Northeast and Crooked Creeks

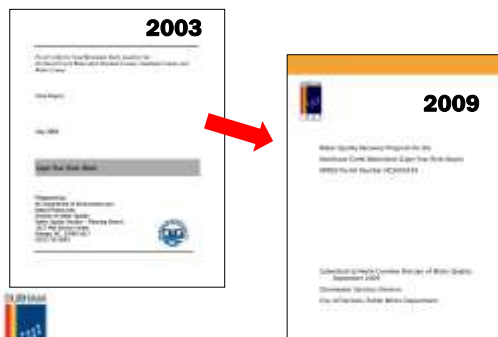


Previous Studies

- 1998 - NC DWQ defined Northeast Creek as “impaired”
- Pollutants of concern are:
 - Bacteria
 - Nutrients (nitrogen, phosphorus)
 - Heavy metals (copper, zinc)
 - Low dissolved oxygen
 - Sediment



Previous Studies



Field Activities



Opportunities to Improve Existing Stormwater Control Measures

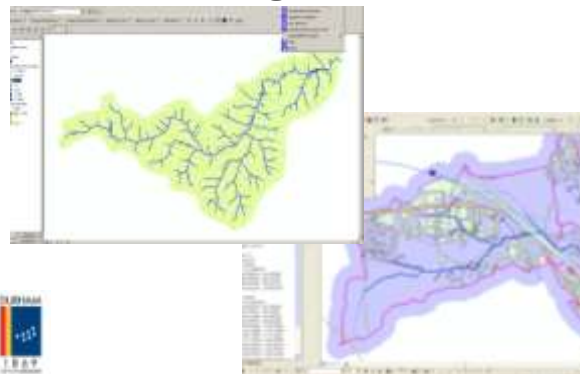


Opportunities to Stabilize and Restore Streams

- Level 2 (more detailed)
 - Northeast Creek and its tributaries inside City limits
- Level 1 (less detailed)
 - tributaries outside City limits



Watershed Modeling



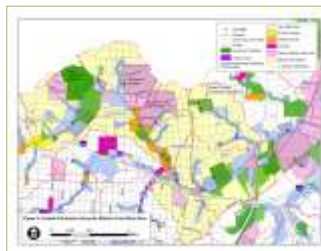
Project Evaluation Criteria

- Water Quality
- Habitat
- Stream Protection
- Community Enhancement
- Implementation
- Public Safety

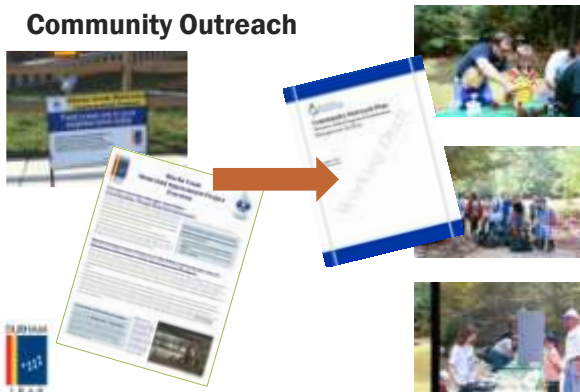


Critical Areas and Riparian Buffers

Critical Area Protection Plan



Community Outreach



Project Schedule

Activities	Dates
Initial Public Meeting	June 1, 2011
Stormwater BMP Assessments	June - July 2011
Stream Condition Inventory Field Work	September - October 2011
Pilot Study Area and Watershed Scale Water Quality Analyses	August 2011 - April 2012
Critical Area Protection Plan	December 2011
Riparian Area Management Plan	March 2012
Draft Watershed Improvement Plan	March - May 2012
Final Watershed Improvement Plan	August 2012



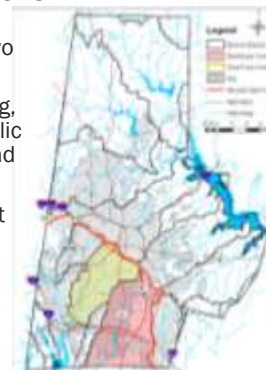
Residential Rain Garden Program Update



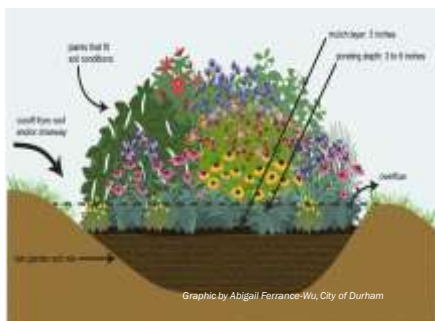
Brown
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Residential Rain Gardens

- Install 40 rain gardens in two watersheds
- Combining green job training, residential partnership, public education, and pollutant load reduction
- Anticipated annual pollutant reductions:
 - Nitrogen 14 lbs
 - Phosphorus 0.8 lbs
 - TSS 1,400 lbs



Rain Garden



Rain Garden Project Update

- Northeast Creek Phase has begun
- Application and selection criteria complete
- Hired Coordinator and Mayor's Summer Youth Workers
- NEXT -Site evaluations, plans, and installations
- Volunteers needed for planting in the Fall



Breakout Sessions Following the EAB Presentation



Brown & Caldwell

- Station #1: Durham's Watershed Program (Sandi Wilbur)
- Station #2: Northeast Creek and Crooked Creek Watershed Improvement Project (Marshall Taylor)
- Station #3: Upcoming Field Assessments for Northeast and Crooked Creek (Mike Fowler)
- Station #4: Communications Information (Inga Kennedy)

