Discussion on Charlotte’s Post Construction Controls Ordinance

NC Association of Environmental Professionals
August 11, 2011
Regulatory Framework

- **Clean Water Act - 1972** - “The objective of this Act is to **restore** and maintain the chemical, physical, and biological integrity of the Nation’s waters.”

- **Proposed new rules from EPA – 2012** – Encouraging use of Low-impact development (such as infiltration, reuse and evapotranspiration) to maintain and restore pre-development hydrology. EPA believes that retaining all storms up to the 95th %ile maintains pre-development hydrology with respect to Q, V, T, and duration.
Regulatory Framework

- State Law 2006-246 – Requires treatment of stormwater in all large communities in NC.
- City’s NPDES Permit – Requires stormwater controls for post construction.
Environmental Impacts Resulting from Development

- Unmitigated storm water runoff:
  - scours creek banks,
  - harms animal habitat
  - Affects streams, lakes, water supplies, and quality of life
  - Increased flows worsen flooding
Environmental Effects of Urbanization
Impaired Streams

Most of our streams are impaired

- Environmental Report Card:
  - Streams not adequately capable of sustaining fish and aquatic life
  - Streams not fit for secondary human contact

- State/Federal requirements push us to progressively reverse this condition

- Stop behaviors that led to this condition
State Minimum Requirements

- Applies to all new development (new impervious surfaces); exempts projects not increasing impervious area.
- Remove 85% of pollution from impervious surfaces using structural controls (before it reaches the stream, does not include pollutants generated by the stream itself)
- Provide stream buffer setbacks on most streams
- Ensure perpetual operation and maintenance of structural controls
The State Minimum Requirement Fails to Meet Local Objectives

- State regulations are not customized to local water quality conditions and drivers
- The minimum does not address our stream erosion problem
- The State minimum does not:
  - address flooding
  - address existing water quality problems
  - support growth in the Yadkin River Basin
What are the drawbacks of not addressing each local objective?

- Difficulty obtaining permits for water/wastewater; slowed annexation; decline of endangered species
- Increased cost to fee payers through State mandated restoration programs
- Continued growth of flooding and stream erosion problems
- Quality of life diminished / economic impact / Less attractive City
- Cost of restoration is much greater than the cost of preservation.
Stakeholder-Recommended Elements that are more protective than the NC Minimum

- **Strengthened Detention Measures**
  - Protection from stream erosion
  - Protection from street and house flooding
  - Accomplished in the same place/at same time

- **Natural Area requirements**

- **Wider stream buffers in sensitive areas**

- **Additional nutrient controls (lakes, Yadkin)**
  - Requirements for redevelopment - existing problems are caused by existing development
What the ordinance requires

- **Pollutant Removal**
  - Water Quality volume from 1” storm runoff (85% TSS and in some watersheds 70% Phosphorous removal)

- **Detention**
  - Channel Protection volume from the 1-year rain event released over 48-120 hours
  - Peak Control for the 10- and 25-year rain events (some exceptions apply)
  - Water quality and flood control benefits
What the ordinance requires

- **Stream Buffer Protection**
  - Applies to intermittent and perennial streams
  - Most vary between 30’ (state minimum) and 100’ + 50% fringe
  - Some are undisturbed up to 200’, depending on sensitivity of watershed

- **Natural Area (Trees)**
Flexibility options

- Transit Station Area/Distressed Business District
- Natural Area mitigation options
  - On-site/ Off-site mitigation
  - Payment-In-Lieu
- Lots less than one acre
  - May pay mitigation fee
- Phosphorous Mitigation
  - Off-site mitigation
  - Fee-in-Lieu
- Variance process
Distressed Business District/Transit Station Areas
Current efforts

- **Pilot BMP Program**
  - Cartridge filter systems
  - Infiltration/extended detention hybrid BMP being installed
  - Floating Islands being discussed with several projects (public and private)
  - Irrigation/infiltration/water reuse master plan for a local university
  - Modular wetlands
  - Green roofs
  - Porous pavements
Current efforts

- **Payment-in-lieu**
  - Payments have been collected in several different watersheds
  - Payments will be used to help fund projects in these watersheds
  - BMPs being built will remove much more TSS than one on the original site could remove
Challenges

- Ensuring our Ordinance meets New EPA Rules
- Challenges for Redevelopment
- Green roofs not recognized as reducing pollutants by NC
- Clay soils limit use of porous pavement and infiltration (0.52 in/hr)
- Map from NC DENR, DWQ:
Discussion

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Little Sugar Creek Greenway and Stream Restoration