

Developing a Best Management Practices (BMP) Manual for Implementation by the Local Development Community

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Charlotte-Mecklenburg began a comprehensive storm water program in 1993 with the implementation of a storm water utility. Initially, the main focus of the program was to improve the drainage system to relieve flood damage and to comply with the Phase I National Pollutant Discharge Elimination (NPDES) permit. Since the program's beginning, a larger focus on water quality improvement projects has been implemented including the installation and retrofit of BMPs, stream restoration using natural channel design techniques, stream buffers, etc. Additional investment in water quality is being planned because of post-construction Phase II NPDES Storm Water requirements and potential Total Maximum Daily Loads (TMDLs).

Traditional storm water quantity management requirements in Charlotte-Mecklenburg are met primarily through the construction of dry detention basins to attenuate the post-development peak discharge to pre-development levels for the 2- and 10-year storm event. These requirements offer some benefit to receiving stream water quality but do not meet water quality regulatory requirements. In order to develop a post-construction ordinance that meets the NPDES Phase II requirements, position Charlotte-Mecklenburg in fulfilling pending TMDLs, and to address endangered species concerns, staff organized a stakeholder group consisting of the private-development, environmental, neighborhood, engineering, etc. communities. The general consensus of the stakeholder group includes: stream buffers on all intermittent and perennial streams; runoff volume control for the entire 1-year storm event; peak discharge control for the 10- and 25-year storm event unless an analysis is provided showing that omitting peak control does not increase downstream flood damages; water quality BMPs with design targets of 85 percent TSS removal and 70 percent total phosphorus removal; and undisturbed open space requirements.

Charlotte-Mecklenburg is developing a BMP Design Manual to ensure that the goals of the post-construction ordinance are effectively met. The North Carolina Department of Environment and Natural Resources (NCDENR) Draft Manual of Stormwater Best Management Practices is the basis of the local BMP Design Manual and serves as a benchmark for the many of the BMP design, specifications, details, etc. including the required level of watershed protection. A successful local BMP Design Manual must offer the following:

- BMPs that provide the same or greater level of protection described in the NCDENR Manual.
- Designs that consider local conditions regarding pollutant loads, topography, soil conditions, etc.
- Designs that meet the additional goals proposed by the stakeholder group.

- Designs that recognize the benefits of BMPs in treatment train approaches necessary to effectively meet goals.
- Pollutant removal designs based on computations supported by scientific theory.
- Designs that optimize their benefits to the watershed through an adaptive management approach using watershed modeling and monitoring data.
- Design methods that can be easily implemented by the private development community and can be easily reviewed by regulatory staff.
- BMPs that can be constructed using specifications familiar to local contractors.
- BMPs with maintenance specifications that ensure long-term functionality.

The presentation discusses the process by which Charlotte-Mecklenburg developed the local BMP Design Manual and highlights challenges and successes of the process.