

Outer Banks Hydrology Management Committee

Report of Findings Executive Summary

November 3rd, 2005

In an unaltered landscape, the management of rainwater is handled by its natural features. While a small portion runs off the landscape, the vast majority of rainwater infiltrates the ground and is either stored or used and released back into the atmosphere by plants during a process called evapotranspiration. Altered or developed landscapes such as the Outer Banks cannot process rainwater in the same way. Loss of vegetation, increased impervious surfaces and less land available for in-ground storage all lead to increased rates and amounts of rainwater runoff. Excess amounts of runoff and the inability to effectively transport this runoff has led to flooding events on the Outer Banks. Contacting the landscape, rainwater runoff can pick up nutrients, organic matter, pathogens, sediments, metals or volatile organic carbons and become polluted. The resulting polluted runoff water and flooding can lead to negative consequences such as “posted” beaches, shellfish closures and damaged property.

Considering the potential negative effects of excess storm water and runoff, Senator Basnight established and challenged the Outer Banks Hydrology Management Committee to make recommendations to address this problematic issue. The committee, made up of representatives from Dare and Currituck county governments, all the towns in Northern Dare, the N.C. Division of Water Quality, N.C. Division of Environmental Health, N.C. Department of Transportation, N.C. Homebuilders and Realtors Associations and the N.C. Coastal Federation, began meeting on September 21. This committee held 11 meetings over 45 hours and heard 15 speakers on a variety of topics relating to the hydrology of the Outer Banks. Based on the findings and discussions generated from committee meetings, the Outer Banks Hydrology Management Committee made several recommendations to aid in the management of storm water.

As a first step, communities are encouraged to reclaim their roadside drainage systems to improve their storage and infiltration capacity. This would require the reclamation of some ditches that might have been previously filled in by adjacent landowners.

Guidelines need to be developed for both landscaping and water conservation to ensure that the minimum amount of vegetation is disturbed or lost and the appropriate landscaping is replanted. Good irrigation practices should be used on landscaped surfaces as well as limiting grading that would drain added water to the streets. In addition, newly developed and redeveloped communities should provide guidelines to employ the recommended strategies for landscape and storm water management as outlined in the Low Impact Development (LID) guidelines.

Our current storm water outfalls need regular maintenance to function properly. While the dependence on storm water outfalls should be lessened by utilizing strategies to

reduce the volume of water coming into the system, these outfalls are not currently performing as designed due to a lack of maintenance. Coordination is also needed in the planning, design, review and permitting process between DOT and local jurisdictions regarding curb cuts, driveways, pipe sizes and road side storage.

At the state and county level, there are incongruities between the septic permitting process from the Department of Health and the goals of this report. The Department of Health recommends using fill as a standard practice to permit new septic systems and this can result in several storm water management issues such as over-saturation and altered local hydrology. There needs to be coordination between the permitting process from the local Department of Health and town and county storm water management strategies.

Consistent with both LID and green building practices, the committee advocates the use of cisterns to reduce the demand on potable water supplies, especially during the summer peak season. The variable rate structure for drinking water could be adjusted to ensure that the program can cover its expenses during the winter months. The use of cisterns is most appropriate for use with individual structures, particularly commercial ones. Properly designed and utilized between rainfall events, cisterns can be an effective storm water treatment and water reuse device.

The Outer Banks Hydrology Management Committee recommends the creation of a consortium made up of representatives from each community to oversee the initiatives proposed in this report. Furthermore, the committee recommends that individual local governments should commit funding to support this consortium and to share costs to implement the needed programs. While this may require the establishment of a storm water fee to generate the funds needed to do the work, funding from other sources will need to be identified as the consultants develop budgets for both the work and the implementation of solutions to storm water issues.

The storm water and runoff issues experienced on the Outer Banks are not unique to this region. Across the state of North Carolina, hydrologic management is coming to the forefront as one of the preeminent environmental issues of our time. Environmental impacts such as losses to groundwater recharge, stream base flows and polluted runoff coupled with extreme flooding, mudslides and property damage make this an issue that demands our attention to assess the effectiveness of our storm water management techniques. The work done by this committee provides a solid framework for what could be truly innovative in the arena of storm water management and hydrologic reconstruction.