

Tool: Risk-Based Approach to Stormwater System Maintenance

A risk-based approach to identify high-priority stormwater system infrastructure (including NCDOT-owned facilities) within the County that should be targeted for routine inspection and maintenance. Risk-based analysis will consider public safety considerations (flooding) and environmental considerations (stream condition). Once identified, a plan will be developed to execute the necessary maintenance.

What is the Task Force's recommendation for implementation of this tool?

A county-wide approach to stormwater system maintenance focused on the identification and routine maintenance of critical systems and high-priority areas to keep these systems functional, to restore flow capacity, and to protect these systems from environmental degradation. Existing information such as customer complaint records (i.e. coordinated with the call center), stormwater and street maintenance staff experience, drainage system inventory, and H&H modeling results will be used to identify and prioritize the critical drainage system features. Criteria used to prioritize maintenance locations will include threat to public safety, threat of flooding, threat to the environment and the number of customers affected. The maintenance plan will include monthly inspection/maintenance of priority sites and inspection/maintenance of sites prior to every predicted 1" rainfall event.

Once identified, critical sites may be cataloged and mapped within a GIS-system. Maintenance activities, system conditions, etc. may be logged into the system where queries can be performed to produce reports on maintenance activities.

In addition to the identification of critical jurisdictionally-owned stormwater infrastructure, an assessment of NCDOT infrastructure will also be performed. Once identified, the list of high-priority NCDOT facilities will be submitted to NCDOT for consideration when performing maintenance activities. The Task Force recommends two alternatives for addressing maintenance of the high-priority NCDOT stormwater facilities:

- *Alternative #1* – County/municipalities will see agreement with NCDOT to perform routine maintenance of these critical facilities.
- *Alternative #2* – County/municipalities will pursue an agreement with NCDOT for local governments to assume the maintenance responsibilities at these locations in exchange for a reimbursement from NCDOT for the maintenance cost.

What problems identified by the Task Force (Objectives) does this tool address?

Primarily used to address structural and nuisance flooding concerns that may cause public safety hazards, but also considers potential environmental impacts resulting from stream degradation. This tool addresses 8 of the 14 Task Force objectives.

What is the minimum regulatory requirement, if any, for this tool?

There is no current regulatory requirement for routine maintenance of the stormwater drainage system.

How is this tool typically performed within Wake County?

A majority of the jurisdictions in Wake County practice a reactive-based approach to maintenance of the drainage system. Therefore, maintenance typically occurs only in response to complaints, random visual inspection, or potential emergencies. Five jurisdictions, however, perform some level of routine maintenance of known problem areas within the system.

Is there an opportunity for collaboration on the implementation of this tool?

Multiple options exist for collaboration on this tool. First, jurisdictions may agree to share resources and equipment to cost effectively perform the maintenance. Second, jurisdictions may form an agreement for one jurisdiction to assume the maintenance for another. And third, jurisdictions may pool resources to hire a private contractor to perform necessary maintenance. In all cases, these options should include collaboration with NCDOT as their system crosses through all jurisdictions in the County. Lastly, it was also suggested that local stormwater managers should consider the use of Department of Corrections personnel to perform system maintenance.

What is the expected outcome of this recommendation?

Reduction in frequency and severity of flooding that may result from a lack of maintenance for the most critical locations within each jurisdiction's drainage system.