

## **SYNOPSIS OF THE PROBLEM BEING RESEARCHED**

Current environmental regulations require TDOT to develop and implement a stormwater management program (SWMP) to characterize the contaminant of concern and reduce to the extent practical for stormwater runoff from all portions of TDOT's municipal separate storm sewer system (MS4) within the State of Tennessee, which includes state road and interstate highways right-of-ways that TDOT either owns or maintains and the facilities that TDOT owns and, or, operates. Section 2.2 of the existing TDOT MS4 Permit requires TDOT to determine if stormwater discharges from the TDOT MS4 potentially impact impaired streams in any Total Maximum Daily Load (TMDL) regulated watershed. The impaired streams in Tennessee that have been identified were prioritized and the Tennessee Department of Environment and Conservation (TDEC) has begun development of a TMDL evaluation for each impaired stream watershed to assist in the identification of pollution control strategies. A TMDL evaluation is a study that quantifies the amount of a pollutant in a stream, identifies the sources of the pollutant, and recommends regulatory or other actions that may need to be taken in order for the stream to cease being polluted.

If stormwater discharges from the TDOT MS4 impact a TMDL regulated watershed, TDOT must implement monitoring and/or control measures at its MS4 stormwater discharge points to the impaired watersheds to meet the TMDL requirements. Currently in Tennessee, over 1,200 impaired waterbodies have been evaluated in 109 separate TMDL evaluation documents. The TDOT MS4 discharges stormwater into at least 62 TMDL watersheds and into over 900 impaired streams at as many as 39,000 outfalls state-wide. TDOT is required to characterize and map all of the stormwater outfalls and subsequently design and implement control measures. Since characterization and mapping of a sub-watershed is estimated to typically cost from \$10,000 to \$20,000 (based on data from other Tennessee MS4s), and the design and implementation of control measures per outfall can cost up to \$50,000 according to the most up to date cost estimate available, the overall cost to TDOT for TMDL regulated watersheds is estimated to be as much \$15 million for sampling and mapping, and as much as \$400 million for discharge control installations, representing a significant burden to TDOT.

### **Project Objectives**

The objective of the proposed project is the development of an effective methodology to determine the relative pollutant contribution of TDOT MS4 to local watersheds through the modeling of pollutant loading from TDOT MS4 stormwater discharges. An ongoing project in compliance with the TDOT MS4 permit has shown that the percentage of TDOT right of way 3 within TDEC impaired drainage areas is in general not substantial (<10%), suggesting the potentially minor contributions from TDOT MS4 stormwater discharges to overall pollutant loading in many of the impacted watersheds. Thus, results from this project can be used to 1) rapidly identify critical watersheds with significant TDOT MS4 impact and prioritize these watersheds as targets for more focused characterization and mitigation, and 2) in the meantime eliminate the need to study a majority of TDOT storm discharges with minor contributions to the overall pollutant loading, which will optimize resource allocation and maximize the environmental benefits of stormwater BMP implementation.