Hillsborough Detention Basin Retrofits

Situation
In the early spring of 2007, Hillsborough Township contacted the Rutgers Cooperative Extension Water Resources Program to discuss possible methods to reduce the maintenance needs of several of the Township’s detention basins. Six basins in particular were costing the municipality a disproportionate amount of money for maintenance.

Action
The Water Resources Program provided Hillsborough Township with a proposal to study these six retention basins and to design retrofits for reducing maintenance costs for each of the basins while enhancing the pollutant removal capabilities of the basins and thereby improving the water quality of the streams that receive the discharged water from these basins.

Hydrologic models were created for each of the detention basins using construction plans from the municipal records. Three of the six basins were instrumented to record the elevation of the water in each of the basins. This information, along with data from a nearby rain gauge, was used to calibrate the models to ensure that they accurately reflected the existing conditions. Staff from the Water Resources Program had conversations with the Public Works Department about how they maintain the basins, the problems they have maintaining the basins and the costs associated with the maintenance. The models were used by the staff to redesign each of the basins to reduce maintenance requirements, improve water quality, and address the concerns of the Public Works Department.

Impact
The Water Resources Program staff created construction plans to retrofit all six of the detention basins with bioretention technology to reduce maintenance costs and improve water quality. The designs involve replacing the existing turf grass with native grasses and replacing the low flow concrete channel with a vegetated swale. The grasses in the basins will be allowed to grow higher and will therefore require much less mowing. The Water Resources Program will provide support to local citizen groups to assist in implementing these designs. After construction, this project will save the municipality approximately 200 hours of maintenance work each year.