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Implementation and performance of stormwater best management practice retrofits in Wilmington, NC

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Abstract Text:

Burnt Mill Creek, located within downtown Wilmington, NC, is on the EPA's 303(d) list for impairment due in large part to urban stormwater runoff. The urban nature of the watershed presents challenges for restoration because of the varying land uses. Restoration efforts are multiplying in Burnt Mill Creek as a result of passionate involvement from local community leaders, and partnerships with state organizations. The Watershed Education for Communities and Local Officials (WECO) coordinated a partnership, with NCSU BAE, the City of Wilmington, as well as several other key state and local organizations and citizens groups, to obtain an EPA 319 grant that addresses stormwater management in the watershed. Community involvement has led to several retrofit BMP opportunities, including pervious pavement and rain gardens at a local YMCA, a stormwater wetland at a townhome community, two bioretention cells installed in the parking lot at Port City Java's corporate headquarters, and a stormwater wetland in a city owned communal area. A crusher run gravel parking lot at the YMCA was a substantial source of sediment into Burnt Mill Creek. The gravel was replaced with porous concrete, two rain gardens, and grassed landscaping. A stormwater wetland was installed in a townhome community to treat a 5 acre drainage area. Runoff from the parking lot at the Port City Java headquarters was intercepted by a sod bioretention area. A stormwater wetland was constructed to treat a 5.5 acre watershed that drains through City owned open space adjacent to Burnt Mill Creek. Monitoring conducted at each site and in the watershed will help determine the effects of the bmp's individually and on the watershed as a whole. Although restoration takes time, momentum continues to build in the Burnt Mill Creek watershed as resources are devoted to thoughtful education and engagement with the public.

Impact Statement:

As water quality in urban areas continues to degrade retrofits are necessary to reduce the impacts of impervious area. Three stormwater best management practice retrofits were installed, in Wilmington, NC, and are currently being monitored. Stormwater wetlands, bioretention, and permeable pavement are all proven stormwater practices for reducing volume, peak flow, and pollutant removal.