



Date: April 17, 2012

To: Thomas J. Bonfield, City Manager
Through: Theodore L. Voorhees, Deputy City Manager
From: Marvin Williams, Public Works Director
Subject: Presentation - Feasibility of a Stormwater Retrofit at the Former Duke Diet and Fitness Center

Executive Summary

The former Duke Diet and Fitness Center (DDFC) is a 9 acre site located at the headwaters of South Ellerbe Creek at the confluence of the Trinity (230 acres) and Downtown (255 acres) Basins, two heavily developed urban basins near downtown Durham. Almost the entire site is located within the 100-year floodplain and part of the existing building is located within the regulated floodway.

The Falls Lake existing development rule requires reductions in nitrogen and phosphorus from existing development prior to reaching Falls Lake. The former Duke Diet and Fitness Center site is an excellent location to construct a large regional stormwater retrofit project. A retrofit project at this location would provide for a significant portion of the nitrogen and phosphorus load reduction needed the Falls Lake load reduction goal from existing development. Brown and Caldwell have worked as our consultant to provide a feasibility study to determine the viability of this project to achieve the reductions.

The results of the study recommend a constructed wetland retrofit on the site. In order for the wetland to be designed properly to reduce nitrogen and phosphorus, the entire site must be utilized and the existing building and parking areas removed. The cost savings of installing this one wetland to treat 485 acres over installing 15 to 25 small facilities in the watershed to achieve the same result is \$7 to \$20 million. The savings of doing one project instead of many in project management, construction, and maintenance costs is substantial and will help to reduce the overall costs to the City of the Falls Lake Stage 1 reductions.

Recommendation

The Public Works Department recommends that the City Council receive a presentation on the Feasibility of a Stormwater Retrofit at the Former Duke Diet and Fitness Center.

Attachments

Fact Sheet - Stormwater Wetland at the Former Duke Diet and Fitness Center.