



Summary of Findings and Recommendations for the Ellerbe Creek Local Watershed Plan

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The Ellerbe Creek Local Watershed Planning (LWP) area is 36.7 square miles and is located in central Durham County in the 14-digit hydrologic unit 03020201050010. The headwaters straddle Interstate 85 at the western border of the county, flowing eastward through the City of Durham. Downstream of the city, the creek drains federally protected land that forms part of the Falls Lake State Recreation Area. Land use in the watershed is a mixture of medium to high-density residential and commercial development. Outside of the city, the Ellerbe Creek watershed is dominated by bottomland hardwood forests and loblolly pine forests, with a limited amount of agricultural activity. Over 22% of the watershed is currently impervious. Ellerbe Creek is classified as a water supply watershed with nutrient sensitive waters (WS IV NSW) because it is part of the Falls Lake watershed. It is one of 28 local watersheds that drain into the Falls Lake Reservoir. Ellerbe is classified as “impaired” because it does not adequately support aquatic life ([NC Division of Water Quality 2010](#)). The creek suffers from increased nutrient loads, high levels of suspended sediments, heavy metals, biochemical oxygen demand, and oil and grease (hydrocarbons), especially in the urban portions of the watershed. NCDENR has identified urban non-point source pollution as the most likely source of water quality impairment.

The Ellerbe Creek LWP followed the development of the Upper Neuse Watershed Management Plan ([UNRBA 1998, updated 2003](#)). The intent of this plan was to examine the watershed at a finer scale and to analyze current and future water quality conditions and strategies to address water quality concerns. During the plan’s development, municipal and county government representatives identified water quality within water supply reservoirs as their highest priority along with limits to recreational use and habitat protection as other priorities. Stakeholders further refined these major plan goals to protect watershed functions: (1) improve aquatic life in Ellerbe Creek; (2) reduce destructive flooding in the watershed; (3) create recreational opportunities; (4) educate the local community about the creek; and (5) protect the Falls Lake drinking water supply.

Unlike more recent LWPs produced by EEP, Ellerbe Creek LWP did not generate watershed assessment data as part of its initiative, rather it utilized past and ongoing data from Durham Stormwater Services coupled with modeling efforts to promote the stakeholders’ understanding of the watershed. From the modeled water quality information and land use data, stakeholders generated recommendations to improve functional conditions of the watershed. Extensive development of the headwaters and associated imperviousness were identified as primary agents of water quality, hydrology, and habitat impacts in Ellerbe Creek.

The plan outlined a series of recommendations to protect and improve conditions in Ellerbe Creek. The intent was to identify a broad range of projects and activities that will help meet these goals. The breadth of recommendations was intended to enable city, county, and state governments and their respective agencies as well as nonprofit organizations to take a series of actions to tangibly improve water quality in the creek. Recommendations are summarized in Table 1 below.



Table 1. Key watershed stressors and management strategies for the Ellerbe Creek watershed.

Stressors and Issues	Management Strategies
Stream bank erosion	Ensure there is adequate erosion and sediment control staff to carefully review plans
Lack of adequate forested buffer	Stream restoration, riparian buffer restoration and enhancement
Stream channelization	Stream restoration
Impervious cover	Stormwater BMPs (retrofits), stormwater ordinance, improving stormwater project design
Upland erosion	Agriculture & forestry BMPs, erosion and sedimentation control ordinance, subdivision ordinance modifications, public education, critical area protection
Urban toxicants	Illicit discharge program, landfill strategy, watershed education program, stormwater BMPs, stream monitoring
Nutrients	Illicit discharge program, ag BMPs, riparian buffers, watershed education program, stormwater BMPs, additional studies, stream monitoring
Fecal coliform bacteria	Retrofit wastewater collection system, agricultural BMPs, illicit discharge program, watershed education program, stormwater BMPs, stream monitoring

References.

NC Division of Water Quality, 2010. [North Carolina 303\(d\) List of Impaired Waters.](#)

Upper Neuse River Basin Association, 1998, updated 2003. [Upper Neuse Watershed Management Plan.](#)