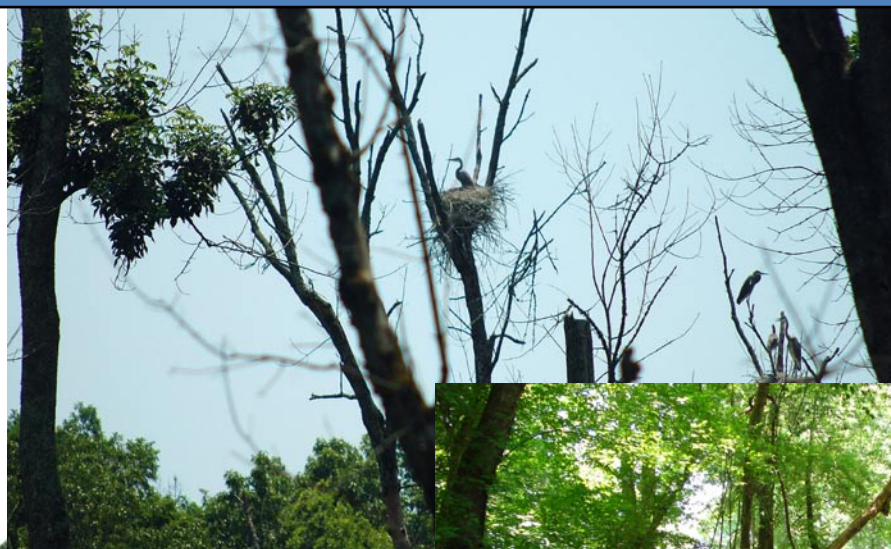
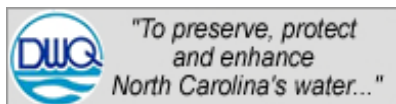


Rich Fork Creek Watershed Assessment: An Executive Summary



October 2008



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An Executive Summary

**Prepared For & Funded By
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**Prepared By
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Introduction

The Rich Fork Creek Watershed occupies 57 square miles, primarily in northeastern Davidson County, NC (Figure 1). Rich Fork Creek is considered an impaired waterbody by the NC Division of Water Quality (DWQ). The watershed has two predominant land uses, rural and urban; current urban area occupies 34% of the watershed. Recently, the urban areas have expanded, outpacing the rest of the state (13.5% vs. 10%), and contributed low-density impervious coverage to the watersheds' headwaters (US Census Bureau, 2006). As these urban areas grow, the impervious surface coverage of the watershed will increase and contribute more stormwater to the watershed's hydrology, further degrading it. Stormwater is that water which would normally soak into the soil but cannot due to paved surfaces (i.e. parking lots). This water flows over the land, gathering pollutants, heat, and velocity before emptying into the watershed's streams and creeks at high volumes; these waters cannot contain these intense volumes, nor their pollutants.

NC DWQ monitoring indicates the Creek's waters violate Clean Water Act standards for bioclassification, which reflects the quality of habitat a stream provides its species (NC DENR, 2008). Analysis conducted in 2006 determined that the stressor was urban stormwater runoff – especially from development in the urbanized headwaters (NC DENR, 2006; NC DENR, 2007). These same studies also indicate that conditions have improved within the last ten years, and the Creek has been taken off the impaired waters list for violating NC DWQ standards for dissolved oxygen and fecal coliform bacteria. Recent renovations to the High Point and Thomasville wastewater treatment plants and sewer systems appear to be a large reason for these improvements in water quality.

Rich Fork Creek is a tributary of the larger Abbotts Creek watershed, and is a headwaters system of High Rock Lake, which is also an impaired water body. NC DWQ is conducting a Total Maximum Daily Load (TMDL) assessment of the Lake's water quality to determine the sources of nutrient and sediment pollution compromising its use as ecological habitat and a recreational resource. This study may lead to mandatory nutrient reduction rules similar to those proposed for the Jordan Lake Reservoir watershed. Davidson County is one of the fastest-developing counties in the Upper Yadkin River Basin, and stormwater management will be necessary to curb land use impacts on both water quality and upon the agrarian culture of the region.

In February 2008, the Piedmont Triad Council of Governments (PTCOG) partnered with the jurisdictions of Davidson County, the City of High Point, and the City of Thomasville to assess present water quality impacts and watershed restoration needs in Rich Fork Creek. Local watershed planning principles established at the Center for Watershed Protection (CWP) in Silver Springs, MD (www.cwp.org), were used and adapted to develop a plan to remedy the water quality issues of the Rich Fork Creek watershed. This watershed assessment is designed to analyze watershed conditions and identify opportunities to improve and protect watershed functions, as well as determining policy-based solutions to watershed impairment. The PTCOG has a number of skills and resources that allow them to carry out these duties: watershed restoration planning through a combination of local experience and expertise from regional governments and other stakeholders, streambank field assessments, Geographic Information Systems (GIS) – based analysis, and a thorough analysis of the current protections and weakness within the jurisdictional rules and regulations of the governments presiding over the watershed.

Watershed Characterization

Rich Fork Creek watershed is composed of the large main Creek running southerly, a western bank full of small Class I and II tributaries flowing directly into Rich Fork Creek, and four tributary streams – Payne, Kennedy Mill, Hunt’s Fork, and Jimmy Creeks – that all run westerly through the watershed (Figure 4). It has been delineated into 10 subwatersheds, less the Hamby Creek subwatershed (Figure 1). The watershed is composed of largely porous, non-hydric soils, even in its floodplains. Sand mining and granite quarries are common to the region, and have had an impact upon riparian (water corridor) ecology in the past; DWQ recently had to move a monitoring location due to a sand mining operation. The watershed is fairly flat, with an average slope of 0.5%. The highest elevation points lie between the Cities of High Point and Thomasville in eastern Davidson County, but many of the steepest slopes of the watershed fall within urban and suburban sectors of the two Cities. Under these conditions, stormwater impacts are at their most degrading: steep, paved slopes allow water to gather volume and velocity at high rates that can only be buffered by vegetated riparian zones along water features, which are currently rare in the Rich Fork Creek watershed.

Rich Fork Creek watershed is not known for its ecological attributes, but this appears to be changing in the face of population growth and development pressures. Located in one of the fastest growing counties within the Upper Yadkin River Basin, the values of open space and agricultural preservations are becoming more recognized and funded. Agricultural cost-share programs and conservations easements are supported by Davidson County, the NC State University (NCSU) Cooperative Extension, and the NC Division of Soil & Water Conservation; all three jurisdictions recognize the value of the County’s agrarian heritage. The NC Wildlife Resources Commission has recognized a heron rookery along the main stem of Rich Fork Creek as a conservation priority, and the Natural Heritage Inventory lists the oak-hickory forest at the confluence of Kennedy Mill and Rich Fork Creeks as a regional priority. The Piedmont Land Conservancy (PLC) and the Central LandTrust of NC have both shown recent interests in becoming more active in the area.

Of the three jurisdictions that occupy the Rich Fork Creek watershed, the City of High Point is most aggressively strengthening watershed protections. All three jurisdictions abide by National Pollution Discharge Elimination System (NPDES) Phase II regulations, which include sediment and erosion control during and following construction, stormwater education and outreach, and illicit discharge detection. Davidson County strictly restricts development within the 100-year floodplain to “low intensity” and “recreational” use, while the City of Thomasville does not directly address watershed management and water quality concerns. The City of High Point has many strict development ordinances that apply to General Watershed and Critical Watershed Areas – Rich Fork Creek is not labeled as either of these types of areas. Even so, High Point has explicit slope, riparian buffer, and open space requirements for any development that exceeds 1 acre and/or 6% or more impervious surface to a plat that apply to Rich Fork Creek watershed, and should be the minimum standards throughout the watershed. Importantly, High Point enforces these ordinances, which is a key investment in any watershed stewardship strategy. Even with these ordinances and rules, though, stormwater is still degrading the watershed’s health and function.

PTCOG hired three private consultants to lead streambank assessments in the Rich Fork Creek watershed to determine restoration and conservation priorities for watershed stakeholders. In two weeks, three teams of field agents walked over 30 miles of streams and identified 111 total projects (Table 1; Figure 2).

Subwatershed	Buffer Enhancement	Buffer Restoration	Cattle Exclusion	Invasive Plants	Landowner Education	Log Jam	Pond Work	Streambank Enhancement	Stormwater Pipe	Streambank Restoration	Sanitary Sewer Maint	Stormwater Retrofit	Trash Dump	Wetland Enhancement	Wetland Preservation	Wetland Restoration	Ecological Value	Conservation Site
1 Total	3	2	3	0	6	2	2	5	6	7	2	0	4	2	2	0	0	4
4 Total	36	4	0	2	5	16	0	35	5	13	5	7	1	1	9	7	6	16
6 Total	53	1	2	6	56	5	0	4	2	25	1	4	6	0	0	0	0	0
7 Total	8	2	3	0	10	18	0	4	0	5	1	0	3	0	4	0	4	8
8 Total	37	30	15	8	29	19	7	40	16	15	5	12	20	3	16	4	8	27
Grand Total	137	39	23	16	106	60	9	88	29	65	14	23	34	6	31	11	18	55

The overwhelming need in the Rich Fork Creek watershed is riparian buffer projects. The field consultants noted that there were almost no buffers anywhere in the watershed, regardless of the urban or rural character of the area. One of the most effective and least expensive practices that can improve stormwater conditions is a well-maintained riparian buffer network. Also evident from the fieldwork conducted were needs for improved landowner education, ecological and open space conservation, and trash management.

Through policy analysis and field work assessments, PTCOG arrived at seven recommendations that it feels will benefit the watershed if all stakeholders invest in them. They are as follow:

1) Stormwater Retrofits – Stormwater impacts are identified as the source of current watershed impairment, and fieldwork assessments conducted support this conclusion. Attenuating stormwater impacts through investment in BMPs (e.g. rain gardens, constructed wetlands, green roofs, etc.) may be the most immediate, effective approach to improving watershed conditions, meeting NPDES Phase II regulations, and anticipating stormwater reductions that NC DWQ will likely require to improve water quality conditions in High Rock Lake.

2) Riparian Buffer Restoration – The consultants hired to lead fieldwork within the watershed identified the lack of buffers throughout the watershed as their primary concern. It was uniform amongst all land uses and communities, and displays a need for improved education efforts within these communities. The City of High Point has effective riparian buffer ordinances for development which should be the minimum standards aspired to by all jurisdictions. Without an improved buffer network, watershed function and health will continue to degrade and all other efforts will be moot.

3) Rural Lands Protection – Davidson County has a long agrarian history that has shaped all of the communities that occupy it today. These lands now serve the communities of tomorrow by preserving this heritage, protecting water quality, and conserving the natural features of the County. Davidson County already recognizes the value of farmland in its *Land Development Plan*, but the added value of these lands to the urban communities and their residents should be

recognized at both the regional and state levels with increased permanent preservation of this rural landscape. This value will only be augmented with State-level regulation of land use within the High Rock Lake watershed; open space can be of enormous benefit.

4) Watershed Outreach & Education – As seen in Table 1, 106 sites in the Rich Fork Creek watershed were opportunities to improve watershed conditions simply through enhanced education and outreach efforts. PTCOG has a stormwater education and outreach program – *Stormwater SMART* – to address these concerns such as improper lawn waste disposal, buffer management, and oil disposal, and all three jurisdictions pay a fee to participate in this program and comply with their NPDES Phase II permits. Working with *SMART* to tailor a program specific for this watershed and its environmental and social needs is a necessary first step in a campaign to put sustainable watershed management practices in place.

5) Improved Site Design – Low Impact Design (LID) is a set of development principles that aim to minimize development impacts upon the surrounding environment, including water resources. Working with a landscape's natural grade, avoiding the 500-year floodplain, and consolidating parking areas and other impervious surfaces are all ways that LID can improve watershed conditions. LID has been employed by a number of communities in sensitive watershed (Chesapeake Bay, Puget Sound, etc.) with great success in reducing stormwater runoff and non-point source pollution.

6) Improved Enforcement of Existing Rules – All of the jurisdictions have some form of ordinances and/or rules in their planning documents that promote sustainable watershed management, including NPDES Phase II regulations. However, it is evident that not all of these rules are being enforced, compromising any impacts they might have upon the citizenry of the watershed. Enforcement requires significant staff, time, and resources, and is beyond the financial capabilities of many communities in NC. A solution to this dilemma could be to have all three jurisdictions invest in a watershed-scale enforcement officer whose role it is to specifically enforce watershed protections, including soil and erosion controls.

7) Stream Repair Projects – Restoration projects are perhaps the best outreach tool at stakeholders' disposals. They transform a degraded streambank into a beautiful habitat for people to enjoy. Field assessments identified 153 locations where restoration projects could occur, including some in centralized, public locations. Further work is being done to prioritize these projects for pursuit, and will be published in 2009. It is worth noting that restoration projects will do little to no good, though, if stormwater is not better controlled and attenuated throughout Rich Fork Creek watershed.

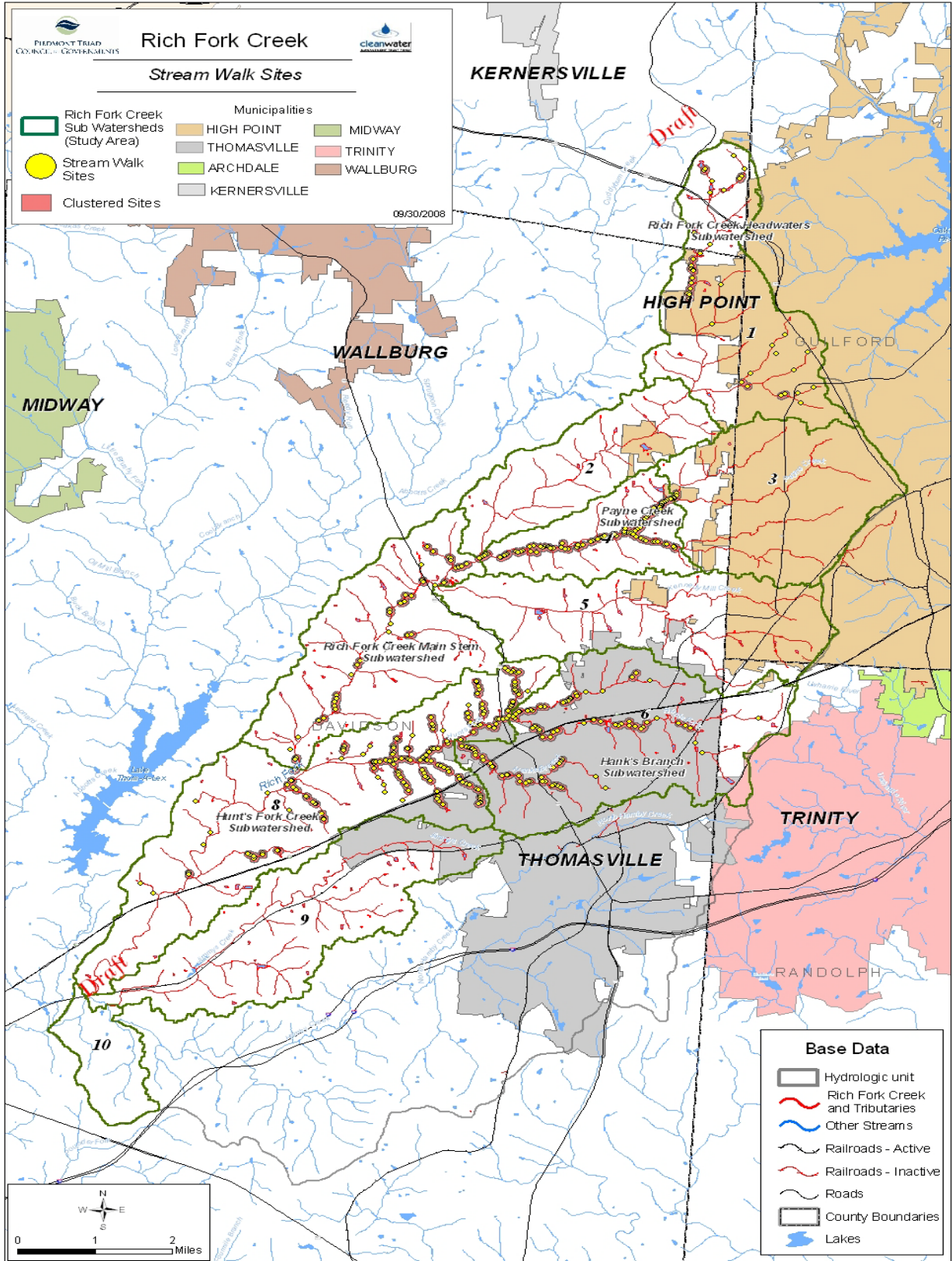


Figure 2: Rich Fork Creek Watershed Clustered Project Sites