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Third Fork Creek Restoration Update

The Third Fork Creek Watershed Restoration planning project being conducted by the City of Durham Stormwater Services Division, with consulting support from Tetra Tech, is nearing its completion. Third Fork Creek flows from downtown through the heart of many Durham neighborhoods like Tuscaloosa-Lakewood, St. Teresa, Forest Hills, Hope Valley Farms, and Woodcroft, down to New Hope Creek, a tributary of Jordan Lake. Watershed restoration planning is providing a better understanding of the connection between what's happening on the land and water quality in the creek, and particularly how pollution from stormwater runoff from residential and business areas can be better managed to improve water quality.

This issue of the Third Fork Creek Restoration Update covers a number of important findings and recommendations for the creek, including:

- Identifying strategies that could improve the quality of the water in the creek by reducing the amount of sediment and nutrients in the water. The presence of elevated levels of such pollutants has been shown to directly affect the health of a creek or stream as well as its ability to support fish, insects, and other biological organisms.
- Special natural areas in the watershed that could or should be protected from future development.
- What you can do to help the watershed.

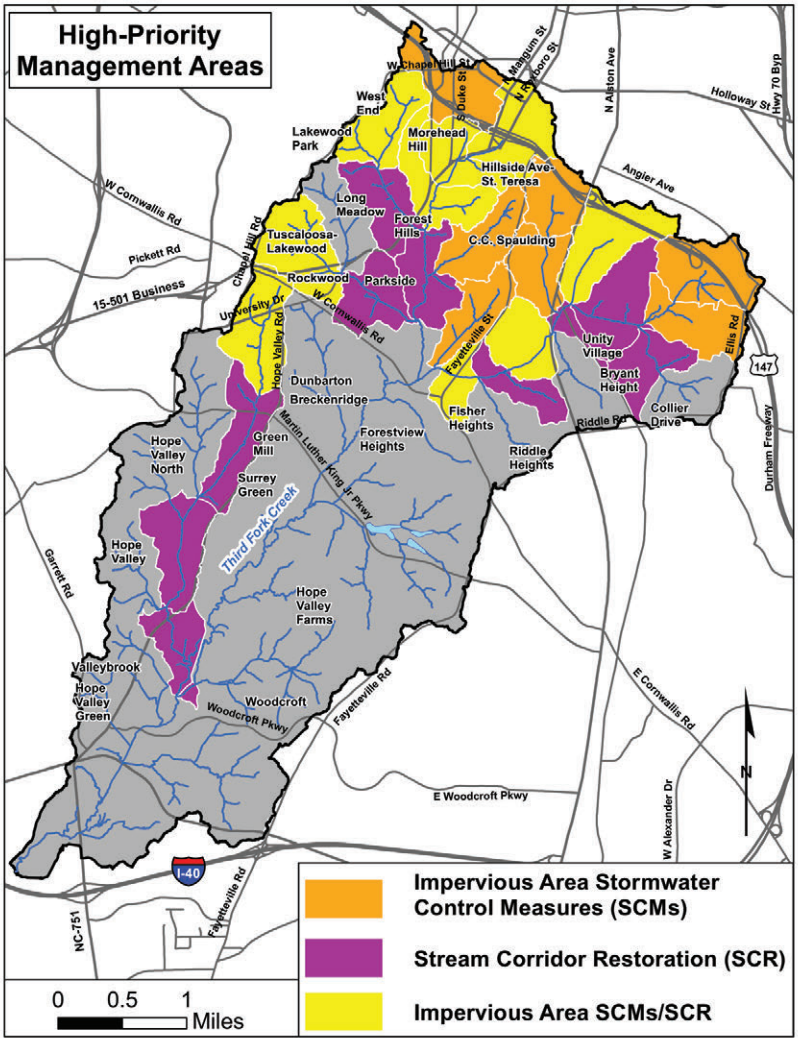

Figure 1. High-Priority Management Areas

High-Priority Management Areas.

The plan has identified high-priority management areas and practices, including stormwater retrofits, and stream channel and buffer restoration projects in each area. The management areas are characterized by the following three categories of focus (see Figure 1):

1. Stormwater control measures (SCMs) that manage stormwater from existing impervious areas.
2. Stream corridor restoration (SCR).
3. A combination of impervious area SCMs and SCRs.

The areas highlighted in Figure 1 are the highest priority areas for reducing pollution in stormwater runoff.

Definitions

Stormwater Control Measure or SCM: refers to constructed devices, natural vegetated areas, educational programs and actions that you take that help reduce, control, and clean stormwater before it washes into the creek.

Impervious areas: land covered with surfaces impenetrable to water such as pavements (roads, sidewalks, driveways and parking lots) and rooftops.

Stormwater retrofits: installing new structural stormwater measures (e.g. rain gardens, wetlands, permeable paving and green roofs) on existing built sites with no or inadequate treatment.

What Opportunities for Watershed Improvement Have Been Identified in the High-Priority Areas?

Hundreds of sites in the watershed were screened and the planning team identified many promising locations for watershed improvements including:

- Public and private parcels of land where SCMs might be sited.
- Stream corridor areas where channel restoration, enhancement, bank stabilization, and buffer restoration are needed.
- Existing ponds and lakes in the watershed that could be "retrofitted" to treat and remove pollutants from stormwater that flows into them.

After completing site visits and evaluations for the high-priority areas, 40 sites were found to be feasible for new SCM construction, 3 of the existing ponds were deemed feasible to retrofit for water quality improvement, 44 stream corridor sites (totaling 6.8 miles) were ranked high for some type of restoration or channel stability improvement. Twenty-six of these stream reaches (totaling 4.5 miles) were recommended for buffer restoration. See Figure 2.

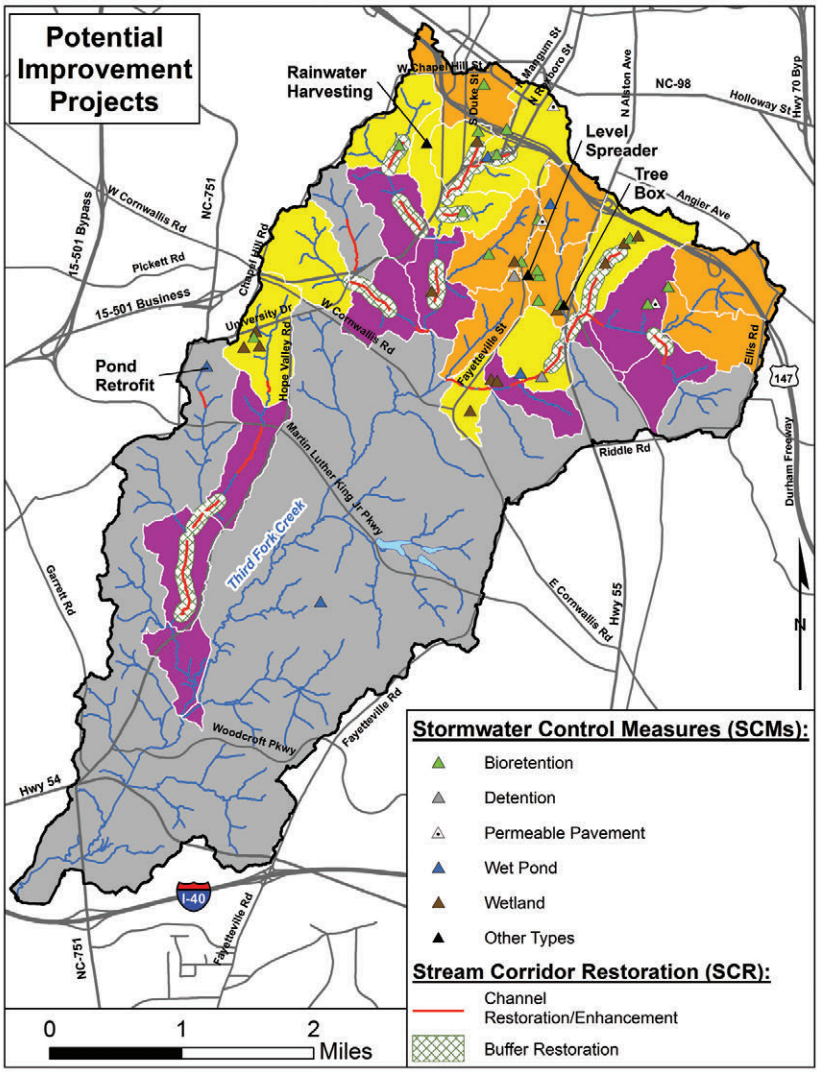

Figure 2. Potential Improvement Projects in Priority Areas

What Types of SCMs Will Be the Most Effective?

Based on the types of pollutants impairing the Creek, the following SCMs are recommended:

New SCMs on Existing Development

- Bioretention Areas (See Figure 3).
- Stormwater Wetlands (See Figure 4).
- Porous Concrete/Sand Filter Systems.
- Rain Water Harvesting Systems.
- Tree Box Filters.
- Level Spreader-Vegetated Filter Strip Systems.

Retrofits of Existing SCMs

- Conversion of Dry Detention Ponds into Stormwater Wetlands.

Figure 3. Example Biorention Area

Figure 4. Example Constructed Wetland

***Questions?** Contact the Third Fork Creek Restoration Plan Project Manager, Sandi Wilbur, at sandra.wilbur@durhamnc.gov or (919.560.4326, ext. 30286).*

Stream Management Projects

- Full-Scale Stream Restoration.
- Stream Corridor Enhancement.
- Stream Bank Stabilization (See Figure 5).
- Buffer Restoration.

Figure 5. Example of Stream Bank Stabilization Project to Reduce Erosion

10 Things You Can Do for Third Fork Creek

Choices we make every day contribute to the health of Third Fork Creek and its tributary streams. Here are 10 suggestions for actions you can take to improve the health of the creek and its watershed.

1. **Slow down storm (rain) water.** Consider placing a rain barrel under your roof or adding a rain garden to your yard (See Figure 6 and Figure 7). Mulch gardens to retain moisture and reduce runoff. *Impervious surfaces in our creek's watershed speed up the time for rain water to reach the creek. This causes a larger burst of water into the creek at one time, resulting in increased erosion, scouring of creek banks, and washing of more pollutants into the creek.*
2. **Reduce fertilizer use.** Test your soil to see if it is necessary, see http://www.ncagr.gov/agronomi/ for free soil testing, and never apply fertilizer before a rain.
3. **Pick-up and dispose of pet waste appropriately.** *This can have a significant impact on the amount of nutrients and bacteria entering the creek and Jordan Lake drinking water supply.*
4. **Maintain your car** so that it doesn't leave any pollutants *(such as oil, antifreeze, brake and transmission fluid)* behind on the driveway or road to be washed into the creek.
5. **Wash your car where the dirty water can drain to a vegetated area** or go to the nearest car wash facility that uses recycled water.
6. **Preserve vegetated areas.** Leave vegetated and wooded areas in their natural state, especially along the creek, streams, and ditches. *These areas naturally absorb, slow down, and treat stormwater before it enters the creek.* If there is a bare area, plant vegetation and stabilize the area *to reduce erosion and sediment washing into the stream.*
7. **Plant native species** when making landscaping choices; they are adapted to our climate, require less care and resources, provide habitat, and reduce the risk of introducing exotic invasives along the creek. For more information on plants to select, see http://ncbg.unc.edu/native-southeastern.plants/

Figure 6. Example Cistern

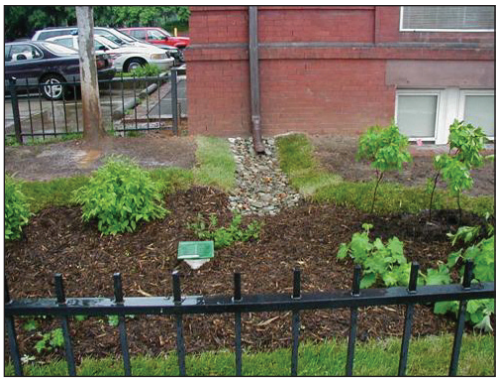

Figure 7. Downspout Disconnect

8. **Pick up litter.** Participate in community stream cleanup events. In addition to being unsightly to look at, *litter can harm wildlife, create human health hazards, and leach chemicals into groundwater as it decomposes.*
9. **Use caution with household chemicals.** Consider natural, non-toxic alternatives for household chemicals. Don't apply herbicides and pesticides when there is a forecast for rain. And all city and county residents can dispose of extra chemicals at the Household Hazardous Waste Center located at 1900 East Club Blvd. in Durham.
10. **Report problems.** If you see any dumping or a water quality concern, call the City's stormwater program at 919-560-7946. If you see sediment flows into the creek or streams, call the County Sedimentation and Erosion Control program at 919-560-0379.

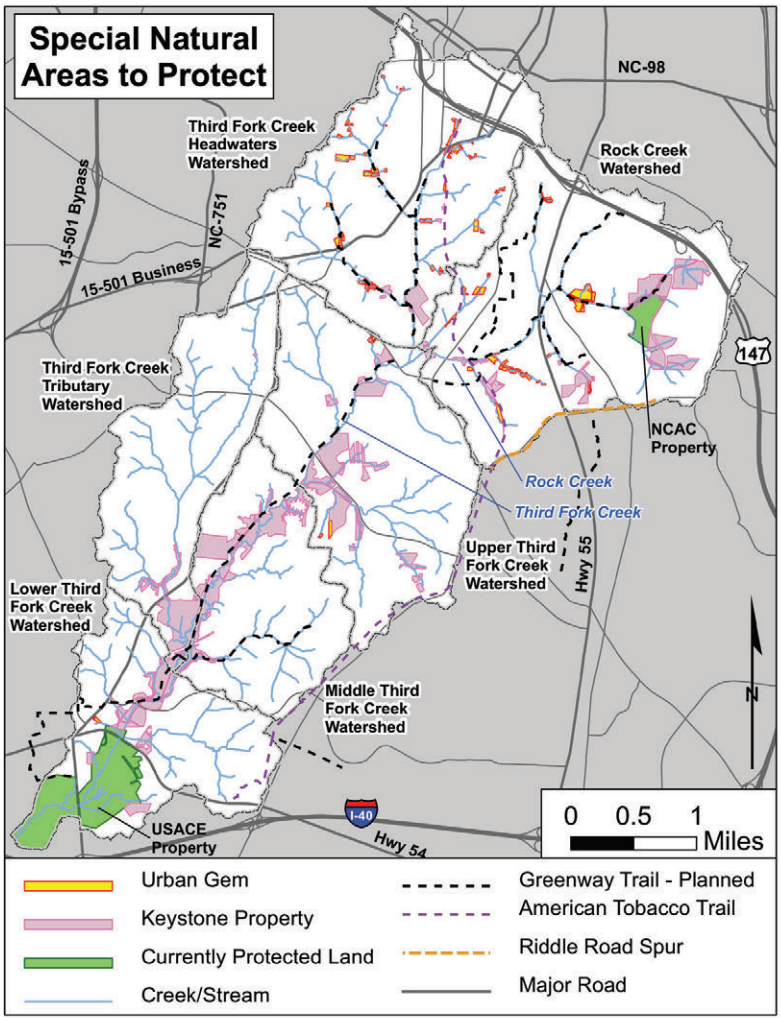

Figure 8. Special Natural Areas to Protect

Are There Natural Areas in the Watershed that We Should Work to Protect?

Yes! The undeveloped, naturally vegetated areas along the stream corridors in the watershed are prime candidates for long-term protection. Along with providing countless ecological and environmental benefits, these areas also treat stormwater from upland runoff draining through them as well as the stormwater contained within the floodwaters of adjacent streams. These "critical lands protection sites" were identified based on watershed-wide advantages, site-specific benefits, and cost-effectiveness with respect to pollution reduction. The City Team developed a weighted score for more than 4,000 parcels and identified 212 high priority parcels for protection. A parcel was categorized as a "Keystone Property" if it was located near a large protected area. 123 parcels, totaling 580 Acres, were classified as Keystone Properties. Smaller, high-quality parcels in the watershed's more urbanized areas were categorized as "Urban Gems". A total of 89 parcels (63 Acres in all) were classified in such a manner (See Figure 8).

What's Next? The City Team will rank each potential stream restoration and SCM project as well as the critical lands protection sites in terms of their overall importance to improving the health of Third Fork Creek. This ranking, as well as preliminary design plans for several high priority SCM and stream restoration projects will be included in the final Watershed Management Plan (Plan). This Plan will tie the many elements of the Third Fork Creek study together and will assist the City with near- and long-term restoration efforts.