

Morgan and Little Creeks Local Watershed Planning Initiative



Meeting Announcement & Summary

Wednesday, May 26th, 2004 meeting held at the Totten Center

Next meeting:

September 8, 2004

2:00-4:00 pm

**Totten Center, NC Botanical
Gardens**

Directions to the Totten Center:

From I-40: Take exit 273 from the West, 273-B from the East. Turn right onto Highway 54 W, go 2.4 miles; turn left at the traffic light onto Finley Golf Course Road. Go 0.6 mile and curve right onto Old Mason Farm Road. Go 0.7 mile, see North Carolina Botanical Garden sign on left; turn left into parking lot.

From the 15-501 and 54 Bypass (Fordham Blvd.): Look for the brown landscaped wall on the south side of Fordham Blvd., 0.6 mile west of the Hwy 54 overpass. Turn onto Old Mason Farm Road at the east end of the wall. See North Carolina Botanical Garden wooden sign on immediate right and turn right into parking lot.

Maps can be found at the following URL:

<http://www.unc.edu/depts/ncbg/info.htm#Directions>

September 8 Meeting Agenda

- ▶ Welcome and Introduction
- ▶ Review and approval of May minutes
- ▶ Local Watershed Opportunities
- ▶ Plan Recommendations
- ▶ Conclusion

Team members present at 05/26/04 meeting:

Will Autry, Orange County Planning Dept.
Ed Holland, Orange Water and Sewer Authority
Sydney Miller, Triangle J Council of Governments
Tina Moon, Orange County Planning Dept.
Sharon Myers, UNC-Chapel Hill
Doug Nicholas, Triangle Land Conservancy
Jonathan Parkinson, Friends of Bolin Creek
Johnny Randall, NC Botanical Gardens/Morgan Creek Valley Alliance
Noah Ranells, Town of Carrboro
Fred Royal, Town of Chapel Hill
John-Ann Shearer, US Fish and Wildlife Service

Team members not present:

Brent Bogue, Natural Resources Conservation Service
Shari Bryant, NC Wildlife Resources Commission
Patricia D'Arconte, Town of Chapel Hill
Ren Ivins, Orange County
Karen McAdams, Cooperative Extension Service
Garland Pardue, US Fish and Wildlife Service
John Thomas Jr., US Army Corps of Engineers
Hollie Rennell, Orange County Erosion Control
Ren Ivins, Planning and Inspections, Orange County

Guests Present:

Randy Dodd, Friends of Bolin Creek
Chris Dreps, Upper Neuse River Basin Association
Ed Harrison, Chapel Hill Town Council
Dave Otto, Friends of Bolin Creek
Gene Nocerino, NC Ecosystem Enhancement Program
Kristen Sinclair, NC Botanical Gardens
Cherri Smith, Durham Planning Department

Support Staff Present:

Deborah Amaral, Cape Fear River Assembly
Jason Doll, TetraTech, Inc.
Bonnie Duncan, NC Ecosystem Enhancement Program
Samantha Sheehy, Cape Fear River Assembly

Summary of the 5/26/04 Meeting

Meeting Agenda / Stakeholder Introductions

Deborah Amaral of the Cape Fear River Assembly opened the meeting and reviewed the agenda items. After brief introductions, the minutes of the April meeting were reviewed and approved.

Targeting Management Recommendations

Jason Doll of TetraTech, Inc. reviewed the targeting recommendations from the last meeting and identified possible mitigation opportunities within the watershed. The team is now in the final phase of the Morgan and Little Creeks LWP, and specific locations for projects are now being identified. To review, the main parts of the watershed were broken into two priority "Tiers": Tier 1 refers to the most important priority areas, and Tier 2 refers to the secondary target areas. Tier 1, which includes Bolin Creek, upper Morgan Creek, and lower Booker Creek contains the most high quality habitat that needs to be preserved and the streams here are at the greatest risk of further degradation. Tier 2 includes the Booker Creek headwaters, middle and lower Morgan Creek, and the Meadowmont/Ephesus subwatersheds. In the final Detailed Assessment Plan, which is only weeks away from completion, the procedures and methods for ranking subwatershed target areas will be described in depth.

Implementing Restoration Priorities

Two management scenarios will be recommended for the selected project sites: stream restoration and retrofit stormwater Best Management Practices (BMPs). Stream segments for restoration projects will be identified and then prioritized based on infrastructure constraints, feasibility, and cost. Areas that could benefit from retrofit stormwater BMPs will also be identified, and concerns here include the storage needs in the subwatershed, and the amount of pollutant load that could be reduced. Stormwater BMPs are especially useful in urban sites, and while some types can be funded by the Ecosystem Enhancement Program (EEP), others can be implemented using grant money that focuses on projects in a watershed context.

Four major stream restoration methods are typically considered for management efforts, and are ranked in order of preference:

Priority 1: *Abandon incised channel and construct adjacent channel.* This is the most popular and inexpensive way to restore a stream, but it takes some lateral room in the floodplain.

Priority 2: *Establish new floodplain and meander at existing grade of stream.* This method requires significant excavation in order to build a new floodplain and is more expensive than Priority 1 as a result.

Priority 3: *Use "bioengineering" principals to build stable channel with little or no meander.* In this case a step pool system is created much like in a mountain stream to create stability.

Priority 4: *Fix and harden banks.* While this method helps with stream stability, it does nothing to improve aquatic habitat and is not typically chosen as a method of restoration for credit by the EEP.

It should be noted that the EEP focuses its efforts on Priority 1 and Priority 2 methods with areas of Priority 3 restoration interspersed as necessary. A Priority 1 restoration in Morrisville at a public park focused on abandonment of the original channel and the creation of a new wetland area. Projects like this cost in the range of \$100 - \$180 dollars per linear foot. A Priority 2 restoration in the Rocky Branch Creek cost around \$200 - \$250 dollars a linear foot. While restoration projects are going on, they often look bare and ugly while the stream corridor is being disturbed. Team members will be needed as advocates for these projects, and should explain to citizens how the restoration process will be helping repair the stream in the long term.

In order to identify suitable restoration sites, the Tier 1 targeted subwatersheds were screened using aerial photography maps, and sites were eliminated from the field reconnaissance effort on the basis of three criteria. Any site with less than 1,000 ft. of stream length, with too many property owners, or with excessive utility and infrastructure constraints was not considered for a possible EEP project effort. Additional screening was then done on-site by a restoration expert, and areas with topographical constraints, pending development activity, or prohibitive utility and infrastructure limitations were also eliminated. Field observations at sites throughout the watershed revealed streams were typically incised, with historical physical modifications such as signs of dredging, channelization, and riparian and bank deforestation. Channel banks were very steep, and common observations include bank sloughing, mass wasting, and scour. In many areas, the streams were scoured down to the bedrock bottom.

Possible Sites for Management

1. Dairyland Rd. near Maple View Farm. Along this stretch of Morgan Creek, buffers and swales are currently in place, but historical agricultural practices have resulted in significant stream erosion and instability in this area. As a result, this section of the creek is severely incised. Morgan Creek at Lemolas Farm, also along Dairyland Rd., is degraded due to cattle trampling the stream banks, but the county and the NRCS are presently working with the landowners to alleviate this problem, so the team will not interfere at this time.

2. Booker Creek near Eastgate Shopping Center, East Franklin St. This is a possible site for an urban restoration, along the Booker Creek greenway, which is 4,500 linear feet. Several property owners would need to be involved with the effort, but the Town of Chapel Hill does own some land here. In this section of the stream, the bed has been scoured such that the new water level falls below the root levels of adjacent trees, so that banks are up to 8 ft. high and trees are falling into the creek. Mid-channel sediment accumulation has been observed in many places, as the banks actively erode. This project could be a Priority 1 restoration, and some existing conservations easements already in place could facilitate the process. However, significant infrastructure constraints involving the greenway and sewer lines could make this restoration project more expensive than those in rural sett gs.

3. Little Creek at Chapel Hill Country Club. This section of stream is in need of stream and riparian buffer restoration, and one culverted tributary could also be daylighted and brought back to their natural state. A similar stream restoration project at Hillandale Golf Course is underway and serves as a good model. Restoration projects on Bolin Creek would be problematic, due to the high number of bridge crossings and roadway constraints. A mitigation effort could cost as much as \$500 - \$1000 dollars per linear foot, but smaller projects could be feasible. However, the team is still reviewing some sections in upper Bolin Creek, near Hogan Farm, that could be possible restoration sites. The EEP can write grant applications in conjunction with towns/organizations for other projects here, and the Targeting of Management Report will serve as a technical basis for additional mitigation efforts that individual organizations can pursue on their n.

Implementing BMP Retrofits

Two major concerns in matching a BMP retrofit type to specific location are the size of the site, or the size of the drainage area and the amount of impervious surface present. Storage needs are determined using a hydrograph of discharge vs. time. Site ownership is also important to consider, and publicly owned land is desirable for new projects. BMP tools include stormwater ponds, which are deep enough to drain larger areas of land (80-100 acres or more), and stormwater wetlands, which typically drain less than 80 acres of land. Additionally, bioretention areas are used on a smaller scale (2 - 10 acre drainages) to provide short-term storage of stormwater runoff and reduce pollutant loads. Wetland projects will be recommended wherever they are feasible, and could also be used to help reduce phosphorous and nitrogen loading to Jordan Lake. One constraint in this effort in the Chapel Hill area is the lack of large, flat sites necessary to build a pond or wetland. In the Tier 1 area, wetland restoration opportunities will be recommended in pockets within stream restoration corridors wherever feasible.

Recommended Sites for Retrofit BMPs

1. Area south of Eastgate Shopping Center, along Fordham Blvd. An open few acres of land behind the Eastgate Mall could be a possible site for a stormwater pond or wetland. This area drains approximately 60 acres of land, and has a 25 ft. difference in grade so that future development seems unlikely.

2. Area south of the Chapel Hill Public Library, adjacent to Estes Dr. This small space drains neighborhoods with 25% impervious surface, and is flat enough to accommodate a stormwater wetland. The only drawback would be the necessary removal of trees.

3. Area southeast of Cedar Falls Park, along Weaver Dairy Rd. This small plot drains to Booker Creek, and the contributing drainage watershed contains large, impervious parking areas. A bioretention cell, or a smaller wetland would be appropriate here.

4. Area east of Wilson Park, in Carrboro, along North Greensboro St. A stormwater pond would help filter pollutants from this 26 acre contributing watershed with a lot of impervious surface from suburban neighborhoods.

5. Area east of the Rainbow Soccer Fields, in Chapel Hill, along Cleland Rd. This possible site for a stormwater pond would be adjacent to the confluence of the Booker and Bolin Creeks, and would help to drain 50-60 acres of suburban land. UNC Chapel Hill owns this existing impoundment. The existing flat bottom pond at this location could be enhanced with the development of micro topography and wetland vegetation to help reduce pollutant loads.

An interesting event is occurring in the upper Bolin Creek section of the watershed, where large beaver dams are impounding up to five acres of land, acting as a sediment trap from Hogan Farms. In this instance, nature has implemented a BMP all on its own!

In the next step of the process, preservation priorities will be developed using a GIS analysis of specific parcels within the targeted Tier 1 and Tier 2 subwatersheds. The targeting criteria will be the same as used for the Subwatershed Habitat Assessment, and the functional benefits, such as relationship to areas of stream restoration, will also be considered. In order to rate the habitat or preservation potential, a GIS analysis will be used to determine the proportional content of key metrics in each subwatershed. These include high value habitats from the NC GAP data, the NWI wetlands information, and the overall percent forest cover. Subwatersheds will be broken down into quartiles on the content of each metric, and assigned points. Bonus points will be awarded for the additional presence of Natural Heritage Element Occurrences, significant Natural Heritage Areas, and

Triangle Land Conservancy/Orange County High Quality Forest Habitat Areas.

that approximately 50% is public and 50% is private. One focus area of the group is the Adams tract, which is mostly undeveloped and contains high priority biological habitat. The FOBC is eager to talk about their preservation ideas with the developers of the Winmore project that has been recently approved.

The Bolin Creek proposed preserve would ensure a 300 ft. stream buffer around the entire creek from Homestead Drive down through the Adams Tract. The University of North Carolina at Chapel Hill has indicated a willingness to preserve this stream buffer when planning its Carolina North project in the near vicinity.

In conclusion, much of the growth in Chapel Hill and Carrboro in the immediate future will occur in the Bolin Creek watershed, and large tracts of open space are still intact along the creek but need to be preserved and protected. Each land parcel has site specific and owner specific qualities that need to be carefully considered, and GIS analysis can provide the technical support for future efforts at both watershed-wide as well as parcel-specific scales. An extensive electronic database has been created based on the FOBC vision.

Finally, the Friends recommend that local policies are developed to endorse and guide the proposed park/preserve, and that leadership roles are identified and staff time is dedicated to the project. Parcels for consideration must be prioritized, and permanently unsewered areas must be discerned. The conservation campaign should be pursued in the upper watershed and in the core park area, and engaging the general public is a key factor. Finally, the group recommends that the park and preserve should be planned, designed, and financed.

An exciting development for the FOBC has been the recent 319 grant application the group has submitted in order to get funding to pursue the conservation campaign. Primary objectives of the grant include a watershed steward campaign, utility easements to address sedimentation and erosion, streamside vegetation management, stream corridor visual assessment protocols, and to improve the information infrastructure for stormwater and riparian planning through GIS analysis. Project cooperators for the 319 grant application include OWASA, the Town of Carrboro, the Environmental Systems Research Institute, the Research Triangle Institute, the Triangle Community Foundation, and the Triangle United Way. The meeting was then adjourned.

Congratulations to Carrboro for scoring an 81 on the Center for Watershed Protection's Code and Ordinance Worksheet! Great Job!

The North Carolina BigSweep clean-up will be held on October 2nd this year. The town of Chapel Hill is currently looking for volunteers to act as zone captains. For more information go to: http://townhall.townofchapelhill.org/stormwater/public_edu.html