

USACE SECTION 206 ECOSYSTEM RESTORATION PROGRAM AND DEVELOPMENT OF RESTORATION ALTERNATIVES TO SUPPORT PROJECTS IN COBB COUNTY, GEORGIA

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Abstract. The Mobile District of the U.S. Army Corps of Engineers (USACE) is currently pursuing ecosystem restoration opportunities in the Atlanta Metropolitan Area in accordance with the USACE Aquatic Ecosystem Restoration Program authorized by Section 206 of the Water Resources Development Act of 1996 (Section 206).

The Atlanta Metropolitan Area continues to grow at a rapid rate. This rapid growth has led to numerous water resources problems, including: 1) increased stormwater volume and peak discharges; 2) increased flooding; 3) accelerated erosion; 4) stream bed lowering; 5) diminished water quality; and 6) degraded aquatic habitat.

The following paragraphs will describe the USACE Continuing Authorities Program (CAP), the Section 206 Program, the USACE study process, the development of ongoing Section 206 projects in Cobb County, Georgia and their status.

CONTINUING AUTHORITIES PROGRAM

Section 206 is part of the USACE CAP Program, which is comprised of nine different types of projects, each with its own Congressional authority and strict limits on Federal contributions. For these nine types of projects Congress has delegated to the USACE the general authority to study and, if proven feasible, approve and construct certain water resources development projects.

AQUATIC ECOSYSTEM RESTORATION PROGRAM

Section 206 or the Aquatic Ecosystem Restoration Program provides the USACE the authority to restore

degraded aquatic ecosystems. A restoration project is adopted for construction only after investigation shows that the restoration will improve the environment, is in the public interest and is cost-effective.

USACE STUDY PROCESS

The USACE uses a two-phase study approach to investigate water resources problems. The two phases are reconnaissance and feasibility. The purpose of the reconnaissance phase is to decide whether planning should continue to the feasibility phase, determine the non-Federal sponsor's interest and support for the potential solutions and to estimate the time and cost of the feasibility phase. The purpose of the feasibility phase is to describe and evaluate alternative plans and fully describe the plan recommended for construction.

The feasibility phase is conducted in a six-step process. These steps are: 1) specify problems and opportunities; 2) inventory and forecast conditions; 3) formulate alternative plans; 4) evaluate alternative plans; 5) compare alternative plans; 6) select the recommended plan.

INTRODUCTION TO ONGOING SECTION 206 PROJECTS IN COBB COUNTY

In order to alleviate water resources problems associated with urban sprawl, the Cobb County Water System requested that the USACE, Mobile District conduct investigations under the authority of Section 206 for three watersheds which are located in northwest Cobb County. The reconnaissance phase was completed in November 2001. The feasibility phase for all three studies began in January 2002 and will conclude in the latter half of 2003 with the development of Ecosystem Restoration Reports (ERR).

The USACE will examine restoration alternatives for three tributary watersheds to Lake Allatoona in Cobb County: (1) Butler Creek (6,016 acres); (2) Proctor Creek (4,928 acres); and (3) Allatoona Creek (11,648 acres). In order to assist with the development of these ERRs, the USACE entered into a contract with ENTRIX and the University of Georgia, Institute of Ecology. ENTRIX will perform/assist the USACE with the following tasks:

- Evaluation and documentation of problems for each watershed-Problem Areas Report
- Development of planning objectives and goals for restoration-Planning Objectives and Restoration Measures Report
- Development and Evaluation of restoration alternatives (both structural stormwater BMPs and stream restoration)-Ecosystem Restoration Report (ERR)

The University of Georgia, Institute of Ecology, will conduct a fish sampling effort in each of the three watersheds being studied for three purposes. These are: 1) to obtain information on the diversity, health and relative abundance of fishes; 2) to determine the distribution of Cherokee Darters in these three watersheds; 3) to identify degraded habitats that would benefit from restoration activities.

PROJECT DEVELOPMENT PROBLEMS AND OPPORTUNITIES

The majority of the information on the problems in these watersheds was obtained through stream walks and follow up visits. USACE and ENTRIX staff evaluated over 80 miles of streams. ENTRIX staff walked the streams, prioritized the most degraded stream reaches that should be considered for stream restoration, and developed a Problem Areas Report. This is a very detailed report identifying, describing and mapping more than 500 problems within the three watersheds. The majority of the problems consist of streambank erosion and sedimentation. These problems are primarily attributed to the substantially altered hydrology resulting from the rapid development in the basins.

USACE and ENTRIX identified potential locations for aquatic habitat restoration, streambank stabilization, retrofitting existing structures or building new structures that could be used to improve physical habitat conditions and reduce peaks flows within the each of the watersheds.

The USACE conducted a number of public involvement and agency coordination meetings to aid in project development, because support of Federal, State and local agencies and the public is critical to the success of the project.

STATUS OF PROJECTS

The following paragraphs provide an update on the study progress to date. Public meetings were held early in this phase of the project to help get input on the problems experienced in these watersheds by the general public. The USACE also held a similar meeting with the Federal and State environmental agencies. Most of the discussions focused on the heavy sediment load in the three streams, which was attributed to the rapid development of the land in the watersheds for residential, commercial and industrial purposes.

Representatives from the USACE determined the problem areas that were appropriate for USACE participation in order to restore these degraded aquatic ecosystems. Problem areas in the three creeks, tributary streams and associated floodplains/riparian zones are considered appropriate for USACE participation.

The University of Georgia completed field sampling in all three watersheds and submitted sampling reports summarizing their findings. These efforts revealed that the Cherokee Darter is widely distributed in each basin. However, the population and diversity of fish species in each watershed is poor.

Based on the problems identified, the USACE worked with ENTRIX to develop planning objectives and restoration measures such as aquatic habitat restoration, streambank stabilization, retrofitting existing structures or building new structures that could be used to improve physical habitat conditions and reduce peaks flows within the each of the watersheds.

Representatives from the USACE, Engineering Division are currently developing conceptual plans for the candidate restoration sites. These plans will be combined into three alternatives for the restoration of degraded aquatic habitat in each watershed.

These restoration alternatives will be evaluated for each watershed using a combination of methods including habitat assessment and a water quality model to determine if the alternatives are cost effective and meet restoration objectives. ENTRIX staff will collect habitat information in the field prior to project construction for eight parameters such as epifaunal substrate/available cover, embeddedness of gravel or cobble substrate, velocity/depth combinations, channel alterations, frequency of riffles, bank vegetative

protection, bank stability and riparian vegetation zone width. Based on the proposed projects and reasonably foreseeable benefits, these parameters will be adjusted to reflect the anticipated future conditions. The model will determine the projects that yield the greatest removal of total suspended solids (TSS) given future land use conditions. Aquatic habitat improvement and removal of TSS will be assessed relative to the cost of each alternative. The recommended plan will be the plan that best maximizes the net environmental benefits.