

# IMPLEMENTATION LESSONS: GWINNETT COUNTY'S WATERSHED IMPROVEMENT PROGRAM

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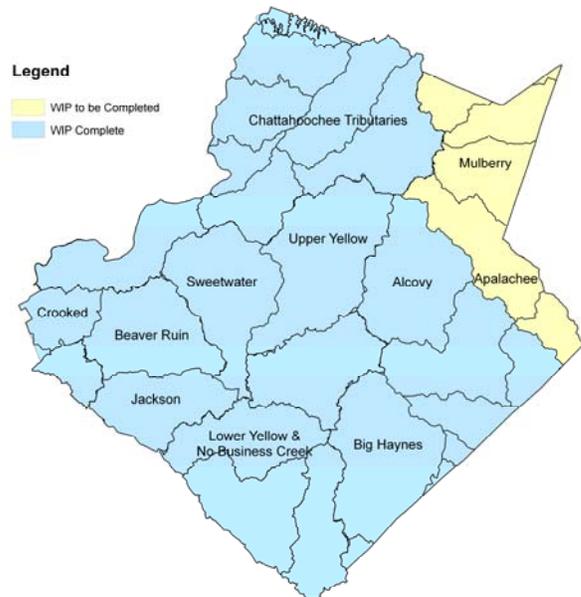
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**Abstract** Gwinnett County has implemented a comprehensive Watershed Improvement Program to improve and protect water quality and conditions in streams. Substantial effort has been put into planning for each major watershed over the last eight years. Within the last two years, nine major stream restoration, created wetland, and stormwater pond projects have been completed at a cost of approximately \$10 million. Many more projects are planned to be under construction in 2009 and beyond. This paper will outline the major challenges, both technically and administratively, the County has overcome to get projects in the ground. Examples include funding, finding suitable sites, working with other County departments, de-watering, problem contractors, permit delays, and design oversight.

## BACKGROUND

Gwinnett County, Georgia is part of the fast growing metro Atlanta area. Growth has led to increased impervious surfaces and subsequently increased stormwater runoff, in-stream erosion, loss of aquatic habitat, and non-point source pollutants. Gwinnett County Department of Water Resources (DWR) completed a County-wide Watershed Assessment and Watershed Protection Plan (WPP) in year 2000. The Watershed Protection Plan set specific water quality targets that were tied to biological integrity. New development was targeted with stricter development standards while previously developed areas were targeted for improvement projects. From 2003 to 2008, a series of detailed Watershed Improvement Plans were completed for approximately 390 square miles that identified a Capital Improvement Plan (CIP) list. The CIP list includes hundreds of millions of dollars worth of projects. DWR is now moving into an implementation phase. Implementation of projects during the last two or three years has highlighted a number of challenges. This paper outlines some of those challenges with the hope of sharing lessons learned.



**Figure 1. Gwinnett County Watershed Improvement Programs (WIP)**

## Implementation Challenges

Investing in detailed planning efforts resulted in a CIP list of hundreds of potential projects. The challenge then became how to pick projects to build, how to pay for design and construction, and then how to deal with design and construction issues. Projects chosen for implementation must not only satisfy WPP goals, but also must address the concerns and perceptions of citizens and local communities. It is desirable for projects to be multi-use, but they must address multiple issues such as public health and welfare, safety, privacy / security, and aesthetics. The following highlights some specific problems and solutions for the Gwinnett County Watershed Improvement Program.

## Funding

Most projects for the County's Watershed Improvement Program include stream restoration, wetland creation, and/or stormwater pond/lake retro-fits. Projects have ranged from approximately \$200,000 to \$2,000,000.

Creative funding mechanisms have been developed to support project design and construction. The Watershed Improvement Program has over several years developed the following funding sources:

- DWR Water and Sewer funds
- Georgia Environmental Facilities Authority (GEFA) Loan
- Section 319(h) USEPA grants
- USEPA grant
- Umbrella Mitigation Bank
- Stormwater Utility fees
- Streambank Buffer Mitigation fund

The Watershed Improvement Program is generously supported by DWR management. Watershed Improvement is a permit condition of a NPDES discharge permit and thus is supported in part by water and sewer revenues. This is a major source of funding for the program.

Gwinnett County was the first in the state to receive a GEFA loan for non-point source stormwater or watershed improvements. A \$5 million loan was secured in 2005 to implement a series of projects in watersheds that had completed a Watershed Improvement Plan. The investment in planning paid off by having a prioritized CIP list with planning level cost estimates.

The Gwinnett County Umbrella Mitigation Bank was set up specifically for Gwinnett County to generate mitigation credits and help offset the cost of implementing watershed improvement projects. The USACE, EPA, GADNR, and the Fish and Wildlife Service all had to approve the bank and each project that is submitted to the bank. No credits have been sold to date but credits are expected to be released for the first project this year. Two more banking projects are underway.

An internal project spreadsheet was developed to track sources of funding, matching requirements, invoice payments, etc. This helps manage the financial aspect of multiple concurrent projects.

### **Finding Sites**

One of the first lessons learned in the Watershed Improvement Program is that having a CIP list with potential projects is a long way from having a place to put a project in the ground. Several high ranking projects were rejected by private landowner for various reasons. The Program moved to looking at County owned property. Soon, almost all projects were “screened” to see which fell on County land.

Several types of County property have been used for completed projects. The first implementation project, McDaniel Farm, was built in a new County park. The Gwinnett County Community Services Department / Parks and Recreation Division has since become a partner in other projects in Collins Hill Park and a third in Ronald

Reagan Park should be soon under construction. DWR itself holds several parcels with old, no longer in use, oxidation ponds. To date, two of these sites have been converted to constructed wetlands and more are being reviewed. Gwinnett County Board of Education is also a partner on a stream restoration project at Collins Hill High School. This site offers the advantage of educational opportunities, passive recreation, and stream monitoring for high school students.

However, not all County property has been easily accessible. There are dozens of small parcels throughout the County that are classified as “vacant recreation areas”. Overgrown with no management or maintenance, the Watershed Improvement Program felt these sites were ripe for stream restoration or wetland creation. After one project was well under way, a sister County Department protested the use of these areas without permission or oversight. Negotiation and legal advice was needed to gain access to these areas.

Projects on private property have also been implemented that have been linked to a Service Request / drainage complaints. These projects must overlap with a project previously identified in the planning process to have significant watershed improvement benefits.

### **Permit Issues**

Several permits are required for watershed improvement projects. A County-issued land disturbing permit, a state-issued stream buffer variance, and a federal wetland disturbance (404) permit are typically required. Sediment and erosion control compliance is also required. In the case of projects that are part of the Umbrella Mitigation Bank, additional approval from the Inter-agency review team (USCOE, GADNR, Fish and Wildlife Service, and USEPA) is needed. Any of these permits can be time consuming and cause delays. In some cases, projects have been delayed up to one year resolving issues or waiting for approval. A permit check-list has been developed that helps the Program plan for and track permits.

### **Design Issues**

On occasion, design issues have only been noticed after construction has started. In one instance, the stream elevation was above an existing trail. Design changes had occurred with the plans and only during construction staking was this error noticed. A second design flaw occurred when a stream restoration project was started and a very steep slope was planned with too few grade control structures. Working closely with the contractor, the issue was resolved by adding additional grade control at the beginning of construction. Despite very detailed field survey efforts and construction plan, due to the nature of the construction it is essential to provide flexibility in construction plans and documents to avoid delays and change orders,

Regular field checks are needed at each new phase to catch any potential errors such as these. Also, vigorous review of design plans should be conducted at each design submittal. But, errors do occur, and a good working relationship between designer, contractor and client has solved these issues as they arise.

### **Contractor Issues**

The final project outcome is in large part determined by the contractor building the project. Even contractors with good references can have problems. Individual project managers, specific field crews or equipment operators can all make a huge difference on a construction project. On one project, the site manager was so “vocal” that temporary crews kept quitting. Stream restoration work is very specific and each new crew had to be in effect trained by County personnel. On another project, the site manager was so disorganized that grading the site took months beyond the planned schedule. Equipment operators quit and the site manager kept moving mounds of dirt around until upper management finally relocated this individual. Needless to say, this project is a year behind schedule.

To prevent these problems, specific qualifications about permanent crews has now been added to new bid packages. In addition, DWR asked for contractors to submit resumes for each project or site manager with bid proposals.



**Figure 2. Example of contractor problems during construction project**

### **CONCLUSION**

Gwinnett County Watershed Improvement Program has successfully implemented nine projects to date and probably will complete two more by the time of the Georgia Water Resources Conference in early 2009. Comprehensive planning has proved beneficial to securing funding, getting approval of a mitigation bank, and also allowing flexibility to implement projects from an extensive CIP. However, planning is only part of the total picture to getting a successful project in the ground. Implementation issues occupy a large percentage of staff time, as discussed above. Implementation issues can be resolved and specific tools have been developed to improve project success. New challenges will surely arise and the Watershed Improvement Program looks forward to meeting them.