

STATE OF GEORGIA
TIER 2 TMDL IMPLEMENTATION PLAN REVISION 1
 Pumpkinvine Creek
 Coosa River Basin
 April 28, 2006

Bartow and Paulding Counties,
 Cities of Emerson and Cartersville

I. INTRODUCTION

Total Maximum Daily Load (TMDL) Implementation Plans are platforms for evaluating and tracking water quality protection and restoration. These plans have been designed to accommodate continual updates and revisions as new conditions and information warrant. In addition, field verification of watershed characteristics and listing data has been built into the preparation of the plans. The overall goal of the plans is to define a set of actions that will help achieve water quality standards in the state of Georgia.

This implementation plan addresses the general characteristics of the watershed, the sources of pollution, stakeholders and public involvement, and education/outreach activities. In addition, the plan describes regulatory and voluntary practices/control actions (*management measures*) to reduce pollutants, milestone schedules to show the development of the management measures (*measurable milestones*), and a monitoring plan to determine the efficiency of the management measures.

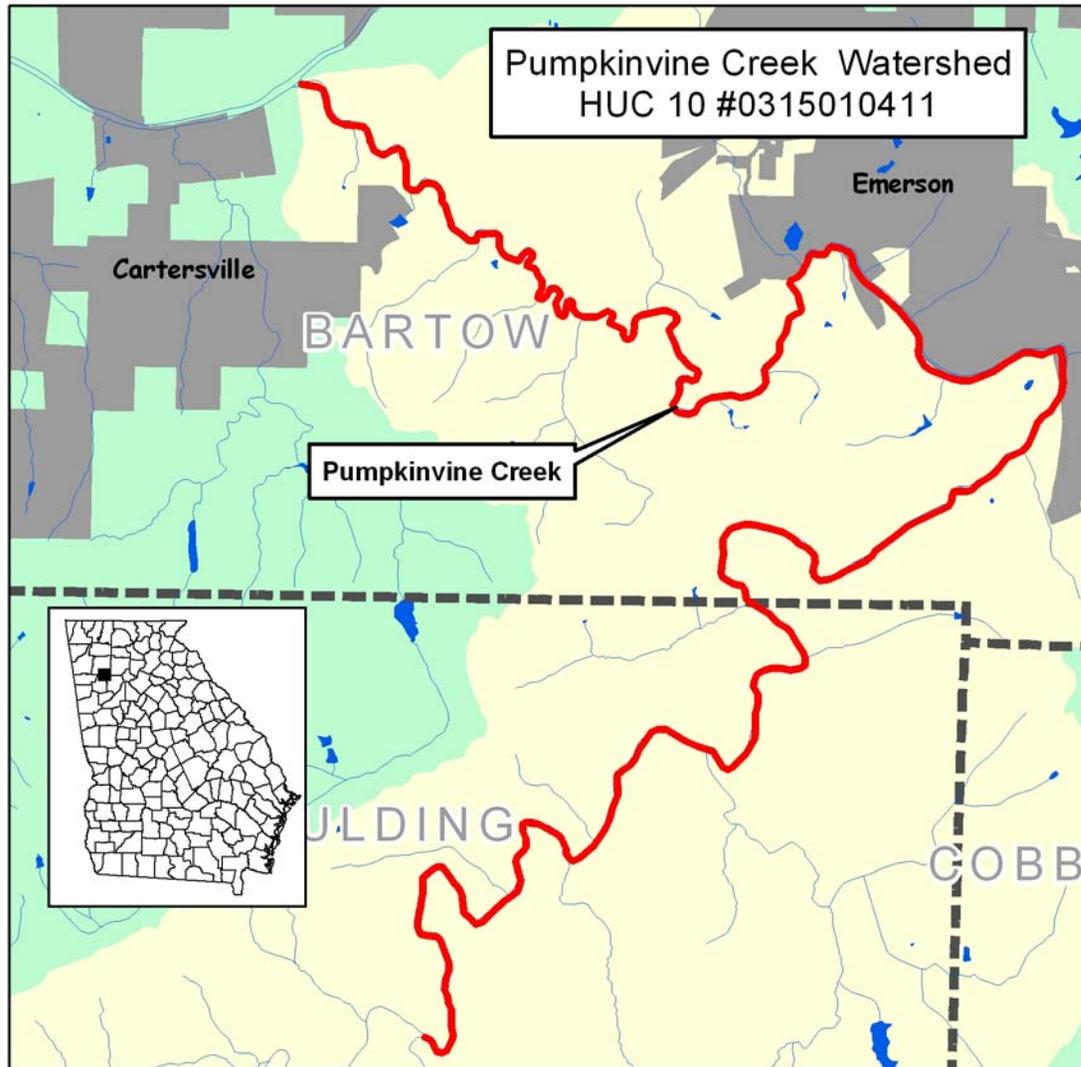


Table 1. IMPAIRMENTS

IMPAIRED STREAM SEGMENT	IMPAIRED SEGMENT LOCATION	IMPAIRMENT	TMDL ID
Pumpkinvine Creek	Little Pumpkinvine Creek to Etowah River	Fecal Coliform Bacteria	CSA0000091

II. GENERAL INFORMATION ABOUT THE WATERSHED

Write a narrative describing the watershed, HUC 10 #0315010411. Include an updated overview of watershed characteristics. Identify new conditions and verify or correct information in the TMDL document using the most current data. Include the size and location of the watershed, political jurisdictions, and physical features which could influence water quality. Describe the source and date of the latest land cover/use for the watershed. Describe and quantify major land uses and activities which could influence water quality. See the instructions for more information on what to include.

Pumpkinvine Creek arises about 9 miles west of Dallas, Georgia and flows northeasterly into Bartow County (5.6 miles in length) to enter the Etowah River in Cartersville, Georgia. This listed segment begins at the convergence of the **Little Pumpkinvine Creek into Pumpkinvine Creek** to the northeast of the City of Dallas in Paulding County and flows into Bartow County meeting the Etowah River. This section of Paulding County is experiencing tremendous residential growth with many subdivisions being built along Dabbs Bridge Road, Harmony Grove Church Road and Cedarcrest Road area.

Part of the Pumpkinvine Creek watershed falls within the Paulding Forest Wildlife Management Area, located 4 miles west of Dallas, north of Highway 278. This area includes 26,200 acres that provide recreation and hunting, fishing, and bird watching opportunities. The area is leased by the Georgia DNR as a wildlife management area. The DNR provides feeding management and regulates hunting and fishing in the area.

The Etowah Indian Mounds (archaeology site) was built by the Indians along the Etowah River, just west of the confluence of Pumpkinvine Creek (flowing from the east) into the Etowah River and just north of the Cartersville fault. The site is now operated by the Georgia Department of Natural Resources as a historical site.

Paulding County falls in the Piedmont Province and is characterized as an area of rolling hills and uplands. Altitudes range from 500 to 1,500 feet above sea level. The soils near floodplains are loamy sediments and are identified as poor for building foundations, septic filter fields and structures for industry because of wetness.

The Cities of Cartersville, Emerson and Dallas, Paulding County, and Bartow County are the municipalities included in this watershed. Paulding County's jurisdiction include the following activities: Zoning, Development, Land Usage, Erosion and Sediment Control, Solid Waste, Storm Water, Septic Tank Permitting, Public Water, and Wastewater Treatment (PBS & J, 2004). Bartow County's jurisdiction also includes these responsibilities. In the limits of the City of Dallas, the city is responsible for these activities: Public water and sewer and treatment of the same, with two Wastewater Treatment Plants- Dallas North WPCP, Permit # GA 0026034, and Dallas West WPCP, Permit # GA0026026; Land Usage; Zoning; Development; and Soil and Erosion Control. The City of Cartersville is likewise responsible for water and sewer, wastewater treatment, zoning, development, and soil and erosion control, with one water purification control plant. City and county have separate water and sewer operations, and separate jurisdictions for enforcement activity.

Although not located in the watershed, it is possible that a discharge from the **City of Cartersville Biosolids WPCP Permit # GA0024091** could have a possible impact on the creek as it is upstream of the creek's confluence. The discharge outfall is to the Etowah River through a diffuser located near the Highway 61 and 113 bridge over the Etowah River. The City of Cartersville recently (July 2005) had a stormwater by-pass to the Etowah River during the increased rainfall occurring from Hurricane David. EPD was notified of the spill and the City will continue an EPD required sampling program on the Etowah River for one year.

Bartow County Southeast WPTP Permit # GA0037664, also upstream of the watershed, is located on Paga Mine Road and has a permitted discharge to the Etowah River as a LAS. The County will operate this facility through 2010 then begin expansion of the plant on surrounding acreage including use of a LAS.

Land Use

The area is primarily forested property; however, forested areas are rapidly becoming residential and commercial areas along the major roads through Paulding County and into Bartow County. Mid watershed is the urban municipal area of Dallas, upstream and downstream of the city the watershed is more forest and low intensity residential.

January 2004 land use data indicates land is still predominately forest; this may be more descriptive of land in southern Bartow County than in northern Paulding County. In acres and percentages of the total land use data are as follows: Forest forms 72.8% of the watershed at 65,696 acres; low intensity residential forms 16.4% at 14,832 acres; row crops form 5.9% at 5,314 acres; and each of the following form one percent or less of watershed acreage: High intensity commercial/industrial/transportation; Transitional; Woody wetlands; Pasture/hay; Open water; Quarries/strip mines/gravel pits; High intensity residential; Other grasses; and Emergent herbaceous wetlands; Total acreage of the watershed is 90,196 acres (GDNR, 2004). The data on land use are taken from Georgia DNR publication *Total Maximum Daily Load Evaluation for Fifty-Eight Stream Segments in the Coosa River Basin for Fecal Coliform* (2004). This is the most recent land use data available for this watershed. Field surveys as well as stakeholder input were gathered to update watershed land usage. Based on these sources, forest percentages have decreased while pasture and sod farming, as well as low intensity residential land, may have increased. Without direct measurement, changes are only estimates.

As Paulding and Bartow complete scheduled comprehensive plans in 2007, that more current land use data gathered can be used to update these TMDLIPs.

Relevant Watershed Planning and Management Activities

Erosion and Sedimentation Control:

The residential and commercial building growth in Paulding County and Bartow Counties is controlled by zoning ordinances and the Georgia E & S Control regulations. The Counties have E & S ordinances, which include buffer zones along waterways and best management practices on erosion control.

Cities of Cartersville, Emerson, Dallas, and Bartow and Paulding Counties are all Local Issuing Authorities Local Issuing Authorities for E & S permitting of land-disturbing activities which are required to submit an NOI under the NPDES General Permit for Construction Activity.

The **City of Cartersville** has its Soil Erosion and Sediment Control Ordinance (Article VII) that applies to any land disturbing project one (1) acre or larger or within two hundred (200) feet of the bank of any state waters.

Bartow County revised its Erosion and Sedimentation Control ordinance in 2002. It meets current Georgia E & S requirements. This ordinance applies to land disturbing activities on one acre of land or more. It is administered by the Bartow County Engineer through the Planning and Zoning Department. The Bartow County Zoning Ordinances require a stream buffer of a minimum of fifty feet on each side. Access is allowed to the stream for livestock watering but must be constructed with Best Management Practices (BMPs) to minimize pollution and sedimentation to the

stream. It is currently being reviewed and updated to include the Etowah HCP recommendations. Additionally the County is currently reviewing and updating all regulations and processes in its development code.

Bartow County Board of Tax Assessors is in the process of implementing a tax relief program for property owners who place conservation easements on all or part of their properties, especially for greenspace on timberland.

Paulding County is in the process of revising its E & S Control ordinance for pre and post construction procedures, administered by the Paulding County Community Development Department. The E & S ordinance in its current version, adopted in 2004, meets current Georgia E & S requirements but was to contain additional revisions as indicated by the Georgia EPD and the NRCS as well as the Etowah HCP. The County was also in the process of adopting the Manual for E&S Control for Georgia, administered by the Georgia Soil and Water Conservation Commission and the State.

House Bill 285 requires state certification in E & S Control for anyone involved in the following activities: land development, design, review, permitting, construction, monitoring, inspection, or any land-disturbing activity in Georgia. This certification is done through training by the Georgia Soil and Water Conservation Commission in consultation with Georgia Environmental Protection Division and the Stakeholder Advisory Board. The GSWCC also has updated requirements for E&S plans to be submitted with each project. Certification requirements apply to all such persons in Bartow and Paulding counties. Certification is offered through the Rolling Hills Regional Conservation and Development Council (RC & D) and through Chattahoochee Technical College for Bartow and Paulding Counties. Bartow County itself has held one class for Level 1A certification in December 2005; other certification level training classes are planned. Paulding County has also held level IA courses.

Georgia Forestry Commission Best Management Practices

The Forestry Commission has implemented best management practices on its lands to reduce sedimentation and erosion from silviculture practices. The Georgia Forestry Commission also provides education, technical and financial assistance through cost-share programs to private landowners especially in the Forestland Enhancement Program, a part of the 2002 Farm Bill. Ongoing Georgia Forestry Commission activities include the following programs.

- Federal Clean Water Act Section 404: GFC received referrals from EPA for compliance determinations in situations involving forestry. It requires normal ongoing agricultural and silvicultural practice to adhere to BMPs and 15 baseline provisions for road construction and maintenance in and across waters of the US including lakes, rivers, perennial and intermittent streams, wetlands, sloughs in order to qualify for the exemption from the permitting process.
- Georgia's Best Management Practices: A GFC program to inform landowners, foresters, timber buyers, loggers site preparation and reforestation contractors and others involved with silvicultural operations about commonsense, economical effective practices to minimize nonpoint source and thermal pollution. GFC encourages and monitors compliance and conducts a complaint resolution program.
- Georgia Forestry Commission Monthly BMP Assurance Examination: In an effort to document "reasonable assurance" that water quality will be proactively protected during regular ongoing silvicultural operations, the GCF will offer a monthly BMP assurance examination of active sites. All active of ongoing sites will be identified either through monthly air patrol flights, courthouse records, riding the roads, notification or by landowners. Sites located within watersheds of specific biota (sediment) impaired streams will be given a higher priority to identify and conduct examinations.

- Memo to the Field: Application of BMPs to mechanical silvicultural site preparation activities for the establishment of pine plantations in the Southeast (Silviculture). Although overseen by the EPA/ US Army Corps of Engineers, cases are normally referred to GFC to make the initial determination. It identifies certain bottomland hardwood wetlands that should be subject to permitting if converting to pine plantations.

Department of Natural Resources Best Management Practices

The Department of Natural Resources, Wildlife Management Division provides outreach to landowners on prevention of soil erosion and sedimentation from land-disturbing activities contributing to habitat destruction, advises landowners of best management practices and habitat development for increased wildlife on their property, and encourages landowners to implement conservation practices on their lands through the NRCS.

2002 Farm Bill, US Department of Agriculture Natural Resources Conservation Service and Farm Service Agency

The Farm Security and Rural Investment Act of 2002 (Farm Bill 2002) funded conservation practices for farmers and ranchers with a focus on environmental issues by making existing programs simpler as well as funding new programs. The 2002 Farm Bill enhances the long-term quality of our environment and conservation of our natural resources. This bill provides several opportunities for receiving grants to improve water quality. These include the following programs administered by the US Department of Agriculture, Natural Resources Conservation Service and Farm Service Agency.

- The Federal Farm Bill (Swampbuster Ag) prohibits landowners participating in federal price support programs from converting forested wetlands to agriculture.
- The Water Bank Act preserves, restores and improves wetlands of the Nation and thereby conserves surface waters to preserve and improve habitat for migratory waterfowl and other wildlife resources to retire lands not in agricultural production to enhance the natural beauty of the landscape and to promote comprehensive and total water management planning. 10-year contracts with landowners to preserve wetlands and retire adjoining agricultural lands. Annual payments may be made to participating owners, and the costs of conservation measures may be shared. Total annual payments to owners were limited to \$10 million in any year.
- The Conservation of Private Grazing Land Program will offer technical assistance opportunities for better grazing land management. Projects for improving water quality include: protecting soil from erosive wind and water; conserving water; providing habitat for wildlife; sustaining forage and grazing plants. This is not a Cost-Share Program.
- Conservation Security Program (CSP) is the first program that rewards farmers and ranchers for high levels of environmental stewardship. Producers on cropland, orchards, vineyards, pasture and range may apply for CSP regardless of size, type of operation, or crops produced. Land in other cost share programs is not eligible. CSP will first be offered in watersheds with greatest potential for improving water quality, soil quality and grazing land condition. In 2005, the four watersheds of focus will be the Ichawaynochaway, Kinchagoonee-Muckalee, Middle Flint, and Upper Ochlockonee. An enhancement example is to install a riparian buffer. There are three tiers of involvement, which result in different expectations and cost share opportunities.
- Environmental Quality Incentives Program (EQIP) is a voluntary program that provides technical and cost share assistance for protection of ground and surface water, erosion control, air quality, wildlife habitat, and plant health. It is a 50% cost share with possible additional incentive payments.
- Wetlands Reserve Program (WRP) provides technical and financial assistance to landowners to enhance wetlands degraded by farming or draining. There are three options with WRP to receive funds that have differing time agreements and easements resulting in different cost share. In all programs participants control access to the land, may lease or use land for hunting, fishing, and other passive recreational activities. Compatible uses are allowed as long as they do not degrade the wetland. Permanent Easement pays appraised value of land

(\$2,000/ acre cap) and 100% of costs of restoration. The 30-Year Easement pays 75% of appraised value of land and 75% of restoration costs. The Restoration Cost Share Agreement pays 75% of restoration costs, no easement on the property.

- The Conservation Reserve Program (CRP) provides technical assistance, rental payments and cost share funding to address specific natural resource concerns including: protection of ground and surface waters, soil erosion and wildlife habitat. Eligible practices include tree planting, grassed waterways, wildlife habitat buffers, and shallow water area for wildlife and filter strips. An annual rental payment is given for land taken out of production and 50% cost share for practice installation.

Metropolitan North Georgia Water Planning District Model Ordinances

Bartow and Paulding Counties are members of the Metropolitan North Georgia Water Planning District, which was created by the Georgia General Assembly to establish policy, create plans and promote intergovernmental coordination of all water issues in the area from a regional perspective. Both counties are included in the Metropolitan Water Planning District's Watershed Management Plan, which includes six protection strategy areas:

- Point Source Management
- Storm Water Management
- Total Maximum Daily Loads (TMDLs)
- Watershed Improvement
- Intergovernmental Coordination
- Long-term Monitoring

The MNGWPD Watershed Management Plan required each member to adopt these six model ordinances:

- Ordinance for Post-Development Stormwater Management for New Development and Redevelopment
- Floodplain Management/Flood Damage Prevention Ordinance (in review)
- Conservation Subdivision/Open Space Development Ordinance
- Illicit Discharge and Illegal Connection Ordinance
- Litter Control Ordinance
- Stream Buffer Ordinance

Bartow County has not adopted the District's Floodplain Management/Flood Damage Prevention Ordinance, as it is being reviewed by the District. Bartow's current flood plain ordinance meets national flood insurance requirements and was revised as of 2000.

Paulding County's Floodplain Management/ Flood Damage Prevention Ordinance (Article 10 of the Development Regulations) was adopted in 2005. Paulding County's Stream Buffer Protection Ordinance was also adopted in 2005 and requires 50-foot stream buffers with 25-foot additional setbacks for impervious surfaces; variance procedures are included and are granted in cases of hardship, necessity, or other just cause.

Existing floodplain management ordinances will be revised as counties participate in updating their flood hazard regions through the National Flood Plain Insurance Program/ Georgia DNR Floodplain Management Office Flood Map Modernization Program.

The City Of Dallas has not adopted the Metro North Georgia model ordinances but has ordinances that affect water quality. The City has adopted ordinances dealing with Illicit Discharge to Storm Sewers (adopted in 2005), Stream Buffer Protection requiring 50-foot buffers (adopted in 2005), Flood Damage Prevention (adopted in 1996), and Litter control (adopted in 1986).

Additionally, existing floodplain management ordinances will be revised as counties participate in updating their flood hazard regions through the National Flood Plain Insurance Program/ Georgia DNR Floodplain Management Office Flood Map Modernization Program.

Bartow County Watershed Assessment and Protection Plan

Between 1990 and 2000 Bartow County experienced a 36% growth rate; subsequently the County began the Bartow County Growth Management Plan, completed in 1997, which was based on input from local residents and economic development experts and which suggested specific growth management strategies including expansion of water and wastewater treatment operations.

In 2000 Bartow County contracted with Kennesaw State University to conduct a watershed assessment for the County's NPDES Phase I permitting process for existing wastewater treatment plants. This assessment indicated that overall, streams in Bartow County were in "moderately good condition relative to other systems in the Atlanta metropolitan area (KSU, 2001)." However, the report pointed out that fecal waste among other impairments was present in individual streams including Lower Pumpkinvine Creek, Lower Stamp Creek, Salacoa Creek, Lower Euharlee Creek, Upper Two Run Creek, Upper Petit Creek, Cedar Creek, Pine Log Creek, and Richland Creek (KSU, 2001). Some of these creeks were placed on the 2004 303 (d) impaired streams list for fecal coliform bacteria.

Bartow County is considering expansion of the Bartow County Wastewater Treatment Plant in 2006-2007 and has conducted a county watershed assessment and developed the Bartow County Watershed Protection Plan as part of its expansion process to meet NPDES Phase II permitting standards. The watershed assessment results relate directly to the TMDL initiative.

Bartow County's Watershed Assessment and Protection Plan strategies were developed according to the Metropolitan North Georgia Water Planning District (District) Water Management Plan of 2003. The protection plan strategies include point source management, storm water management, the Total Maximum Daily Load initiative, watershed improvements, intergovernmental coordination and long-term monitoring. These strategies are covered as part of the District's Water Management Plan as well as the TMDL implementation plans; the NPDES Phase II for MS4's also requires implementation of the majority of these strategies.

Paulding County Watershed Assessment and Protection Plan

Paulding County plans to expand the permit capacity of the Pumpkinvine WWT system to 0.875 MGD from a current capacity of 0.5 MGD. In order to expand the Phase II NPDES permit for this WWT system a watershed assessment was begun for Paulding County, including the Pumpkinvine Creek watershed. The Watershed Monitoring Plan was submitted for EPD approval and EPD's comments have been received. The County will work with EPD on choosing sites for long-term sampling.

Previously three separate watershed assessments were completed for streams in Paulding County including Pumpkinvine Creek; the completed watershed assessment for this creek, including monitoring sites with the resulting data, and the watershed protection plan, has been approved. That previous assessment was done between November 2000 and February 2001; the Watershed Assessment report was submitted to EPD in May 2002 (PBS & J, 2004). As part of the prior assessment of the Pumpkinvine Creek watershed, monitoring for fecal coliform was done downstream

and upstream of the Dallas West WWTP as well as downstream of a private wastewater treatment facility, and at other locations upstream and downstream of the City of Dallas. Those rural, agricultural, and forested monitoring sites outside the urban area of Dallas did not show high fecal coliform counts. The assessment concluded that urban/development areas including the two wastewater treatment facilities mentioned were associated with the majority of impairments (PBS & J, 2004). The County Engineer corroborated this finding, stating that there is little to no agricultural activity in this watershed, and little wildlife, and no illicit dumping to the storm sewer. The Mill Creek watershed assessment has not yet been approved. Once approval is obtained for this last creek's watershed assessment, and the Watershed Protection Plan for all three watersheds is approved, and sites are approved, the County will begin long-term monitoring. Input into long-term monitoring sites may be an avenue for participation from the Paulding TMDL Stakeholder Advisory Group. The County will also work with the EPD to determine the final sites.

At the present time **the City of Dallas** is also conducting a watershed assessment for its jurisdiction as part of the requirements for the NPDES Permitting process for its two WPCPs. The City submitted its Watershed Modeling Plan to the EPD and it has been approved. Monitoring at sites, including two on Pumpkinvine Creek, is scheduled to begin in summer 2006.

Stormwater Management

Bartow County has an NPDES-permitted Small Municipal Separate Storm Sewer System (MS4) and is subject to the Phase II Stormwater Rules. These extended Phase II permitting rules include six parameters that deal with water quality including 1. Public Education and Outreach; 2. Public Participation and Involvement; 3. Illicit Discharge Detection and Elimination; 4. Construction Site Runoff Control; 5. Post-Construction Runoff Control; 6. Pollution Prevention and Good Housekeeping.

Components of Bartow County's NPDES Phase II Stormwater Management Plan involving Public Education and Outreach include the following:

- School System Stormwater Presentations provided yearly to teachers, students in county and city elementary and middle grades by the Keep Bartow Beautiful Coordinator;
- E & S Training Workshop on appropriate measures to control runoff and pollution provided biannually to the Bartow County Homebuilders' Association coordinated by the Bartow County Director of Engineering;
- Speaker's Bureau to speak on stormwater topics to area civic groups, with speakers to include County Administrator, Bartow County Water Superintendent, Stormwater personnel, and Keep Bartow Beautiful Coordinator;
- Stormwater Educational Materials, including a variety of flyers and pamphlets on E&S practices for homebuilders, new homeowners, and other topics such as septic system maintenance, xeriscape landscape plans, and proper fertilizer/pesticide application, developed by the Clean Water Campaign, P2AD, and EPA;
- Stormwater Management web page on the Bartow County Engineering Department's web space to include lawn and garden activity tips, water conservation, household waste disposal, household recycling, septic system maintenance, hazards of illicit dumping, and others;
- Newspaper Column on homeowners' stormwater pollution prevention responsibilities to be published quarterly in the Daily Tribune, written by the Bartow County Extension Agent.

In 2003 Paulding County began a NPDES Permitting Program for its small MS4. The Phase II Stormwater Rules-compliant program includes the required six areas of stormwater management, including 1. Public Education and Outreach; 2. Public Participation and Involvement; 3. Illicit Discharge Detection and Elimination; 4. Construction Site Runoff Control; 5. Post-Construction Runoff Control; 6. Pollution Prevention and Good Housekeeping. Paulding County's NOI was approved in 2005.

The Stormwater Management Division of Paulding County is mapping stormwater drainage throughout the county to remain in compliance with its Phase II stormwater permitting capacity increase. In 2005 25% of the county's stormwater drainage was mapped; in 2006, mapping of stormwater drainage must be completed for the entire county.

The County's Site Grading, Stormwater Detention, Culverts, and Piped Drainage Systems Requirements Ordinance requires a stormwater management plan and report detailing plans for prevention of stormwater hazard creation and exacerbation of runoff-related problems. It includes design criteria for culverts, stormwater detention ponds, and piped systems. It was amended in 2006.

Paulding County is in the process of revising their floodplain and post-development stormwater management for during and after construction. The District's model Ordinance for Post-Development Stormwater Management for New Development and Redevelopment will be adopted in the future.

The Memorandum of Agreement between the City of Hiram and Paulding County allows much of the stormwater management activities to be performed by the county for the city.

The **City of Emerson** is in the process of updating its stormwater management program as part of the requirements for the Phase II NPDES permitting process, including an annual report on stormwater management activities and updates. The city is working with Bartow County and with Fox Environmental LLC on its stormwater management program.

Etowah Habitat Conservation Plan

The Etowah Habitat Conservation Plan reflects the work done by municipalities, water authorities, developers, industry, the University of Georgia, Kennesaw State University, Georgia DNR, the US Fish and Wildlife Service, and others in the Etowah River watershed to protect threatened and endangered species of darter by developing a regional conservation plan. The plan, including model ordinances and policies, allows included jurisdictions to be in compliance with the Federal Endangered Species Act and to obtain an Incidental Take Permit from the US Fish and Wildlife Service for development activities in the watershed, excluding agriculture and forestry. Ordinances and policies for implementation include the following:

- Stormwater Ordinance and Better Site Design
- Runoff Limits Program
- Erosion and Sedimentation Control Standard Operating Procedures
- Mass Grading Ordinance
- Stream Buffer Ordinance
- Road Crossing Guidelines
- Utility Crossing Guidelines
- Conservation Subdivision Ordinance
- Water Supply Planning

Existing municipal ordinances covering these areas can be updated. Revisions to the Metropolitan North Georgia Water Planning District Model Ordinances were recommended by the Etowah HCP subcommittees, as were revisions to the Bartow County Watershed Assessment and Protection Plan.

Specific areas of concern to the Etowah River identified by the Etowah Regional Aquatic Habitat Conservation Plan, and the corresponding actions taken by the county to address them, include:

- Poor riparian buffers
- Point sources
- Construction
- Channel erosion
- Historic sediment
- Impervious surfaces and storm water runoff
- Livestock
- Invasive Species
- Water Reservoirs

Bartow County has adopted the Metro North Georgia Water Planning District's model stormwater ordinance as revised by the Etowah HCP. The County is in the process of coordinating other existing ordinances with review of the Etowah HCP. Yet other revisions and ordinances dealing with runoff limits, road and utility crossings, are still being developed by the Etowah HCP.

Coosa River Basin Modeling Project (Georgia DNR EPD)

Georgia DNR EPD and USEPA are in the process of conducting a monitoring project to study the accuracy of the model developed for the Coosa River Basin. Monitoring is ongoing in 2005-2006 on the Coosa River and its tributaries. Data will be incorporated into the Total Maximum Daily Load (TMDL) for dissolved oxygen. The Coosa River Modeling work will be done by the Georgia DNR EPD in 2006 and 2007. A final model will link the Coosa River model and the Lake Weiss model. The combined models will evaluate oxygen demanding loads, nutrient loads, and temperature effects for heat loads, on dissolved oxygen (DO) concentrations in the Coosa River. The following data will be collected in separate modules:

- Watershed flow and temperature data
- Continuous water quality monitoring
- Water quality sampling
- Chlorophyll *a* sampling
- Wastewater treatment facility sampling and data collection (module 5)
- DO and temperature depth profiles
- Basin-wide phosphorus data
- Specialized studies
 - Reaeration measurements
 - Sediment Oxygen Demand measurements
 - Long-Term Biochemical Oxygen Demand (BODs)
 - Dye studies

Sites on Pumpkinvine Creek will be included in the following testing modules: One, Three, Five, Seven and Eight (Georgia DNR EPD).

Module 1: Watershed Flow and Temperature Data. This module includes the installation and annual operation and maintenance of watershed stream flow gages with temperature recorders, for two years. The data from these gages will be used either directly as model input or to estimate tributary input data for ungaged streams (Georgia DNR EPD).

Module 3: Water Quality Sampling. This module includes the collection and analysis of discrete water quality samples at locations on the Coosa River mainstem and tributaries from Allatoona Dam on the Etowah River, Carters Lake on the Coosawattee River, and the USGS Eton gage on the Conasauga River to the George/Alabama State Line. The data collection will include discrete mainstem and tributary water quality sampling. The samples will be analyzed for carbonaceous and total BOD₅ (inhibited and uninhibited), DO, temperature, TKN, NH₃, NO₂-NO₃, total phosphorus, ortho-phosphate, TOC, conductivity, and pH. Flow measurements will be made at the time of sample collection (Georgia DNR EPD).

Module 5, Wastewater Treatment Facility Sampling and Data Collection, will include discharge monitoring reports (DMRs) and/or operating monitoring reports (OMRs) data from wastewater treatment plants and sampling of mainstem and tributary dischargers. The additional sampling will be done as a quality assurance check for data given by the dischargers (Georgia DNR EPD).

Module 7: Basin-Wide Phosphorus Data. This module involves collecting available phosphorus data within the Coosa River Basin. Available phosphorus data from the various dischargers into the Coosa River Basin will be obtained. A review of all instream phosphorus data will be conducted. A special phosphorus study will be conducted to quantify the major point and nonpoint sources of phosphorus in the watershed. This information will provide an understanding of the magnitude and location of basin-wide phosphorus loads (Georgia DNR EPD).

Module 8: Special Studies. This module includes several specialized studies including reaeration, sediment oxygen demand (SOD), long-term BOD tests, and dye studies. River, tributary and selected wastewater treatment plant effluent samples will be collected for long-term BOD analysis during the field surveys. Long-term BOD analyses will include periodic testing of nitrogen components to determine possible nitrification reactions. Aged river water will be used as dilution water, when necessary. Samples will be collected and analyzed from each location for both monitoring years (Georgia DNR EPD).

Other Watershed Activities

The Northwest Georgia Regional Water Resources Partnership (NGRWRP) was created in 2002. The NGRWRP is an organization of water permit holders, local governments, industry, environmental, and other advocacy entities in Northwest Georgia with an interest in water issues (North Georgia Regional Development Center, 2005). The purposes of the Partnership are to monitor and contribute to the development of federal, state, and local water policy; educate the citizenry on water related issues; seek funding and facilitate the development of regional water-related assessment and planning activities; and coordinate the activities of federal, state, and local entities (NGRDC, 2005). Paulding County is considering joining the partnership as an official member. Gene Camp, Bartow County Water Department Superintendent, serves on the partnership's executive committee.

Paulding County representatives serve on the Etowah Basin Advisory Group for the Metropolitan North Georgia Water Planning District as well as on the Septic Systems, Stormwater, and Wastewater Subcommittees.

Bartow County is also a Yellow Ribbon-level member of the P²AD Partnership and has committed to a two-year effort (2004-2006) with Georgia Institute of Technology's Economic Development Institute to develop an Environmental Management System Program. The Yellow Ribbon level signifies that a county or other member is being proactive in addressing environmental impacts of development.

Rolling Hills Resource Conservation and Development Council conducts the Envirothon, a yearly competition for high school students, testing skills and knowledge of aquatics including water quality and other environmental topics. District and State competitions will be in March 2006. Other projects are in the proposal stages.

Adopt-A-Stream, in conjunction with Coosa River Basin Initiative (CRBI), conducts ongoing water quality chemical and biological volunteer training and monitoring, stream clean-ups, stream bank and habitat restoration, and visual stream surveys in Bartow County. Testing for fecal coliform is not practical at this time.

Get the Dirt Out is a project of the Coosa River Basin Initiative which provides volunteer training for construction site inspection and identification of failure to use BMPs in construction activities. The project was implemented in March 2005 and covers the Northwest Georgia area of the Coosa River Basin.

Keep Bartow Beautiful runs several education and outreach programs including the following: Teacher training for Waste In Place, Project WET (Water Education for Teachers), and Enviroscope non-point source pollution using tabletop models; Stormwater-related presentation materials provided to schools; and a Speakers' bureau to provide outreach on storm water issues to local civic groups. Other projects are in the proposal stages.

Keep Paulding Beautiful has several upcoming clean-up and environmental education activities including "Pick-up Paulding Day" on April 1, to include stream cleanup on impaired streams, working with the Boy Scouts in particular. They coordinate outreach and educational activities including Project WET and the Enviroscope non-point source pollution demonstration for students and the general community. Recycling is also a major focus, and community clean-ups, as well as those activities dealing specifically with water quality and non-point source pollution prevention.

Stormwater education is also done through the Paulding County Stormwater Division as part of the Phase II Stormwater Management Plan. The Division has a full-time Public Outreach Coordinator who does stormwater education for the general public but especially for schools, summer camps, and other children's groups. The outreach program was implemented in 2004.

The Paulding County Stormwater Management Division also has implemented a fee-based stormwater drain maintenance program to label stormwater drains and manholes with decals against illicit dumping. The program also replaces lost sewer lids with new labeled drains with locking mechanisms.

Rivers Alive river cleanups were done in October 2005 on Pumpkinvine Creek. Partners included Keep Bartow Beautiful, US Army Corps of Engineers, and EPD Mountain District. The target audience for this outreach and clean-up event was high school students. The cleanup efforts, which will become an annual event, take place in other locations as well, and satisfy education and outreach requirements for Bartow County's NOI. A River Festival culminates the event.

Keep Bartow Beautiful has a volunteer storm drain stenciling program ongoing since 2004 which is targeted to older developments in the city of Cartersville and urbanized areas served by the MS4. New residential developments must have storm drain stenciling done by the developer.

Bartow County Greenspace Committee acquires and preserves riparian buffers in Bartow County. This steering committee was formed in 2000 in response to Governor Barnes' greenspace initiative. Criteria for land purchases in the county include the following:

- Land should help protect waterways and watersheds;

- Land should have historical or biological importance- for example, the site of an old Indian village, or a swampland or wetland area;
- Area should be beneficial to wildlife;
- Area should link other areas, allowing for wildlife corridor; and
- Land should be affordable for the county program.

Greenspace lands will be used for recreation with walking trails, and will feature restored riparian buffers and other conservation measures. The committee is funded by SPLOST funds. Proposed purchases include a tract on the South bank of the Etowah between Pumpkinvine Creek and Paga Mine Road; and property on Leake Mound, currently in the process of a historical impact study by Southern Research, Historic Preservation Consultants, Inc. The Leake Site is thought to predate the Etowah Indian Mounds by a thousand years.

Paulding County was awarded \$354,865 in greenspace funding in 2002 for the Paulding County Greenspace Program. The Goal of the program is to preserve 20% of the County's lands as greenspace through fee simple purchasing or through conservation easements.

Bartow County's Stormwater Management Plan includes 30 best management practices which include education and outreach in schools, to homeowner's associations, to the general public in brochure format, as well as news articles in the local paper dealing with stormwater management, volunteer stenciling of storm drains, and stream cleanup. These BMPs are carried out in cooperation with the County Extension Service, Keep Bartow Beautiful, the Boy and Girl Scouts, the County Engineer, and others in the County.

Bartow County is mapping stormwater drainage outfalls throughout the county to remain in compliance with its Phase II MS4 stormwater permitting. In 2006 100% of the county's stormwater outfall mapping is scheduled to be completed.

Pumpkinvine Creek

COMPLETE THE FOLLOWING TABLES FOR AND NARRATIVES ABOUT EACH IMPAIRED STREAM IN THE WATERSHED.

STREAM SEGMENT NAME	LOCATION	MILES/AREA	DESIGNATED USE	PS/NS
Pumpkinvine Creek	Little Pumpkinvine Creek to Etowah River (Paulding and Bartow Counties)	15	Fishing	NS

III. SOURCES AND CAUSES OF STREAM SEGMENT IMPAIRMENT LISTED IN TMDLs

After reviewing the TMDLs written for this stream, complete the following tables with **the information found in the TMDLs**. List each parameter for which the stream segment is impaired and the water quality standard violated. See the instructions for the water quality standards. Describe the sources and causes of each violation identified in the TMDLs.

Table 2. SOURCES OF IMPAIRMENT AS INDICATED IN TMDLs

PARAMETER 1	WQ STANDARD	SOURCES OF IMPAIRMENT	NEEDED REDUCTION FROM TMDL
Fecal Coliform Bacteria (FC)	1,000 per 100 ml (geometric mean November- April) 200 per 100 ml (geometric mean May-October)	Wildlife Agricultural/Livestock <ul style="list-style-type: none"> • Animal grazing • Animal Access to streams • Application of manure to pastureland and cropland Urban Development <ul style="list-style-type: none"> • Leaking septic systems • Land Application Systems • Landfills 	89 percent

IV. IDENTIFICATION AND RANKING OF POTENTIAL SOURCES OR CAUSES OF IMPAIRMENT

INVESTIGATE AND EVALUATE the sources of impairment for each parameter listed in Table 2. Write a narrative describing efforts made or procedures used to verify the significance and extent of the sources or causes of each impairment listed in the TMDLs. Include:

- Involvement of stakeholder group
- Field surveys
- Review of land cover data
- Evaluation of sources

Fecal Coliform Bacteria

Verification of the significance and extent of the sources or causes of each impairment listed in the TMDLs was done through a series of field surveys and stakeholder meetings. The TMDLs list three probable causes of fecal coliform contamination: Wildlife, Urban Development, and Agricultural/ Livestock.

The impaired stream segments were driven to verify potential sources or causes of impairment. A series of stops allowing visual field surveys of this segment of the Etowah River were conducted to visually evaluate stream condition including turbidity, sedimentation and erosion, stream bank condition, stream bed condition, depth, flow, and color. Field surveys also noted the presence of any factors thought to contribute to non-point sources of fecal coliform loadings including wildlife, animal grazing, animal access to streams, application of manure to pastureland and cropland, possibility of leaking septic systems, Land Application Systems (LAS) and landfills. Presence of point sources such as Confined Animal Feeding Operations (CAFOs) was also noted.

This data from field surveys was combined with GIS data and EPD listings of NPDES dischargers as well as information from stakeholders. Local stakeholder input was gathered in a series of stakeholder meetings; contacts with local government officials and other individuals were also used to determine actual causes or sources of stream impairment. Photographs of sources seen in the field surveys and corroborated by stakeholders are found in Appendix C.

Point Sources: NPDES Permitted Discharges

The following dischargers are upstream of the listed impaired segment of Pumpkinvine Creek but fall within the watershed.

The **City of Dallas** discharges into both Lawrence Creek tributary and Weaver Creek tributary, which flows into Pumpkinvine Creek prior to the listed segment. Each facility has a permitted limit on fecal coliform at 200/100ml. The fecal coliform limit was violated one time in the period of July 1998-June 2001 by the Dallas North WPCP Permit # GA 0026034 discharging into Lawrence Creek tributary. The Dallas North WPCP Permit # GA 0026034 had an actual 2001 discharge average of 30.7/100ml for fecal coliform.

Dallas North WPCP Permit # GA 0026034
Discharges to Lawrence Creek

Dallas West WPCP Permit # GA0026026
Discharges to Weaver Creek

In 2004 and in 2005, the plants (Permit # GA 0026034, GA0026026) were given EPD enforcement orders on multiple occasions for unpermitted discharges.

A proposed Dallas WWTF with a capacity of 3.0 MGD has been given a proposed permit and waste load allocation. The city proposes to shut down both Dallas North WPCP Permit # GA 0026034 and Dallas West WPCP Permit # GA0026026 and use the third proposed WWTF exclusively. It is planned to have a permitted discharge to Pumpkinvine Creek.

Two private wastewater treatment systems are also operated:

Three Cedars Mobile Home Park WWTP, permit # GA0032042, which discharges into Picketts Mill Creek; and

Fairway Villas Mobile Home Park WWTP, permit # GA0026611 which discharges to West Brook.

Both Picketts Mill Creek and West Brook are tributaries to Pumpkinvine Creek.

The City of Emerson in Bartow County has a older lagoon-type WPCP (**Emerson Pond Water Purification Control Plant Permit # GA0026115**) which discharges to Pumpkinvine Creek. It is located on Joe Frank Harris Parkway. A new plant is in construction adjacent to the current WPCP.

There are no Concentrated Animal Feeding Operations (CAFOs). One mining operation in Bartow Co. near Hwy 41, New Riverside Ochre, permit # GA0029823, may impact the creek but not for fecal coliform.

One mining operation in the Emerson area, Bariod Drilling Fluids, permit # GA 0001287, that discharges into the Etowah River.

Two Landfills are operational in the watershed:

Paulding County Solid Waste Transfer Station Permit # 110-005D(SL), a public construction and demolition and municipal solid waste transfer station, located on Grants Chapel Road, off of Ivey Gullledge Road in Dallas;

Bartow County SR 294 Emerson (SL) PH 1 (C&D), Permit # 008-008D(SL), for construction and demolition, and **MSWL PH 2 & 3, Permit # 008-016D(SL)**, for Municipal Solid Waste, landfill located on SR 294 between SR 293 and US 41.

Although not located in the watershed, it is possible that a discharge from the **City of Cartersville Biosolids WPCP Permit # GA0024091** could have a possible impact on the creek as it is upstream of the creek's confluence. The discharge outfall is to the Etowah River through a diffuser located near the Highway 61 and 113 bridge over the Etowah River. The City of Cartersville recently (July 2005) had a stormwater by-pass to the Etowah River during the increased rainfall occurring from Hurricane David. EPD was notified of the spill and the City will continue an EPD required sampling program on the Etowah River for one year.

Bartow County Southeast WPTP Permit # GA0037664, also upstream of the watershed, is located on Paga Mine Road and has a permitted discharge to the Etowah River as a LAS. The County will operate this facility through 2010 then begin expansion of the plant on surrounding acreage including use of a LAS.

Non Point Sources

Wildlife

The area is still well forested and wild turkeys, possums, raccoons, armadillos, ducks, geese and deer have free access to stream banks. Please see photographs 1. 0315010411 Pumpkinvine Creek- Little Pumpkinvine Creek to Etowah River: McMillan Bridge crossing at Harmony Grove Church Rd- wildlife have access to stream; and 2. 0315010411 Pumpkinvine Creek- Little Pumpkinvine Creek to Etowah River: Puckett Road - wildlife tracks.

Good amounts of waterfowl were also noted along the stream. Forest forms 72.8% of the watershed at 65,696 acres (EPA, 2004). Statewide statistics indicate deer population exceeds 32 deer per square mile of forested habitat (GADNR, 2005).

Agricultural livestock

The northeast corner of Paulding County has a very small amount of cattle, and several horse stables and riding school locations along Dabbs Bridge and Harmony Grove Church Roads. Please see photographs 3. 0315010411 Pumpkinvine Creek- Little Pumpkinvine Creek to Etowah River: McMillan Bridge crossing at Harmony Grove Church Rd- goats seen in pasture; 4. 0315010411 Pumpkinvine Creek- Little Pumpkinvine Creek to Etowah River: Hwy 293, Acworth Rd- Greenridge Stables Horse farm fenced to river; and 5. 0315010411 Pumpkinvine Creek- Little Pumpkinvine Creek to Etowah River: Hwy 293, Acworth Rd- Greenridge Stables, houses located along Hwy 293. In total, pasture forms less than one percent of the watershed (763 acres of pasture/hay or 0.8%) (EPA, 2004). Agriculture is not thought to contribute significantly to the total loading, especially in Paulding County.

Septic Systems

There are no known or suspected leaks in the watershed and were not noted in the field survey. In 2006, for Paulding County, for the first time the number of new houses connected to sewer is expected to exceed the number built on septic systems. Stakeholders, Bartow Environmental Health concurred that leaking or failing septic systems could be a source of fecal contamination. There is no requirement for maintaining systems or reporting leaks. Environmental Health can investigate a complaint; otherwise leaking or failing tanks are reported on a voluntary basis. In Bartow County, of a total of 22,361 total septic systems recorded, 8,747 systems were installed and 638 were repaired between 1990 and 2000 (EPD, 2004). In Paulding County, of a total of 29,629 total septic systems recorded, 16,544 systems were installed and 578 were repaired between 1990 and 2000 (EPD, 2004). Septic system installation is regulated through permits and inspections of on-site sewage management systems; plumbers and other maintenance operators are required to submit monthly logs of pump-outs and maintenance done to systems. Lot size and configuration were listed as problematic in installation and maintenance. Septic system maintenance was identified as a key area for education and outreach.

Field Survey Notes (Please see accompanying photographs in Appendix C)

Field notes: 0315010411 Pumpkinvine Creek segment- Little Pumpkinvine Creek to Etowah River

Survey Team: Nancy Gribble

Date: June 15, 2005

Weather Conditions: Sunny to bright sunshine, slight breeze, ~90 to 92 degrees F. No rainfall in 48 hours, but heavy rainfall for previous week

Stop #1: McMillan Bridge crossing at Harmony Grove Church Road, Paulding County

Little Pumpkinvine Creek was muddy (tan) in appearance, slight surface water movement, logs jammed in downstream. Upstream side was pasture behind small older homes with property to creek, chickens heard crowing, and goats seen grazing in yard and can get access to the creek.

Downstream side had good tree buffer to west and east sides. 4/10 of a mile prior, lots of land disturbing for new residential housing in the area.

This has been the trend for the last 2-3 years for that area. Creek can be accessed by all wildlife in the area along with the goats, waterfowl seen in the area, lots of birds.

Photographs 1. 0315010411 Pumpkinvine Creek- Little Pumpkinvine Creek to Etowah River: McMillan Bridge crossing at Harmony Grove Church Rd- wildlife have access to stream; and 3. 0315010411 Pumpkinvine Creek- Little Pumpkinvine Creek to Etowah River: McMillan Bridge crossing at Harmony Grove Church Rd- goats seen in pasture.

Stop #2: Pumpkinvine Creek at Dabbs Bridge Road crossing, Paulding County

Creek was muddy (tan) in appearance, good fast flow on upstream side, sediment bars forming along banks. Tree buffers to water's edge, area forested around creek, prior residential houses scattered on both sides of the road. The creek could be accessed by the local wildlife, deer tracks seen at creek bank.

Stop # 3: Pumpkinvine Creek at Dripping Rock Trail (upstream from the Dabbs Bridge Road bridge, Paulding County. Good flow, good tree buffer along the road toward a single family residential area.

Stop#4: Pumpkinvine Creek at Highway 411 bridge crossing, Bartow County, 1 mile inside the county line leaving Cobb County. Muddy (tan) appearance, tree buffers to each side. Downstream side access road along south bank. Mostly forested land prior to the creek.

Stop#5: Pumpkinvine Creek at Highway 293, Acworth Road, Bartow County

Creek had muddy (tan) appearance, good flow, sediment seen making up bars in the creek and along the sides. Pasture land with horses seen to the north of the bridge, Greenridge Stables fenced to the creek with riding arenas near the creek bank areas. Dirt road used to access arena area along side the creek. Some tree buffer 5-10 feet at most. Mostly forested on the south side of the horse farm. Source of the fecal coliform could be from the runoff of the horse farm, and other wildlife in the area.

Photographs: 4. 0315010411 Pumpkinvine Creek- Little Pumpkinvine Creek to Etowah River: Hwy 293, Acworth Rd- Greenridge Stables Horse farm fenced to river; and 5. 0315010411 Pumpkinvine Creek- Little Pumpkinvine Creek to Etowah River: Hwy 293, Acworth Rd- Greenridge Stables, houses located along Hwy 293.

Stop#6: Pumpkinvine Creek, Highway 41 bridge, Bartow County

Creek had a muddy (tan) appearance, good tree buffer with kudzu along the creek bank along highway 293 for miles. Areas to the east had been cut for timber in previous years, leaving debris and bare red clay areas in the forest.

No photographs taken, stop too heavily traveled.

Stop # 7: Pumpkinvine Creek at Old Alabama Road bridge crossing, Bartow County

The creek had a muddy (tan) appearance, moderate flow, creek height up along banks due to rainfall of several days ago, banks show sediment buildup. Pasture land, houses, and agricultural hay fields seen along the road. Old iron bridge seen on upstream side of road bridge.

Stop # 8: One land bridge, Puckett Road, Bartow County

The appearance was muddy, moderate flow, logs in the upstream. Pasture land seen in the area, nice new homes build along Bates Road. The upstream photo showed wildlife tracks near the banks.

Photographs: 2. 0315010411 Pumpkinvine Creek- Little Pumpkinvine Creek to Etowah River: Puckett Road - wildlife tracks.

Tried to see Etowah River behind Indian Mounds Historical Park, at point where Pumpkinvine Creek enters the Etowah River but could not access area. Sod farming in that area along the river.

Field notes: 0315010411 Pumpkinvine Creek segment- Little Pumpkinvine Creek to Etowah River II

Survey Team: Julie Meadows

Date: February 20, 2006

Weather Conditions: Overcast, raining, had rained for several hours, temps approx. 40 degrees. No photographs taken.

Stop #1: McMillan Bridge crossing at Harmony Grove Church Road, Paulding County

Little Pumpkinvine Creek was clear in appearance, good flow. Banks were undercut and exposed; trees and bushes forming riparian cover were falling into creek. Tree clearing/ logging (did not appear to be clear-cutting) in area immediately around creek. Creek can be accessed by all wildlife in the area.

Stop #2: Pumpkinvine Creek at Dabbs Bridge Road crossing, Paulding County

Saw horses and Cattle along Dabbs Bridge Road.

Stop # 7: Pumpkinvine Creek at Old Alabama Road bridge crossing, Bartow County

The creek had a turbid (green) appearance, low flow, streambed shows sediment buildup, sediment bar in middle of creek bed and in bend of creek. Creek looks to be possibly rerouting. Buffers OK. Banks undercut. A few horses seen in pasture. Mostly empty pastureland, houses, and agricultural hay fields seen along the road.

Pumpkinvine Creek enters the Etowah River at the Etowah Indian Mounds. Sod farming in that area along Etowah River. Gully in sod farm field evidence of erosion.

To the extent possible, identify sources and quantify the extent of pollution in the stream segment for each of the parameters listed in Table 2 and evaluate the likely impact on the parameter load to the stream. This should follow research performed and described in preceding narrative and should correct or add information to the TMDLs. **The SOURCES SHOULD BE RANKED** from those having the most impact to those having the least impact. The estimated extent of contribution can be expressed as the area of the watershed affected, the stream miles affected, or the number of activities contributing to the problem. The magnitude of contribution should be estimated to be large, moderate, small, or negligible.

Table 3. CONCLUSIONS MADE OF POTENTIAL SOURCES OF STREAM SEGMENT IMPAIRMENT

PARAMETER 1	POTENTIAL SOURCES	ESTIMATED EXTENT OF CONTRIBUTION	ESTIMATED MAGNITUDE OF CONTRIBUTION	COMMENTS
Fecal Coliform bacteria (FC)	NPDES permitted facilities	Mid- watershed	Moderate	WPCPs have fecal coliform limits which have been exceeded
FC	Wildlife	Throughout	Moderate	Good amount of waterfowl, deer tracks seen along creek
FC	Agricultural livestock	Upper watershed	Small to Moderate	Relatively small percentage of overall area. Small amount of cattle. Several horse stables.
FC	Failing or leaking septic systems	Throughout	Small to Moderate	No known leaks

V. STAKEHOLDERS

PUBLIC INVOLVEMENT AND THE ACTIVE PARTICIPATION OF STAKEHOLDERS is essential to the process of preparing TMDL implementation plans and improving water quality. Stakeholders can provide valuable information and data regarding their community, impaired water bodies, potential causes of impairments, and management practices and activities which may be employed to reduce the impacts of the causes of impairment.

Describe outreach activities to advise and engage stakeholders in the TMDL implementation plan preparation process. Describe the stakeholder group employed or formed to address the impaired segments in the watershed. Summarize the results of the number of attendees and meetings and describe major findings, recommendations, and approvals.

Stakeholder Determination

Stakeholder lists were developed by reviewing lists of stakeholders contacted and involved in previous TMDL projects and in Source Water Assessment Projects done by the Coosa Valley RDC. Other stakeholders were added as they came forward or through word of mouth were introduced to the process. As well, other stakeholders were contacted and asked to participate, if they had not already been listed. Stakeholders were informed of the process and invited to participate, and to attend informational sessions, by mass mailings.

The Coosa Valley Regional Development conducted several TMDL informational and stakeholder public meetings:

May 17, 2005 TMDL Stakeholder Meeting held at the Forum in Rome, Georgia for the streams in the Coosa Basin (27 attendees)

August 30, 2005 TMDL Stakeholder Meeting held at Red Top Mountain State Park and Lodge, Cartersville, Georgia for the streams in Bartow/Gordon/Paulding/Polk/Pickens County areas (20 attendees)

October 18, 2005 Fall Workshop-Northwest Georgia Regional Water Resources Partnership held in Dalton, Georgia. Workshop title: CLEAN WATER: The TMDL Link, A Toolbox for Improving Water Quality. Coosa Valley Regional Development Center & North Georgia Regional Development Center had two separate breakout sessions on the TMDL Implementation Plans for Stakeholder Interest (73 attendees)

December 7, 2005 Stakeholder Meeting held at the Calhoun Depot in Calhoun, Georgia for the Bartow, Gordon, Paulding, Polk and Pickens Counties (6 attendees).

Stakeholder Meeting for Bartow/Gordon/Paulding/Polk/Pickens Counties SubBasin Comments

Stakeholders had the following comments:

- Local governments do not have regulatory authority to control agriculture or septic processes.
- Georgia Poultry Federation sees the farmers and growers that are willing to be educated and implement BMPs.
- Bartow County farmers still allow cattle to get to streams to pollute.

- Septic systems are not generally regulated and the State of Georgia needs to be proactive and set regulations to control septic or agricultural sources. Are there any regulations where the owner who clears vegetation along a stream bank can be corrected?
- EPD should enforce their authority and not rely on local governments to do enforcement. Get the State to partner with local government. We do not understand why EPD lowered the buffer zone along streams. (*N. B.* EPD's response is, "The State of Georgia decreased the stream buffer requirements not the Georgia Environmental Protection Division.") The State of Pennsylvania requires on-site septic systems to be regulated.
- From jurisdiction to jurisdiction, we need to work together to understand how to implement the TMDL process.
- Speaking from the poultry-agricultural issues, getting farms to operate effectively and well managed will benefit local governments. Do not over regulate farmers.
- The need is great to get the TMDL information and assure accuracy. Cities and governments are regulated on accurate information.
- Make sure standards that are used to regulate streams are correctly identifies as to which ones actually impact human health.
- Can 319 grants are used? Can the money be funneled through the RDCs?
- We need to use a comprehensive approach to onsite septic systems where there are no sewer systems?
- How do we develop BMPs when the sources are not known?

Stakeholder advisory groups were formed from those stakeholders who indicated an interest in serving on the committee at the informational meetings, in interviews and in information gathering, as well as those who volunteered to be on the committee. Additional stakeholders were contacted directly and asked to be in the advisory groups. A cohesive mix of city and county leadership, water treatment operators, public works, code enforcement, engineers, environmental health, Keep Georgia Beautiful affiliates, environmental advocates, interested citizens and volunteers, NRCS agents, RC&D coordinators, extension service personnel, farmers, and other interested parties was sought as representatives of their particular viewpoints and areas of expertise.

Throughout the process input was gathered from individual stakeholders both as information to complete the plans and as insight into possible sources and causes of fecal coliform pollution, ideas on implementation activities, and obstacles to overcome in improving water quality. Of high concern was the reliability of initial data and the appropriateness of sampling sites and methods. Of concern as well was the feeling that individual concerns or facets were being singled out as a culprit in this process. Additionally stakeholders expressed the feelings that the same process had been repeated multiple times without efforts being made to continue the TMDL implementation. As these were legitimate concerns, care was taken to address them and to emphasize the nature of the current plans, to look at the watershed as a whole, to involve stakeholder groups in the entire effort, and to ultimately place the stakeholders in the drivers' seat for the future. The Sampling Quality Assurance Plan protocol for additional monitoring was also addressed for those groups interested in gathering additional data to verify initial results or to de-list the stream.

The Bartow County Stakeholder Advisory Group (BCSAG) was formed in January 2005 for the purpose of establishing and directing stream water quality monitoring and outreach efforts to address nonpoint source pollution. Stakeholders in this group, representing Bartow County, Cities of Cartersville and Euharlee, and government agencies, have worked together previously on watershed assessment and source water assessment plans as well as other environmental and water quality efforts.

This group met in January 2006 to review the draft TMDL Implementation Plans for watersheds in the county and to discuss monitoring and outreach efforts. Two subcommittees were formed: One to review stream monitoring data for these watersheds and to implement additional monitoring as needed; and the second to begin septic system maintenance outreach to homeowners.

Stakeholder Advisory Group Comments- January 31, 2006

Stakeholders introduced themselves; those present included Gene Camp, Bartow County Water Department, Pam Robinson, Bartow County Health Department, Steve Bradley, Bartow County Administrator, Lamont Kiser, Bartow County Engineer, Cindy Haygood, Rolling Hills RC&D, Curt Gervich, Etowah Habitat Conservation Plan, Edmund L. Mullinax, City of Cartersville, Kathy Floyd, Bartow County Extension Service, Katie Knowles and Jim Shinall, USACE, and Jim Stafford, City of Cartersville, and Bobby Gay, City of Euharlee Code Enforcement, were present.

Jill Joss and Julie Meadows, CVRDC, introduced the TMDL Implementation Plan process.

Jill Joss presented a summary of discussion from previous meetings including data, sampling, impairment sources, management measures, input, and concerns of local governments, agriculture, landowners and individuals.

Julie Meadows reviewed management measures in draft TMDL Implementation Plans (TMDLIPs) for Pine Log Creek (HUC-10 0315010207); Oothkalooga Creek (HUC-10 0315010302); Pumpkinvine Creek (HUC-10 0315010411); Raccoon Creek (HUC-10 0315010412); Etowah River (HUC-10 0315010413); Euharlee Creek (HUC-10 0315010414); Etowah River/Two Run Creek (HUC-10 0315010415); and Silver Creek (HUC-10 0315010416).

Stakeholders suggested comments and additions to the management measures as follows:

Stakeholders asked that the Etowah Habitat Conservation Plan language be included in management measures with applicable ordinances for participating jurisdictions. Suggested that sewer expansion might not be the way to go, suggesting improvements to septic systems instead.

It was stated that the Poultry Waste Management Program district does not extend to Bartow County, and asked that the Continuous Conservation Reserve Program be included as it includes measures such as fencing livestock out of streams and provides up to a 90-10% cost-share, as well as the Conservation Reserve Program which includes erosion control measures.

It was stated that the County's new Notice of Intent had been approved by the EPD and over 30 BMPs for stormwater management should be included. It was clarified that land disturbing permits are obtained through the County.

It was clarified that the Greenspace Committee has purchased several greenspace lots and recommended that those acquisitions be included, as well as striking percentages from language that described Committee efforts. Negotiations are ongoing for further greenspace.

Sewer systems were discussed further: Lot size and configuration were listed as problematic, encouragement of dense enough development to warrant water and sewer was mentioned.

It was stated that Bartow County had been the first to implement a DVD education outreach program for new septic system owners in 2004 and it was now statewide. The Health Department can only check systems if there are complaints, which are sometimes received from landowners or from surveys done by the COE at Lake Allatoona. New regulations for septic system installation recently introduced.

How to get the information out to those getting new permits? A possibility might include getting the word out through water utilities, sending out information to those not on sewer.

It was stated that there is no mandatory update or management of septic systems; that there should be additional public education.

Suggestions were made that the State be more proactive to establish regulations for septic systems at the State level. Education on maintenance of systems is key. Resale of homes with septic systems is also an issue.

Sheri Henshaw, director of Keep Bartow Beautiful, was unable to be present but had sent information about outreach programs that Keep Bartow Beautiful is coordinating. These programs are detailed in the outreach section of the TMDL Implementation Plans for watersheds in Bartow County and include the following projects: Etowah River Cleanup; Environmental education including Teacher Training for Waste In Place, Project WET (Water Education for Teachers); Enviroscape (illustrates non-point source pollution in the classroom using tabletop model); Stormwater education in schools; Development of a speaker's bureau to present stormwater issues to civic groups; and Adopt-A-Stream. Proposed projects include a homeowner's workshop on maintaining septic tanks, including the topics "Different Functions of Septic Tanks; How They Should Function; Common Causes of Failure; Maintenance For Longevity; Potential Contaminants in the Effluent; and Site Limitations"; a workshop on rain gardens for stormwater catchment, and cooperative development of a demonstration rain garden at Red Top Mountain State Park with signage.

A grant program was mentioned in rural Kentucky through PRIDE (Personal Responsibility in a Desirable Environment) for low-income homeowners to connect to existing sewer or install a permitted septic system; a possibility of a similar pilot project in this area.

Sampling was discussed. Previous and current sampling sites (EPD, USGS) were reviewed. Future or ongoing sampling was discussed especially for the tributary to Petit Creek segment and the Euharlee. Previous sampling data for all watersheds were requested for further study.

It was remarked that errors in data may have caused pristine streams may have been listed in error.

Funding sources were discussed by all. Information on EPD's 319 h grant requirements for 2006-2007 will be announced in early February and relayed to stakeholders.

The Northwest Georgia Water Resources Partnership was introduced for regional water planning purposes.

A subcommittee was formed to review sampling data, including:

- Steve Bradley, Bartow County Administrator
- Ed Mullinax, City of Cartersville
- Gene Camp, Bartow County Water Department
- Sheri Henshaw, Keep Bartow Beautiful

- Katie Knowles, USCOE Allatoona Dam
- Jill Joss, Coosa Valley RDC

A subcommittee was formed to plan septic system outreach, including:

- Gene Camp, Bartow County Water Department
- Bobby Gay, City of Euharlee Zoning and Code Enforcement
- Pam Robinson, Bartow County Environmental Health
- Kathy Floyd, Bartow County Extension Service
- Cindy Haygood, Rolling Hills RC&D
- Jim Shinall and Katie Knowles, USCOE Allatoona Dam
- Julie Meadows, Coosa Valley RDC

The meeting was adjourned.

Amended February 2, 2006.

The Paulding County Stakeholder Advisory Group met on February 7th to review the Implementation Plans for Pumpkinvine and Raccoon Creeks. Amendments to the plans and the need to verify field survey data for clarification were discussed. Possible monitoring and input into watershed assessment long-term monitoring sites were discussed. A follow-up meeting was scheduled for March 14th to review changes to the plans as discussed in the initial meeting, as well as implementation activities, outreach and education. The second stakeholder meeting for Paulding County was held March 14th to review the changes made to the implementation plans and to discuss outreach activities and future directions of this group. The plan was approved by those in attendance pending revision and final submission to EPD.

Paulding County TMDL Implementation Plan Advisory Group, February 7, 2006

The meeting was called to order.

Stakeholders introduced themselves. Attendees included Mary Carroll Sheffield of the Cooperative Extension Service, Tommy Leonard of Keep Paulding Beautiful and Paulding Recycling, Michael Carter, Paulding County Water Director Kathy Irish – resident and member of Coosa River Basin Initiative, and Catherine Fox of Fox Environmental, LLC

The TMDL Implementation Plan process was introduced.

A summary was presented of discussion from previous meetings including data, sampling, impairment sources, management measures, input, and concerns of local governments, agriculture, landowners and individuals.

The TMDL Implementation Plans were discussed for the Pumpkinvine Creek (HUC-0315010411) and Raccoon Creek (HUC-0315010412) watersheds.

Stakeholders suggested comments and additions to the implementation plans as follows:
Pumpkinvine Creek (HUC-0315010411):

It was reported that there are more horses than cattle in the watershed

It was mentioned that the Georgia Horse Council may be a way to reach those horse owners

It was noted that Pumpkinvine is a long creek that undergoes a lot of changes and stresses through its' watershed.

Stakeholders were surprised that the lower section of the Creek is not on the list of impaired streams.

It was commented that due to the random nature of the Basin sampling process, an absence on the list should not be read as indication of the streams' health. It may just not have been selected for sampling during this Basin cycle.

Stakeholders agreed that quite a bit of forest still exists upstream but that the trees are going away in a hurry.

It was stated that Paulding County is currently revising their development procedures for improved stormwater management during and after construction.

It was asked if Paulding County has adopted any of the recommended ordinances of the Upper Etowah Habitat Conservation Plan. It was noted that Paulding County is still working on post-development and floodplain protection ordinances. It was not thought that the City of Dallas had adopted any of the Metropolitan North Georgia Water District ordinances. In terms of the Watershed Assessment progress for the county, they have just received EPD's comments and are going to be working with EPD on choosing long term sites for sampling. The City of Dallas has had their Watershed Modeling Plan approved.

It was reported that Keep Paulding Beautiful is not currently conducting any Adopt-a-Stream activities. They do have several clean-up and environmental education opportunities coming up, however. They will rally the Boy Scouts around "Pick-up Paulding" day on April 1, partly concentrating on trash pick-up around the impaired streams. They have a watershed simulation called the "Enviroscape" which demonstrates stream processes to students and the community, increasing awareness. Attention was also called to the environmental education efforts of Tara Siskey in the Paulding schools. These are documented in full in the Phase II Stormwater Plans. There are also Project WET (program for teachers) facilitators in the schools.

It was noted that Paulding may have acquired some land under the State's Greenspace program

It was stated that there is a Memorandum of Agreement between Paulding County and the City of Hiram that the county performs many stormwater management activities for the city. It was also stated that the County has conducted three watershed assessments. There are Mill Creek, Little Sweetwater and Pumpkinvine. Sweetwater and Pumpkinvine have been approved. Once Mill Creek Watershed Assessment and the Watershed Protection Plan for all three watersheds are approved, the County will begin long-term monitoring.

Raccoon Creek (HUC-0315010412):

Stakeholders commented that there are horse farms but not much in the way of cattle in the Paulding section of the watershed.

There is so little activity of any kind in the watershed, most is undeveloped, unoccupied land. Short of the possibility of fecal contamination from wildlife sources, there is little else to identify in terms of possible sources of bacteria.

It was pointed out that there may not be cattle in the Paulding section of the watershed, but that the field survey seems to indicate that there are cattle in the Bartow County portion of the watershed, just upstream from where the creek crosses into Paulding.

It was asked whether this stream may be a likely candidate for de-listing. In looking at the sampling data that placed the stream on the 303(d) list there seemed to be a lot of variability in the results, with spiking of fecal coliform levels in places. It was also noted that there was not much in the way of flow data and that more sampling may be required.

Volunteers from the Coosa River Basin Initiative have offered to help with the manual labor involved should specific farmers be willing to look at cost-share programs for fencing cattle out of streams.

It was pointed out that other SAG's (Stakeholder Advisory Groups) have established subcommittees to continue the discussion on sampling and other outreach or activities that the group might consider to implement the plan.

It was suggested that the group may be able to provide input into site selection in the long term monitoring plan be developed for the three watersheds in Paulding County.

Discussion proceeded to the EPA 319 grant program and what activities are most liable to be funded with regard to TMDL Implementation BMP's. It was stated that applications are due in June of this year and the money will be awarded in March 2007. The Unit Manager in charge of the 319 program had been contacted and the department is looking to fund actual on-the-ground projects that would target certain watersheds involving a TMDL stream. The success of the program depends on how many streams can subsequently be removed from the 303(d) list.

The meeting concluded with contractor agreeing to make suggested corrections to the TMDL template, send a copy to all members of the SAG for their review and final comments, and then another meeting will be scheduled for mid-March to discuss activities that may support the implementation of the plan. Stakeholders will forward the plan to anyone they feel ought to be included but were unable to attend.

The meeting was adjourned.

Paulding County TMDL Implementation Plan Advisory Group, March 14, 2006

The meeting was called to order.

Attendees included Mary Carroll Sheffield of the Cooperative Extension Service, Bruce Coyle, County Engineer, Paulding County Public Works Department, and Ray Austin, Paulding County Stormwater Management Superintendent.

Discussion of three recommendations for implementation activities to complete the TMDL Implementation Plans took place.

Concerning the recommendation for riparian buffer outreach and education:

It was pointed out that the county zoning ordinance specifies a forty-foot buffer along streams. The Paulding County Board of Variances will generally grant a variance for hardship, etc as opposed to other metro counties who have been firm in their upholding of the ordinance. Developers comply in Paulding County. Buffers cannot be mandated without a method of variance, if so it can be considered "taking." Even with variances of the Zoning Board, the developers must adhere to the minimum of 25 feet, a state standard.

It was recommended that each county adopt a stream buffer ordinance but allow for variances in case of undue hardship.

Concerning the recommendation for outreach and education on proper maintenance of septic systems through the North Georgia Health District:

It was suggested that stakeholders work on that project. It was stated that there is a mandatory connection requirement for developers in certain basins including Pumpkinvine Creek.

Asked to clarify septic system maintenance, contractor stated that education and outreach through the District would be additional to the existing outreach to new homeowners.

It would include additional copies of the DVD on septic system maintenance to be provided through additional outlets. Funding might be an issue. 319 grants might be available for such a project.

Stakeholders suggested that local governments could show the DVD on public channels.

It was stated that UGA provides outreach on septic system maintenance and on other environmental topics.

Concerning stormwater best management practices, and education and outreach on such:

Paulding County has as part of their NOI several stormwater management practices involving education and outreach. One upcoming event is Pick Up Paulding in conjunction with Earth Day, to clean up streams and other areas around the county. Recycling activities are also promoted.

It was mentioned that the County Extension Agent is considering developing an Adopt-A-Stream group in the summer with the 4-H Clubs and Master Gardeners. It is still in the proposal stages. After QAQC certification is received, a stakeholder intends to establish a monitoring site on Possum Creek.

It was stated the County Stormwater Department provides environmental education involving the EnviroScape Non-point source pollution model upon request, as well as curriculum workbooks for elementary, middle, and high school students.

Stakeholders asked about the seeming discrepancy between Paulding County wastewater limits including those for fecal coliform, which are low, and those for Dallas' proposed WWTP, which are much higher. Contractor will consult with EPD on this.

It was stated that the 319 grant for non-point source pollution is available. After the final TMDL Implementation Plans are submitted, the Coosa Valley RDC will meet with EPD to investigate possibilities of funding these implementation activities. There is a 40% matching grant required of the local government or other sponsoring parties.

The stakeholders were asked to review the recommendations as follows:

- Education on development and maintenance of riparian buffers
- Education and outreach of septic system maintenance;
- And education and outreach as well as continued implementation of best management practices for stormwater management.

The stakeholders present agreed on these recommended measures.

It was asked if, in view of the fact that septic system regulations have improved, are septic systems still a problem?

It was stated that education on septic system maintenance was needed. Others agreed. There is a possibility of airing DVD on maintenance on local public channel, and this will be investigated.

It was mentioned that the stormwater management will be affected by the erosion and sedimentation certification as far as development of E & S Control plans. Enforcement may be an issue. For Paulding, Ben Skipper is in charge of enforcement through the county.

As far as the E & S classes, additional training is needed, as well as better books. Paulding County has sponsored the level 1A training class for its employees. There are 300 active land disturbing activity areas in the county, making E & S certification a priority.

The stakeholders approved the implementation plans and recommended activities with the knowledge that some changes would be made as they were received from EPD in the next days.

The meeting was adjourned.

List the watershed or advisory committee members of the stakeholder group for this segment in the following table.

Table 4. COMMITTEE MEMBERS

NAME/ORG	ADDRESS	CITY	STATE	ZIP	PHONE	E-MAIL
Mary Carol Sheffield Paulding County Extension Agent	530 W. Memorial Drive	Dallas	GA	30132	(770) 443-7616	msheff@uga.edu
Tara Siskey Storm Water Outreach Paulding County	38 Tower Drive	Dallas	GA	30132	(770) 445-2761 ext 205	tsiskey@paulding.gov
Ray Austin Supervisor, Storm Water Management Paulding County	38 Tower Drive	Dallas	GA	30132	(770) 445-2761 ext 205	Email thru assistant Tara Siskey: tsiskey@paulding.gov
Kenneth P. Elsberry City Manager of Dallas, GA	129 E. Memorial Drive	Dallas	GA	30132	(770) 443-8110	kenels@bellsouth.net
Bruce Coyle County Engineer, or representative	1723 Bill Carruth Parkway	Hiram	GA	30141	(770) 222-6850 X 222	bcoyle@paulding.gov
Catherine Fox FOX Environmental, LLC	262 Forkner Drive	Decatur	GA	30030	(404) 441-7568	foxenvironmental@comcast.net
Michael Carter Supervisor, Paulding County Water and Sewer	1723 Bill Carruth Parkway	Hiram	GA	30141	(770) 222-6868	mcarter@paulding.gov
Keith Gilmer Georgia Soil and Water Conservation Commission	700 East 2nd Ave. Suite J	Rome	GA	30161	(706) 295-6131	K_gilmer@gaswcc.org
John Loughridge Georgia Soil and Water Conservation Commission	700 East 2nd Ave. Suite J	Rome	GA	30161	(706) 295-6131	J_loughridge@gaswcc.org
Curt Gervich Etowah Habitat Conservation Program	P.O. Box 287	Acworth	GA	30503	(678) 801-4013	curt@etowahhcp.org
Cindy Haygood Rolling Hills Regional Conservation and Development Council	P.O. Box 1550	Dallas	GA	30132	(770) 505-4288	Cindy.Haygood@ga.usda.gov
Machelle Simmons USDA Natural Resource Conservation Service	717 South Wall Street Suite 1	Calhoun	GA	30701	(706) 629-2582 X 3	Machelle.simmons@ga.usda.gov
Sherri Henshaw Coordinator, Keep Bartow Beautiful	P.O. Box 786	Cartersville	Georgia	30120	(770) 387.5167 Fax: (770) 606.2382	henshaws@bartowga.org
Melissa Phillips Director,	P.O. Box 786	Cartersville	Georgia	30120	(770) 387.5167	treesbartow@bartowga.org

TREESBartow					Fax: (770) 606.2382	
Steve Bradley County Administrator	135 West Cherokee Avenue Suite 241	Cartersville	GA	30120	(770) 387-5030	bradleys@bartowga.org
Lamont Kiser Bartow County Engineer	135 West Cherokee Avenue Suite 241	Cartersville	GA	30120	(770) 387-5067	kiserl@bartowga.org
Tammy Decker USDA Rural Development	12 Felton Place	Cartersville	GA	30120	(770) 386-3393	Tammy.decker@ga.usda.gov
Cathy Dameron, CRBI Board Member	117 Crestwood Drive	Dallas	GA	30157	(770) 505-2919	dameronb@bellsouth.net
Kathy Irish CRBI						
Gene Camp Bartow County Water System	P.O. Box 850	Cartersville	GA	30120	(770) 387-5170	campg@bartowga.org
Kenneth M. Akins Etowah Indian Mounds Site Manager	813 Etowah Indian Mound Road, S.E.	Cartersville	GA	30120	(770) 387-3747	Etowah_mounds@dnr.state.ga.us
Tommy Leonard Executive Director, Keep Paulding Beautiful, Recycling Coordinator, Recycling Division	1385 Grants Chapel Road	Dallas	GA	30120	(770) 443-0119	tleonard@paulding.gov
Pam Robinson Bartow County Environmental Health	P.O. Box 665	Cartersville	GA	30120	(770) 387-2614	pjrobinson@dhr.state.ga.us
Jim Stafford City of Cartersville Water Department	P.O. Box 1390	Cartersville	GA	30120	(770) 387-5653	jstafford@cityofcartersville.org
Kathy Floyd County Extension Agent	320 W. Cherokee Ave. Room 112	Cartersville	GA	30120	(770) 387-3747	Kpfloyd@uga.edu

In Appendix A, list the names, addresses, telephone numbers, and e-mail addresses for local governments, agricultural or commercial forestry organizations, significant landholders, businesses and industries, and local organizations including environmental groups and individuals with a major interest in this watershed.

VI. MANAGEMENT MEASURES AND ACTIVITIES

Describe any management measures or activities that have been put into place or will be put into place including regulatory or voluntary actions or other controls by governments or individuals that specifically apply to the pollutant that will help achieve water quality standards. Include who will be responsible for the measure, how it will be funded, the status, the date it will be or was initiated, and a short description of how effective the measure is or will be.

Table 5. MANAGEMENT MEASURES AND ACTIVITIES

MEASURES APPLICABLE TO FECAL COLIFORM

MEASURE	RESPONSIBILITY	DESCRIPTION	SOURCE OF FUNDING	STATUS	ENACTED/ IMPLEMENTED	EFFECTIVENESS (Very, Moderate, Weak)
Federal Clean Water Act, Section 305(b) and 303 (d) Amended 1977	USEPA, Georgia DNR EPD, Bartow County, Paulding County	The congressional objective of the Clean Water Act "is to restore and maintain the chemical, physical, and biological integrity of the Nation's waters." Section 305 (the <i>National Water Quality Inventory</i>) requires states to report progress in restoring impaired waters to EPA on a Biennial basis. Section 303(d) requires states to identify 'impaired' waters, submit a list to EPA every two years, and develop TMDLs for these waters	Federal, Georgia	Enforced	1972; amended 1977	
Georgia Water Quality Control Act (OCGA 12-5-20)	Georgia Rules and Regulations for Water Quality Control, Chapter 391-3-6	Law prohibiting discharge of excessive pollutants (sediments, nutrients, pesticides, animal wastes, etc.) into waters of the State in amounts harmful to public health, safety, or welfare, or to animals, birds, or aquatic life or the physical destruction of stream habitats. Law authorizing Georgia EPD to control water pollution, eliminate phosphate detergents, and regulate sludge disposal; to require permits for agricultural ground and surface water withdrawals; to prohibit situation of state waters by land disturbing activities and require undisturbed buffers along state waters; to require land-use plans that include controls to protect drinking water supply sources and wetlands; to require river basin management plans on a rotation schedule for all major river basins.	Federal, Georgia, Bartow County, Paulding County	Enforced	11/1964	
GA Growth Planning Act (OCGA 12-2-8)	GA DNR, Department of Community Affairs, and local units of government.	Authorized GA DNR to develop minimum planning standards and procedures that local jurisdictions could adopt and enforce pertaining to the protection of river corridors, mountaintops, water supply, watersheds/reservoirs, groundwater recharge areas, and wetlands. Silvicultural activities may be exempted from	State			

		permitting requirements provided the activity complies with BMPs.				
Georgia Planning Act, Part V Environmental planning measures. GA DNR EPD Rules for Environmental Planning Criteria (Ch. 391-3-16)	Bartow and Paulding Counties, Cities of Dallas, Emerson and Cartersville	Wetland protection, river corridor protection, etc. Minimum criteria. Requires 100' buffer on protected rivers. Water supply watershed protection also requires 100' stream buffers.	General Fund	Enforced	1989	
Georgia Erosion and Sedimentation Control Act, Construction Permit, 2003 Amendment	Bartow County, Paulding County, Cities of Cartersville, Emerson, Dallas, Georgia DNR/ EPD, Georgia Soil and Water Conservation Commission	Municipalities certified as Local Issuing Authority for land-disturbing activities. Requires Erosion and Sedimentation Control Plan incorporating best management practices plus "Qualified Personnel" Training and Certification Program adopted from Georgia Soil and Water Conservation Commission. Certification of on-site "Qualified Personnel" to ensure proper design, construction, and maintenance of standard E & S control measures and storm water management practices.	Bartow County, Paulding County, Cities of Cartersville, Emerson, Dallas	Enforced	2003	
Georgia Erosion and Sedimentation Control Act (OCGA 12-71-1)	Bartow County, Paulding County, Georgia DNR/ EPD, Georgia Soil and Water Conservation Commission	Restricts activity within 50 feet of streams that support or could support trout, and 25 feet of all other streams and lakes. This includes intermittent streams, which do not run year-round, as well as perennial streams	Bartow County, Paulding County, Georgia DNR/ EPD	Enforced	2003; EPD rule revised 1/2005	
GA Growth Planning Act (OCGA 12-2-8)	GA DNR, Department of Community Affairs, and local units of government.	Authorized GA DNR to develop minimum planning standards and procedures that local jurisdictions could adopt and enforce pertaining to the protection of river corridors, mountaintops, water supply, watersheds/reservoirs, groundwater recharge areas, and wetlands. Silvicultural activities may be exempted from permitting requirements provided the activity complies with BMPs.	State			
Erosion and Sedimentation Control Training and Certification	Georgia Soil and Water Conservation Commission, GA EPD, Rolling Hills RC&D, Bartow and Paulding Counties	House Bill 285 requires state certification in Erosion and Sedimentation Control for anyone involved in the following activities: land development, design, review, permitting, construction, monitoring, inspection, or any land-disturbing activity in Georgia (Georgia Soil and Water Conservation Commission, 2005). The GSWCC also has updated requirements for E&SC plans to be submitted with each project. Three levels of certification are offered through the Rolling Hills Regional Conservation and Development Council (RC & D) and Chattahoochee Technical College. Bartow has held class also, level 1A. Paulding County has held a level 1 A class in January 2006.	Georgia Soil and Water Conservation Commission, GA EPD, Bartow and Paulding Counties	Enforced	Certification by end of 2006; One class held in Bartow county 12/05; One class held in Paulding County 1/06	Very

<p>Etowah Habitat Conservation Plan Standard Operating Procedure (SOP) for Erosion and Sedimentation Control</p>	<p>US Fish and Wildlife Service, Bartow County, Paulding County</p>	<p>SOP includes six elements: 1. Two required preconstruction meetings- one, an early meeting with the site planner and relevant E&S professionals to identify problem areas before site plans are Finalized, and two, a subsequent meeting with the utilities, engineers, developer, E&S installation crew, and owner to review where and how E&S control measures will be installed; 2. Semi-monthly reporting requirements; 3. A bonding program; 4. A minimum inspection frequency requirement; 5. A brief E&S checklist for building inspectors; and 6. Designation of emergency on-call E&S personnel from each development. Requires updates to ordinances in participating jurisdictions.</p>	<p>Bartow County, Paulding County</p>	<p>In review</p>		
<p>Construction Storm Water Discharge NPDES Permit</p>	<p>Georgia DNR/ EPD</p>	<p>General storm water permit for stand-alone construction sites; infrastructure permits; and common developments. Requires implementation of Erosion, Sedimentation and Pollution Control Plan plus monitoring of discharge for compliance with Georgia's in-stream water quality standards.</p>	<p>State</p>	<p>Enforced</p>		
<p>Industrial Storm Water Discharge NPDES Permit</p>	<p>Georgia DNR/ EPD</p>	<p>General storm water discharge permit for manufacturing facilities; mining, oil, and gas operations; hazardous waste treatment; storage or disposal facilities; recycling centers; steam electric power generating facilities; transportation facilities; domestic sewage or sewage treatment. Requires implementation of Storm Water Pollution Prevention Program. May require storm water monitoring program targeting discharges into/near 303 (d) listed waters.</p>	<p>State</p>	<p>Enforced</p>		
<p>Notice of Intent coverage of small MS4 under NPDES Phase II general permit</p>	<p>Bartow County, Paulding County</p>	<p>NOI approved by EPD in 2005. Includes Best Management Practices to reduce non-point source pollution in the county. Paulding County NOI approved in 2005.</p>	<p>Bartow, Paulding County</p>	<p>Enforced</p>	<p>2005</p>	<p>Very</p>
<p>Phase II NPDES Storm Water Permit for Small MS4</p>	<p>Georgia DNR & EPD, Bartow County, Paulding County, City of Dallas</p>	<p>Bartow, Paulding County NOIs Approved in 2005. Requires local jurisdictions to develop a comprehensive Storm Water Management Program (SWMP) to include 1. Public Education and Outreach; 2. Public Participation and Involvement; 3. Illicit Discharge Detection and Elimination; 4. Construction Site Storm Water Runoff Control; 5. Post-Construction Storm Water Management in New Development and Redevelopment; 6. Pollution Prevention and Good Housekeeping related to municipal operations, reporting, monitoring and program implementation. Bartow, Paulding Counties are in process of implementing these best management practices.</p>	<p>Bartow County, Paulding County, City of Dallas</p>	<p>Enforced</p>	<p>2005</p>	

Watershed Assessment and Protection Plan for Phase II NPDES Permitting	Bartow County, Paulding County, City of Dallas	Required for new or expanding wastewater treatment discharge permits. Internal assessment of storm water pollution prevention plan (map of facilities and responsibilities for upkeep): Reference TMDL implementation plans (TMDLIP) and water quality strategies for non-point source pollution elimination. Drives local land use planning. Georgia EPD guidelines include Management Measures Specific for 303(d) listed stream segments in the impacted watershed. WPP to reference TMDLIP already developed. Where no TMDLIP developed, WPP to outline management/ monitoring measures targeting listing violations; identify authority responsible for implementing the above management/ monitoring measures; indicate possible funding sources; establish current status and/or date measures will be initiated, and expected effectiveness; and design educational and outreach activities for intended audiences.	Bartow County, Paulding County, City of Dallas	Enforced	Bartow, 2005; Paulding, approved 2006; City of Dallas, ongoing	
Sanitary Sewer Maintenance Program	Bartow County, Paulding County, City of Dallas	Sanitary Sewer system inventory and inspection (mapping, television inspections); infiltration and inflow identification and reduction (flow monitoring, smoke testing); sewer line rehabilitation (pipe bursting, relining, cleaning) and manhole rehabilitation.	Bartow County, Paulding County, City of Dallas	Enforced	Ongoing	
District-wide Watershed Management Plan	Georgia DNR/EPD, Metropolitan North Georgia Water Planning District (SB 130), Bartow County, Cartersville, Paulding County, City of Dallas	Bartow has adopted five of six Model Storm Water Management Ordinances that address Post Development Storm Water Management for New Development and Redevelopment, Conservation Subdivision/ Open Space Development, Illicit Discharge and Illegal Connection, Litter Control, and Stream Buffer Protection as required by Georgia EPD in MS4 Phase II Permit Renewals. The District Plan also addresses municipal good housekeeping practices to control non-point source pollution; improved enforcement of erosion and sedimentation control; storm water management for transportation projects; and education and public awareness activities.	Bartow County, Cartersville, Paulding County, City of Dallas	Enforced	Bartow, 12/2005	
Watershed Protection Tools Addressing Poor Riparian Buffers	Bartow County and stakeholders	Riparian Buffer Ordinance (Stream Buffer Protection Ordinance of 50'); Stream Restoration; Stream Mitigation Bank; Conservation Subdivision Ordinance	Bartow County	Enforced	Compliant with or exceeds Metro N. GA District model ord. 12/07/05	Very if enforced
Watershed Protection Tools Addressing Point Sources	Bartow County and stakeholders	Improved NPDES permits; Enforcement of existing permits	Bartow County	Enforced	Compliant with or exceeds Metro N. GA	Very if enforced

Plan for Pumpkinvine Creek
HUC 10 #: 0315010411

					District model ord. 12/07/05	
Watershed Protection Tools Addressing Impervious Surfaces and Storm Water Runoff	Bartow County and stakeholders	Relevant Storm water Management and Conservation Subdivision Ordinances; Conservation Planning	Bartow County	Enforced	Compliant with or exceeds Metro N. GA District model ord. 12/07/05	Very if enforced
County Municipal Ordinance	Bartow County/ Code Enforcement Office	Post-Development Stormwater Management Ordinance with stream buffer limits; Litter Control Ordinance; Conservation Subdivision ordinance; Riparian Buffer ordinance; Greenspace Ordinance	General fund	On-going	January 2005	Very
Federal Endangered Species Act of 1973	Department of the Interior, US Fish and Wildlife Service	Provides a means whereby the ecosystems upon which endangered species and threatened species depend may be conserved, to provide a program for the conservation of such endangered species and threatened species, and to take such steps as may be appropriate to achieve those purposes	USFWS	Enforced	1973	Very if enforced
Etowah Habitat Conservation Plan Stormwater Ordinance with Better Site Design Guidelines and Addendum: Runoff Limits, Priority Area Protection and Maintenance of Stormwater Facilities	US Fish and Wildlife Service, Bartow County, Paulding County	Additions to Metropolitan North Georgia Water Planning District Model Storm Water Management Ordinance addressing impervious surface runoff including 1. Clarification of bond and fee requirements; 2. Strengthening maintenance and inspection requirements, 3. Encouraging the use of Better Site Design credits, with additional performance standards for high priority habitat areas including section five, Model Runoff Limits Ordinance. This establishes requirements for runoff infiltration system installation and maintenance. Development of Runoff Limits Manual in progress (2006) Engineering Specifications for Structural BMPs. Requires updates to ordinances in participating jurisdictions.	Bartow County, Paulding County	Enforced	Compliant with or exceeds Metro N. GA District SW ord. 12/07/05	
Etowah Habitat Conservation Plan Stream Buffer Ordinance	US Fish and Wildlife Service, Bartow County, Paulding County	For those jurisdictions in the Metropolitan North Georgia Water Planning District, Additions are made to the district's Model Stream Buffer Ordinance addressing granting of variances. Requires updates to ordinances in participating jurisdictions.	Bartow County, Paulding County	Proposed	Compliant with or exceeds Metro N. GA District model ord. 12/07/05	
Etowah Habitat Conservation Plan Conservation Subdivision Ordinance	US Fish and Wildlife Service, Bartow County, Paulding County	For those jurisdictions in the Metropolitan North Georgia Water Planning District, changes made to the district's Model Conservation Subdivision Ordinance include requirement of site map analysis for all developments with open space plans, instruments of permanent	Bartow County, Paulding County		Compliant with or exceeds Metro N. GA District	

		protection, and a four-step design process specified; and changes to primary conservation sites to be included in open space requirements including 100-year floodplain, 75-foot stream buffers, 25%-or-greater slopes, wetlands, endangered species habitats, and archeological sites. Requires updates to ordinances in participating jurisdictions. Places emphasis on protecting stream buffers and significant hydrological features..			model ord. 12/07/05	
Etowah Habitat Conservation Plan Conservation Road Crossing and Culvert Design Guidelines	US Fish and Wildlife Service, Bartow County, Paulding County	Road Crossings Technical Committee is in the process of developing design guidelines for road crossings of stream and stream culverts to alleviate habitat concerns that pipe culverts limit fish movement in stream	Bartow County, Paulding County		In committee	
Etowah Habitat Conservation Plan Conservation Utility Line Crossing and Construction Recommendations	US Fish and Wildlife Service, Bartow County, Paulding County	Utility Crossings Technical Committee is in the process of developing design guidelines for utility stream crossings to reduce sedimentation and other habitat concerns resulting from erosion of land disturbed by utility activities	Bartow County, Paulding County		In committee	
Storm drain stenciling requirement	Bartow County	County ordinance requiring stenciling of storm drains by developers for new housing developments.		Enforced	2004	
Storm drain stenciling	Keep Bartow Beautiful	Volunteers stencil storm water drains in older residential developments		Voluntary	2004	
EPA Section 319 Non-point Source Implementation Grants	Georgia Department of Agriculture/ Georgia Environmental Protection Division for enforcement action	Funds distributed through a competitive process to public agencies, regional development centers, state colleges and universities, and state agencies.	Federal, State		Yearly	Varies with BMP or project
Georgia Best Management Practices	Georgia DNR/EPD	Informs those involved in the agriculture business of effective practices to minimize non-point sources of pollution	Georgia			Varies with BMP
Georgia's Best Management Practices	Georgia Forestry Commission (matters involving enforcement are generally referred to GA EPD)	GFC program to inform landowners, foresters, timber buyers, loggers site preparation and reforestation contractors and others involved with silvicultural operations about commonsense, economical effective practices to minimize nonpoint source and thermal pollution. GFC encourages and monitors compliance and conducts a complaint resolution program.				>75% when properly applied to site preparation and harvesting activities.
Georgia Forestry Commission Monthly BMP Assurance Examination	Georgia Forestry Commission (matters involving enforcement are generally referred to GA EPD)	In an effort to document "reasonable assurance" that water quality will be proactively protected during regular ongoing silvicultural operations, the GCF will offer a monthly BMP assurance examination of active sites. All active of ongoing sites will be identified either through	Federal and State			

		monthly air patrol flights, courthouse records, riding the roads, notification or by landowners. Sites located within watersheds of specific biota (sediment) impaired streams will be given a higher priority to identify and conduct examinations.				
Memo to the Field: Application of BMPs to mechanical silvicultural site preparation activities for the establishment of pine plantations in the Southeast (Silviculture)	EPA/ US Army Corps of Engineers - (cases normally referred to GFC to make initial determination)	Identifies certain bottomland hardwood wetlands that should be subject to permitting if converting to pine plantations.	State			
Federal Farm Bill (Swampbuster, Ag)	US Department of Agriculture Natural Resource Conservation Service	Prohibits landowners participating in federal price support programs from converting forested wetlands to agriculture	Federal			
Partners for Fish and Wildlife	US Fish and Wildlife Services	This is a proactive, voluntary program that works with private landowners to restore fish and wildlife habitats on their land. The projects have several different focuses, but for the purpose of water quality the projects focus on stream and riparian restoration and restoration of rare species habitat.	Federal variable cost share			Effectiveness will vary with the specific application and must be individually determined.
Farm Bill 2002	United States Department of Agriculture / National Resources Conservation Services	Enhances long-term quality of our environment and conservation of our natural resources. This bill provides several opportunities for receiving grants to improve water quality.	Federal Cost-Share and Incentive Programs.			Effectiveness will vary with the specific application and must be individually determined.
Environmental Quality Incentives Program (EQIP)	Natural Resources Conservation Services	Voluntary program that provides technical and cost share assistance for protection of ground and surface water, erosion control, air quality, wildlife habitat, and plant health.	Federal 50% cost share with possible additional incentive payments			Effectiveness will vary with the specific application and must be individually determined.
Special Forestry/Wildlife Environmental Quality Incentives Program (EQIP)	Natural Resources Conservation Services	Special funds allocated out of the EQIP program that will address forest road erosion/water quality, plant health, and wildlife habitat. This program has a separate ranking for rewarding money from the regular EQIP program.	Federal 50% cost share with possible additional incentive payments			Effectiveness will vary with the specific application and must be individually determined.
Wildlife Habitat Incentives Program (WHIP)	Natural Resources Conservation Services	Provides technical and cost share assistance for the creation of high quality wildlife habitat. Habitats of special concern include riparian areas and endangered	Federal 75% of cost of the installation of			Effectiveness will vary with the specific application

		and threatened species habitat.	practice provided			and must be individually determined.
Wetlands Reserve Program (WRP)	Natural Resources Conservation Services	Provides technical and financial assistance to landowners to enhance degraded wetlands degraded by farming or draining. There are three options with WRP to receive funds that have differing time agreements and easements resulting in different cost share. In all programs participants control access to the land, may lease or use land for hunting, fishing, and other passive recreational activities. Compatible uses are allowed as long as the do not degrade the wetland.	Federal (Farm Bill 2002) Cost Share 1. Permanent Easement :Pays appraised value of land (\$2,000/ acre cap) and 100% of costs of restoration. 2. 30-Year Easement: Pays 75% of appraised value of land and 75% of restoration costs. 3. Restoration Cost Share Agreement: Pays 75% of restoration costs, no easement on the property.			Effectiveness will vary with the specific application and must be individually determined.
Chapter 40-13-8 Animal Manure Handlers Rules of Georgia Department of Agriculture Animal Industry Division	Georgia Department of Agriculture	This requires that persons engaged in removing animal manure from livestock/poultry production areas, transporting animal manure on public roadways, or depositing animal manure to a premise other than its point of origin obtain a permit and follow rules to control animal disease, and outlines regulations for transportation, equipment and storage.	State			Effectiveness will vary with the specific application and must be individually determined.
Farm Bill 2002 Forestland Enhancement Program	Georgia Forestry Commission	The Forestry Commission has implemented best management practices on its lands to reduce sedimentation and erosion from silviculture practices. The Georgia Forestry Commission also provides education, technical and financial assistance through cost-share programs to private landowners especially in the Forestland Enhancement Program, a part of the 2002 Farm Bill.	Federal, State		Ongoing	Very
Federal Farm Bill 2002	United States Department of Agriculture/ Natural Resources Conservation Service	Enhances long-term quality of our environment and conservation of our natural resources. This bill provides several opportunities for receiving grants to improve water quality.	Federal Cost-Share and Incentive Programs		2002	Varies with BMP applied.

Federal Farm Bill (Swampbuster Ag)	United States Department of Agriculture / National Resources Conservation Services	Prohibits landowners participating in federal price support programs from converting forested wetlands to agriculture.	Federal			
Conservation Reserve Program (CRP)	Natural Resources Conservation Services / USDA Farm Services Agency	Provides technical assistance, rental payments and cost share funding to address specific natural resource concerns including: protection of ground and surface waters, soil erosion and wildlife habitat. Eligible practices include tree planting, grassed waterways, wildlife habitat buffers, and shallow water area for wildlife and filter strips.	Federal, State, landowner	Cost-share	Ongoing	Varies
Continuous Conservation Reserve Program (CCRP)	Natural Resources Conservation Service	Conservation cost-share for best management practices such as fencing livestock out of streams; provides up to a 90-10% cost-share	Federal Annual rental payment for land taken out of production and 50% cost share for practice installation.	Cost-share	Ongoing	Varies with BMP applied.
Conservation of Private Grazing Land Program	United States Department of Agriculture / National Resources Conservation Services	This technical assistance will offer opportunities for: better grazing land management; projects for improving water quality include: protecting soil from erosive wind and water; conserving water; providing habitat for wildlife; sustaining forage and grazing plants.	Federal (Farm Bill 2002) This is not a Cost-Share Program.			Varies with BMP applied.
Conservation Security Program (CSP)	Natural Resources Conservation Services	This is the first program that rewards farmers and ranchers for high levels of environmental stewardship. Producers on cropland, orchards, vineyards, pasture and range may apply for CSP regardless of size, type of operation, or crops produced. Land in other cost share programs is not eligible. CSP will first be offered in watersheds with greatest potential for improving water quality, soil quality and grazing land condition. In 2005, the four watersheds of focus will be the Ichawaynochaway, Kinchagoonee-Muckalee, Middle Flint, and Upper Ochlockonee. An enhancement example is to install a riparian buffer,	Federal (Farm Bill 2002) Cost Share There is three tiers of involvement, which result in different expectations and cost share opportunities.			Effectiveness will vary with the specific application and must be individually determined.
Georgia Best Management Practices	Georgia Department of Agriculture / Georgia Environmental Protection Division for enforcement action.	Informs those involved in the agricultural business of effective practices to minimize nonpoint source pollution.	State			Varies with BMP applied.
Section 319(h) Nonpoint Source Implementation Grant	Georgia Environmental Protection Division	Funds distributed through a competitive process to public agencies, regional development centers, State colleges and universities, and State agencies. Eligible projects include TMDL or Watershed Management Plan Implementation, BMP Demonstrations, and Information	Federal and State Cost Share Program. Recipient must provide 40%			Effectiveness will vary with the specific application and must be individually

Plan for Pumpkinvine Creek
HUC 10 #: 0315010411

		and Education.	match.			determined.
Stormwater drain marking	Ray Austin, Paulding County Stormwater Maintenance Dept.	Labeling of drains and manholes: NO DUMPING/DRAINS TO CREEK	General Budget	On-going	Implemented	Very
Replacement of sewer lids	Ray Austin Paulding County	Lost sewer lids, replaced with new lids labeled: NO DUMPING/DRAINS TO CREEK, with locking mechanisms	General Budget	On-going as needed	Implemented	Very
Municipal Ordinances	Ken Elsberry, City of Dallas	Illicit Discharge, Stream Buffer, Floodplain Prevention, Litter Ordinances (Adopted in Jan. 3, 2005, July 11, 2005, July 1, 1996, Jan 1, 1986)	General Budget	On-going enforcement	Implemented	Very
Environmental Quality Incentives Program (EQIP)	Natural Resources Conservation Services	Voluntary Program that provides technical and cost-share assistance for protection of ground and surface water, erosion control, air quality, wildlife habitat, and plant health	Federal (Farm Bill 2002) 50% Cost share with possible additional payments			
Rules and regulations for onsite wastewater management (Septic system permitting)	Bartow and Paulding Counties Departments of Public Health	Regulates through permits and inspections of on-site sewage management systems	Bartow and Paulding Counties	Enforced	Ongoing	
Sanitary Sewer Maintenance Program	Bartow and Paulding Counties	Sanitary Sewer system inventory and inspection (mapping, television inspections); infiltration and inflow identification and reduction (flow monitoring, smoke testing); sewer line rehabilitation (pipe bursting, relining, cleaning) and manhole rehabilitation.	Bartow and Paulding Counties	Enforced	Ongoing	
Pollution Prevention Litter Removal	Bartow and Paulding Counties Solid Waste Director	Remove litter from County roads and properties using labor from State correctional facilities	General Fund	Ongoing	January 2004	Very
Pollution Prevention Good Housekeeping for Municipal Operations	Paulding County	Insure all County facilities submit an NOI for industrial discharges; Assist each facility with development of a Storm Water Pollution Prevention Plan (SWPPP); Educate and inspect those facilities	General Fund	Ongoing	December 2004	Very
Stormwater Best Management Practices	Bartow, Paulding Counties	Implement recommended Best Management Practices to address Biota (Sediment)/ Habitat and other pollutants as detailed in the Phase II MS4 Stormwater Management Plan to include 1. Public Education and Outreach; 2. Public Participation and Involvement; 3. Illicit Discharge Detection and Elimination; 4. Construction Site Storm Water Runoff Control; 5. Post-Construction Storm Water Management in New Development and Redevelopment; 6. Pollution Prevention and Good Housekeeping related to municipal operations, reporting, monitoring and program implementation	General Fund	Recommended	2006	May vary

Plan for Pumpkinvine Creek
HUC 10 #: 0315010411

Stream Buffer Installation and Maintenance Incentives	Bartow, Paulding Counties	Explore incentives for developers (such as density variances) who meet or exceed stream buffer requirements in developments who agree to maintain buffers for specified period; similar incentives for homeowners		Recommended 2006		May vary
District-wide Septic System Maintenance	Bartow, Paulding Counties Environmental Health, Northwest Georgia Health District	Expand ongoing education and outreach to promote proper maintenance of private septic systems using DVD program	Homeowners with existing septic systems	Recommended 2006		

VII. MONITORING PLAN

The purposes of monitoring are to obtain more data, to determine the sources of pollution, to describe baseline conditions, and to evaluate the effects of management and activities on water quality. Describe any sampling activities or other surveys - active, planned or proposed - and their intended purpose. Reference the development and submission of a Sample Quality and Assurance Plan (SQAP) if monitoring for delisting purposes.

Table 6. MONITORING PLAN

PARAMETER (S) TO BE MONITORED	ORGANIZATION	STATUS (CURRENT, PROPOSED, PLANNED)	TIME FRAME		PURPOSE (If for delisting, date of SQAP submission)
			START	END	
Fecal Coliform, other parameters	City of Dallas, Watershed Assessment	Proposed	Summer 2006		Regulatory
Fecal Coliform	EPD, USGS	Current	Every 5 years	2006	Ongoing monitoring for listing, delisting of impaired streams
Fecal Coliform	City of Cartersville	Current	July 2005	July 2006	Monitoring discharge for FC bacteria as result of reported overflow from Cartersville Biosolids WPCP
Fecal Coliform	Bartow County's Long-Term Monitoring Plan	Current	Ongoing		Inclusion of TMDL impairments in Bartow
Fecal Coliform, other parameters	Paulding County Watershed Assessment	Proposed	2000-2001; Summer 2006		Regulatory
Watershed flow, temperature data, Water quality sampling, Wastewater treatment facility sampling (BOD, DO, Temp, TKN, NH ₃ , NO ₂ - NO ₃ , total P, ortho-phosphate, TOC, conductivity, and Ph), Basin-wide phosphorus, and Specialized studies (EPD).	EPD, USGS	Current	2005-2006		Coosa River Basin Modeling study

VIII. PLANNED OUTREACH FOR IMPLEMENTATION

List and describe outreach activities which will be conducted to support this plan and the implementation of it.

Table 7. PLANNED OUTREACH

RESPONSIBILITY	DESCRIPTION	AUDIENCE	DATE
Tara Siskey Public Outreach Coordinator, Paulding County	Stormwater Education; classes for high school and middle school teachers and handouts	General public, target to schools, summer camps, etc.	On-going 2004-2006
Ray Austin Supervisor, Stormwater Management, Paulding County	Mapping of stormwater drainage through out the county. 25% of the urban areas of the county was mapped in 2005 for Phase II stormwater permitting.	EPD compliance	2005
Ray Austin Supervisor, Stormwater Management, Paulding County	Mapping of stormwater drainage to 100% of county by 2006	EPD compliance	2006
Tommy Leonard, Recycling Coordinator, Paulding Co.	Keep Paulding County Beautiful; Enviroscape (illustrates non-point source pollution in the classroom using tabletop model); Adopt-A-Stream	General public, schools	On-going
Bartow County Greenspace Committee	Ongoing efforts to purchase greenspace lands in Bartow County; meetings are open to anyone interested and include discussion of benefits of greenspace to local water quality	Open membership	Ongoing
Director of Engineering, Bartow County	Mapping of stormwater drainage outfall areas through out the county. 100% of the county will be mapped in 2006	EPD compliance, MS4 Permit	2006
Bartow Co. Director of Planning and Zoning	Comprehensive stormwater awareness training program	Bartow County Homeowner's Association	Ongoing since July 2004
Sherri Henshaw Coordinator, Keep Bartow Beautiful	Teacher Training for Waste In Place, Project WET (Water Education for Teachers "to facilitate and promote awareness, appreciation, knowledge, and stewardship of water resources," Enviroscape (illustrates non-point source pollution in the classroom using tabletop model)	Teachers, students in grades K-12	Ongoing
Sherri Henshaw Coordinator, Keep Bartow Beautiful	Stormwater-related presentation materials provided to schools	Elementary and Middle schools	Yearly since October 2004
Sherri Henshaw Coordinator, Keep Bartow Beautiful	Develop a speakers' bureau to provide outreach on storm water issues	Local civic groups	Ongoing since July 2004
Bartow County Staff	Develop mechanism to improve "interjurisdictional cooperation on TMDL and Watershed Improvement issues"	City of Cartersville, Paulding County, and Polk County	Proposed
Kathy Floyd Bartow County Extension Agent	Articles on water quality written for local newspaper, ongoing outreach on water quality issues	Bartow 4-H Club, citizens	Ongoing
Rolling Hills Resource Conservation and Development Council	Envirothon, a yearly district and state competition for high school students testing skills and knowledge of aquatics including water quality, and other environmental topics	High School Students	March 2006
Adopt-A-Stream, in conjunction with Coosa River Basin Initiative	Water quality chemical and biological volunteer training and monitoring, stream clean-up, stream bank and habitat	Individuals, families, school groups, civic clubs, and businesses	Ongoing

(CRBI)	restoration, and visual stream surveys		
CRBI	Non-point source pollution education program	Elementary school students	Ongoing
Bartow County Board of Tax Assessors	Implement tax relief program for property owners who place conservation easements on all or part of properties, especially for greenspace on Timber lands	Property owners especially those with large timber holdings	Proposed
Paulding County	Outreach and provision of public information about historical and future watershed assessments	General Public	Ongoing
Paulding County	Advertised stormwater management activities in local paper, established local hotline, and distributed refrigerator magnets	General Public	2005
Polk County Environmental Health Department	Participates in a statewide DVD education program for new septic system owners.	Landowners	Ongoing
Bartow, Paulding Counties	Stormwater Management Education and Outreach <ul style="list-style-type: none"> Complete Center for Watershed Protection's <u>Codes and Ordinances Worksheet</u> 	General Public	2006
Bartow, Paulding Counties	<ul style="list-style-type: none"> Consider Adopting 22 Model Development Principles as discussed in <u>Better Site Design: A Handbook for Changing Development Rules in Your Community</u> where applicable 	General Public	2007-2008
Bartow, Paulding Counties	<ul style="list-style-type: none"> Implement education of community using After the Storm non-point source pollution video presentation on public access channels 	General Public	Ongoing
Coosa Valley RDC, stakeholders	<ul style="list-style-type: none"> Reconvene Stormwater Working Group to include all counties, municipalities in Coosa Valley RDC area 	All counties, municipalities in Coosa Valley RDC area	2006
Coosa Valley RDC, stakeholders	<ul style="list-style-type: none"> Will investigate 319 h non-point source pollution grant possibilities regarding funding for development of stormwater management training for municipal employees 	Bartow, Paulding Counties	2006
Coosa Valley RDC, stakeholders	Septic System Maintenance Education and Outreach <ul style="list-style-type: none"> Investigate expansion of district-wide outreach component to homeowners to include those with existing systems 	General Public	2006
Coosa Valley RDC, stakeholders	<ul style="list-style-type: none"> Will investigate 319 h non-point source pollution grant possibilities regarding septic system maintenance and repair project 	General Public	2006
Bartow, Paulding Counties	Riparian Buffer Education and Outreach <ul style="list-style-type: none"> Consider adopting relevant principles as detailed in 22 Model Development Principles as discussed in <u>Better Site</u> 	General Public	2007-2008

<p>USDA NRCS/FSA, County Extension Service</p> <p>Coosa Valley RDC, stakeholders</p>	<p><u>Design: A Handbook for Changing Development Rules in Your Community</u></p> <ul style="list-style-type: none"> Continue education and outreach to local communities through USDA NRCS/FSA, County Extension Service Will investigate 319 h non-point source pollution grant possibilities regarding purchasing and distribution of education materials encouraging homeowners to develop, maintain riparian buffers 	<p>General Public, Homeowners</p> <p>Homeowners</p>	<p>Ongoing</p> <p>2006</p>
<p>Coosa Valley RDC, stakeholders</p>	<p>Investigate Funding Sources</p> <ul style="list-style-type: none"> Will investigate 319 grant possibilities regarding development of a project to survey schools in Coosa Valley RDC service area to determine interest in and feasibility of water quality education, specifically on causes of non-point source pollution, importance of riparian buffers, and stormwater pollution prevention 	<p>General Public</p>	<p>2006</p>

IX. MILESTONES/ MEASURES OF PROGRESS OF BMPs AND OUTREACH

This table will be used to **track and report progress of management measures including BMPs and outreach**. Record milestone dates for:

- accomplishment of management practices or activities
- outreach activities
- installation of BMPs

to attain water quality standards. Comment on the effectiveness of the management measure, how much support the measure was given by the community, what was learned, how the measure might be improved in the future, and any other observations made. This table can be "pulled out" of this template and used to report and track progress.

Table 8. MILESTONES

MANAGEMENT MEASURE	RESPONSIBLE ORGANIZATIONS	STATUS		COMMENT
		PROPOSED	INSTALLED	
Greenspace including river buffers bought, and conservation easements sought	Bartow County Greenspace Committee	December 2005		Land borders Etowah River and Pumpkinvine Creek and would include location of new state-of-the-art Bartow County Wastewater Treatment Plant with land application system included in covenanted greenspace
Components of Bartow County's NPDES Phase II Stormwater Management Plan: Public Education and Outreach <ul style="list-style-type: none"> • School System Stormwater Presentations • E & S Training Workshop • Speaker's Bureau • Stormwater Educational Materials • Stormwater Web Page • Newspaper Articles 	Keep Bartow Beautiful Coord. Bartow County Dir. Engineering Keep Bartow Beautiful Coord. Bartow County Dir. Engineering County Engineer/ IT Director Bartow County Extension Agent	2004 2004 2004 2005 2005	2004-2006 2004 Ongoing 2006 2006 2006	
Components of Bartow County's NPDES Phase II Stormwater Management Plan: Public Participation and Involvement <ul style="list-style-type: none"> • Storm Drain Stenciling • River Clean-up 	Keep Bartow Beautiful Coord. Keep Bartow Beautiful Coord.	2003 2004	2004 2007	
Components of Bartow County's NPDES Phase II Stormwater Management Plan: Illicit Discharge Detection and Elimination <ul style="list-style-type: none"> • Storm Sewer Map • Ordinance/Regulatory Mech. Evaluation • Illicit Discharge Detection/ Elimination Ordinance • Industry Database • Dry Weather Screening • Source Tracing/Removal Proced. 	Bartow County Bartow County Bartow County Engineer Bartow County Engineer Bartow County Engineer Bartow County Engineer	2004 2004 2005 2005 2005 2005	2004-2006 2005 2005 2006-2009 2008 2006	
Components of Bartow County's NPDES Phase II Stormwater Management Plan:				

<p>Construction Site Storm Water Runoff Control</p> <ul style="list-style-type: none"> • Ordinance Evaluation • Litter Control Ordinance • Development Plan Review • Stormwater Quality Site Inspections • Stormwater Quality Violation Plan • Erosion & Sedimentation Certification • Citizen Complaint Hotline 	<p>Bartow County Engineer Bartow County Engineer Bartow County Engineer Bartow County Engineer/Inspection Bartow County Engineer/Inspection Bartow County Engineer Code Enforcement/ County Engineer</p>	<p>2004 2005 2005 2005 2005 2005 2005</p>	<p>2006 2006 2006 2006 2006 2006 2006</p>	
<p>Components of Bartow County's NPDES Phase II Stormwater Management Plan: Post-Construction Storm Water Management in New Development and Redevelopment</p> <ul style="list-style-type: none"> • Ordinance Evaluation • Stormwater Management Ordinance • Conservation Subdivision Ordinance • Adoption of Stormwater Design Manual • Countywide Watershed Assessment • BMP Mapping • Stormwater Management Facility Inspection & Maintenance Program • New Stormwater Management Facility Water Quality Assessment 	<p>Bartow County Engineer Bartow County Engineer Bartow County Engineer Bartow County Engineer Director- Water & Sewer County Engineer Road Dept. Director/ County Engineer County Engineer</p>	<p>2004 2005 2005 2003 2005 2005 2005 2005</p>	<p>2005 2005 2005-2006 2003-2006 2006-2010 2005-2006 2005 2005</p>	
<p>Components of Bartow County's NPDES Phase II Stormwater Management Plan: Pollution Prevention and Good Housekeeping</p> <ul style="list-style-type: none"> • County Fleet Maintenance Fluids Recycling • Employee Hazardous Materials Training • Roadside Cleanup • Evaluation, Implementation of Stormwater Pollution Prevention Plans for County Facilities 	<p>Bartow County Solid Waste Director County Administrator/ Director, Water & Sewer Solid Waste Director Director, Water & Sewer</p>	<p>2004 2004 2004 2005</p>	<p>2004-2006 2004-2008 2005 2006</p>	

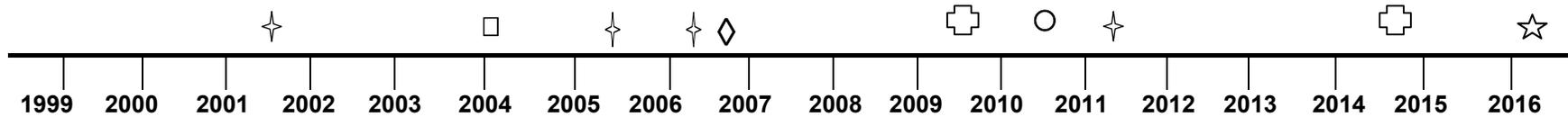
<ul style="list-style-type: none"> • Bring One for The Chipper • Collection Centers • Existing Pond Water Quality Assessment • Vacuum and Jet Clean Storm Structures • Illegal Dumping Control 	<p>Keep Bartow Beautiful Coordinator Solid Waste Director</p> <p>Road Dept. Director/ County Engineer</p> <p>Road Dept. Director/ Stormwater Superintendent of Operation and Maintenance</p> <p>Solid Waste Director</p>	<p>2005 2004 2005</p> <p>2005</p> <p>2005</p>	<p>2005 2004 2005-2007</p> <p>2005</p> <p>2005-2008</p>	
Workshop on proper maintenance of septic systems for Allatoona Community Association homeowners	Keep Bartow Beautiful Coordinator	2006	2006	
Metro North Georgia Water Planning District Model Storm Water Management Ordinances: Post Development Storm Water Management for New Development and Redevelopment	Bartow County	2005	2005	
Metro North Georgia Water Planning District Model Storm Water Management Ordinances: Conservation Subdivision/ Open Space Development	Bartow County	2005	2005	
Metro North Georgia Water Planning District Model Storm Water Management Ordinances: Illicit Discharge and Illegal Connection Ordinance	Bartow County	2005	2005	
Metro North Georgia Water Planning District Model Storm Water Management Ordinances: Litter Control Ordinance	Bartow County	2005	2005	
Metro North Georgia Water Planning District Model Storm Water Management Ordinances: Stream Buffer Protection Ordinance	Bartow County	2005	2005	
Stormwater Management Education and Outreach				
<ul style="list-style-type: none"> • Complete Center for Watershed Protection's <u>Codes and Ordinances Worksheet</u> 	Bartow, Paulding Counties	Summer 2006		
<ul style="list-style-type: none"> • Consider Adopting 22 Model Development Principles as discussed in <u>Better Site Design: A Handbook for Changing Development Rules in Your Community</u> where applicable 	Bartow, Paulding Counties	2007-2008		
<ul style="list-style-type: none"> • Implement education of community using After the Storm non-point 	Bartow, Paulding Counties	Ongoing		

<p>source pollution video presentation on public access channels</p> <ul style="list-style-type: none"> • Reconvene Stormwater Working Group to include all counties, municipalities in Coosa Valley RDC area • Will investigate 319 h non-point source pollution grant possibilities regarding funding for development of stormwater management training for municipal employees 	<p>Coosa Valley RDC, stakeholders</p>	<p>2006</p>		
<p>Septic System Maintenance Education and Outreach</p> <ul style="list-style-type: none"> • Investigate expansion of district-wide outreach component to homeowners to include those with existing systems • Will investigate 319 h non-point source pollution grant possibilities regarding septic system maintenance and repair project 	<p>Coosa Valley RDC, stakeholders</p>	<p>2006</p>		
<p>Riparian Buffer Education and Outreach</p> <ul style="list-style-type: none"> • Consider adopting relevant principles as detailed in 22 Model Development Principles as discussed in Better Site Design: A Handbook for Changing Development Rules in Your Community • Continue education and outreach to local communities through USDA NRCS/FSA, County Extension Service • Will investigate 319 h non-point source pollution grant possibilities regarding purchasing and distribution of education materials encouraging homeowners to develop, maintain riparian buffers 	<p>Bartow, Paulding Counties</p>	<p>2007-2008</p>		
	<p>USDA NRCS/FSA, County Extension Service</p>	<p>Ongoing</p>		
	<p>Coosa Valley RDC, stakeholders</p>	<p>2006</p>		<p>Application deadline May 31, 2006. Yearly deadline.</p>

<p>Investigate Funding Sources</p> <ul style="list-style-type: none"> Will investigate 319 grant possibilities regarding development of a project to survey schools in Coosa Valley RDC service area to determine interest in and feasibility of water quality education, specifically on causes of non-point source pollution, importance of riparian buffers, and stormwater pollution prevention 	<p>Coosa Valley RDC, stakeholders</p>	<p>2006</p>		<p>Application deadline May 31, 2006. Yearly deadline.</p>
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PROJECTED ATTAINMENT DATE

The projected date to attain and maintain water quality standards in this watershed is 10 years from acceptance of the TMDL Implementation Plan by Georgia EPD.



- Scheduled EPD Basin Group Monitoring ✦
- TMDL Completed □
- Revised TMDL Implementation Plan Accepted ◇
- Plan Status Evaluation Report ✦
- Plan Update or Revision, if Necessary ○
- Project Attainment for Plans Prepared in 2006 ☆

Prepared By:	<u>Julianne Meadows</u>		
Agency:	<u>Coosa Valley Regional Development Center</u>		
Address:	<u>P.O. Box 1793</u>		
City:	<u>Rome</u>	ST:	<u>GA</u> ZIP: <u>30162</u>
E-mail:	<u>imeadows@cvrdc.org</u>		
Date Submitted to EPD:	<u>04/22/06</u>	Revision:	<u>01</u>

amended.

APPENDIX A.
STAKEHOLDERS

List the names, addresses, telephone numbers, and e-mail addresses for local governments, agricultural or commercial forestry organizations, significant landholders, businesses and industries, and local organizations including environmental groups and individuals with a major interest in this watershed.

NAME/ORG	ADDRESS	CITY	STATE	ZIP	PHONE	E-MAIL
Mary Carol Sheffield, Paulding County Extension Agent	530 W. Memorial Drive	Dallas	GA	30132	770-443-7616	msheff@uga.edu
Ray Austin, Supervisor, Storm Water Management, Paulding County	38 Tower Drive	Dallas	GA	30132	770-445-2761 ext 205	Email thru assistant Tara Siskey: tsiskey@paulding.gov
Kenneth P. Elsberry, City Manager of Dallas, GA	129 E. Memorial Drive	Dallas	GA	30132	770-443-8110	kenels@bellsouth.net
Bruce Coyle, County Engineer, or representative	1705 West Hiram Drive	Hiram	GA	30141	(770) 222-6850 X 222	bcogle@paulding.gov
Catherine Fox, FOX Environmental, LLC	262 Forkner Drive	Decatur	GA	30030	(404) 441-7568	foxenvironmental@comcast.net
Keith Gilmer Georgia Soil and Water Conservation Commission	700 East 2nd Ave. Suite J	Rome	GA	30161	(706) 295-6131	K_gilmer@gaswcc.org
John Loughridge Georgia Soil and Water Conservation Commission	700 East 2nd Ave. Suite J	Rome	GA	30161	(706) 295-6131	J_loughridge@gaswcc.org
Curt Gervich Etowah Habitat Conservation Program	P.O. Box 287	Acworth	GA	30503	(678) 801-4013	curt@etowahhpc.org
Cindy Haygood Rolling Hills Regional Conservation and Development Council	P.O. Box 1550	Dallas	GA	30132	(770) 505-4288	Cindy.Haygood@ga.usda.gov
Machelle Simmons, USDA Natural Resource Conservation Service	717 South Wall Street Suite 1	Calhoun	GA	30701	(706) 629-2582 X 3	Machelle.simmons@ga.usda.gov
Sherri Henshaw, Coordinator, Keep Bartow Beautiful	P.O. Box 786	Cartersville	Georgia	30120	770.387.5167 Fax: 770.606.2382	henshaws@bartowga.org
Melissa (Missy) Phillips, Director, TREESBartow	P.O. Box 786	Cartersville	Georgia	30120	770.387.5167 Fax: 770.606.2382	
Sherri Teems, National	1401 Dean Street Suite I	Rome	GA	30161	(706) 291-5651 X	sheri.teems@ga.usda.gov

Resource Conservation Service					3	
Cindy Haygood Rolling Hills Regional Conservation and Development Council	P.O. Box 1550	Dallas	GA	30132	(770) 505-4288	Cindy.Haygood@ga.usda.gov
Steve Bradley County Administrator	135 West Cherokee Avenue Suite 241	Cartersville	GA	30120	(770) 387-5030	bradleys@bartowga.org
Lamont Kiser Bartow County Engineer	135 West Cherokee Avenue Suite 241	Cartersville	GA	30120	(770) 387-5067	kiserl@bartowga.org
Tammy Decker USDA Rural Development	12 Felton Place	Cartersville	GA	30120	(770) 386-3393	Tammy.decker@ga.usda.gov
Pam Robinson Bartow County Environmental Health	P.O. Box 665	Cartersville	GA	30120	(770) 387-2614	pjrobinson@dnr.state.ga.us
Gene Camp Bartow County Water System	P.O. Box 850	Cartersville	GA	30120	(770) 387-5170	campg@bartowga.org
Kenneth M. Akins Etowah Indian Mounds Site Manager	813 Etowah Indian Mound Road, S.E.	Cartersville	GA	30120	(770) 387-3747	Etowah_mounds@dnr.state.ga.us
Jim Stafford City of Cartersville Water Department	P.O. Box 1390	Cartersville	GA	30120	(770) 387-5653	jstafford@cityofcartersville.org
Kathy Floyd County Extension Agent	320 W. Cherokee Ave. Room 112	Cartersville	GA	30120	(770) 387-3747	Kpfloyd@uga.edu
Honorable Henry Jordan Mayor of Emerson	PO Box 300	Emerson	GA	30137	(770) 382- 9819	
David Paris Emerson City Manager	PO Box 300	Emerson	GA	30137	(770) 382- 9819	
Cathy Dameron, CRBI Board Member	117 Crestwood Drive	Dallas	GA	30157	(770) 505-2919	dameronb@bellsouth.net
Kathy Irish CRBI						
Tommy Leonard Executive Director, Keep Paulding Beautiful, Recycling Coordinator, Recycling Division	1385 Grants Chapel Road	Dallas	GA	30120	(770) 443-0119	tleonard@paulding.gov

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APPENDIX B.

UPDATES TO THIS PLAN

Describe any updates made to this plan. Include the date, section or table updated, and a summary of what was changed and why.

APPENDIX C.

0315010411 Pumpkinvine Creek- Little Pumpkinvine Creek to Etowah River Field Survey Photographs and Watershed Map

Field Survey Photographs

1. 0315010411 Pumpkinvine Creek- Little Pumpkinvine Creek to Etowah River: McMillan Bridge crossing at Harmony Grove Church Rd- wildlife have access to stream.



2. 0315010411 Pumpkinvine Creek- Little Pumpkinvine Creek to Etowah River: Puckett Road - wildlife tracks.



3. 0315010411 Pumpkinvine Creek- Little Pumpkinvine Creek to Etowah River: McMillan Bridge crossing at Harmony Grove Church Rd- goats seen in pasture.



4. 0315010411 Pumpkinvine Creek- Little Pumpkinvine Creek to Etowah River: Hwy 293, Acworth Rd- Greenridge Stables Horse farm fenced to river.



5. 0315010411 Pumpkinvine Creek- Little Pumpkinvine Creek to Etowah River: Hwy 293, Acworth Rd- Greenridge Stables, houses located along Hwy 293.



