

**STATE OF GEORGIA**

**TIER 2 TMDL Implementation Plan (Revision # 01)**

**Segment Name:** COLD WATER CREEK **Date:** June 15, 2007

**River Basin:** Savannah River Basin

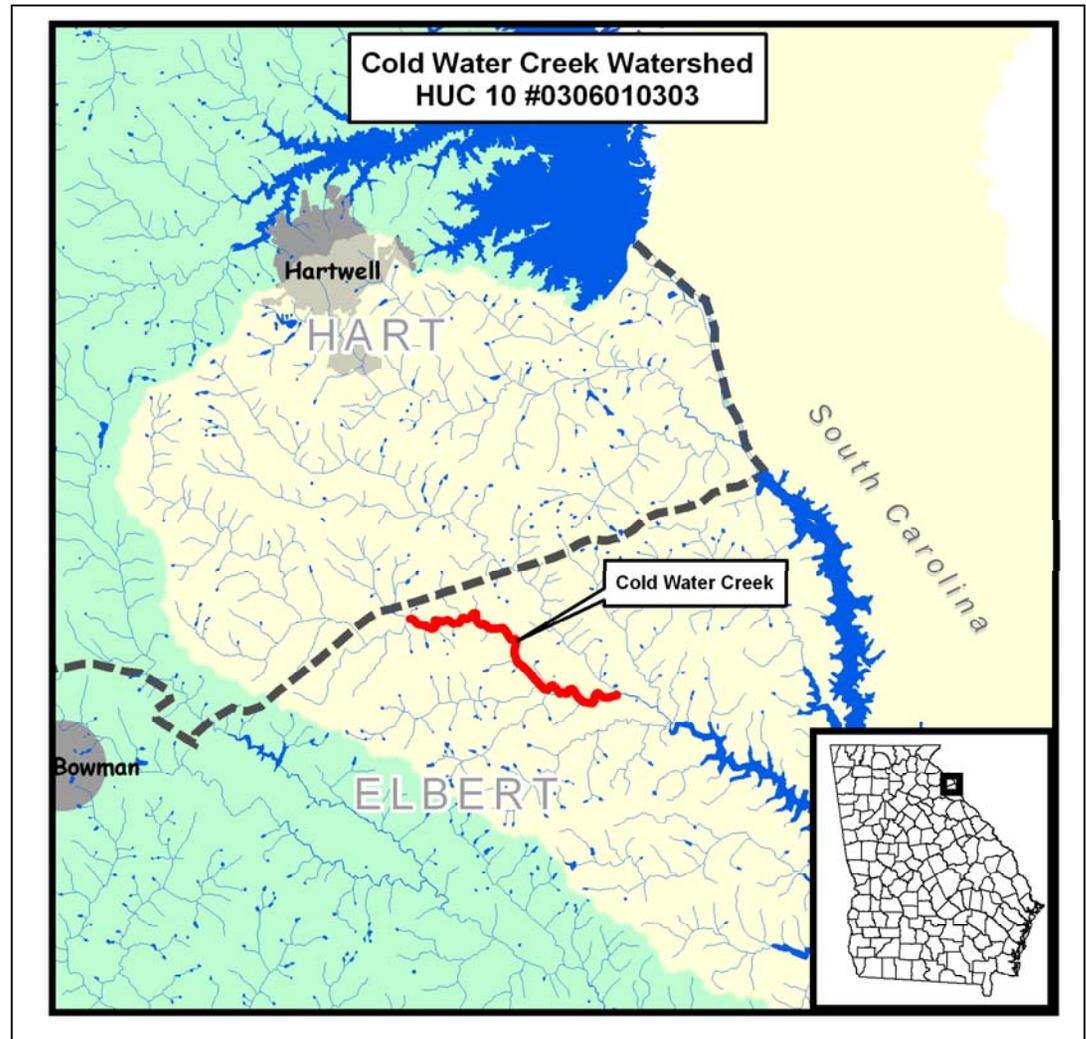
**Local Watershed Governments:**

Elbert County and Hart County  
City of Hartwell

**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 (Best Management Practices, or BMPs) to reduce pollutants, milestone schedules to show development of the BMPs (*measurable milestones*), and a monitoring plan to determine BMP effectiveness.



**Table 1. IMPAIRED SEGMENTS IN THE HUC 10 WATERSHED**

IMPAIRED SEGMENT	IMPAIRED SEGMENT LOCATION	EXTENT (mi/ac)	CRITERIA VIOLATED	EVALUATION
Cold Water Creek	SR 77 to Little Cold Water Creek near Ruckersville	6 miles	Fecal Coliform	NS

\* Plan to be done by EPD

## II. GENERAL INFORMATION ABOUT THE HUC 10 AND THE SPECIFIC SEGMENT WATERSHEDS

Following is a review of watershed characteristics including its size and location, political jurisdictions, physical features, land uses, and identified potential sources of pollutants that could cause or contribute to violations of water quality standards addressed in this TMDL Implementation Plan. New conditions or changes in information contained in the previous TMDL Implementation Plan should be in are in **bold** and underlined.

The HUC 10 # 0306010303 encompasses parts of Elbert and Hart counties as well as a portion of South Carolina. The city of Hartwell lies partially within the watershed. There is one TMDL segment within this HUC 10 watershed, Cold Water Creek. The segment is not supporting its designated use of fishing due to fecal coliform impairment. The HUC 10 watershed is 246,095 Acres.

<b>2004 NEGRDC Land Use for Broad River TMDL Segment Watershed</b>			The Cold Water Creek (SR 77 to Little Cold Water Creek near Ruckersville) TMDL segment is 6 miles in length and is located in Northern Elbert County. The data that listed the segment was collected at County Road 193 near Ruckersville in 2002. Hart County is not in the NEGRDC region; therefore TMDL implementation efforts will be concentrated in Elbert County. The Elbert portion of the watershed is 9,720 acres
<b>Land Use Category</b>	<b>Area (Acres)</b>	<b>% Of total</b>	
Residential	1010.2	10%	Primary land uses in the watershed are forestry/logging, animal production, crop production and residential. Forestry/logging accounts for 31% of land use. The primary source on forestry/logging land is wildlife, but there can be human sources during hunting season. Animal production accounts for 25% of the watershed land use and consists primarily of pasture for cattle and poultry and egg production. Crop Production accounts for 26% of watershed land use, but it is not a major source of fecal coliform pollution. Forestry/logging and animal production are the primary land uses adjacent to the TMDL segment. Residential land accounts for 10% of the watershed land use. The watershed is very rural in nature, and all residences in the watershed are on septic systems.
Commercial	314.4	3%	
Industrial	14.0	0%	
Transportation/Communication/Utility	237.7	2%	
Public/Institutional	115.5	1%	
Mining/Extraction	12.7	0%	
Crop Production	2572.0	26%	
Animal Production	2425.3	25%	
Forestry/Logging	3005.8	31%	
Other	12.7	0%	
<b>Total</b>	<b>9720.2</b>	<b>100%</b>	

The Elbert County Comprehensive Plan was written in 2003. The plan states that Elbert County will make an ongoing effort to minimize the negative environmental impacts of development. Elbert County adopted a wetlands protection ordinance consistent with DNR wetland protection criteria. According to the comprehensive plan, soils in the lower (southeastern) third of the county are not suitable for septic systems unless they have more drain lines or a larger drain field.

Elbert County is in the Oconee River RC&D region. The Oconee River RC&D provides Erosion and Sedimentation Control training that is available to all member counties. In addition, they have led EPA 319(h) funded programs in other counties in the region, but these have not been active in Elbert County.

**III. CAUSES AND SOURCES OF SEGMENT IMPAIRMENT(S) LISTED IN TMDLs**

Table 2 provides information contained in the current TMDL for the impaired water body. This includes the name and location of the impaired segment, the water quality criteria violated, and the wasteload and load allocations determined in the TMDL. Potential sources described in the TMDL may include domestic treatment facilities (M), industrial treatment facilities (I), urban runoff and sources (UR), and other nonpoint or unknown (NP) sources. By definition, “wasteload allocations” (WLA) are established for municipal and industrial treatment facilities and storm water discharges in permitted areas (WLA<sub>sw</sub>), while “load allocations” (LA) are established for nonpoint sources. **Wasteload allocations are assigned by EPD during the NPDES permitting process. They are not part of EPD’s TMDL implementation planning process, which deals solely with non-point sources of pollutants.**

**Table 2. WASTE LOAD AND LOAD ALLOCATIONS AND TMDLS FOR THE IMPAIRED SEGMENT**

STREAM SEGMENT NAME	LOCATION	CRITERIA VIOLATED	WLA	WLA <sub>sw</sub>	LA	TMDL
Cold Water Creek	SR 77 to Little Cold Water Creek near Ruckersville	Fecal Coliform			2.59E+12 counts/30days	2.88E+12 counts/30days

Table 3 also contains information presented in the TMDLs that this plan is designed to address. This includes the criteria responsible for the impairment(s), the specific water quality standard(s) violated, potential sources/causes of impairment, and the needed reduction in nonpoint source loads estimated in the TMDL.

**Table 3. SOURCES OF IMPAIRMENT INDICATED IN THE TMDLs**

CRITERIA VIOLATED : FC	WQ STANDARD	SOURCES OF IMPAIRMENT	NEEDED % REDUCTION (FROM THE TMDL)
Fecal Coliform Bacteria (FC)	1,000 per 100 ml (geometric mean Nov-April) 200 per 100 ml (geometric mean May-Oct)	NP	83

#### **IV. IDENTIFICATION AND RANKING OF POTENTIAL SOURCES OF IMPAIRMENT**

This section identifies and describes, in order of importance, the extent and relative contributions from sources of pollutants listed in Table 2 and identified through this TMDL implementation planning process. This description includes information presented in the current TMDL or TMDL implementation plan and/or collected during the TMDL implementation planning process that either verifies or alters estimates of contributions from the sources listed in the TMDL and repeated in Table 2.

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Sources in the Cold Water Creek TMDL segment watershed were identified by conducting visual field surveys of the stream crossings and the watershed land use. Prior to conducting the field survey, point data from the Georgia Environmental Protection Division were compiled and analyzed to determine the location of any point sources of pollution in the watershed. This data included the location of NPDES permitted facilities, landfills, LAS and CAFOs. In addition, 2005 aerial photos from the National Agricultural Imagery Program were used to determine possible sources of fecal coliform pollution within the watershed boundary shown on the maps on the previous pages. 2004 RDC land use data were also consulted to determine the extent of potential sources of fecal coliform. One purpose of the field surveys is to compare the most recent RDC land use data with the 1995 land use data that were used in the development of the TMDLs. However, in the case of the Cold Water Creek (SR 77 to Little Cold Water Creek near Ruckersville) segment, a different watershed delineation was used in the field survey, so comparison was not possible.

The visual field survey consisted of a windshield survey of land use in the watershed and a visual assessment of stream condition at road crossings. The stream segment was not conducive to walking due to private property. Sources investigated during the windshield survey were primarily animal production facilities, because these are easy to identify from aerials and it can be readily apparent if they are not using certain Best Management Practices, such as animal exclusion from streams. These facilities were considered to be priority sources if animals had access to the stream or there were not best management practices in place to prevent runoff of fecal matter into the stream.

The field surveys were presented to stakeholders at a TMDL implementation meeting. Any comments that were made in the meeting were included in the visual field survey report, which can be found in Appendix C of this document. The field surveys were posted on the NEGRDC website TMDL page.

##### **Point Sources**

There are no known point sources in the Cold Water Creek watershed.

##### **Non-Point Sources**

###### Wildlife

31% of the Cold Water Creek watershed is classified as forestry/logging. The primary source of fecal coliform in forested areas is most likely wildlife; however, it is likely that there are human sources as well. A 2005-2006 update to the Georgia DNR Wildlife Resources Division's 2005-2014 Deer Management Plan calculates the actual, average deer population for Elbert, Madison, and Oglethorpe Counties (Deer Management Unit 5) to be 34.1 deer/forested square mile. That would equate to 160 deer in the watershed. Forested designates all areas that are not residential, commercial

or industrial, cropland or open pastureland. Projected optimum deer density (number of deer that the habitat can support in full health) for DMU 5 remains at 35-deer/square mile. Contributions from deer to coliform bacteria loadings in water bodies are considered less significant than contributions made from waterfowl, raccoons and beavers. Much of the TMDL segment is bordered by forestry/logging land, so wildlife have access to most areas of the segment and many areas on the tributaries.

#### Animal Production

Animal Production accounts for 25% of the watershed land use. 2006 estimated livestock populations for Elbert County are as follows, 7,000 beef cattle, 300 dairy cattle, 600 goats, 550 horses, 80 sheep, 444,000 chickens (layer), and 4,094,000 chickens (broilers). During the watershed survey, we visited several farms to determine if there was in fact animal production at the site and to make observations of any activity that could contribute to fecal coliform loading, such as animal access to the stream. There were three farms on which cattle had access to tributaries to Coldwater Creek. These observed points of access were located <0.5 miles-2 miles from the TMDL segment. There is one CAFO (Twin Line Dairies) shown on the map for the Cold Water Creek watershed survey. This CAFO is no longer active. The CAFO also had two Land Application Systems

#### Failing Septic Systems

Residential accounts for 10% of watershed land use. All of the residences in the watershed are served by individual septic systems. It is likely that there are failing septic systems in the watershed, because there is no ordinance requiring maintenance. There is a requirement for permitting of septic systems upon installment. In Elbert County there were 4,436 septic systems in 1990 and 6,790 septic systems in 2002. 183 systems were repaired from 1990-2002. It is estimated that there are about 200 residential parcels with septic systems in the watershed. 38 of these parcels are adjacent to a stream in the watershed, and 8 of them are adjacent to the TMDL segment.

Table 4 ranks potential sources of water quality impairments in order of importance as determined through this TMDL implementation planning process. A “rating scale” of 0.5 to 5 has been developed for this activity. “Rating A” is an estimate of the geographic extent of each potential nonpoint source as a percentage of the contributing watershed area, percent of stream miles affected, or number of acres. “Rating B” is an estimate of the relative contribution from each major source of the pollutant causing the impairment. The overall relative “Impact Ratings” for each source is calculated by multiplying Rating A by Rating B.

The following table provides guidance for rating the estimated extent (Rating A) and portion of the contribution (Rating B) from each potential source and cause.

<b>Rating A:</b> Estimated Geographic Extent of the Source or Cause in the Contributing Watershed	<b>Rating B:</b> Estimated Portion of Contribution from the Source to the Pollutant Load Causing the Impairment	<b>Rating</b>
None or negligible (approximately 0-5%)	None or negligible (approximately 0-5%)	0.5
Scattered or low (approximately 5-20%)	Scattered or low (approximately 5-20%)	1
Medium (approximately 20-50%)	Medium (approximately 20-50%)	3
Widespread or high (approximately 50% or more)	Widespread or high (approximately 50% or more)	5
Unknown	Unknown	UNK

Comments on the source of information used to determine the extent or contribution are entered in the applicable columns in Table 4. Appropriate management actions (i.e. watershed assessments, increased water quality monitoring, etc.) are suggested where available information is deemed inadequate to estimate the extent and relative contribution of significant potential sources.

**Table 4. EVALUATION OF POTENTIAL SOURCES OF STREAM SEGMENT IMPAIRMENT**

**CRITERION 1: Fecal Coliform**

<b>POTENTIAL SOURCES</b>	<b>ESTIMATED EXTENT OF CONTRIBUTION</b>		<b>ESTIMATED PORTION OF CONTRIBUTION</b>		<b>IMPACT RATING (A X B)</b>
	<b>Comments</b>	<b>Rating (A)</b>	<b>Comments</b>	<b>Rating (B)</b>	
Animal Production	Animal Production accounts for 25% of land use	3	A few farms adjacent to TMDL segment, many farms adjacent to tributaries, cattle access to tributaries	3	9
Wildlife	Forestry/logging is 31% of watershed	3	Runoff slowed and filtered by vegetation, probable direct input	1	3
Failing septic systems	Residential is 10% of land use	1	Some residential adjacent to TMDL segment, several adjacent to tributaries	3	3
Illegal Dumping		UNK		UNK	UNK

## V. STAKEHOLDERS

Public involvement through the stakeholder process is a vital component of TMDL implementation planning. Stakeholders with local knowledge can provide valuable information regarding their communities, impaired waters, potential sources of impairments, and BMPs that might be employed to improve water quality. This section describes outreach activities engaging local stakeholders in the TMDL implementation plan preparation process, including the number of attendees, meeting dates, and major findings, recommendations, and approvals.

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Stakeholders were involved in the TMDL implementation planning process through public meetings about TMDLs and TMDL implementation, through invitation to participate in visual field surveys, through county meetings to draft the plans, through one-on-one meetings, and through correspondence via e-mail and telephone.

### Stakeholder Identification

Stakeholders were identified by compiling lists of stakeholders who participated in previous implementation activities and by reviewing TMDL implementation plans written by other RDCs to determine which organizations they brought to the table. Others were identified by word of mouth.

Press releases were sent out to local newspapers announcing public meetings, and memorandums were sent to previously identified key stakeholders. The Press releases and memos suggested that stakeholders invite others who are interested in water quality to the meetings as well. At the meetings it was made known that the stakeholder advisor group is ever expanding and that anyone with a vested interest in water quality should be added.

### Elbert/Madison/Oglethorpe Counties Public Meetings

November 13, 2006 (14 attendees)

- Viewed video entitled “Watershed Wisdom: Georgia’s TMDL Program”
- PowerPoint presentation entitled “Introduction to TMDL Implementation “ was presented by RDC

March 6, 2007 (11 attendees)

- Presented visual field surveys
- Presented case studies of BMP implementation and 319 (h) projects used for TMDL implementation

### Stakeholder Comments/Questions

- Concerns were raised about the accuracy of the RDC land use layer on the maps
  - GIS staff found more updated land use layers, but they are from 2004 so any changes since 2004 will not be included
  - Land use layers are parcel based. Parcel land use is determined by aerial photos and tax data from the internet. Some parcels may be labeled inaccurately
- Concerns were raised that the listing of water bodies is based on very limited sampling

- Mary Gazaway of EPD responded that as of 2002, 4 samples must be collected within a 30-day period and the geometric mean of those samples has to exceed the limit for the stream to be listed. EPD recommends that sampling be conducted quarterly.
- Dudley Hartel mentioned that Madison County has a Adopt-a-Stream Program
- Ruth Ann Tesanovich said Madison County is in the process of revising its comprehensive land use plan. As part of the proposed revision the riparian buffers would be increased to 50ft. Property Owners for Commonsense Growth recommended it be increased to 75ft.
  - The revision was passed with riparian buffer requirements being increased to 50ft.
- Can volunteers submit water quality data for listing/delisting decisions?
  - Yes, but they must have an EPD approved Sampling Quality Assurance Plan and the samples must be analyzed in an EPD certified lab
  - UGA (Engineering or Ecology) has an EPD certified lab that volunteers can use (ask Mark Risse)
  - Municipal Wastewater Treatment Facilities have EPD certified labs
- The suggestion was made that future meetings be conducted during the day so there will be more participation
- Another suggestion was to meet with each county separately at the county seat

### **Elbert County Advisory Group Meeting**

**April 26<sup>th</sup>, 2007**

**(7 Attendees)**

- Presented current funding options, current water quality ordinances and management measures, and new recommended management measures.
- Revised plans based on stakeholder comment/suggestion
- Sent source ratings for each stream segment by e-mail after meeting

### **Stakeholder Comments/Suggestions**

- Stakeholders verified that the land use data was pretty accurate for Elbert County
  - After the recommendation was made that Elbert County increase the riparian buffer requirement on state waters, a stakeholder questioned the scientific basis for increased riparian buffer widths
    - Follow up: The UGA River Basin Center's Riparian Buffer Guidebook was e-mailed to stakeholders that were present at the meeting
  - Sewer line leak detection is conducted on an as needed basis
-

Following is a list of advisory committee or watershed group members who participated in this TMDL implementation planning process.

**Table 5. STAKEHOLDER ADVISORY GROUP MEMBERS**

NAME/ORG	ADDRESS	CITY	STATE	ZIP	PHONE	E-MAIL
Bob Thomas, Elbert County Board of Commissioners	45 Forest Ave.	Elberton	GA	30635	706-283-20000	<a href="mailto:ecbocthomas@bellsouth.net">ecbocthomas@bellsouth.net</a>
Byron Stovall, City of Elberton Water Department	234 N McIntosh St.	Elberton	GA	30635	706-213-3169	<a href="mailto:bstovall@cityofelberton.net">bstovall@cityofelberton.net</a>
Cindy Churney, Clerk, City of Elberton	P.O. Box 70	Elberton	GA	30635	706-213-3100	<a href="mailto:cchurney@cityofelberton.net">cchurney@cityofelberton.net</a>
Anna Grant Jones, Elbert County Development Authority	P.O. Box 63	Elberton	GA	30635	706-213-7600	<a href="mailto:ecdev@elberton.net">ecdev@elberton.net</a>
Katrina White, Natural Resource Conservation Service	333 Heard St.	Elberton	GA	30635	706-283-3021 ext. 3	<a href="mailto:Katrina.white@ga.usda.gov">Katrina.white@ga.usda.gov</a>
Forrest Ferguson, Natural Resource Conservation Service	88 Maret St.	Hartwell	GA	30643	706-376-5451 ext. 3	<a href="mailto:Forrest.ferguson@ga.usda.gov">Forrest.ferguson@ga.usda.gov</a>

Major stakeholders in the watershed are listed in Appendix A.

**VI. MANAGEMENT MEASURES AND ACTIVITIES**

Table 6A identifies significant BMPs that either have been or may be taken in the future to address sources of impairment. The BMPs are in Column 1, organization responsible for implementation in Column 2, description of the measure(s) in Column 3, and sources of funding or other resources in Column 4. Column 5 contains one of the following status codes: (A) installed and active; (AE) active and will be enhanced or expanded; (R) required by law, regulation or permit conditions; (P) currently proposed, but not required; (NR) new recommendation; or (NE) enhanced existing recommendation. Column 6 shows the approximate date when the measure has or will be implemented. Column 7 contains an “extent” rating for the BMP or the percentage of individual sources to which the BMP has or will be applied (see the following table). Column 8 is an estimated BMP “effectiveness” rating that may be either provided by local experts or derived from technical guidance information. The following table provides guidance for rating the estimated management measure “extent” and “effectiveness” of each significant potential source.

<b>BMP Extent</b> (Percentage of Sources to Which the BMP Has or Will Be Applied)	<b>BMP Effectiveness</b> (Percent Removal of Pollutant by the BMP)	<b>Rating</b>
None or negligible (approximately 0-5%)	None or negligible (approximately 0-5%)	.5
Scattered or low (approximately 5-20%)	Low to medium (approximately 5-25%)	1
Medium (approximately 20-50%)	Medium to High (approximately 25-75%)	3
Widespread or high (approximately 50% or more)	High (approximately 75% or more)	5
Unknown	Unknown	UNK

**Table 6A. MANAGEMENT MEASURES AND ACTIVITIES**

**GENERAL AND SPECIFIC MEASURES APPLICABLE TO CRITERION 1: Fecal Coliform**

<b>BEST MANAGEMENT PRACTICE (1)</b>	<b>RESPONSIBILITY (2)</b>	<b>DESCRIPTION (3)</b>	<b>SOURCES OF FUNDING &amp; RESOURCES (4)</b>	<b>STATUS CODE (5)</b>	<b>TARGET DATE (6)</b>	<b>EXTENT RATING (7)</b>	<b>EFFECT. RATING (8)</b>
Federal Clean Water Act, Section 305(b) and 303(d)	USEPA, Georgia DNR/EPD, Local/County Government	The congressional objective of the CWA “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, State	A	In place, on-going		
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	Federal, State, Local/County Governments	A	In place, on-going		

		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 siltation 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.					
Georgia Planning Act, Part 5	Local/County Government	Coordinated Planning Program, managed by Georgia DCA, requires local governments to identify Developments of Regional Impact (DRI) and develop plans to protect and manage Regional Impact Resources (RIR).	Local/County Governments Impact Fees	A	In place, on-going		Effectiveness varies with the specific BMPs applied.
Georgia Planning Act, Part 5 - Wetlands Protection Ordinance	Elbert County	Coordinated Planning Program, managed by Georgia DCA, assigns local governments Environmental Planning Criteria (set by Georgia DNR) to include in local long-term comprehensive plans.		A	2001	.5	3 (for new and redevelopment)
Georgia Planning Act, Part 5 - Groundwater Recharge Protection Ordinance	Elbert County	Coordinated Planning Program, managed by Georgia DCA, assigns local governments Environmental Planning Criteria (set by Georgia DNR) to include in local long-term comprehensive plans.		A	2001	.5	.5
Regulation of On-Site Sewage Management Systems, IAW O.C.G.A. 290-5-26	Georgia DHR, County Board of Health	Rules and regulations for installation and repair of on-site sewage management systems.	State, County Board of Health	A	In place, on-going	3	3 (in new development)
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 non-point source pollution.	State	A	In place, on-going		Varies with BMP applied.
Chapter 40-13-8 Animal Manure Handlers Rules of	Georgia Department of Agriculture	This requires that persons engaged in removing animal manure from livestock/poultry production areas,	State	R	In place, on-going		Effectiveness will vary with the

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Georgia Department of Agriculture Animal Industry Division		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.					specific application.
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 incentive payments	A	In place, on-going		Varies with BMP applied. See attached effectiveness Tables 1A and 1B.
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 Annual rental payment for land taken out of production and 50% cost share for practice installation.		In place, on-going		Effectiveness will vary with the specific application and must be individually determined.
Water Quality newspaper articles	County Extension	Extension agent has a column in the local paper. Periodically runs water quality articles related to agricultural BMPs, septic maintenance, etc.		A		.5	3
Targeted Sampling Volunteer Monitoring Event	Broad River Watershed Association, Adopt-A-Stream, EPD	Targeted sampling for E. coli using 3M petrifilm to determine priority sources of fecal coliform. Will be a publicized volunteer sampling event and public water quality education effort.	Section 106 Grant for TMDL implementation, Donations	NR	2008	5	3
Follow-Up to Monitoring Event	Broad River Watershed Association, Adopt-A-Stream, EPD	Results from targeted sampling monitoring event will be presented to local officials and stakeholders to stimulate and guide their course of action. Data obtained from sampling would isolate the most likely sources of E. coli and help prioritize use of funding and resources.	Section 106 Grant for TMDL Implementation	NE	2008	5	3

Work Sheet for Table 6B is designed to evaluate the capacity of existing, proposed, or pending BMPs to achieve nonpoint source load reductions specified in the TMDL as well as other BMPs that might be implemented to further reduce pollutant loadings from significant sources. This approach is intended to provide a usable local guide to adopt BMPs for achieving water quality goals, establishing priorities for grant or loan programs, and identifying priorities for local watershed assessments and protection plans.

Columns 1 and 2 contain significant potential sources and their corresponding impact ratings (from Table 4). Column 3 lists significant BMPs applicable to each significant source (from Table 6A). Column 4 is a very brief “evaluation summary”, developed in conjunction with local stakeholders, of whether existing or proposed BMPs will achieve load reductions identified in the TMDL. Column 5 contains a summary of additional information needed to further determine significant sources and their relative contributions, and could contain recommendations for water quality monitoring, watershed assessments, or additional data acquisition. If current or proposed management measures are judged inadequate to achieve the load reductions for significant sources identified in the TMDL, additional management measures that could effectively reduce pollutant loads should be listed in “Additional Information / Measures Needed” (Column 5) and included as new enhanced existing recommendations (NE) or new recommendations (NR) under “Status Code (5)” in Table 6B and under “Milestones” (Table 9).

**Work Sheet for Table 6B: EVALUATION OF GENERAL AND SPECIFIC MANAGEMENT MEASURES AND ACTIVITIES  
APPLICABLE TO EACH CRITERION**

**APPLICABLE TO CRITERION 1: Fecal Coliform.**

SIGNIFICANT POTENTIAL SOURCES (1) (From Table 4)	IMPACT RATING (2) (From Table 4)	APPLICABLE BMPs (3) (From Table 5A)	EVALUATION SUMMARY (4)	ADDITIONAL INFORMATION / MEASURES NEEDED (5)
Animal Production	9	Georgia Best Management Practices	Current management practices do not target farms that are in close proximity to the TMDL segment or those that are shown to have a direct impact on water quality.	Successful implementation of programs requires technical, assistance, education and marketing
		Chapter 40-13-8 Animal Manure Handlers Rules of Georgia Department of Agriculture Animal Industry Division		If loads from animal production are not being reduced, consider improving marketing to farms close to TMDL segment.
		Environmental Quality Incentives Program (EQIP)		
		Conservation Reserve Program (CRP)		

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Wildlife	3	None	There is no reasonable assessment of the contributions of animal wastes from wild animals in wooded areas, waterfowl, or wild or domestic animals in or near stream corridors in urban or suburban areas. Management of wild animal wastes in wooded areas and urban stream corridors may not be feasible, but there are several management practices that may be applied to control waterfowl and domestic animal wastes.	Conduct a study to determine whether contributions of fecal coliform bacteria come from exclusively non-human sources (BST monitoring) or "natural conditions". Should the study show that contributions from non-human sources occasionally exceed 200/100ml (geometric mean), submit data to EPD requesting a change in the fecal coliform standard to levels compliant with "natural conditions" for the segment.
				Should waterfowl be a significant contributor, consider measures to discourage waterfowl occupancy or manage populations.
Failing septic systems	1	Regulation of On-Site Sewage Management Systems, <i>IAW O.C.G.A. 290-5-26</i>	Effective enforcement of septic installation and permitting requirements will minimize future failures  Implementing and enforcing water quality related ordinances that restrict use of impervious surfaces, installation of septic systems and increasing the riparian buffer width requirement within environmentally sensitive areas will reduce the amount of polluted runoff being input into streams	If loads from septic systems are not being reduced, consider implementing a septic maintenance education program
		Wetlands Protection Ordinance Groundwater Recharge Protection Ordinance		319 (h) funds can be used to implement a septic repair initiative in the watershed to reduce inputs from failing septic systems
Illegal Dumping	UNK			

Table 6B identifies new enhancements to existing measures (NE) or new recommended measures (NR) that could improve or supplement current or proposed management measures listed in Table 6A, where current and required measures have been judged inadequate for achieving the load reductions from significant sources identified in the TMDL. After further evaluation generated in the Work Sheet for Table 6B, the additional management measures proposed in Table 6B have been determined more effective in reducing pollutant loads from the most likely sources of impairment. The BMPs are listed in Column 1, organization responsible for implementation in Column 2, description of the measure(s) in Column 3, and sources of funding or other resources in Column 4. Column 5 contains one of the following status codes: (NE) enhanced existing measure or (NR) new recommended measure. Column 6 shows the approximate date when the measure has or will be implemented. Column 7 contains an “extent” rating for the BMP or the percentage of individual sources to which the BMP could be applied (see the following table). Column 8 is an estimated BMP “effectiveness” rating that may be either provided by local experts or derived from technical guidance information. The following table provides guidance for rating the estimated management measure “extent” and “effectiveness” of each significant potential source.

<b>BMP Extent</b> (Percentage of Sources to Which the BMP Has or Will Be Applied)	<b>BMP Effectiveness</b> (Percent Removal of Pollutant by the BMP)	<b>Rating</b>
None or negligible (approximately 0-5%)	None or negligible (approximately 0-5%)	.5
Scattered or low (approximately 5-20%)	Low to medium (approximately 5-25%)	1
Medium (approximately 20-50%)	Medium to High (approximately 25-75%)	3
Widespread or high (approximately 50% or more)	High (approximately 75% or more)	5
Unknown	Unknown	UNK

**Table 6B. RECOMMENDED ADDITIONAL MANAGEMENT MEASURES AND ACTIVITIES TO ACHIEVE LOAD REDUCTIONS  
(COMPILED FROM TABLE 6A AND COLUMN 5 IN WORK SHEET FOR TABLE 6B)**

<b>BEST MANAGEMENT PRACTICE (1)</b>	<b>RESPONSIBILITY (2)</b>	<b>DESCRIPTION (3)</b>	<b>SOURCES OF FUNDING &amp; RESOURCES (4)</b>	<b>STATUS CODE (5)</b>	<b>TARGET DATE (6)</b>	<b>EXTENT RATING (7)</b>	<b>EFFECT. RATING (8)</b>
Targeted Sampling Volunteer Monitoring Event “River Rendezvous”	Broad River Watershed Association, Adopt-A-Stream, EPD	Targeted sampling for E. coli using 3M petrifilm to determine priority sources of fecal coliform. Will be a publicized volunteer sampling event and public water quality education effort.	Section 106 Grant for TMDL implementation, Donations	NR	2008	5	3
Follow-Up to Monitoring Event	Broad River Watershed Association, Adopt-A-Stream, EPD	Results from targeted sampling monitoring event will be presented to local officials and stakeholders to stimulate and guide their course of action. Data obtained from sampling would isolate the most likely sources of E. coli and help prioritize use of funding and resources.	Section 106 Grant for TMDL Implementation	NE	2008	5	3

## VII. MONITORING PLAN

Water quality monitoring serves several purposes, including obtaining data to determine sources of pollution, supporting management decisions, describing baseline conditions, and evaluating the effects of management measures on water quality. This section describes parameters to be monitored, status, whether monitoring is required for watershed assessments or storm water permits, and the intended purpose. Submittal of a Sampling and Quality Assurance Plan (SQAP) for EPD approval is mandatory if monitoring data is to be used in support of listing decisions.

Water quality data used to evaluate the criteria violated are less than five years old? Yes [ ] No [X].

**Table 7. MONITORING PLAN**

PARAMETER (S) TO BE MONITORED	RESPONSIBLE ENTITY	STATUS (CURRENT, PROPOSED, OR RECOMMENDED)	TIME FRAME		PURPOSE (If for listing assessment, date of SQAP submission)
			START	END	
E. Coli	Broad River Watershed Association, Adopt-A-Stream, EPD	Recommended	2008	Ongoing	Determine priority sources through targeted sampling with Petrifilm (or IDEXX)

## VIII. PLANNED OUTREACH FOR IMPLEMENTATION

Table 8 lists and describes outreach activities that will be conducted to support this implementation plan. (At a minimum, this is to include all education/outreach activities defined in the contractual Scope of Work for TMDL Implementation Plan development or revisions.)

**Table 8. PLANNED OUTREACH FOR IMPLEMENTATION**

RESPONSIBILITY	DESCRIPTION	AUDIENCE	DATE
NEGRDC	Distribute TMDL Implementation plans to counties, cities and others participating in the implementation process.	Stakeholders	June 2007
Broad River Watershed Association, Adopt-A-Stream, EPD	Distribution of water quality education materials to volunteers helping with targeted sampling	Volunteer citizens	2008
NEGRDC	Presentation of potential implementation activities. Oconee River RC&D may apply for 319 grant funding in the future to implement suggested management practices mentioned in the meeting.	Oconee River RC&D	June 2007

**IX. MILESTONES AND MEASURES OF PROGRESS FOR BEST MANAGEMENT PRACTICES (BMPs) AND OUTREACH**

Table 9 tracks and reports progress of significant management measures identified in Tables 6A, 6B, and other sections of this plan, including outreach, additional monitoring and assessments, and enhancement or installation of BMPs. Significant activities and the target dates of accomplishment are listed, and comments are provided on the effectiveness of the management measure, the degree of community support, what was learned, how the measure might be improved in the future, and other pertinent observations.

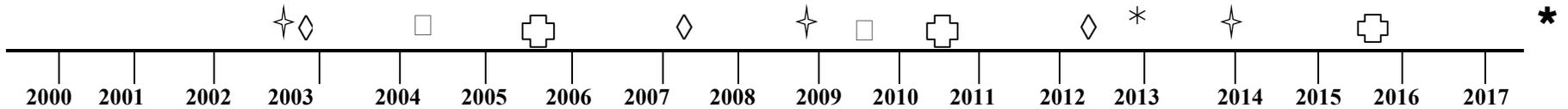
**Table 9. MILESTONES AND MEASURES OF PROGRESS**

BEST MANAGEMENT PRACTICE	RESPONSIBLE ORGANIZATION	STATUS		COMMENT
		PROPOSED	INSTALLED	
Georgia Best Management Practices	Georgia Department of Agriculture / Georgia Environmental Protection Division for enforcement action.		On-going	Varies with BMP applied.
Georgia Rules and Regulations for Water Quality Control Chapter 391-3-6-.20 & . 21	Georgia Department of Agriculture / Georgia Environmental Protection Division for enforcement action.		On-going	Assume no discharge and >75% removal.
Chapter 40-13-8 Animal Manure Handlers Rules of Georgia Department of Agriculture Animal Industry Division	Georgia Department of Agriculture		On-going	Effectiveness will vary with the specific application.
Environmental Quality Incentives Program (EQIP)	Natural Resources Conservation Services		On-going	Varies with BMP applied. EQIP programs should be targeted to farms that are located near TMDL segments.
Conservation Reserve Program (CRP)	Natural Resources Conservation Services / USDA Farm Services Agency		On-going	Effectiveness will vary with the specific application.
Regulation of On-Site Sewage Management Systems, IAW O.C.G.A. 290-5-26	Georgia DHR, County Board of Health		On-going	Requires permitting of septic systems prior to installation and inspection after installation. Applies to all new septic systems. It has an effectiveness rating of 25-50%. Maintenance of systems is not enforced.
Wetlands Protection Ordinance	Elbert County		2001	Wetlands have high pollutant removal efficiency, but extent of wetlands in watershed is low.
Groundwater Recharge Protection Ordinance	Elbert County		2001	Extent of groundwater recharge areas is low. Ordinance offers extra protection from pollutants. Does not prevent runoff.
Volunteer E. Coli Monitoring Event "River Rendezvous"	Broad River Watershed Association, Adopt-A-Stream, EPD	2008		Targeted sampling to determine sources with a water quality education initiative
Follow-Up to Monitoring Event	Broad River Watershed Association, Adopt-A-Stream, EPD	2008		Results from event presented to stakeholders and government officials and used to guide use of funding and resources.
Distribution of TMDL Implementation Plans	NEGRDC	June 2007		Hard copies to be distributed to requesting stakeholders. Plans to be posted on webpage.
Water Quality newspaper articles	County Extension		On-going	Periodically runs water quality articles related to agricultural BMPs, septic maintenance, etc.
Meeting with Oconee River RC&D Council	NEGRDC	June 2007		Presentation of potential future 319(h) projects to address

				sources of fecal coliform in the TMDL watersheds.
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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 this TMDL Implementation Plan by Georgia EPD.



- Projected EPD Basin Group Monitoring
- New TMDLs Completed
- Revised or Updated TMDL Implementation Plan Received by EPD
- Evaluation of Implementation Plan/water Quality Improvement
- Project Attainment for Plans Prepared in 2002
- Project Attainment for Plans Prepared in 2007

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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/ORGANIZATION	ADDRESS	CITY	STATE	ZIP	PHONE	E-MAIL
Bob Thomas, Elbert County Board of Commissioners	45 Forest Ave.	Elberton	GA	30635	706-283-20000	<a href="mailto:ecboctomas@bellsouth.net">ecboctomas@bellsouth.net</a>
Byron Stovall, City of Elberton Water Department	234 N McIntosh St.	Elberton	GA	30635	706-213-3169	<a href="mailto:bstovall@cityofelberton.net">bstovall@cityofelberton.net</a>
Cindy Churney, Clerk, City of Elberton	P.O. Box 70	Elberton	GA	30635	706-213-3100	<a href="mailto:cchurney@cityofelberton.net">cchurney@cityofelberton.net</a>
Anna Grant Jones, Elbert County Development Authority	P.O. Box 63	Elberton	GA	30635	706-213-7600	<a href="mailto:ecdev@elberton.net">ecdev@elberton.net</a>
Katrina White, Natural Resource Conservation Service	333 Heard St.	Elberton	GA	30635	706-283-3021 ext. 3	<a href="mailto:Katrina.white@ga.usda.gov">Katrina.white@ga.usda.gov</a>
Forrest Ferguson, Natural Resource Conservation Service	88 Maret St.	Hartwell	GA	30643	706-376-5451 ext. 3	<a href="mailto:Forrest.ferguson@ga.usda.gov">Forrest.ferguson@ga.usda.gov</a>
Jason Hackett, Fortson's Creek WPCP	234 N. McIntosh Street	Elberton	GA	30635	706-213-3162	
David Hudson, City of Elberton Utilities Department	234 N McIntosh St.	Elberton	GA	30635	706-213-3169	
David Spaid, Elbert County Extension Director	10 Cloverleaf Dr	Elberton	GA	30635	706-283-2037	<a href="mailto:dspaid@uga.edu">dspaid@uga.edu</a>
Allison Webb, Elbert County Health Department	618 Jones Street	Elberton	GA	30635	706-283-3775	<a href="mailto:amwebb@gdph.state.ga.us">amwebb@gdph.state.ga.us</a>
Leland Bass, Elbert County Cattlemen's Association	2448 Corinth Church Rd.	Bowman	GA	30624	706-245-4334	
Phyllis H. Thompson, Elbert County Clerk	P.O. Box 6109	Elberton	GA	30635	706-283-2000	<a href="mailto:fleat@bellsouth.net">fleat@bellsouth.net</a>

**APPENDIX B.**

**UPDATES TO THIS PLAN**

If this is a major or minor revision of an existing plan, this section will describe the date, section or table updated, and a summary of what was changed and why.

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**APPENDIX C.**

**FIELD SURVEYS, NOTES, PHOTOGRAPHS, AND MAPS.**

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Visual Field Survey for Cold Water Creek (SR77 to Little Cold Water Creek near Ruckersville), January 2007

**Visual Field Survey**  
**For**  
**Cold Water Creek**  
**(SR 77 to Little Cold Water Creek near Ruckersville)**  
**In the**  
**Savannah River Basin**  
**January 2007**

Prepared by the Northeast Georgia Regional Development Center with the support of the Environmental Protection Division of the Georgia Department of Natural Resources

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## 1.0 INTRODUCTION

### 1.1 Location

The Cold Water Creek (SR 77 to Little Cold Water Creek near Ruckersville) TMDL Segment is listed as not supporting designated uses due to excess fecal coliform bacteria. The data that put the segment on the 303(d) list were collected in 2002. The six-mile segment is located in northern Elbert County. The watershed is located in Elbert and Hart Counties. However, Hart County is not in the NEGRDC region so this survey will cover only the Elbert County portion.

### 1.2 Watershed Description

The Cold Water Creek TMDL segment watershed is comprised of 22,441.90 acres of land in Elbert and Hart Counties. The Elbert County portion is 9,720.2 acres. It shares the same boundary as the HUC 12-030601030310 watershed. Land cover was determined by classifying 2004 NEGRDC parcels data using the Land-Based Classification System of the American Planning Association. The primary land uses in the watershed are forestry/logging, animal production, and crop production. **Table 1** shows the area and percent of each land use type. **Table 2** lists the LBCS categories and function codes that relate to each land use category used for this survey. The land use map for the Cold Water Creek watershed is included as **Figure 1**. **Figure 2** shows the stream crossings that were surveyed and includes data obtained from EPD.

**Table 1: Coldwater Creek Watershed Land Use**

Land Use Type	Area (Acres)	% of total
Residential	1010.2	10%
Commercial	314.4	3%
Industrial	14.0	0%
Transportation/Communication/Utility	237.7	2%
Public/Institutional	115.5	1%
Mining/Extraction	12.7	0%
Crop Production	2572.0	26%
Animal Production	2425.3	25%
Forestry/Logging	3005.8	31%
Other	12.7	0%
<b>Total</b>	<b>9720.2</b>	<b>100%</b>

**Table 2: LBCS Categories and Function Codes**

Land Use Categories	LBCS Category	LBCS Function Codes
Residential	Private Household	1100
	Hotel, motel, other accommodation	1300
Commercial	General Sales and services	2000's
	Construction related business	7000's
Industrial	Manufacturing and Wholesale Trade	3000's
Transportation/Communication/Utility	Transportation, communication, information, and utility	4000's
Park/Recreation/Conservation	Arts, entertainment, and recreation	5000's
	Natural parks	5500
Public/Institutional	Education, public Admin., health care, oth. Institutional	6100
Mining/Extraction	Nonmetallic mining	8400
	Quarrying/stonecutting	8500
Crop Production	Crop Production	9100
	Support Functions for agriculture	9200
Animal Production	Animal production and slaughter	9300
Forestry/Logging	Forestry and logging	9400
Game Preserve	Fishing, hunting and trapping, game preserves	9500
Other	Unclassifiable	9900

Figure 1. Coldwater Creek Watershed Land Use Map

### Coldwater Creek Land Use Map

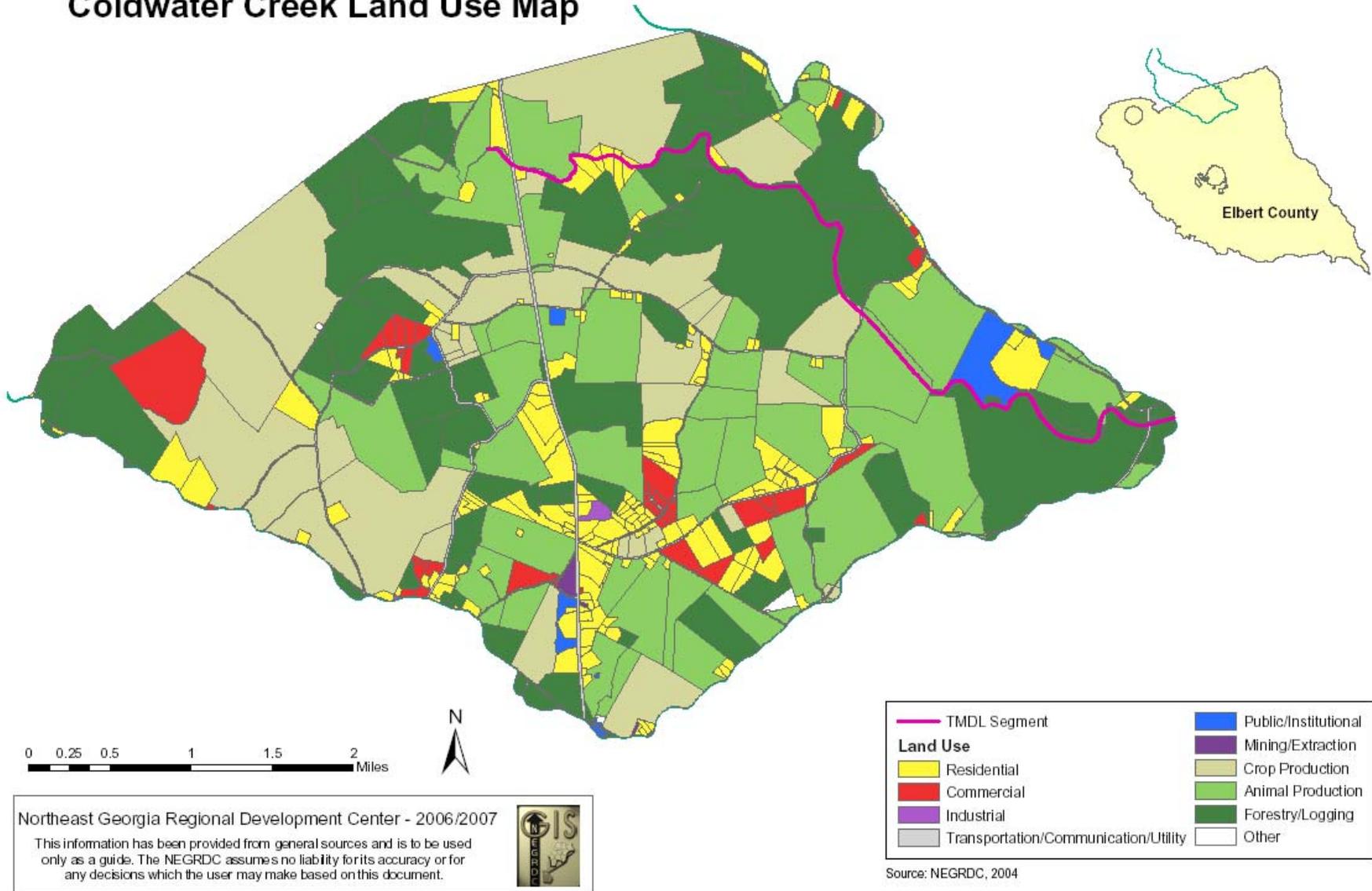
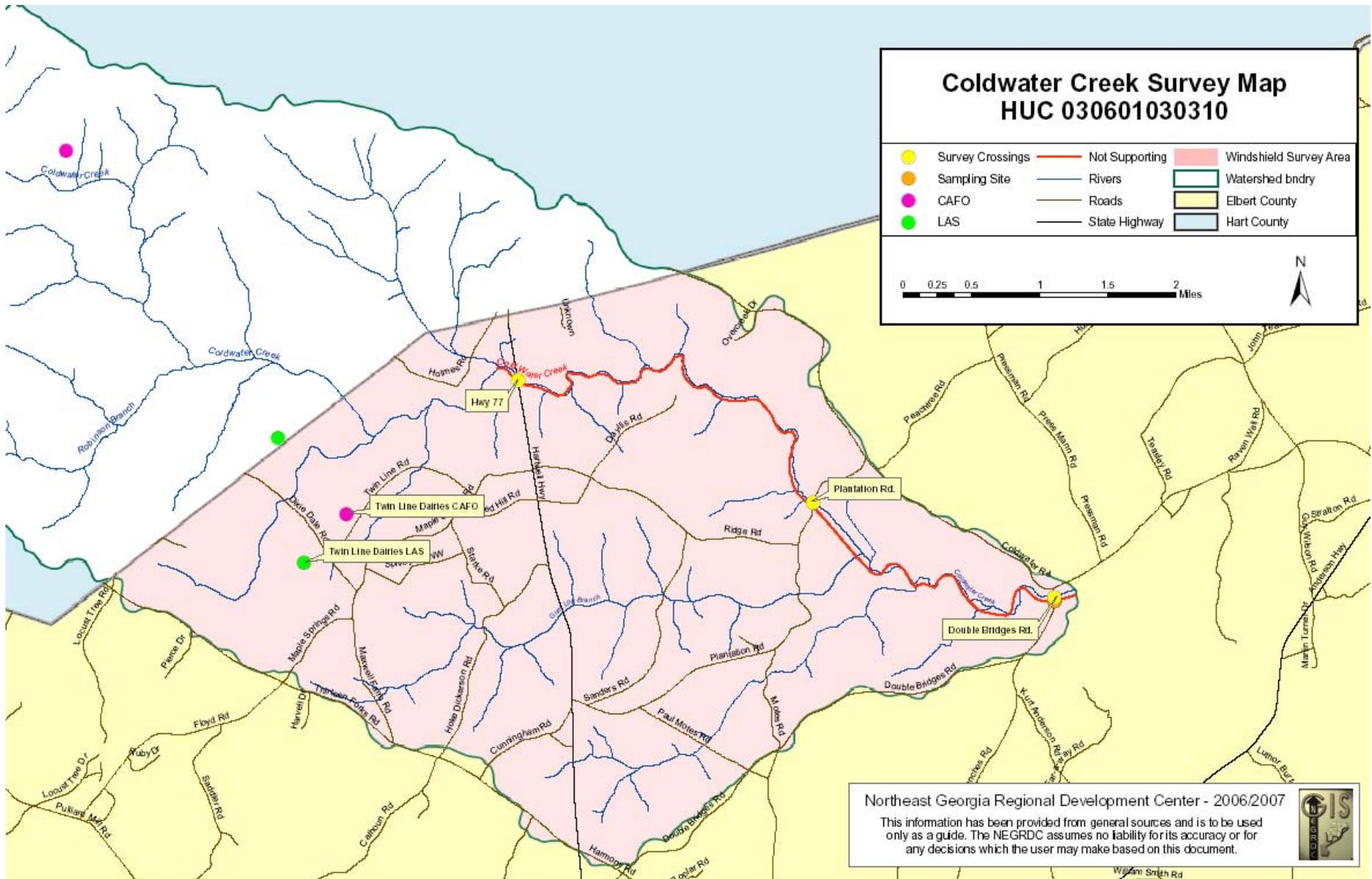


Figure 2. Coldwater Creek Survey Map



## **2.0 METHODOLOGY**

Prior to conducting the field survey, point data from the Georgia Environmental Protection Division were compiled and analyzed to determine the location of any point sources of pollution in the watershed. This data included the location of NPDES permitted facilities, landfills, LAS and CAFOs. In addition, 2005 aerial photos from the National Agricultural Imagery Program were used to determine possible sources of fecal coliform pollution within the watershed boundary that is shown on the maps on the previous pages. 2004 RDC land use data were also consulted to determine the extent of potential sources of fecal coliform. One purpose of the field surveys is to compare the most recent RDC land use data with the 1995 land use data that was used in the development of the TMDLs. However, in the case of the Cold Water Creek, Hart county land use was included in the TMDL data set, so the two land use data sets are not comparable.

The visual field survey consisted of a windshield survey of land use in the watershed and a visual assessment of stream condition at road crossings. The stream segment was not conducive to walking due to private property. Three road crossings were visited on the TMDL segment. The area of the windshield survey is shown on the survey map as the area shaded in pink. Sources investigated during the windshield survey were primarily animal production facilities, because these are easy to identify from aerials and it can be readily apparent if they are not using Best Management Practices. These facilities were considered to be priority sources if animals had access to the stream or there were not best management practices in place to prevent runoff of fecal matter into the stream. Notes and photographs were taken to document observations of the stream segment and the surrounding watershed.

## **3.0 FIELD FINDINGS**

### **3.1 General Characteristics**

The field findings discussed here are the result of the visual surveys of the TMDL stream segment and its watershed.

The three stream crossings visited during the field survey are at GA Hwy 77, Plantation Rd. and Double Bridges Rd. The water at the crossings was cloudy and reddish brown from sediment. At Double Bridges Rd. the water had a greenish tint. The banks were eroded at all crossings and there were mid-channel bars and sediment deposition on the stream banks. The riparian buffer is variable in width and density. It is fairly narrow in some of the agricultural areas, but it is very wide in the forested area. At the

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Plantation Rd. crossing, one side of the stream had a 5-10 ft riparian buffer adjacent to a pasture with no fencing to prevent cattle access. General photos of the stream are included as **Figures 3, 4, 5 & 6.**



**Figure 3. Coldwater Creek at Hwy 77 Looking Downstream**



**Figure 4. Coldwater Creek at Plantation Rd. Looking Upstream**



**Figure 5. Coldwater Creek at Double Bridges Rd. Looking Upstream**



**Figure 6. Sand Bar at Double Bridges Rd.**

The land use activities observed during the watershed survey included forestry (both past and current harvests), horse, cattle, and donkey pastures, poultry production, cotton farming, new residential areas, an old RV park, old mobile home parks, a large grading activity and road expansion.

### **3.2 Point Sources**

There is one NPDES permitted CAFO (Concentrated Animal Feeding Operation) in the watershed. It is run by Twin Line Dairies. Twin Line Dairies also has two Land Application Systems (LAS) in the watershed, one in Elbert County and one in Hart County. **Figures 7 & 8** are photos taken of the Twin Line facilities. In the stakeholder meeting, it was brought to our attention that the Twin Line Dairies is inactive.



**Figure 7. Twin Line Dairies CAFO**



**Figure 8. Manure Pile at Twin Line Dairies**

### 3.3 Non-point Sources

Potential non-point sources of fecal coliform in the watershed include septic, agriculture, pet waste, wildlife and illegal dumping.

The most common land use in the watershed is forestry/logging. Wildlife is most likely the primary source of fecal coliform associated with this land use; however, there are likely to be human sources as well.

Animal production is likely to be the largest contributor of fecal coliform in the Coldwater Creek watershed. During the watershed survey, we visited several farms to determine if there was in fact animal production at the site and to make observations of any activity that could contribute to fecal coliform loading, such as animal access to the stream. There were three farms on which cattle had access to tributaries to Coldwater Creek. These observed points of access were located <0.5 miles-2 miles from the TMDL segment.

The Coldwater Creek watershed is served entirely by septic systems. It is likely that there are failing septic systems in the watershed, because there is no ordinance requiring maintenance. There is a requirement for permitting of septic systems upon installment. The permit requires a soil permeability analysis prior to installation to determine if it is suitable for septic; however, based on USDA soils data and the RDC's land use data there are about 50 homes that may have been built on soils that are not suitable for septic systems (unless major modifications are made to the system). The metadata for the USDA soils data used in the analysis states the following:

“Field investigations and data collection are carried out in sufficient detail to name map units and to identify accurately and consistently areas of about 4 acres.”

Another potential source of fecal coliform and other pollutants is illegal dumping. Illegal dumping can be a major problem in rural areas where there are not landfills conveniently located or municipal trash service. **Figure 9** is a photo of an illegal dumping site in the Coldwater Creek watershed.



**Figure 9. Illegal Dumping on Twin Line Rd.**

#### **4.0 RANKS ASSIGNED TO POLLUTANT SOURCES**

The primary sources of fecal coliform in the Coldwater Creek watershed are likely to be animal production (including egg, poultry, livestock, and horse farms) and crop production (from the spreading of manure). Failing septic systems are another source that should be focused on in TMDL implementation plans. Wildlife is also likely to be a large contributor of fecal coliform due to the extent of forestry land in the watershed.

#### **5.0 SUMMARY OF FINDINGS**

The primary land uses in the Coldwater Creek watershed are forestry/logging, crop production, and animal production. The only NPDES permitted point source is the Twin Line Dairy CAFO, which is inactive. Several possible non-point sources exist in the watershed including, animal production, crop production, failing septic systems, wildlife, illegal dumping and pet waste, although, not all sources were visibly evident.

#### **6.0 STAKEHOLDER INVOLVEMENT**

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The field surveys were presented to stakeholders at the second advisory group meeting and posted on the Northeast Georgia RDC website to facilitate stakeholder input on the survey reports.