

STATE OF GEORGIA

TIER 2 TMDL Implementation Plan Update (Revision # 02)

Segment Name: FORTSON'S CREEK **Date:** June 15, 2007

River Basin: Savannah River Basin

Local Watershed Governments:

- Elbert, Hart and Franklin Counties
- Cities of Elberton, Bowman, Royston, Canon, and Bowersville

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.

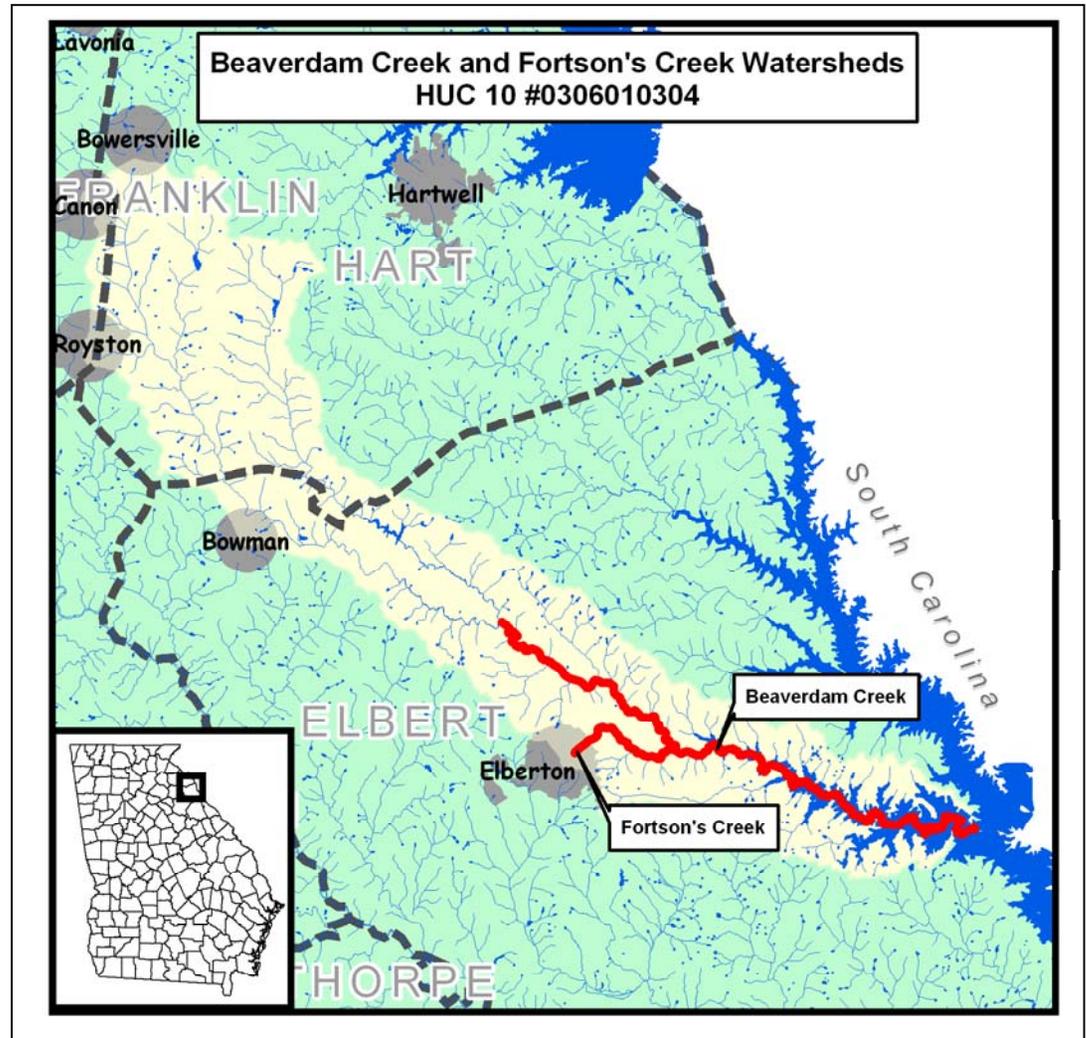


Table 1. IMPAIRED SEGMENTS IN THE HUC 10 WATERSHED

IMPAIRED SEGMENT	IMPAIRED SEGMENT LOCATION	EXTENT (mi/ac)	CRITERIA VIOLATED	EVALUATION
Fortson's Creek	Elberton to Beaverdam Creek	4 miles	Fecal Coliform	NS

Beaverdam Creek	Confluence of N & S Beaverdam Crks to Savannah River	22 miles	Fecal Coliform	NS
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* 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 # 0306010304 encompasses parts of Hart and Elbert counties as well as a very small portion of Franklin County. Cities that lie partially within the watershed are Elberton, Bowman, Royston, Canon and Bowersville. There are two TMDL stream segments within this HUC 10 watershed, Beaverdam Creek and Fortson's Creek. Both segments are not supporting their designated use of fishing due to fecal coliform impairment. Fortson's Creek is a tributary of Beaverdam Creek. The HUC 10 watershed is 78,847.9 Acres.

2004 NEGRDC Land Use for Beaverdam Creek TMDL Segment Watershed

Land Use Category	Area (Acres)	% of total
Residential	539.03	16%
Commercial	254.31	8%
Industrial	100.26	3%
Transportation/Communication/Utility	304.39	9%
Park/Recreation/Conservation	193.73	6%
Public/Institutional	205.79	6%
Mining/Extraction	101.01	3%
Animal Production	56.22	2%
Forestry/Logging	1608.68	48%
Other	1.69	0%
Total	3365.12	100%

The Fortson's Creek (Elberton to Beaverdam Creek) TMDL segment is 3.79 miles in length and flows from the City of Elberton into Beaverdam Creek. The data that listed the segment was collected upstream and downstream of the Fortson's Creek Water Pollution Control Plant in 1995. The city of Elberton and Elbert County are the only jurisdictions that impact the Fortson's Creek watershed. The Fortson's Creek TMDL segment watershed is 3,365 acres.

Primary land uses in the watershed are forestry/logging, urban land use and residential. Forestry/logging accounts for 48% of land use and represents the majority of land in close proximity to the stream segment. The primary source on forestry/logging land is wildlife, but there can be human sources during hunting season. Urban land use covers about 40% of the watershed and includes residential which accounts for 16% of total land use. The primary sources from urban land use are urban runoff, sewer leaks and sanitary sewer overflows and failing septic systems. About half of the watershed is rural in nature, but the city of Elberton is becoming more urbanized with commercial land use replacing residential and other land uses. The population of Elberton is steadily decreasing (from 7,107 in 1960 to 4,743 in 2000). The population of Elbert County, however, is increasing. The city of Elberton has sanitary sewer that serves most areas within the city limits. Elberton still has some areas that are served by individual septic systems; however, and many of them may be failing. Residences in the rest of the watershed are on septic systems.

Elberton Utilities operates the Fortson's Creek Water Pollution Control Plant located on the TMDL segment. It is the only NPDES discharge in the watershed. The Fortson's Creek WPCP had two violations of its permit between July 1998 and June 2002. There have been several instances of

spills and increased flows that have increased levels of fecal coliform in Fortson's Creek. There were also two Sanitary Sewer Overflows (SSOs) in Elberton (one in 1995 and one in 2004) that may have impacted Fortson's Creek.

Lake Russell is the primary water source for the city of Elberton. Beaverdam Creek is an emergency water source. Both drinking water sources have a Source Water Assessment Plan (SWAP) that was developed in July 2002. Of the sources identified in the Beaverdam Creek intake SWAP, the following are potential sources of fecal coliform (in parentheses is the source priority as determined by the SWAP): Non-sewer areas within a 7 mile radius (medium priority), Non-sewer areas outside a 7 mile radius (low priority), City of Elberton Landfill (low priority), two confined animal feeding operations (low priority), agricultural areas (low priority), forestry areas (low priority), and urban areas (low priority). Of the sources identified in the Lake Russell intake SWAP, the following are potential sources of Fecal Coliform: Fortson's Creek WPCP (high priority), Elbert County Landfill-Hull Chapel Rd (high priority), Silt Mill Wastewater Pump Station (high priority), septic areas within a 7 mile radius (high priority), Beaverdam Elementary School (medium priority), wastewater pump station (medium priority), Elbert County closed landfills (low priority), three CAFOs (low priority), septic areas outside a 7 mile radius (low priority), urban areas (low priority), forestry areas (low priority), and agricultural areas (low priority). Lake Russell is used for recreation and often has heavy boat traffic. This recreation can lead to more fecal coliform pollution from humans, boats, and pets.

The Elbert County Comprehensive Plan was written in 2003. Elbert County adopted the small water supply watershed protection criteria in 2001. In 2005, Elbert County adopted large water supply watershed protection criteria for the Lake Russell intake. The small water supply watershed protection criteria require a 100 ft. vegetated buffer and a 150ft. septic drainfield and impervious surface setback for streams within a 7-mile radius upstream of the intake and a limit of 25% impervious surface in the watershed or existing use, whichever is greater. This does not apply to existing land use. Single family residential use is allowed within the buffer provided the residence is located on a two acre tract of land that is not occupied by any other residence and that the septic drainfield is not located in the 150ft setback. These criteria do not apply to new or existing agricultural land use provided that best management practices are followed and that they do not impair water quality. The plan also states that Elbert County will make an ongoing effort to minimize the negative environmental impacts of development. Elbert County and the City of Bowman 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.

According to Elberton's Code of Ordinances, buffer requirements are consistent with state standards of 25ft. for all state waters and a 50ft. buffer for streams classified as trout streams. All individuals involved with land disturbing activity must be trained and certified based on their level of involvement. The code of ordinances requires that pet waste be removed from public property, prohibits any illicit discharges of pollutants into the municipal waterworks, and requires any residence or business within 200ft. of a sanitary sewer line to be connected to sanitary sewer.

The US Army Corps of Engineers led the 2004 and 2005 Rivers Alive Cleanups on Lake Richard B. Russell. The Broad River Watershed Association is active in Broad River watershed in Elbert County but not in the Fortson's Creek watershed.

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_{sw}), 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 _{sw}	LA	TMDL
Fortson's Creek	Elberton to Beaverdam Creek	Fecal Coliform	100 cfu/100ml			175 cfu/100ml

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	86
		UR	

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.

Sources in the Fortson's Creek TMDL segment watershed were identified by conducting visual field surveys of the stream crossings and the watershed land use. Prior to the visual field surveys, 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. 2004 RDC land use data were also consulted to determine the extent of potential sources of fecal coliform. One purpose of the TMDL implementation plan 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 Fortson's Creek segment watershed, 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. Two road crossings were visited on the TMDL segment. No potential sources could be found by looking at aerial photos, so the windshield survey consisted of driving the entire watershed. Notes and photographs were taken to document observations of the stream segment and the surrounding watershed.

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

Sewer line leaks could contribute to fecal coliform pollution. No sewer line leaks were witnessed during the survey, but the sewer line crosses the listed segment in several places according to GIS data. When the first TMDL implementation plan was written for Fortson's Creek a targeted sampling study was done to determine potential sources. One of the determined sources was a leaky sewer line. There were two reported Sanitary Sewer Overflows (SSOs) in Elberton (one in 1995 and one in 2004) that may have impacted Fortson's Creek. Illicit discharges to the storm water system are another potential source.

The only NPDES permitted facility that discharges to Fortson's Creek is the Fortson's Creek Water Pollution Control Plant. The Fortson's Creek WPCP had two violations of its permit between July 1998 and June 2002. There have been several instances of spills and increased flows that have increased levels of fecal coliform in Fortson's Creek and may have also impacted Beaverdam Creek.

Non-point Sources

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

Failing Septic Systems

The Fortson's Creek watershed is largely served by sewer; however, there may still be areas that are served by failing septic systems. One particular neighborhood that is still served by individual septic systems is Sunny Acres (outlined in black in Figure 1 in the visual field survey report in Appendix C), which has been known to have septic failures in the past. 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 a little over 175 residential parcels with septic systems in the watershed assuming that all residences within 200ft. of a sewer line have been connected to sewer. Only one of these parcels is adjacent to a stream in the watershed.

Urban Runoff

Runoff due to impervious surfaces associated with urban development likely plays a large role in fecal coliform pollution in the Fortson's Creek watershed. Pet, human and wildlife wastes may be carried by urban runoff.

Animal Production

According to land use data there is one parcel of agricultural land used for animal production that is adjacent to the listed stream segment. This area was not visited during the field surveys, but from the 2005 aerial photo it appears that there is a large forested buffer adjacent to the stream.

Wildlife

Approximately half of the watershed is forested. In forested areas it is likely that wildlife is the primary contributing source; however, hunting camps are a potential human source. 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 about 86 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.

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.

Rating A: Estimated Geographic Extent of the Source or Cause in the Contributing Watershed	Rating B: Estimated Portion of Contribution from the Source to the Pollutant Load Causing the Impairment	Rating
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 Coliform₂

POTENTIAL SOURCES	ESTIMATED EXTENT OF CONTRIBUTION		ESTIMATED PORTION OF CONTRIBUTION		IMPACT RATING (A X B)
	Comments	Rating (A)	Comments	Rating (B)	
Urban Runoff	Approximately 40% of the watershed is urban	3	Pet, Human and Wildlife wastes runoff to stream	3	9
Failing Septic Systems	Approximately 16% of watershed residential is on septic	1	Documented failures in watershed, targeted sampling suggested septic was a source	3	3
Wildlife	Approximately 50% of the watershed is forested	3	Runoff slowed by vegetation, probable direct input	1	3
Sewage System Leaks and Spills	Approximately 22% of the watershed is on sanitary sewer	3	Leaks have occurred, but are being detected and repaired, lines in close proximity to TMDL segment	1	3
Animal Production	2% of watershed	0.5	Adjacent to stream, wide riparian buffer	0.5	0.25

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.

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 26th, 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	ecbocthomas@bellsouth.net
Byron Stovall, City of Elberton Water Department	234 N McIntosh St.	Elberton	GA	30635	706-213-3169	bstovall@cityofelberton.net
Cindy Churney, Clerk, City of Elberton	P.O. Box 70	Elberton	GA	30635	706-213-3100	cchurney@cityofelberton.net
Anna Grant Jones, Elbert County Development Authority	P.O. Box 63	Elberton	GA	30635	706-213-7600	ecdev@elberton.net
Katrina White, Natural Resource Conservation Service	333 Heard St.	Elberton	GA	30635	706-283-3021 ext. 3	Katrina.white@ga.usda.gov
Forrest Ferguson, Natural Resource Conservation Service	88 Maret St.	Hartwell	GA	30643	706-376-5451 ext. 3	Forrest.ferguson@ga.usda.gov
Jason Hackett, Fortson's Creek WPCP	234 N. McIntosh Street	Elberton	GA	30635	706-213-3162	

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.

BMP Extent (Percentage of Sources to Which the BMP Has or Will Be Applied)	BMP Effectiveness (Percent Removal of Pollutant by the BMP)	Rating
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

BEST MANAGEMENT PRACTICE (1)	RESPONSIBILITY (2)	DESCRIPTION (3)	SOURCES OF FUNDING & RESOURCES (4)	STATUS CODE (5)	TARGET DATE (6)	EXTENT RATING (7)	EFFECT. RATING (8)
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.					
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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.
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	5	3 (in new development)
Sanitary Sewer Maintenance Program	City of Elberton	Sanitary sewer system inventory and inspection (mapping, television inspections); infiltration & inflow identification and reduction (flow monitoring, smoke testing); sewer line rehabilitation (pipe bursting, relining, cleaning) and manhole rehabilitation.	Local/County Water/	A	In place, on-going	3	5
Pet Waste Removal Ordinance	City of Elberton	Requires that animal owners remove pet waste from public property		A	2000	3	5
Water Quality Ordinances	City of Elberton	Soil Erosion and Sedimentation Control		A, R	2000	5	1 (for new or redevelopment)
Georgia Planning Act, Part 5 - Small Water Supply Watershed Protection Ordinance	City of Elberton, 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: Increases buffer requirements and development and impervious surface restrictions within the watershed of the Beaverdam Creek water supply intake. Elberton lies within the 7-mile radius.		A, R	1999	3	3 (for new and redevelopment)
Georgia Planning Act, Part 5 - Large Water Supply Watershed 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: Increases buffer requirements and development restriction within the Lake Russell water supply watershed.		A, R	2005	3	1 (for new and redevelopment)
Rivers Alive Cleanup	US Army Corps of Engineers	Annual volunteer waterway cleanup to create awareness and involvement in the preservation of Georgia's water resources	GAEPD, GA DCA	P	2007 Ongoing	.5	.5

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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	Ongoing	.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
Stormwater quality Control	City of Elberton Planning Department	Incorporate stormwater quality control into Land Development Ordinances		A	2005	3	3
Septic Tank Inspection Ordinance	Elbert County, City of Elberton, Health Dept.	Provision to require septic tank inspection either at regular intervals or on sale of property.		P	2002		
Illicit Connections	City of Elberton, Health Dept., other task force members	Identify any illicit connections of fecal sources to drainage system		A	Ongoing		

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)
Urban Runoff	9	Pet Waste Removal Ordinance Water Quality Ordinances Small Water Supply Watershed Protection Ordinance Large Water Supply Watershed Protection Ordinance Stormwater Ordinance Illicit Connections	Implementing and enforcing water quality related ordinances that restrict use of impervious surfaces and increasing the riparian buffer width requirement within environmentally sensitive areas will reduce the amount of polluted runoff being input into streams.	Pollution from urban runoff would be reduced more if riparian buffer width requirements were increased for new development on all state waters.
Failing Septic Systems	3	Regulation of On-Site Sewage Management Systems, IAW O.C.G.A. 290-5-26 Septic Tank Inspection ordinance	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	If loads from septic systems are not being reduced, consider implementing a septic maintenance education program 319 (h) funds can be used to implement a septic repair initiative in the watershed to reduce inputs from failing septic systems

		Water Quality Ordinances	environmentally sensitive areas will reduce the amount of polluted runoff being input into streams.	
		Small Water Supply Watershed Protection Ordinance		
		Large Water Supply Watershed Protection Ordinance		
		Stormwater Ordinance		
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.
Sewage System Leaks and Spills	3	Illicit Connections	Currently sewer line and SSO maintenance occurs on an as needed basis.	If SSOs and sewer line leaks continue to occur, consider implementing sanitary sewer inspection and maintenance on a regular basis
		Sanitary Sewer Maintenance Program		
Animal Production	0.25		Animal production is not a significant source in this watershed, therefore no management measures are recommended	

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.

**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)**

BMP Extent (Percentage of Sources to Which the BMP Has or Will Be Applied)	BMP Effectiveness (Percent Removal of Pollutant by the BMP)	Rating
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

APPLICABLE TO CRITERION 1: Fecal Coliform.

BEST MANAGEMENT PRACTICE (1)	RESPONSIBILITY (2)	DESCRIPTION (3)	SOURCES OF FUNDING & RESOURCES (4)	STATUS CODE (5)	TARGET DATE (6)	EXTENT RATING (7)	EFFECT. RATING (8)
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	Oconee River RC&D	June 2007

management practices mentioned in the meeting.	
--	--

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.

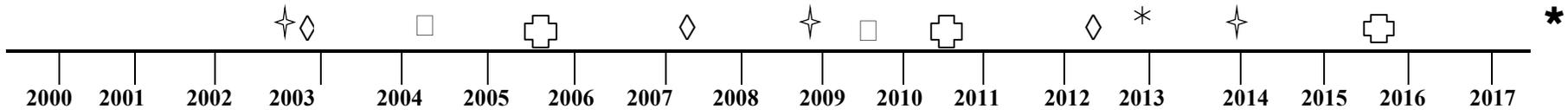
Table 9. MILESTONES AND MEASURES OF PROGRESS

BEST MANAGEMENT PRACTICE	RESPONSIBLE ORGANIZATION	STATUS		COMMENT
		PROPOSED	INSTALLED	
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.
Water Quality Ordinances	Cities of Bowman and Elberton		2000, on-going	Restricts development within certain environmentally sensitive areas. These areas cover a small portion of the watershed. The ordinances are predicted to reduce impact of new development and have an effectiveness rating of 5-25%
Small Water Supply Watershed Protection Ordinance	Elbert County, City of Elberton, City of Bowman		1999 (Elberton)	Restricts impervious surfaces and increases buffer width requirements within water supply watersheds. Applies to new development in 20-50% of the watershed. Effectiveness rating of 25-75%.
Large Water Supply Watershed Protection Ordinance	Elbert County		2005	Restricts development within water supply watersheds. Applies to new development in 20-50% of the watershed. Effectiveness rating of 5-25%.
Sanitary Sewer Maintenance Program	Cities of Elberton and Bowman		On-going	Inspections conducted as needed. Overflows and leaks still occur occasionally. When repaired effectiveness is >75%.
Pet Waste Removal Ordinance	City of Elberton		2000	Pet waste must be removed from public property. Level of enforcement unknown. If disposed of properly the effectiveness should be >75%
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.
Stormwater quality incorporated in Land Development Ordinances	Elbert County, City of Elberton		2005	
Septic Tank Inspection ordinance	Elbert County, City of Elberton, Health Dept.	2002		Ordinance proposed in original implementation plan. No action taken
Illicit Connections	City of Elberton, Health Dept., other task force members		Ongoing	
Targeted sampling to identify sources	Elbert County, City of Elberton, County Health Department		2000	First round of targeted sampling using IDEXX conducted on Fortson's Creek and its tributaries. Sewer leak identified as a source and measures were taken to correct it
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.

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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Date Submitted to EPD:	6/15/2007	Revision:	02

Preparation of this report was financed in part through a grant from the U.S. Environmental Protection Agency under the provisions of Section 106 of the Federal Water Pollution Control Act, as 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/ORGANIZATION	ADDRESS	CITY	STATE	ZIP	PHONE	E-MAIL
Bob Thomas, Elbert County Board of Commissioners	45 Forest Ave.	Elberton	GA	30635	706-283-20000	ecbocthomas@bellsouth.net
Byron Stovall, City of Elberton Water Department	234 N McIntosh St.	Elberton	GA	30635	706-213-3169	bstovall@cityofelberton.net
Cindy Churney, Clerk, City of Elberton	P.O. Box 70	Elberton	GA	30635	706-213-3100	cchurney@cityofelberton.net
Anna Grant Jones, Elbert County Development Authority	P.O. Box 63	Elberton	GA	30635	706-213-7600	ecdev@elberton.net
Katrina White, Natural Resource Conservation Service	333 Heard St.	Elberton	GA	30635	706-283-3021 ext. 3	Katrina.white@ga.usda.gov
Forrest Ferguson, Natural Resource Conservation Service	88 Maret St.	Hartwell	GA	30643	706-376-5451 ext. 3	Forrest.ferguson@ga.usda.gov
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	dspaid@uga.edu
Allison Webb, Elbert County Health Department	618 Jones Street	Elberton	GA	30635	706-283-3775	amwebb@gdph.state.ga.us
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	fleat@bellsouth.net

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.

This implementation plan is a major revision of an existing plan that was developed in 2000 by the NEGRDC.

This revision contains more information about current management measures that have been implemented or proposed by local government, landowners and environmental organization. It focuses both on what has been done that has reduced fecal coliform load and what will be done in the future.

A different watershed delineation was determined during the revision process. The watershed size in the TMDL was 2936 acres. The watershed size listed in the original implementation plan was 17,000 acres. The new watershed delineation that was created in the revision process covered 3,365 acres.

The stakeholder advisory group was expanded to include representatives from the city's water department and wastewater treatment plant operators, and members of the Broad River Watershed Association.

Table 6A outlines all past, current and proposed management measures that could affect fecal coliform loads. Since 2000 Elbert County has adopted the Large Water Supply Watershed Protection Ordinance.

A 2005 status report for the original 2000 implementation plan outlines the status of management measures proposed in the original plan. During the original planning process a Watershed Task Force was identified. This Task Force has not reconvened since planning ended in 2000. The County Extension service expressed interest in reactivating the task force at the time the status report was completed, however, there has been no activity. Members of the task force completed one round of targeted sampling in the Fortson's Creek watershed. In the 2005 update county extension expressed desire to continue sampling, but no action has been taken. County Extension also expressed interest in conducting a public education campaign in the 2005 update, but no action has been taken. The 2000 implementation plan called for measures to improve stormwater quality. Stormwater quality was incorporated into Land Development Ordinances in 2005, but there has been no effort to incorporate stormwater quality into design and operation of stormwater facilities.

Table 9 outlines the milestones and measures of progress for the implementation process. It includes milestones for the new additions to the plan as well as milestones from the 2000 plan. Suggested management measures from the 2000 plan include a stormwater ordinance, a septic tank inspection ordinance, illicit connection detection, sanitary sewer leak detection and repair and a monitoring program to better determine sources. The sanitary sewer leak detection and repair was implemented as a result of sewer leaks being identified as a source during the targeted sampling effort. The other measures were not implemented. The unimplemented measures remain in the revision as proposed management measures and

milestones. There is a new proposal to conduct another targeted sampling effort for determination of sources. The new targeted sampling effort will be conducted as a volunteer sampling event and will be used as a public water quality education campaign as well.

APPENDIX C.

FIELD SURVEYS, NOTES, PHOTOGRAPHS, AND MAPS.

Visual Field Survey for Fortson's Creek (Elberton to Beaverdam Creek), January 2007

Visual Field Survey
For
Fortson's Creek
(Elberton to Beaverdam Creek)
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 Fortson's Creek (Elberton to Beaverdam Creek) TMDL segment is listed as not supporting its designated use of fishing due to excess fecal coliform bacteria. The data that put the segment on the 303(d) list were collected in 1995. The 3.79-mile segment is located in central Elbert County. It begins in the city of Elberton and empties into Beaverdam Creek, which is another 303 (d) listed stream. About half of Elberton is located within the watershed of Fortson's Creek.

1.2 Watershed Description

The Fortson's Creek watershed is comprised of 3,365.12 acres in Elbert County. The watershed is a small portion of the HUC 12-030601030403. 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 and residential. **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 Fortson's Creek watershed is included as **Figure 1**. **Figure 2** shows the stream crossings that were surveyed and includes data obtained from EPD.

Table 1: Fortson's Creek Watershed Land Use

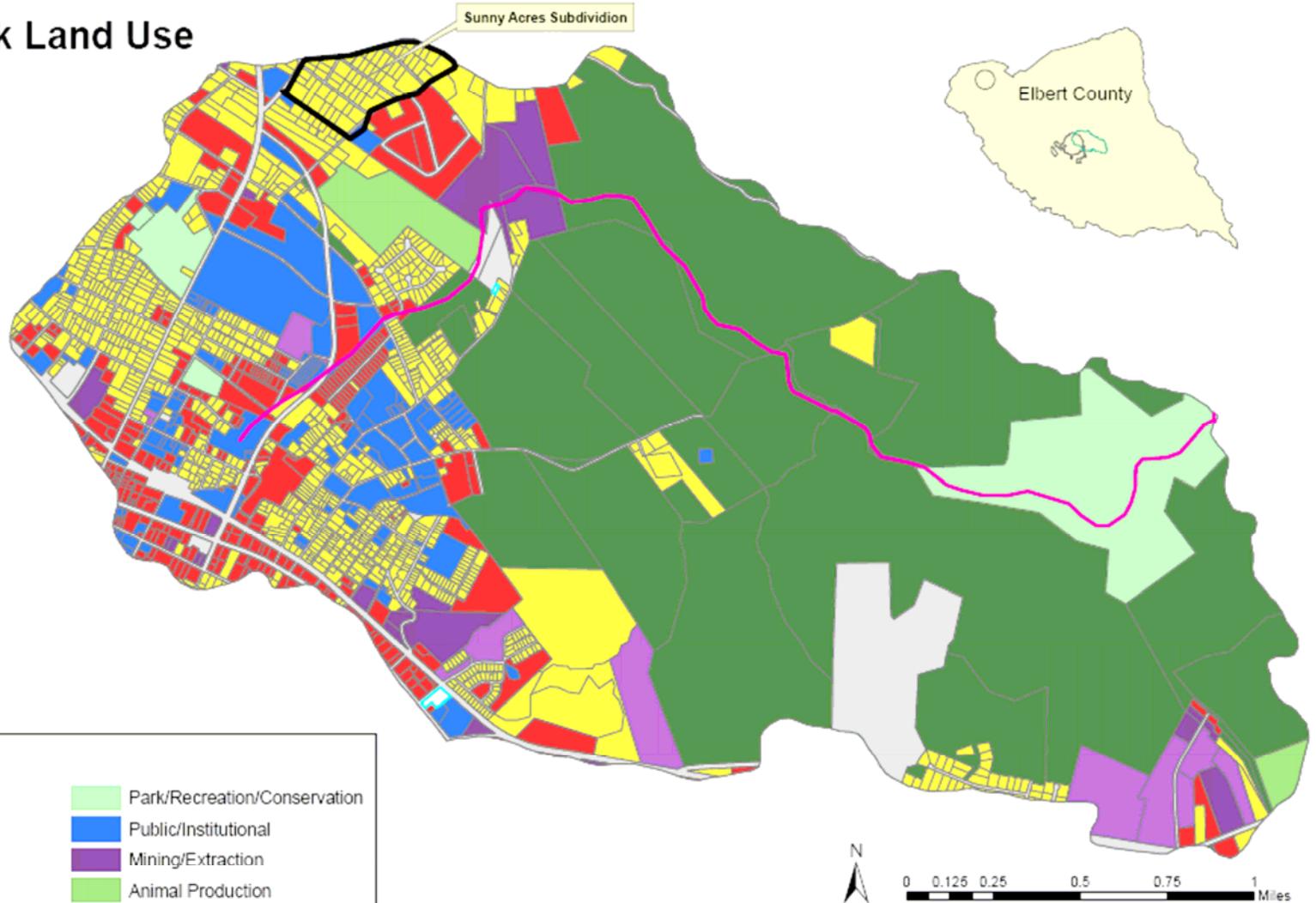
Land Use Type	Area (Acres)	% of total
Residential	539.03	16%
Commercial	254.31	8%
Industrial	100.26	3%
Transportation/Communication/Utility	304.39	9%
Park/Recreation/Conservation	193.73	6%
Public/Institutional	205.79	6%
Mining/Extraction	101.01	3%
Animal Production	56.22	2%
Forestry/Logging	1608.68	48%
Other	1.69	0%
Total	3365.12	100%

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, grazing land	9300
Forestry/Logging	Forestry and logging	9400
Game Preserve	Fishing, hunting and trapping, game preserves	9500
Other	Unclassifiable	9900

Figure 1: Fortson's Creek Watershed Land Use Map

Fortson's Creek Land Use



Legend

TMDL Segment	Park/Recreation/Conservation
Land Use	Public/Institutional
Residential	Mining/Extraction
Commercial	Animal Production
Industrial	Forestry/Logging
Transportation/Communication/Utility	Other

Source: NEGRDC, 2004

Northeast Georgia Regional Development Center - 2006/2007

This information has been provided from general sources and is to be used only as a guide. The NEGRDC assumes no liability for its accuracy or for any decisions which the user may make based on this document.

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 Fortson's Creek 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. Two road crossings were visited on the TMDL segment. No potential sources could be found by looking at aerial photos, so the windshield survey consisted of driving the entire watershed. 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 two stream crossings visited during the field survey were at the GA Hwy 77 Connector and Oglesby Blvd. in Elberton, GA. The water at the Hwy 77 Conn. crossing was clear upstream of the culvert and cloudy downstream. The stream bottom substrate was largely silt and the presence of algae was evident. The water at the Oglesby Blvd. crossing was cloudy and reddish-brown from sediment. The banks were eroded at both crossings and there were mid-channel bars and sediment deposition on the stream banks. The poor placement of the culvert at the Hwy 77 Connector could be contributing to sediment deposition and pooling. At the Hwy 77 Connector crossing, there was a faint odor of sewage. General photos of the stream are included as **Figures 3, 4 & 5**. The riparian buffer is variable in width and density as is evident in the photos. It is fairly narrow or nonexistent in the urban area of the watershed, but it is very wide in the forested area.



Figure 3. Fortson's Creek at Hwy 77 Connector Looking Upstream



Figure 4. Neighborhood adjacent to Fortson's Creek off Oglesby Drive Looking Downstream



Figure 5. Fortson's Creek at Oglesby Drive Looking Upstream

The watershed of the Fortson's Creek segment (Elberton to Beaverdam Creek) is approximately 40% urban land use with a lot of residential and commercial development and about 50% forestry/logging land.

3.2 Point Sources

Sewer line leaks could contribute to fecal coliform pollution. No sewer line leaks were witnessed during the survey, but the sewer line crosses the listed segment in seven places according to GIS data. When the first TMDL implementation plan was written for Fortson's Creek a targeted sampling study was done to determine potential sources. One of the determined sources was a leaky sewer line. There were two reported Sanitary Sewer Overflows (SSOs) in Elberton (one in 1995 and one in 2004) that may have impacted Fortson's Creek. Illicit discharges to the storm water system are another potential source.

The only NPDES permitted facility that discharges to Fortson's Creek is the Fortson's Creek Water Pollution Control Plant. The Fortson's Creek WPCP had two violations of its permit between July 1998 and June 2002. There have been several instances of spills and increased flows that have increased levels of fecal coliform in Fortson's Creek and may have also impacted Beaverdam Creek.

3.3 Non-point Sources

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

The Fortson's Creek watershed is largely served by sewer; however, there may still be areas that are served by failing septic systems. One particular neighborhood that is still served by individual septic systems is Sunny Acres (outlined in black in Figure 1), which has been known to have septic failures in the past.

Runoff due to impervious surfaces associated with urban development likely plays a large role in fecal coliform pollution in the Fortson's Creek watershed. Pet, human and wildlife wastes may be carried by urban runoff.

According to land use data there is one parcel of agricultural land used for animal production that is adjacent to the listed stream segment. This area was not visited during the field surveys, but from the 2005 aerial photo it appears that there is a large forested buffer adjacent to the stream.

Approximately half of the watershed is forested. In forested areas it is likely that wildlife is the primary contributing source; however, hunting camps are a potential human source.

4.0 RANKS ASSIGNED TO POLLUTION SOURCES

The primary source of fecal coliform in the Fortson's Creek watershed is most likely urban runoff. Failing septic systems and wildlife in forested areas are other potentially major sources. Other sources include sanitary sewer leaks, illicit discharges, and animal production.

5.0 SUMMARY OF FINDINGS

The primary land uses in the Fortson's Creek watershed are forestry/logging and residential. Urban area covers about 40% of the watershed. The only permitted point source is the Fortson's Creek wastewater treatment facility. Other point sources include sanitary sewer leaks and illicit discharges. Several possible non-point sources exist in the watershed including, urban runoff, failing septic systems, wildlife, and animal production, although, not all sources were visibly evident.

6.0 STAKEHOLDER INVOLVEMENT

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.