

**STATE OF GEORGIA**  
**TIER 2 TMDL Implementation Plan (Revision # 02)**

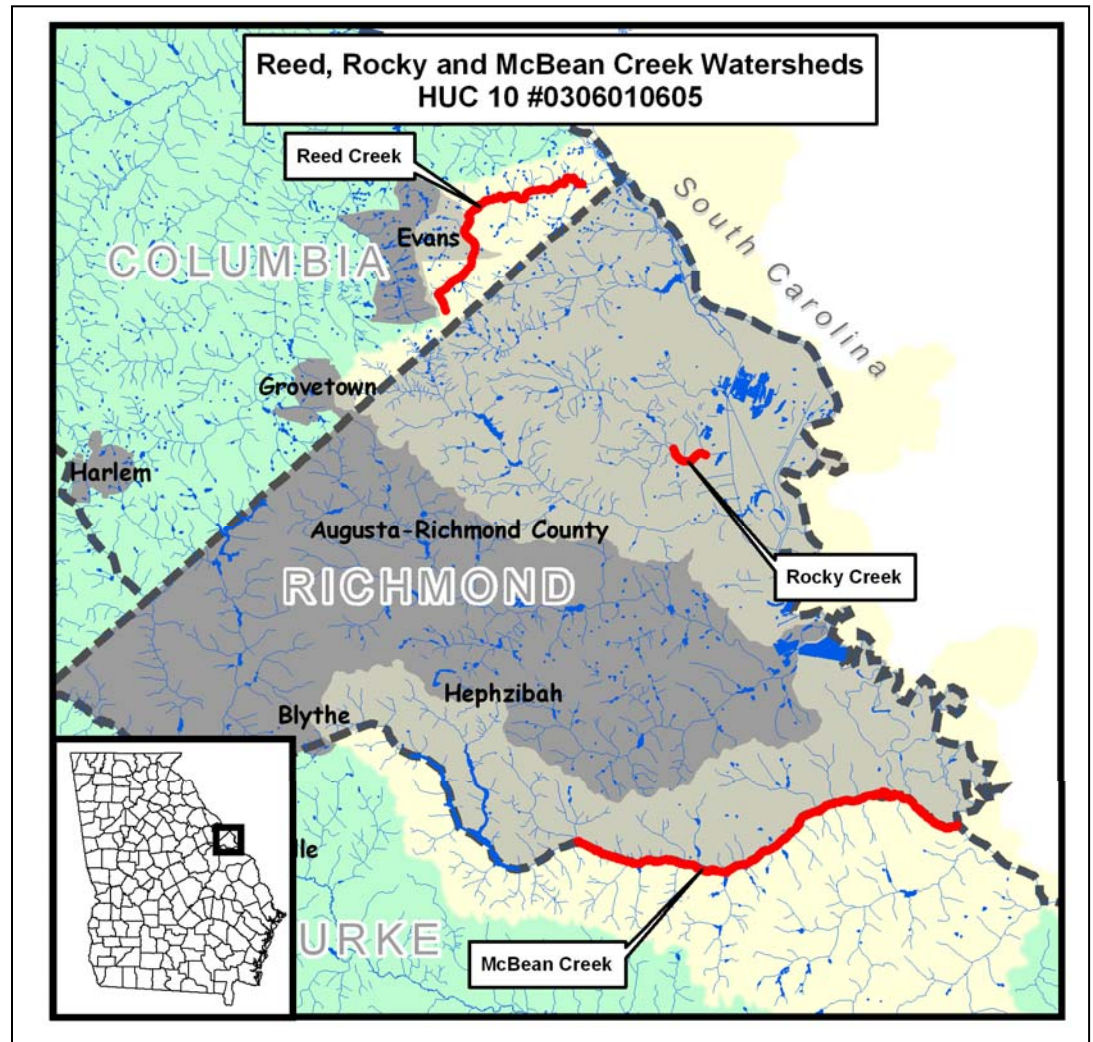
Segment Name: Reed Creek  
 Date: September 17, 2007  
 River Basin: Savannah River Basin  
 Local Watershed Governments:

Augusta-Richmond County, City of Hephzibah,  
 City of Blythe, Burke County, Columbia County,  
 Evans, City of Grovetown, Aiken County, South  
 Carolina, and Edgefield County, South Carolina

**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
McBean Creek	Poorly Branch to Savannah River	14 miles	Fecal Coliform	NS
Reed Creek	Road S1727 to Bowen Pond near Martinez	8 miles	Fecal Coliform	NS
Rocky Creek	State Route 56 to below New Savannah Road	2 miles	Fecal Coliform	NS

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

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 **bold** and underlined.

The Savannah River Basin encompasses more than 10,570 square miles and the river forms the border between the states of South Carolina and Georgia. The Savannah River begins in the Blue Ridge Mountains of North Georgia and South Carolina where the Secuca and Tugaloo Rivers meet and flow into Lake Hartwell. The Savannah River then flows southeast for more than 300 miles to the Atlantic Ocean. Upstream of Augusta, the river flows through Clarks Hill Reservoir and Lake Stephens. The river flows through three geographically distinct ecoregions, beginning its meandering path in the Blue Ridge, flowing through the rich soils of the Piedmont, and ending in the Coastal Plain where it forms a braided network of tidal creeks that empty into the Atlantic Ocean.

The Savannah River Basin is further divided into 7 sub-basins or Hydrologic Units Codes (HUCs). Each subbasin or HUC 8 is divided further into HUC 10s and HUC 12s. Reed Creek is located in HUC 10 #0306010605 as shown in yellow in the map on page 1. The HUC 10 covers 104,843 acres and includes all or portions of the cities of Blythe, Hephzibah, and Grovetown. The data table below shows the current land use for the portions of Burke, Columbia, and Richmond Counties that are within the HUC10. It is also important to note that portions of the HUC10 are in Aiken and Edgefield County, South Carolina.

The land use data for HUC10 #0306010605 is represented in the table below. Most notably, the HUC10 is characterized by agriculture, forestry, and residential land uses.

<b>Current Land Use in HUC10 # 0306010605</b>			
	<b>Current Land Use</b>	<b>Area</b>	<b>Acres</b>
<b>Augusta-Richmond County</b>	Agriculture/Forestry	854,632,476	19,620
	Commercial	209,909,964	4,819
	Industrial	255,310,558	5,861
	Public/Institutional	274,519,450	6,302
	Parks/Recreation/Conservation	538,476,582	12,362
	Residential	1,330,932,570	30,554
	Water	34,077,792	782
	Transportation/Communication/Utilities	66,943,189	1,537
	Undeveloped/U	972,030,058	22,315
	<b>Total:</b>	<b>4,536,832,638</b>	<b>104,151</b>

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<b>Burke County</b>	Agriculture/Forestry	2,461,873,216	56,517
	Commercial	2,689,957	62
	Public/Institutional	2,193,964	50
	Residential	235,744,929	5,412
	<b>Total:</b>	<b>2,702,502,066</b>	<b>62,041</b>
<b>Columbia County</b>	Agriculture/Forestry	247,393,274	5,679
	Commercial	37,274,846	856
	Industrial	15,264,771	350
	Public/Institutional	13,171,348	302
	Parks/Recreation/Conservation		0
	Residential	271,557,136	6,234
	Water	12,255,253	281
	<b>Total:</b>	<b>596,916,627</b>	<b>13,703</b>
<b>City of Blythe</b>	Agriculture/ Forestry	8,110,942	186
	Residential	599,644	14
	Public/Institutional	131,476	3
	Undeveloped/U	471,008	11
	<b>Total:</b>	<b>9,313,071</b>	<b>214</b>
<b>City of Grovetown</b>	Residential	3,807,415	87
	Commercial	378,010	9
	Industrial	464,778	11
	Transportation/Communication/Utilities	954,423	22
	Undeveloped/U	2,840,425	65
	<b>Total:</b>	<b>8,445,051</b>	<b>194</b>
<b>City of Hephizibah</b>	Agriculture/ Forestry	819,385	19
	Residential	795,444	18
	Commercial	4,358	0
	Public/Institutional	7,403	0
	Transportation/Communication/Utilities	879,845	20
	Undeveloped/U	537,440	12
	<b>Total:</b>	<b>3,043,875</b>	<b>70</b>
<b>Total Land Use for HUC 10 #0306010605:</b>		<b>4,566,947,704</b>	<b>104,843</b>
Source: CSRA Regional Development Center, 1994 and 2005			

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The impaired stream segment of Reed Creek is contained within in Columbia County from Rd S1727 to Bowen Pond Road near Martinez. The table below describes the current land use in the HUC 12. More than 50% of the HUC12 is characterized by residential land use and nearly 32% is forest.

<b>HUC12 Land Use for Reed Creek</b>		
	Acres	Percentage
Open Water	78	.8%
Residential	4,638	50.2%
High Intensity Commercial, Industrial, Transportation	417	4.5%
Bare Rock, Sand Clay	50	.5%
Quarries, Strip Mines, Gravel Pits	116	1.3%
Transitional	530	5.7%
Forest	2,934	31.8%
Row Crops	135	1.5%
Pasture, Hay	76	.8%
Other Grasses (Urban, recreational; e.g. parks, lawns)	148	1.6%
Woody Wetlands	112	1.2%
Emergent Herbaceous Wetlands	1	0%
<b>Total</b>	<b>9,236</b>	<b>100%</b>
Source: TMDL for Fecal Coliform in Savannah River Basin		

The current TMDL of the stream segment indicates possible sources of fecal coliform contamination in Reed Creek are nonpoint sources, specifically a municipal sewage treatment plant and urban runoff. Other possible non-point sources of contamination include, but are not limited to, wildlife, agriculture, and urban development.

The importance of wildlife as a source of fecal coliform bacteria in streams varies considerably, depending on the animal species present in the subwatersheds. Based on information provided by the Wildlife Resources Division (WRD) of GA DNR, the animals that spend a large portion of their time in or around aquatic habitats are the most important wildlife sources of fecal coliform. Waterfowl, most notably ducks and geese, are considered to potentially be the greatest contributors of fecal coliform. This is because they are typically found on the water surface, often in large numbers, and deposit their feces directly into the water. Other potentially important animals regularly found around aquatic environments include raccoons, beavers, muskrats, and to a lesser extent, river otters and minks. Population estimates of these animal species in Georgia are currently not available.

<b>Deer Population per Square Mile</b>	
County	2001-2005 Optimum Deer Population (number/mi <sup>2</sup> )
Burke County	35
Columbia County	25
Richmond County	25

Fecal coliform bacteria contributions from deer to water bodies are generally considered less significant than that of waterfowl, raccoons, and beavers. This is because a greater portion of their time is spent in terrestrial habitats. This also holds true for other terrestrial mammals such as squirrels and rabbits, and terrestrial birds (GA WRD, 2002). However, feces deposited on the land surface can result in the introduction of fecal

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coliform to streams during runoff events. It should be noted that between storm events, considerable decomposition of the fecal matter might occur, resulting in a decrease in the associated fecal coliform numbers. This is especially true in the warm, humid environments typical of the southeast.

Agricultural livestock are also a potential source of fecal coliform to streams in the Savannah River Basin. The animals grazing on pastureland deposit their feces onto land surfaces, where it can be transported during storm events to nearby streams. Animal access to pastureland varies monthly, resulting in varying fecal coliform loading rates throughout the year. Beef cattle spend all of their time in pastures, while dairy cattle and hogs are periodically confined. In addition, agricultural livestock will often have direct access to streams that pass through their pastures, and can thus impact water quality in a more direct manner (USDA, 2002). The following table provides the estimated number of beef cattle, dairy cattle, goats, horse, swine, sheep, and chickens by category reported by county in the HUC10. These data were provided by the Natural Resources Conservation Service (NRCS) and are based on 2003 data.

<b>Estimated Number of Livestock Animals by County</b>									
<b>County</b>	<b>Beef Cattle</b>	<b>Dairy Cattle</b>	<b>Goats</b>	<b>Horses</b>	<b>Hogs</b>	<b>Sheep</b>	<b>Chickens-Layers</b>	<b>Chickens-Broilers Sold</b>	<b>Chickens-Breeders</b>
Burke	10,950	2,500	1,200	550	50	25	-	-	-
Columbia	3,200	115	200	1,425	-	-	-	-	-
Richmond	3,400	280	450	450	50	-	-	-	-

Fecal coliform from urban areas can be attributed to multiple sources, including: domestic animals, leaks and overflows from sanitary sewer systems, illicit discharges, leaking septic systems, runoff from improper disposal of waste materials, and leachate from both operational and closed landfills. Urban runoff can contain high concentrations of fecal coliform from domestic animals and urban wildlife. Fecal coliform enter streams by direct washoff from the land surface, or the runoff may be diverted to a storm water collection system and discharged through a discrete outlet structure. For large, medium, and small urban areas (populations greater than 50,000), the storm water outlets are regulated under MS4 permits. For smaller urban areas, the storm water discharge outlets currently remain unregulated. In addition to urban animal sources of fecal coliform, there may be illicit connections to the storm sewer system. As part of the MS4 permitting program, municipalities are required to conduct dry-weather monitoring to identify and then eliminate these illicit discharges.

A portion of the fecal coliform in the Savannah River Basin may be attributed to failure of septic systems and illicit discharges of raw sewage. The table presents the number of septic systems in each county of in the HUC10 existing in 1990, based on U.S. 1990 Census Data, and the number existing in 2002, based on the Georgia Department of Human Resources, Division of Public Health data. In addition, an estimate of the number of septic systems installed and repaired during the twelve-year period from 1990 to 2002 is given.

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Since 1990, Georgia has seen a substantial increase in the number of septic systems in most of its counties. This is generally a reflection of population increases outpacing the expansion of sewage collection systems during this period. The figure to the right compares the number of septic tanks existing in 1990 to those existing in 2002, as well as the number of repairs between 1990 and 2002.

<b>Septic Tanks, 1990-2002</b>				
<b>County</b>	<b>Existing Septic Systems (1990)</b>	<b>Existing Septic Systems (2002)</b>	<b>No. of Septic Systems Installed (1990 to 2002)</b>	<b>No. of Septic Systems Repaired (1990 to 2002)</b>
Burke	7,992	10,352	2,360	288
Columbia	7,977	12,585	4,608	431
Richmond	12,304	19,544	7,240	4,342

Many smaller communities use land application systems (LASs) for treatment of their sanitary wastewaters. These facilities are required through LAS permits to treat all their wastewater by land application and are to be properly operated as non-discharging systems that contribute no runoff to nearby surface waters. However, runoff during storm events may carry surface residual containing fecal coliform bacteria to nearby surface waters. Some of these facilities may also exceed the ground percolation rate when applying the wastewater, resulting in surface runoff from the field. If not properly bermed, this runoff, which likely contains fecal coliform bacteria, may discharge to nearby surface waters. There are fifteen permitted LAS systems located in the Savannah River Basin, but only the Grovetown LAS (GA02-222) affects Reed Creek.

Leachate from landfills may contain fecal coliform bacteria that may at some point discharge into surface waters. Sanitary (or municipal) landfills are the most likely to serve as a source of fecal coliform bacteria. These types of landfills receive household wastes, animal manure, offal, hatchery and poultry processing plant wastes, dead animals, and other types of wastes. Older sanitary landfills were not lined and most have been closed. Those that remain active and have not been lined operate as construction/demolition landfills. Currently active sanitary landfills are lined and have leachate collection systems. All landfills, excluding inert landfills, are now required to install environmental monitoring systems for groundwater and methane sampling. There are 102 known landfills in the Savannah River Basin. Of these, 12 are active landfills, 2 have been permitted and are currently under construction, and 89 are inactive or closed. As shown in the table above, several of the older, inactive landfills in the HUC10 were never permitted.

<b>Landfills Located with in Burke, Columbia, Glascock, Jefferson, McDuffie, Richmond and Warren Counties</b>				
<b>Name</b>	<b>County</b>	<b>Permit No.</b>	<b>Type</b>	<b>Status</b>
Burke County - Clarke Road	Burke	017-002D	Sanitary Landfill	Active
Sardis	Burke		Not Applicable	Inactive
Waynesboro	Burke		Not Applicable	Inactive
Cooper Cliatt - Hwy 232	Columbia		Not Applicable	Inactive
Elliots Cont. Ser. Inc.	Columbia		Not Applicable	Inactive
Grovetown - Newmantown Road	Columbia	036-006D	Dry Trash Landfill	Closed
Gus Dunn - Washington Road & Kiokee Creek	Columbia		Not Applicable	Inactive
Harlem - Hinton Wilson Road	Columbia		Not Applicable	Inactive
Harlem - Lamkin Road	Columbia	036-007D	Dry Trash Landfill	Ceased accepting waste
Harlem - Blythe Road Landfill	Columbia	036-003D	Dry Trash Landfill	Inactive
Harry Mills - Fury's Ferry Road	Columbia		Not Applicable	Inactive
Reeves - Frontage - Buff Roads	Columbia	036-012D	Dry Trash Landfill	Closed

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Sullivan - Hartsfield Road	Columbia		Not Applicable	Inactive
Augusta - Goodrich Street	Richmond	121-012D	Dry Trash Landfill	Closed
Blackstone - Harrison - Wheeler Road	Richmond		Not Applicable	Inactive
Old Augusta Site	Richmond		Not Applicable	Inactive
Richmond County - Hwy 56 Loop	Richmond		Not Applicable	Inactive
Richmond County – Corr. Inst Landfil	Richmond		Not Applicable	Inactive
Richmond County – Dean Bridge Road Phase 2	Richmond	121-015D	Sanitary Landfill	Ceased accepting waste
Richmond County - Dean Bridge Road Phase 2B	Richmond	121-016D	Sanitary Landfill	Inactive
Richmond County - Dean Bridge Road Phase 2C	Richmond	121-016D	Sanitary Landfill	Active
Richmond County - RCC1 - Arkard Street	Richmond	121-001D	Sanitary Landfill	Inactive
Richmond County - RCC1 - Arkard Street	Richmond	121-011D	Sanitary Landfill	Closed
Richmond County - RCC1 - Arkard Street Phase 2	Richmond	121-009D	Sanitary Landfill	Inactive
U.S. Army - Ft. Gordon - Gibson Road Phase 1-3	Richmond	121-014D	Sanitary Landfill	Active
U.S. Army - Ft. Gordon 17th Street	Richmond	121-010D	Sanitary Landfill	Closed

Beyond non-point source, it is important to mention other significant activities relevant to water quality planning and management present in the HUC10. Within the HUC10, some activities that may influence the contamination of Reed Creek are Water Pollution Control Facilities (WPCFs), and National Pollution Discharge Elimination Systems (NPDES).

Municipal and industrial wastewater treatment facilities' and WPCFs' discharges may contribute fecal coliform to receiving waters. There are 33 National Pollution Discharge Elimination System (NPDES) permitted discharges with flows greater than 0.1 MGD identified in the Savannah River Basin that discharge treated municipal wastewater. According to the 2002 Discharge Monitoring Report (DMR) data, Reed Creek is the receiving stream of the Columbia County – Reed Water Pollution Control Facility (NPDES permit number GA0031992).

Storm water discharges associated with industrial activities are currently covered under a General Storm Water NPDES Permit. This permit requires visual monitoring of storm water discharges, site inspections, implementation of Best Management Practices (BMPs), and record keeping. Storm water discharges from MS4s are very diverse in pollutant loadings and frequency of discharge. There are 60 permittees in Georgia, 8 of those are located in the Savannah River Basin. The Phase I and II MS4's of concern in the HUC 10 are Augusta-Richmond County (GAS000200; Phase I) and Augusta-Columbia County, Grovetown, and Hephzibah MS4's (Phase II Permitted). MS4 permits require the prohibition of non-storm water discharges (i.e., illicit discharges) into the storm sewer systems and controls to reduce the discharge of pollutants to the maximum extent practicable, including the use of management practices, control techniques and systems, as well as design and engineering methods (Federal Register, 1990). A site specific Storm Water Management Plan (SWMP) outlining appropriate controls is required by and referenced in the permit.

Confined livestock and confined animal feeding operations (CAFOs) are characterized by high animal densities. This results in large quantities of fecal material being contained in a limited area. Processed agricultural manure from confined hog, dairy cattle, and select poultry operations are

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generally collected in lagoons. It is then applied to pastureland and cropland as a fertilizer during the growing season, at rates that often vary monthly.

In 1990, the State of Georgia began registering CAFOs. Many of the CAFOs were issued land application or NPDES permits for treatment of wastewaters generated from their operations. The type of permit issued depends on the operation size (i.e., number of animal units). According to the Georgia Department of Agriculture, there is one CAFO within the HUC10.

CAFOs Affecting Reed Creek					
Name	City	County	Animal Type	Total Animals	Permit No.
Eberly Family Farm	Waynesboro	Burke	Dairy		GAU700000

### 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
Reed Creek	Road S1727 to Bowen Pond near Martinez	Fecal Coliform	Must meet WQS	Must meet WQS	1.85E+11	2.06E+11

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 source loads estimated in the TMDL.

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

CRITERIA VIOLATED : <u>FC</u>	WQ STANDARD	SOURCES OF IMPAIRMENT	NEEDED % REDUCTION (FROM THE TMDL)
Fecal Coliform	1,000 per 100 ml (geometric mean Nov-April) 200 per 100ml (geometric mean May-Oct)	Urban Runoff	75%
		Municipal Sewage Treatment Plant	

#### **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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Identification and ranking of potential sources or causes of impairment were performed through a visual survey of the watershed and involvement of the stakeholder group<sup>1</sup>. The visual survey was conducted on February 23, 2007 and covered Reed Creek HUC12. Images of the existing stream channel and land use conditions were recorded and specific locations of potential sources of pollution were mapped using GPS technology.

A visual survey of the area confirmed the current land use of the HUC12. Surveyors did not find any uncharacteristic land uses. See Appendix C for photos taken during the visual survey.

As discussed further in Section V., stakeholders ranked impairment in the following order: urban runoff and a municipal sewer treatment facility.

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<sup>1</sup> All observations were based on the current conditions observed by CSRA Regional Development Center Staff at the time of the visual field survey.

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>	
Urban runoff	Medium	3	Unable to estimate portions	UNK	UNK
Municipal Sewer	Medium	3	Unable to estimate portions	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, and recommendations.

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A total of two stakeholder group meetings were held for the development of the Reed Creek TMDL Implementation Plan. The first meeting was held on January 9, 2007 and seven stakeholders were in attendance. The second stakeholder meeting was held on June 7, 2007 and there were four attendees. During the first stakeholder meeting, general background information on the TMDL process was provided and an open discussion of potential sources of pollution was held. During the second stakeholder meeting, a watershed characterization was conducted using the images collected during the field survey and locations of potential sources of pollution according to the stakeholders.

Ranking impairment sources was found to be difficult without additional monitoring data, but with the limited resources available the stakeholders ranked the impairments in the following order: urban runoff and municipal sewer treatment facility. Without ongoing monitoring data, the stakeholders were not able to readily identify estimated percentages of pollution from each source.

Stakeholders were given an additional opportunity to comment on the TMDL Implementation planning process when they were asked to view the draft Implementation plan via the RDC website. Stakeholders were given a two week period to make comments and suggest changes to the Implementation plans before final drafts were submitted to EPD.

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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	Organization	Address	City	State	Phone	E-mail
Steve Abbott	Georgia Forestry Commission Columbia-Richmond County District 3	2615 Tobacco Road	Hephzibah	GA	706-771-4922	richmondunit@gfc.state.ga.us
Vickie Baker	NRCS Thomson Service Center	226 Bob Kirk Road	Thomson	GA	706-595-1339	
Virginia Bradshaw	McDuffie County Health Department	PO Box 266	Thomson	GA	(706) 595-1740	vrbradshaw@gdph.state.ga.us
Jeff Browning	Columbia County Government Center	P.O. Box 498	Evans	GA	706-312-7166	Jbrowning@columbiacountyga.gov
Justin Cread Brown	NRCS Augusta Service Center	501 Greene Street	Augusta	GA	706-798-4070	
Margeret Doss	Columbia County Water	PO Box 204660	Martinez	GA	706-863-6928	
Al Frazier	EPD East Central District Office	1885-A Tobacco Road	Augusta	GA	706-792-7744	
Judy Gordon	Sierra Club (Savannah River Group)	P.O. Box 3434	Augusta	GA	706-650-8314	jgordon77@comcast.net
Fred Guerrant	McDuffie County	Box 7	Thomson	GA	706-595-5355	
Jimmie Harris	Central Savannah River RC &D	3456-D Peach Orchard Rd.	Augusta	GA		Jimmie.harris@ga.usda.gov
N. Max	Augusta-Richmond County Utilities Administration Office	360 Bay Street, Suite 180	Augusta	GA	706-312-4154	mhicks@augustaga.gov
Mark Inglett	Columbia County Storm Water Utility	4325 Evans-to-Locks Road	Evans	GA	706-863-6928	
Hazel Langrall	CSRA Land Trust	PO Box 148	Augusta	GA	706-312-5263	hazel@csrlt.org
Wendy Lowenthal	Columbia County SWCD Office	2029 Lumpkin Road	Evans	GA	706-312-7291	
L. MullisSidney, Jr.	UGA Cooperative Extension Office	602 Greene Street	Augusta	GA	706-821-2350	smullis@uga.edu

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Robert Oliver	Engineering Department	1815 Marvin Griffin Road	Augusta	GA	706-796-5040	
Jacques Palmer	Columbia County	PO Box 204660	Martinez	GA	706-312-7245	
George Patty	Augusta-Richmond County Planning Commission	525 Telfair Street	Augusta	GA	706-821-1796	gpatty@augustaga.gov
Charles E. Phillips	UGA Cooperative Extension Office	3300B Evans To Locks Rd	Martinez	GA	706-868-3413	charlesp@uga.edu
Joe Riley	CSRA Resource Conservation & Development	3456 D Peach Orchard Road	Augusta	GA	706-798-7967	
Allen Saxon	Augusta Utilities Department	360 Bay Street, Ste. 180	Augusta	GA	706-312-4154	asaxon@augustaga.gov
Hal Sharpe	Georgia Forestry Commission, McDuffie-Warren County, District 3	2088 Warrenton Hwy.	Thomson	GA	706-595-4661	mcduffieunit@gfc.state.ga.us
Frank M. Watson	UGA Cooperative Extension Office	PO Box 490	Thomson	GA	706-595-1815	fwatson@uga.edu
Cassandra Youmans, MD	Richmond County Health Department	950 Laney Walker Blvd.	Augusta	GA	(706)721-5800	cdyoumans@dhr.state.ga.us

Major stakeholders in attendance of the stakeholder meetings are listed in Appendix A.

**VI. MANAGEMENT MEASURES AND ACTIVITIES**

Table 6A identifies significant BMPs that either have been or may be implemented 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 404	EPA (situations involving forestry are normally referred to the GFC to determine compliance with this regulation)	Requires normal ongoing agricultural and silvicultural practice to adhere to BMPs and 15 baseline provisions for road construction and maintenance in and across waters of the US including lakes, rivers, perennial and intermittent streams, wetlands, sloughs in order to qualify for the exemption from the permitting process.		R	Ongoing	UNK	>75% when properly applied with to forestry road construction and maintenance
Georgia Water Quality Control Act (OCGA 12-5-20)	GA DNR EPD	Makes it unlawful to discharge excessive pollutants (sediments, nutrients, pesticides, animal waste, etc.) into waters of the State in amounts harmful to public health, safety, or welfare, or to animals, birds, or aquatic life or the physical destruction of stream habitats.		A	Ongoing	UNK	
Georgia's Best Management Practices	Georgia Forestry Commission (matters involving enforcement are generally referred	GFC program to inform landowners, foresters, timber buyers, loggers site preparation and reforestation contractors and others involved with silvicultural operations about commonsense,		A	Ongoing	UNK	>75% when properly applied to site preparation and

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	to GA EPD)	economical effective practices to minimize nonpoint source and thermal pollution. GFC encourages and monitors compliance and conducts a complaint resolution program.					harvesting activities.
Georgia Forestry Commission Monthly BMP Assurance Examination	Georgia Forestry Commission (matters involving enforcement are generally referred to GA EPD)	In an effort to document "reasonable assurance" that water quality will be proactively protected during regular ongoing silvicultural operations, the GFC will offer a monthly BMP assurance examination of active sites. All active of ongoing sites will be identified either through monthly air patrol flights, courthouse records, riding the roads, notification or by landowners. Sites located within watersheds of specific biota (sediment) impaired streams will be given a higher priority to identify and conduct examinations.	Federal and State	A	Ongoing	UNK	
Memo to the Field: Application of BMPs to mechanical silvicultural site preparation activities for the establishment of pine plantations in the Southeast (Silviculture)	EPA/ US Army Corps of Engineers - (cases normally referred to GFC to make initial determination)	Identifies certain bottomland hardwood wetlands that should be subject to permitting if converting to pine plantations.	State	P	Ongoing	UNK	
Federal Farm Bill (Swampbuster, Ag)	US Department of Agriculture Natural Resource Conservation Service	Prohibits landowners participating in federal price support programs from converting forested wetlands to agriculture	Federal	A	Ongoing	UNK	
Partners for Fish and Wildlife	US Fish and Wildlife Services	This is a proactive, voluntary program that works with private landowners to restore fish and wildlife habitats on their land. The projects have several different focuses, but for the purpose of water quality the projects focus on stream and riparian restoration and restoration of rare species habitat.	Federal variable cost share	P	Ongoing	UNK	
Farm Bill 2002	United States Department of Agriculture / National Resources Conservation Services	Enhances long-term quality of our environment and conservation of our natural resources. This bill provides several opportunities for receiving grants to improve water quality.	Federal Cost-Share and Incentive Programs.	A	Ongoing	UNK	Varies with BMP applied.
Environmental Quality Incentives Program (EQIP)	Natural Resources Conservation Services	Voluntary program that provides technical and cost share assistance for protection of ground and surface water, erosion control, air quality, wildlife habitat, and plant health.	Federal 50% cost share with possible additional incentive payments	P	Ongoing	UNK	Varies with BMP applied.
Special Forestry/Wildlife Environmental Quality Incentives Program (EQIP)	Natural Resources Conservation Services	Special funds allocated out of the EQIP program that will address forest road erosion/water quality, plant health, and wildlife habitat. This program has a separate ranking for rewarding money from the regular EQIP program.	Federal 50% cost share with possible additional incentive payments	P	Ongoing	UNK	Varies with BMP applied.
Wildlife Habitat Incentives Program (WHIP)	Natural Resources Conservation Services	Provides technical and cost share assistance for the creation of high quality wildlife habitat. Habitats of special concern include riparian areas	Federal 75% of cost of the installation of practice provided	P	Ongoing	UNK	Varies with BMP applied.

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Wetlands Reserve Program (WRP)	Natural Resources Conservation Services	and endangered and threatened species habitat. Provides technical and financial assistance to landowners to enhance degraded wetlands degraded by farming or draining. There are three options with WRP to receive funds that have differing time agreements and easements resulting in different cost share. In all programs participants control access to the land, may lease or use land for hunting, fishing, and other passive recreational activities. Compatible uses are allowed as long as the do not degrade the wetland.	Federal Cost Share 1. Permanent Easement : Pays appraised value of land (\$2,000/ acre cap) and 100% of costs of restoration. 2. 30-Year Easement : Pays 75% of appraised value of land and 75% of restoration costs. 3. Restoration Cost Share Agreement: Pays 75% of restoration costs, no easement on the property.	P	Ongoing	UNK	Effectiveness will vary with the specific application and must be individually determined.
Conservation Security Program (CSP)	Natural Resources Conservation Services	This is the first program that rewards farmers and ranchers for high levels of environmental stewardship. Producers on cropland, orchards, vineyards, pasture and range may apply for CSP regardless of size, type of operation, or crops produced. Land in other cost share programs is not eligible. CSP will first be offered in watersheds with greatest potential for improving water quality, soil quality and grazing land condition. In 2005, the four watersheds of focus will be the Ichawaynochaway, Kinchagoonee-Muckalee, Middle Flint, and Upper Ochlockonee. An enhancement example is to install a riparian buffer.	Federal Cost Share There are three tiers of involvement, which result in differing expectations and cost share opportunities.	P	Ongoing	UNK	Effectiveness will vary with the specific application and must be individually determined.
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	Ongoing	UNK	
Capacity, Management, Operations and Maintenance (CMOM)	USEPA, Local/County Government	USEPA regulation requires local utilities to increase O&M reviews on sewer collection systems and lift stations. Applicable BMPs include frequent inspections and testing, back-up power facilities.	Local/County Government	A	Ongoing	UNK	Effectiveness will vary with the specific application and must be individually determined.
Georgia Water Quality Control Act (OCGA 12-5-20)	Georgia Rules and Regulations for Water Quality Control, Chapter 391-3-6	Law prohibiting discharge of excessive pollutants (sediments, nutrients, pesticides, animal wastes, etc.) into waters of the State in amounts harmful to public health, safety, or welfare, or to animals, birds, or aquatic life or the physical destruction of stream habitats. Law authorizing Georgia EPD to control water pollution, eliminate phosphate detergents and regulate sludge disposal; to require permits for agricultural ground and surface water withdrawals; to prohibit siltation of state waters by land disturbing activities and require undisturbed buffers along state waters; to require	Federal, State, Local/County Governments	A	Ongoing	UNK	

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		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 Growth Planning Act, Part 5	Local/County Government	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: <ul style="list-style-type: none"> <li>• Water Supply Watersheds</li> <li>• Groundwater</li> <li>• Wetlands</li> <li>• Protected Rivers</li> <li>• Protected Mountains</li> </ul> Program also 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	Ongoing	UNK	Effectiveness varies with the specific BMPs applied. See attached effectiveness Tables 1A and 1B.
Georgia River Basin Management Planning Act, Georgia Code Section 12-5-521	Georgia DNR/EPD	River Basin Management Plans describe strategies and measures necessary for local governments, businesses, and citizen groups to educate the general public on matters involving the environmental and ecological concerns specific to the river basin; improve water quality and reduce pollution at the source; improve aquatic habitat and reestablish native species of fish; restore and protect wildlife habitat; and provide recreational benefits.	State, Local/County Government	A	Ongoing	UNK	
Georgia Erosion & Sedimentation Control Act, Construction Permit, 2003 Amendment	Local/County Government, Georgia DNR/EPD, Georgia Soil & Water Conservation Commission	Local/county government certified by Georgia EPD as Local Issuing Authority for land-disturbing activities. Requires Erosion & Sedimentation Control Plan incorporating best management practices plus "Qualified Personnel" Training and Certification Program adopted from Georgia Soil & Water Conservation Commission. Certification of on-site "Qualified Personnel" to ensure proper design, construction and maintenance of standard E & S control measures and storm water management practices.	State, Local/County Government	A	Ongoing	UNK	
Construction Storm Water Discharge NPDES Permit	Georgia DNR/EPD	General storm water discharge permit for stand-alone construction sites; infrastructure projects; and common developments. Requires implementation of Erosion, Sedimentation and Pollution Control Plan plus monitoring of discharge for compliance with Georgia's in-stream water quality standards.	State	A	Ongoing	UNK	

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New Development Ordinance Revisions	Local/County Government	Review current local Erosion & Sediment Control ordinances and modify as appropriate. Include requirements for professionals involved in erosion and sediment control design and construction to be certified by the county. Require pollution prevention at the construction site through preparation of Erosion, Sedimentation & Pollution Control Plan to address issues such as trash, construction debris, leaking vehicles, storage of chemicals, etc. Subdivision ordinances addressing channel protection and conservation will provide further guidelines for construction activities.	Local/County Government		Ongoing	UNK	Effectiveness varies with the specific BMPs applied.
Industrial Storm Water Discharge NPDES Permit	Georgia DNR/EPD	General storm water discharge permit for manufacturing facilities; mining, oil & gas operations; hazardous waste treatment; storage or disposal facilities; recycling centers; steam electric power generating facilities; transportation facilities; domestic sewage or sewage sludge treatment. Requires implementation of Storm Water Pollution Prevention Plan. May require storm water monitoring program targeting discharges into/near 303(d) listed waters.	State	A	Ongoing	UNK	Effectiveness will vary with the specific application and must be individually determined.
Renewal of NPDES Phase I MS4 Municipal Storm Water Permit	Georgia DNR/EPD, Local/County Government	First Annual Report requirements: Identify location of MS4 outfalls discharging a pollutant of concern into impaired streams with established TMDLs; and propose monitoring plan and implementation schedule for water quality sampling. Subsequent Annual Reports requirements: Assess sampling data for each pollutant of concern to determine system compliance with TMDL allocations; evaluate effectiveness of applied BMPs to determine need for additional adaptive measures that will help bring stream parameters into compliance with water quality standards; select and apply additional adaptive BMPs from management measures recommended in the TMDL implementation plan.	Local/County Government	A	Ongoing	UNK	Effectiveness varies with the specific BMPs applied.
NPDES Phase II MS4 Municipal Storm Water Permit	Georgia DNR/EPD, Local/County Government	Requires local jurisdictions to develop a comprehensive Storm Water Management Program (SWMP) to include public education and outreach on storm water impacts, public involvement and participation, illicit discharge detection and elimination, construction site storm water runoff control, post- construction storm water management in new development and redevelopment, pollution prevention and good housekeeping related to municipal operations, reporting, monitoring and program implementation.	Local/County Government	A	Ongoing	UNK	Effectiveness varies with the specific BMPs applied.
District-wide Watershed	Georgia DNR/EPD, Metropolitan North	Model Storm Water Management Ordinances that address Post Development Storm Water	Local/County Government		Ongoing	UNK	Effectiveness varies with the specific

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Management Plan	Georgia Water Planning District (SB 130), Local/County Governments in 16 county District Area	Management for New Development and Redevelopment, Floodplain Management/Flood Damage Prevention, Conservation Subdivision/Open Space Development, Illicit Discharge and Illegal Connection, Litter Control, and Stream Buffer Protection required by Georgia EPD in MS4 Phase I Permit Renewals. District Plan also addresses municipal good housekeeping practices to control non-point source pollution, improved enforcement of erosion and sedimentation control; storm water management for transportation projects; and education and public awareness activities.					BMPs applied.
Long-Term Wastewater Management Plan	Georgia DNR/EPD, Metropolitan North Georgia Water Planning District (SB 130), Local/County Governments in 16 county District Area	Local wastewater systems will implement a policy on private wastewater systems, develop interim decentralized system plans with concept of merging into larger systems, a grease management program, and numerous sewer system programs (mapping, maintenance programs, Rehab identification and construction program and capacity certification program).	Local/County Government	A	Ongoing	UNK	
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	Ongoing	UNK	Effectiveness will vary with the specific application and must be individually determined.
Storm Water Management Audit/ Assessment	Local/County Government	Internal assessment of storm water pollution prevention plan (map of facility and responsibilities for upkeep): municipal operations, automobile maintenance, car washing, illegal dumping control, landscaping and lawn care, parking lot and street cleaning, roadway and bridge maintenance, septic system controls, storm drain system cleaning, storm water detention basins maintenance, alternative products, hazardous materials storage, road salt application and storage, spill response and prevention, used oil recycling, materials management, leaking fluids from vehicles, and street sweeping. The county needs to ensure that they are meeting all applicable storm water requirements.	Local/County Government	A	Ongoing	UNK	
Storm Water BMP Guidance Document for Municipal Operations	Local/County Government	Following the audit/assessment, prepare a BMP procedures and guidance manual for county and the cities departments to minimize impact of municipal operations on storm water runoff. This document should address all of the activities identified in the audit/assessment and focus on any common problem areas identified.	Local/County Government	A	Ongoing	UNK	Effectiveness will vary with the specific application and must be individually determined.
Local County Land Development Guidelines	Local/County Government	Includes storm water quantity and quality requirements for new developments. Requires post-development controls for storm water quantity and quality intended to reduce storm	Local/County Government	A	Ongoing	UNK	Effectiveness varies with the specific BMPs applied.

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Watershed Assessment & Protection Plans (WPP)	Local/County Governments	water pollution loads from new developments. Required for new or expanded wastewater treatment discharge permits. Reference TMDL implementation plans (TMDLIP) and water quality management strategies for non-point source pollution. Drive local land use planning. Georgia EPD guidelines include Management Measures Specific for 303(d) listed stream segments in the impacted watersheds. WPP to reference TMDLIP already developed. Where no TMDLIP developed, WPP to outline monitoring/management measures targeting listing violations; identify authority responsible for implementing the above monitoring/management measures; indicate potential funding sources; establish current status and/or date measures will be initiated, and expected effectiveness; and design educational and outreach activities for intended audiences.	Local/County Government	A	Ongoing	UNK	Effectiveness varies with the specific BMPs applied.
Sanitary Sewer Maintenance Program	Local/County Government	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	Ongoing	UNK	
Section 319(h) Non-point Source Implementation Grant	Georgia DNR/EPD	Funds distributed through a competitive process to public agencies, regional development centers, state colleges and universities, and state agencies. Eligible projects include implementation of TMDL or Watershed Management Plans, BMP Demonstrations, and Information and Education Campaigns.	Federal, State	A	Ongoing	UNK	Effectiveness varies with the specific BMPs applied.

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 3). 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**

<b>SIGNIFICANT POTENTIAL SOURCES (1)</b> (From Table 3)	<b>IMPACT RATING (2)</b> (From Table 3)	<b>APPLICABLE BMPs (3)</b> (From Table 6A)	<b>EVALUATION SUMMARY (4)</b>	<b>ADDITIONAL INFORMATION / MEASURES NEEDED (5)</b>
Urban Runoff	UNK	Georgia Erosion & Sedimentation Control Act, Construction Permit, 2003 Amendment		Additional monitoring.
		New Development Ordinance Revisions		Education for builders, foresters, citizens, and other interested parties.
		Section 319(h) Non-point Source Implementation Grant		
Municipal Sewage Treatment Plant	UNK	Sanitary Sewer Maintenance Program		Additional monitoring.
		Long-Term Wastewater Management Plan		Education for citizens and other interested parties.

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)**

**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>
Outreach and Education	State, RDC, local, NRCS, County Extension Service	Develop program to educate hunters and property owners to discourage the placement (illegal dumping) of animal carcasses in or near bodies of water, specifically streams on the 305(b)/303(d) list.	State, Federal, local NR	NR	Ongoing	UNK	UNK

**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 [  ].

**Table 7. MONITORING PLAN**

<b>PARAMETER (S) TO BE MONITORED</b>	<b>RESPONSIBLE ENTITY</b>	<b>STATUS (CURRENT, PROPOSED, OR RECOMMENDED)</b>	<b>TIME FRAME</b>		<b>PURPOSE (If for listing assessment, date of SQAP submission)</b>
			<b>START</b>	<b>END</b>	
Fecal Coliform	EPD, USGS	Current	Every 5 years		Ongoing monitoring of impaired stream segment in order to update state 305(b) and 303(d) lists of impaired waters.
Fecal Coliform, turbidity, Dissolved oxygen and temperature	Columbia County Water	Current	Ongoing		Ongoing monitoring a two sites along Reed Creek.

**VIII. PLANNED OUTREACH FOR IMPLEMENTATION**

Table 8 lists and describes outreach activities that will be conducted to support this implementation plan, or help to improve water quality in the segment watershed. Identify either the projected start date or completion date. 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	START OR COMPLETION DATE
CSRA Regional Development Center	The CSRA RDC will make the TMDL Implementation plan available to interested stakeholders and will meet with and discuss the plan with interested parties. The RDC will also inform all governing bodies affected by or potentially affected by the plan.	Any interested stakeholder or governing body in the 13 county CSRA region.	Ongoing

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

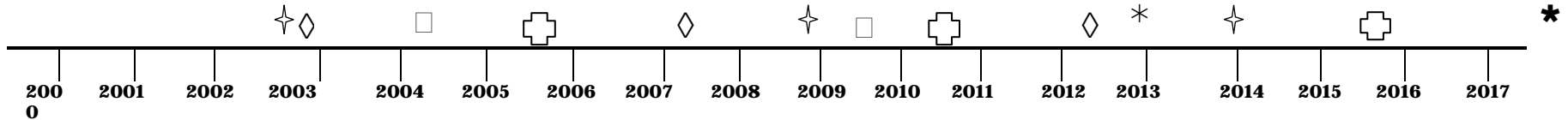
Table 9 tracks and reports progress of significant management measures identified in Tables 6A, 6B, and other sections of this plan, including outreach, additional monitoring and assessments, and enhancement or installation of BMPs. Significant activities and the target dates of accomplishment are listed under STATUS, 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 PROPOSED INSTALLED	COMMENT
Federal Clean Water Act Section 404	EPD	Ongoing	
Georgia Water Quality Control Act (OCGA 12-5-20)	GA DNR EPD	Ongoing	
Georgia's Best Management Practices	Georgia Forestry Commission , GA EPD	Ongoing	

### PROJECTED ATTAINMENT DATE

The projected date to attain and maintain water quality standards in this watershed is 10 years from receipt 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: August 1, 2007 Revision: 02

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**APPENDIX A.**  
**STAKEHOLDERS**

All stakeholders with a major interest in this watershed, including local governments, agricultural or commercial forestry organizations, significant landholders, businesses and industries, and local organizations, including environmental groups and individuals, are listed in Table 5. Attendees of stakeholder meeting on January 9, 2007 and June 7, 2007 are listed in the table below.

Jan. 9, 2007	June 7, 2007
Harriet Bryant, EPD	Jimmie Harris, CSRA RC&D
Margaret Doss, Columbia County Water	Fred Guerrant, McDuffie County
Fred Guerrant, McDuffie County	Allen Saxon, Augusta Utilities Dept.
Jimmie Harris, CSRA RC&D	Paul DeCamp, Augusta-Richmond County Planning Commission
Jacques Palmer, Columbia County	
George Patty, Augusta-Richmond County Planning Commission	
Frank Watson, UGA Cooperative Extension Office	

**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. Georgia EPD has developed guidelines for revising existing TMDL implementation plans.

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N/A – This is a new TMDL Implementation Plan.

**APPENDIX C.**

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

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