2009

Franks Creek TMDL Implementation Plan

Developed by:

Southern Georgia Regional Commission

327 West Savannah Avenue

Valdosta, GA 31601

TABLE OF CONTENTS

1.0 SUMMARY

This document describes an interim framework for the implementation of Total Maximum Daily Loads (TMDLs). This interim Framework is intended to guide and document the evolving local policies and procedures for advancing consistency with water quality standards. This documentation will promote internal coordination among local, state, and federal agencies and help inform the general public and commercial interests.

For waters that do not meet water quality standards due to an excessive pollutant load, the State must conduct a scientific study to determine the maximum amount of the pollutant that can be introduced to a waterbody and still meet standards. That maximum amount of pollutant is called a Total Maximum Daily Load (TMDL). A TMDL may provide the means for recommending controls needed to meet water quality standards. These standards are set by the state and determines how much of a pollutant can be present in a waterbody. If the pollutant is over the set limit, a water quality violation has occurred. There cannot be any new additions (or "loadings") of the pollutant into the stream until a TMDL is developed. Pollutants can come from point source and non-point source pollution. Point Source Pollution – wastewater treatment plant discharges and Non-point Source Pollution – runoff from urban, agricultural, and forested area such as animal waste, litter, antifreeze, gasoline, motor oil, pesticides, metals, and sediment. The purpose of developing an extended revision of Franks Creek is to provide a tool that demonstrates a holistic approach to water quality management.

The Franks Creek Total Maximum Daily Load (TMDL) Implementation Plan defines the approach to planning, implementing, and evaluating the effectiveness of best management practices (BMPs) with the goal to achieve the TMDL's for fecal coliform (FC) and restore the beneficial uses of the Franks Creek Watershed (Figure 1).

Extended Revisions require the development of a process to prepare and implement a plan document for the purpose of: 1) creating the local network of partners; 2) identifying and securing the resources needed to fund and install the management practices and activities that would best achieve the pollutant load reductions needed to meet the TMDL and restore water quality; 3) verifying major sources or impairment; 4) developing a TMDL Implementation Plan that would address USEPA's 9-Key Elements of Watershed Planning; and 5) providing the information needed to support applications for funding (such as EQIP, Section 319(h), GEFA, or others), or identifying existing funding sources such as utility fees, SPLOST, or others.

2.0 SEGMENT AND WATERSHED DESCRIPTION

One of the first steps in understanding a watershed is through the discovery of its general and natural history. This section presents an overview and characterization of the Franks Creek Watershed.

Franks Creek Watershed is located in Cook and Lowndes Counties and is located in the Suwannee River Basin. The Suwannee Basin occupies an area of approximately 10,000 square miles with approximately 5,560 square miles of the basin within Georgia. The basin lies within the Coastal Plain physiographic province, which extends throughout the southeastern United States.

Franks Creek is located in the 10 – digit hydrologic unit code (HUC) 0311020405. This stream, approximately 9 miles of impairment, is located from SR S. 1780 to the intersection of Little River downstream from the City of Hahira. Political jurisdictions of this segment of Franks Creek are Lowndes County and the City of Hahira.

The Franks Creek Watershed is located in an "average" groundwater pollution susceptibility area. Aquifer recharge areas are vulnerable to both urban and agricultural development. Pollutants from stormwater runoff in urban areas and excess pesticides and fertilizers in agricultural areas can access a groundwater aquifer more easily through these recharge areas. Once in the aquifer, pollutants can spread uncontrollably to other parts of the aquifer thereby decreasing or endangering water quality for an entire region. Therefore, development of any kind in these areas, including installation of septic tanks, should be limited.

The areas upstream of Franks Creek are primarily used for municipal, agriculture, and residential purposes with a lesser amount of industrial use. This includes the city of Hahira. A tributary to Franks Creek runs from the City of Hahira holding pond adjacent to the county recycling center. This site was also used as a former landfill.

If hazardous waste or toxic substances pollute the water that seeps into the ground in a recharge area, these pollutants are likely to be carried into the aquifer and contaminate the groundwater, making it unsafe to drink. Once polluted, it is almost impossible for a groundwater source to be cleaned up[1]. Since the City of Hahira and greater Lowndes County receives all of its drinking water from groundwater, the Floridan aquifer, it is important that additional measures be taken to protect these highly sensitive areas. To assist with the protection of most significant groundwater recharge areas, examples of opportunities include:

- Wellhead protection program;
- Limit impermeable surfaces (e.g. maximum building footprints);
- Require sewer services instead of septic systems; and
- Zoning overlay district (e.g. types of development allowed, increased minimum lot size, incentives for recharge – sensitive cluster development).

The physical landscape is fairly homogenous with no outstanding physical features with the streams flowing generally southeastward. Franks Creek Watershed encompasses 2,990 acres currently composed primarily of agricultural land (76.1%) with some residential (13.13%) and transportation use (4.41%), as shown on Figure 2, *Franks Creek Current Landuse.* The remaining land uses includes 1.57% public, 1.03% commercial, 0.17% industrial, 2.0% unused, and 1.58% conservation. Figure 3, *Franks Creek Watershed Future Landuse*, illustrates the estimated future landuse changes in the watershed. Future landuse scenarios were created based on an analysis of trends between 2008 landuse and future landuse zoning projected to the year 2028.

Lowndes and Cook County's bedrock is composed of Pliocene-Miocene-Oligocene sedimentary rocks which were formed mostly during the Cenozoic Era (up to 70 million years ago). Below this, the rocks are Eocene and Paleocene sedimentary rocks. The sediments which formed these rocks originated in the "ancient" Appalachian Mountains which have been eroded to form the present day Piedmont and remnant mountains.

Lowndes County's climate is classified as humid subtropical (Cfa) according to the Köppen climate classification system. Winters are cool and short with periodic cold spells moderating in 1-2 days. Summers are hot and humid. Annual precipitation typically ranges from 45 to 50 inches and is spread evenly throughout the year (2-5 inches each month). Measurable snowfalls are very rare with a less than 5% probability each year. When they occur, snowfall amounts are most always less than one inch and melt quickly. In winter, the average minimum daily temperature is 39 degrees. In summer, the average maximum daily temperature is 90 degrees. Lowndes County's growing season ranges from 8-9 months with an average of 250 days that have daily minimum temperatures greater than 32 degrees. The first winter freeze typically occurs in early November and the last freeze typically occurs in mid-March.

Soils are considered to be a region's most basic and fragile natural resource, combined with such variable resources as air and water. In 1979, the United States Department of Agriculture Soil Conservation Service published the Soil Survey of Lowndes County Georgia in cooperation with the University of Georgia, College of Agriculture – Agricultural Experiment Stations, and Lowndes County.

Rivers, lakes, and groundwater aquifers are crucial to public health, economic development, and recreational opportunities. However, our water sources are constantly threatened with degradation by such activities as imprudent development, improperly managed agricultural and industrial activities, and unsound waste disposal practices. The soil exerts an important influence on water quality. How we manage the soil determines, in part, the level of treatment required to make our water supplies safe and enjoyable. An understanding of soil properties and their management is essential for reducing the input of water pollutants from the soil. Reducing soil erosion is the key to reducing the damaging effects of sedimentation. Fortunately, with current technology and information, erosion can be reduced to acceptable levels. Table 1 depicts the *Franks Creek Watershed Generalized Soils* and provides a general description of the 9 soil associations found in the Franks Creek Watershed.

TABLE 1 Soil Associations

Soil Association	Soil Description
Tifton – Pelham–Fuquay (62.66%)	Well drained soils that have a sandy surface layer and a loamy subsoil, found on upland ridgetops and in depressions and drainageways.
Bayboro – Olustee (12.04%)	Very poorly drained and poorly drained, nearly level soils in broad depressions.
Tifton – Alapaha (7.82%)	Well-drained, nearly level to gently sloping soils on broad upland divides; and pooly drained, nearly level soils in flat, lowareas and along drainageways.
Johnston (5.23%)	Poorly drained, nearly level loamy soils found on bottom lands.

Leefield – Alapaha (4.79%)	Somewhat poorly drained and poorly drained, nearly level soils on broad flats.
Leefield – Pelham – Clarendon (3.48%)	Somewhat poorly drained, nearly level soils that have a sandy surface layer and a loamy subsoil; found on low uplands and in depressions and drainageways.
Lakeland – Albany - Pelham (2.1%)	Well drained sandy soils and soils that have a thick, sandy surface layer and a loamy subsoil, located on broad ridgetops and flats and in depressions.
Fuquay – Alapaha - Leefield (1.45%)	Well-drained and somewhat poorly drained, nearly level to very gently sloping soils on broad ridges; and poorly drained, nearly level soils on broad flats and in depressions.
Myatt – Osier – Ousley (0.43%)	Poorly drained, nearly level loamy and sandy soils, found on low stream terraces; and sandy soils, on bottom lands.

3.0 WATER QUALITY IMPAIRMENTS AND TOTAL MAXIMUM DAILY LOADS (TMDLS)

The Georgia 2006 305(b)/303(d) draft list of waters was prepared as a part of the Georgia 2004-2005 assessment of water quality prepared in accordance with Sections 305(b) and 303(d) of the Federal Clean Water Act and guidance from the U.S. Environmental Protection Agency. Assessed water bodies are classified according to a comparison of water quality monitoring results to water quality standards and other pertinent information. Table 2 depicts the 2006 list of impaired streams located within the Franks Creek Watershed.

TABLE 2 Franks Creek Watershed 2006 305(b)/303(d) List

Waterbody Name	Location	County(s)	Impairment	Miles Impacted	Percent Load Reduction
Franks Creek	SR S. 1780 to Little River	Lowndes	Elevated FC	9	57%

Source: Georgia Department of Natural Resources, Environmental Protection Division, 2006

Franks Creek from SR S 1780 to Little River (9 miles) was placed on the Section 303(d) list by the GA EPD in 2006 for violating the state standards for fecal coliform (FC). Georgia's standard specifies that fecal coliform concentration in the stream water shall not exceed the 30 – day geometric mean of 200 cfu/100 ml for the months of May and October, and 1,000 cfu/100 ml with no single sample greater than 4,000 for the months of November through April.

This TMDL has an implicit margin of safety embodied in the endpoint identification. Units of percent can be used to quantify the standard TMDL equation: Load Allocation (LA) + Waste Load Allocation (LA) = TMDL. This equation describes both the allocation of allowable loading and the allocation of responsibility for reducing loading to the extent necessary to achieve the endpoint. Using the data set resulting in the violation and associated modeling, suggests that a load reduction of approximately 57 percent would result in attainment of the standard.

As a result of the water quality impairment, Franks Creek was assessed as "partially supporting" the Clean Water Act's fishing use support goal. In order to remedy the water quality impairment pertaining to fecal coliform, a TMDL has been developed, taking into account all sources of fecal coliform. Upon implementation, the TMDL Plan for Franks Creek shall ensure that the water quality standard relating to fecal coliform will be in compliance with the geometric mean standard.

4.0 VISUAL SURVEYS AND TARGETED MONITORING

The purpose of a visual survey is to determine if there are observable problems on the river and to characterize the environment the river flows through. The visual survey helped pinpoint areas that may be the source of water quality impairments and helped to determine the overall condition of the river (Appendix D).

Where watershed – wide monitoring had not been conducted, a targeted monitoring plan was developed (Appendix C) to geographically isolate the major sources of impairment(s). In order to offer a "better" picture of water quality conditions, target monitoring was conducted for *E. coli* once every season from March 2008 – February 2009. The sampling schedule was one (1) sample, per season, per stream over 4 calendar quarters. The thirty (30) day sampling period did not overlap the month of April/May and October/November due to changes in the in – stream water quality standard for bacteria. Funding and other resources can be better used in areas of the watershed that show the greatest need for attention. This can help open the door for projects that target areas of the watershed to receive funding to implement best management practices (BMPs) that are recommended to address water quality violations.

TABLE 3 Franks Creek Water Quality Results (E. Coli)

Site Location	Season 1 (03.11.08)	Season 2 (06.10.08)	Season 3 (09.10.08)	Season 4 (01.12.09)
Union Rd	67	2200	433	800
Morven Rd.	67	1600	367	300
Franks Creek Rd.	33	1100	0	133
Shiloh Rd.	N/A	100	433	167

5.0 IDENTIFICATION AND RANKING OF SIGNIFICANT SOURCES OF IMPLEMENTATION

The nonpoint sources of fecal coliform are mainly agricultural, such as, land-applied animal waste and manure deposited on pastures by cattle. A significant fecal coliform load comes from

cattle directly depositing in streams. Wildlife contributed to fecal coliform loadings on pasture, forest, and stream. Other nonpoint sources of fecal coliform loadings include failing septic systems and pet waste.

TABLE 4 Sources of Implementation

Source	Extent (Miles, acres, etc.)	Permitted (Y/N)	Estimated Contribution (Rank 1 – 5)	Stakeholder Opinion (1 – 5)	Comments
Agricultural Runoff	22,759 AC	N	5	5	Agricultural animals can be an important source of fecal coliform loading to streams, through both runoff from pastureland and cattle in streams.
Stormwater Runoff	1,708 AC	N	5	5	Stormwater runoff primary sources of fecal coliform bacteria include pet waste, wildlife, septic systems, illicit discharges,
Failing Septic Systems	NA	Y	4	4	Failing septic systems are not always easy to identify especially if the failure involves untreated sewage entering a stream via groundwater. Water quality sampling should be collected in the Franks Creek watershed. Education outreach should be implemented with the local Health Departments.

Wildlife	NA	N	2	2	Wildlife deposit fecal coliform bacteria with their feces onto land surfaces where it can be transported during storm events to nearby streams. The bacteria load from wildlife could be a contribution due to the rural acreage in this watershed.
Domestic Animals	NA	N	1	1	Recent research has shown that much of the fecal coliform bacteria contamination from urban areas may come from domestic pets.
Landfills	24.44 AC	Y	2	2	NA
Wastewater Pollution Control Plant	41.82 AC	Y	2	2	NA

6.0 IDENTIFICATION OF APPLICABLE EXISTING MANAGEMENT MEASURES

Management measures are "economically achievable measures for the control of the addition of pollutants from existing and new categories and classes of nonpoint and stormwater sources of pollution, which reflect the greatest degree of pollutant reduction achievable through the application of the best available nonpoint and stormwater source pollution control practices, technologies, processes, citing criteria, operating methods, or other alternatives" (USEPA, 1993).

A description of existing management measures for the Franks Creek watershed are summarized below in Table 5 These measures are effective, practical, structural or nonstructural methods which prevent or reduce the movement of sediment, nutrients, pesticides and other pollutants from the land to surface or ground water, or which otherwise protect water quality from potential adverse effects. These practices are developed to achieve water quality protection within natural and economic limitations.

TABLE 5 Existing Management Measures

Regulation/Ordinance or Management Measure	Responsible Government, Organization or Entity	Description
Local Wetlands Policy Ordinance	Lowndes County City of Hahira	Water Resource District Ordinance applies to the Georgia Planning Act Part V: Environmental Criteria.
Protected River Corridor Plan Ordinance	Lowndes County City of Hahira	Water Resource District Ordinance applies to the Georgia Planning Act Part V: Environmental Criteria.
Suwannee River Basin Management Plan	Georgia DNR	Comprehensive Statewide Water Management Plan to replace the Suwannee River Basin Management Plan in 2009.
Farm Service Agency	USDA - FSA	Requires producers to comply with conservation plans for the farm, wetland provisions, planting flexibility provisions, as well as to keep the land in agricultural use.
Conservation Reserve Program (CRP)	USDA - FSA	Ongoing financial and technical assistance to encourage farmers to convert erodible cropland to vegetative cover.
Environmental Quality Incentives Program (EQIP)	USDA - FSA	Ongoing financial and technical assistance to install /implement structural and management practices on eligible agricultural land and/or for commodity operations.
Soil Testing	Landowner with assistance from UGA - Cooperative Extension and/or licensed contractor	Applies to soil sampling taken on a regular basis to minimize impacts of fertilizers, pesticides, and herbicides in waterways.
Erosion & Sedimentation Ordinance	Lowndes County	Adopted and enforced.
Illicit Discharge Ordinance	Lowndes County	Adopted and enforced.
Stormwater Utility	City of Hahira	Adopted and enforced.

Section 319 FY 2005 Grant – Upper Suwannee River Partnership (USRP)	SGRC	Partners with various organizations to coordinate activities within the Suwannee Basin that promote education/outreach opportunities and implementation of BMPs for non-point source pollution from municipalities and the agriculture.
Cover Crop, Critical Area Planting, Fence, Heavy Use Area Protection, Irrigation System - Sprinkler, Pasture and Hay Planting,	USDA - NRCS and landowner in Lowndes County	Between 2002 – 2006, USDA – NRCS entered into 37 separate landowner contracts totaling $165,657 and 3,508 acres in Lowndes County for BMP installation. Of those contracts, 11 are complete and 26 are active.
Groundwater Recharge Development Ordinance	Lowndes County City of Hahira	Water Resource District Ordinance applies to the Georgia Planning Act Part V: Environmental Criteria.
Storm water detention/retention standards	Lowndes County City of Hahira	Adopted and enforced.
Manure Management Plan	Landowner with assistance from NRCS, UGA - Cooperative Extension, and/or licensed contractor	Applies to keeping records of manure applications and continuous soil sampling.
South Georgia Multi-Jurisdictional Solid Waste Management Plan	Lowndes County	The update to the multi-jurisdictional solid waste plan was completed in 2002. In 2007, the Lowndes County Solid Waste Management Plan (SWMP) was completed and is scheduled to be update in 2017.
Phase II Permit	Lowndes County	Following requirements as identified in permit.
Section 319(h) Grant – Well and Septic Tank and Online Referencing Mapping (WelSTROM) System	SGRC	Approved by GA EPD and began work in 2007. This provides a tool for local governments and regional agencies to guide future decisions, such as development, infrastructure expansions, TMDL development and implementation, and education outreach on all new septic systems.

7.0 RECOMMENDATIONS FOR ADDITIONAL MANAGEMENT MEASURES

Development of effective management measures depends on accurate source assessment. Coliform bacteria are contributed to the environment from a number of categories of sources including human, domestic or captive animals, agricultural practices, and wildlife. Coliform bacteria from these sources can reach waterbodies directly, through overland runoff, or through sewage or stormwater conveyance facilities. Each potential source will respond to one or more management strategies designed to eliminate or reduce that source of coliform bacteria. Each management strategy has one or more entities that can take lead responsibility to effect the strategy.

Because the Franks Creek watershed contains a combination of rural, suburban, and urban land uses, implementation actions consist of a variety of management practices to address human impacts arising from these various land uses. Proposed actions include agricultural BMPs, stream channel BMPs, stormwater management BMPs, sanitary sewer system improvements, and urban/residential education components

Education is the key to a successful watershed management program. The overall goal of the Information and Education Strategy component of the watershed improvement plan is to provide educational information to local officials, shoreline residents, contractors and developers, school children and the general public, enabling them to make decisions that will enhance the protection of the Franks Creek Watershed. Informed citizens can greatly affect the outcome of a watershed protection program.

Table 6 lists the information and education strategies that will be directed towards a specific a target audience.

TABLE 6 Implementation/Education Strategy

Information/Education Strategy			
Source	**Target Audience**	**Message**	**Delivery Mechanism**
Streambank erosion, land clearing/construction practices	Riparian landowners, builders, contractors	Encourage landowners to leave a conservation buffer, provide attractive landscaping for natural vegetation.	Information material disseminated and implement BMPs.
Cattle/livestock access	Agriculture managers, landowners	Control livestock access, establish fencing, create proper stream crossings, provide alternate funding sources	With NRCS and Conservation Districts, and other partners provide information at fairs, field days, and events, implement BMPs.
Failing septic systems	Homeowners	Properly maintain your septic system to prevent water quality degradation.	Information material, repair failing systems. disseminated to local Health Departments and landowners.
Agriculture practices	Agriculture managers, landowners	By reducing livestock access to surface water you are protecting a resource that is very valuable to everyone.	Implement BMPs and hold field days/workshops.

Cropland	Agriculture managers, landowners	By reducing erosion access to surface water you are protecting a resource that is very valuable to everyone.	Implement BMPs and hold field days/workshops.
Stormwater runoff	Local officials, residents	Protect the waterways by reducing the amount of pollutants entering the river, make public aware of where stormwater goes.	Drain markers, informative seminars for local officials, brochures for the public, tours of model stormwater site, implement appropriate BMPs.

TABLE 7 ADDITIONAL MANAGEMENT MEASURES

BMP	Cost (Per unit)	Est. Total Cost	Impair-ment Addressed	Load Reduction (%)	Stake-holder Support (1 – 5)	Benefits
Ag Riparian Buffer	NA	NA	FC	50 – 75%	5	Act to intercept sediment, nutrients, pesticides, and other materials in surface runoff and reduce nutrients and other pollutants in shallow subsurface water flow. They also serve to provide habitat and wildlife corridors and can help reduce erosion by providing stream bank stabilization.
Livestock Exclusion Fencing	$1.80 LF or $2.50 LF	$450,000	FC	75%	5	Reduce sediment and possibly nutrient yield from streams draining pastures.
Limited Access Crossing	NA	NA	FC	NA	5	Less erosions and sedimentation in the water.

Streambank Restoration	NA	$300,000 - $600,000	FC	NA	4	Helps to improve habitat for the aquatic and semi-aquatic life supported by the stream, serve as a pollutant buffer, and act as a physical buffer against cattle and other animals that may trample or erode the streambank.
Street Sweeping	$160,000	$160,000	FC	NA	3	Removing both the large and microscopic pollutants, such as metal particles from vehicles.
Bio-retention Areas	$12 SF	$240,000	FC	71 – 90%	2	Removes pollutants through a variety of physical, biological, and chemical treatment processes.
Stormwater Wetlands	$10 CY	$250,000	FC	70%	3	Improves water quality, flood control. Enhances wildlife, and removes pollutants through sedimentation and filtration.
Increase E&S Efficiency	NA	NA	FC	75%	4	Helps mitigate increased sediment loads to streams.
Education Outreach	NA	NA	FC	NA	5	Helps to increase awareness on the importance of water quality.
Vegetative Buffers	NA	NA	FC	50 – 80%	5	Highly effective for controlling sedimentation, erosion, and pollution from runoff.
Cover Crops	$20 AC to $65 AC	$300,000	FC	40 – 60%	5	Prevents erosion.
Heavy Use Area Paddocks	$1.66 SF to $8 SF	$120,000	FC	80%	4	Reduces erosion while improving water quality.
Septic System Repairs	$500 to $5,000	$75,000	FC	50 – 75%	4	Reduces fecal coliform from nearby streams.
Pet Receptacles	$350	$5,000	FC	NA	2	Helps remove bacteria, pathogens, and nutrients via stormwater runoff.

Filter Strip	$450 AC	$50,000	FC	50 – 80%	4	Protects water quality by trapping soil particles, nutrients, and pesticides, they can also improve water infiltration and enhance wildlife habitat.
DRI Implements	NA	NA	FC	50 – 75%	3	Reduces erosion and runoff.
Promote a naturalized landscape	NA	NA	FC	NA	1	Improves water quality, and reduces erosion.
Grass Waterway	$5 LF	NA	FC	60 – 80%	2	Provides pretreatment, partial infiltration of runoff in suitable soil conditions, generally less expensive than extruded curb, good for small drainage areas, and relatively low maintenance requirements.
Rain Barrels	$200	$10,000	FC	NA	2	Reduces stormwater runoff and acts as an alternative water source.

In order to determine the overall effectiveness of the implemented management strategies an evaluation process is essential.

The various methods should be considered for evaluation:

- Physical water quality monitoring;
- Chemical water quality monitoring;
- Biological life measurements;
- Photographic or visual evidence, before and after photos;
- Documentation of site BMPs installed;
- Pollutant loading measurements;
- Stakeholder surveys, evaluate knowledge or change in behavior; and
- Focus groups, to determine effectiveness of project activities.

8.0 PARTNER ORGANIZATIONS AND ADVISORY GROUPS

An Advisory Group recruitment from a number of working group partners were prioritized to also serve to provide input for this extended revision. Representatives include agriculture, industrial or municipal point source discharge permittees, forest products firms, members of local government, and landowners. The final advisory group of major stakeholders and community participants includes:

TABLE 8 PARTNERS/ADVISORY GROUP

Name	Address	City	St	ZIP	Email
Angela Wall	327 W. Savannah Ave	Valdosta	GA	31601	awall@sgrc.us
Jason Davenport	325 W. Savannah Ave	Valdosta	GA	31601	jdavenport@lowndescounty.com
Emily Davenport	P.O. Box 1125	Valdosta	GA	31603	edavenport@valdostacity.com
Hal Simpson	516a County Farm Rd	Nashville	GA	31639	Harold.Simpson@ga.usda.gov
Richard Batten	327 W. Savannah Ave	Valdosta	GA	31601	rbatten@sgrc.us
Jonathan Sumner	102 South Church Street	Hahira	GA	31632	citymanager@hahira.ga.us
Larry Miller	325 W. Savannah Ave	Valdosta	GA	31601	lmiller@lowndescounty.com
Mike Allen	300 N. Patterson St.	Valdosta	GA	31601	mallen@lowndescounty.com
Wayne Bullard	102 South Church Street	Hahira	GA	31632	mayor@hahira.ga.us
Shannon Walker			GA		sdwalker@gdph.state.ga.us
Tad Williams			GA		twwilliams@dhr.state.ga.us
Phil Hall	2108 E Hill Ave	Valdosta	GA	31601	phil.hall@ga.usda.gov
Joe Pritchard	325 W Savannah Ave	Valdosta	GA	31601	jpritchard@lowndescounty.com
John Fretti	216 E Central Ave	Valdosta	GA	31603	jfretti@valdostacity.com
Larry Hanson	216 E Central Ave	Valdosta	GA	31603	hanson@valdostacity.com
Mara S. Register	216 E Central Ave	Valdosta	GA	31603	register@valdostacity.com
Richard Lee	325 W Savannah Ave	Valdosta	GA	31601	commissioner@lowndescounty.com
Rod Casey	325 W Savannah Ave	Valdosta	GA	31601	commissioner@lowndescounty.com

The TMDL Advisory Group is a collection of individuals who bring unique knowledge and skills which complement the knowledge and skills of the public in order to more effectively accomplish this revision. The purpose of the TMDL Advisory Group is to provide a forum for the public, partners, etc. to discuss potential concerns and solutions that will impact Franks Creek, and to make recommendations relative to TMDLs.

The Advisory Group's key responsibilities were to:

- **Advise** on matters of concern to the community;
- **Contribute to the education** of the residents of the watershed on water quality issues;
- **Help identify** contributing pollution sources;
- **Assist** in arriving at equitable pollution reduction allocations among contributors;
- **Recommend specific actions** needed to effectively control sources of pollution; and
- **Help develop** and set in motion an extended plan.

The first meeting of the Advisory Group was held on May 15, 2008 to review the results of the first round of meetings and to make suggestions for the next round of deliberations. A second meeting was held on May 7, 2009 to provide comments for the initial draft. A final set of joint meetings of the Advisory Group and Stakeholders were held on October 1, 2009 to finalize edits on the draft TMDL Plan.

9.0 PUBLIC INVOLVEMENT

Stakeholders are individuals who live or have land management responsibilities in the watershed, including government agencies, businesses, private individuals and special interest groups. Stakeholder participation and support is essential for achieving the goals of this TMDL effort.

TABLE 9 PUBLIC INVOLVEMENT

Name	Address	City	State	ZIP	Email
Aaron Strickland	325 W. Savannah Ave.,	Valdosta	GA	31602	astrickland@lowndescounty.com
David Warren	8178 Smith Rd	Hahira	GA	31632	NA
Sandra Warren	8178 Smith Rd	Hahira	GA	31632	NA

Building partnerships was a key component in order to declare input from the Stakeholder perspective in evaluating the extended revision; and to provide an opportunity for Stakeholders to understand how the peer review process contributes to the development of TMDL plans and results. As a result of their participation, Stakeholders became knowledgeable advocates for the role to help manage or decrease nonpoint source pollution impacts.

Stakeholders' key responsibilities were to:

- **Provide** technical support and assistance;
- **Distribute** and share information;
- **Identify** opportunities and common concerns; and
- **Develop** public support

SGRC staff encouraged public participation in the development of this TMDL Plan by inviting Stakeholders to participate in several meetings throughout the development stages. The objective of these meetings was to obtain feedback from Stakeholders about the concerns and composition of watershed activities. The first meeting of the Stakeholder Group was held on May 15, 2008 to review the results of the first round of meetings and to make suggestions for the

next round of deliberations. A second meeting was held on May 14, 2009 to review an initial draft for the TMDL Plan. A final set of joint meetings of the Advisory Group and Stakeholders were held on October 1, 2009 to finalize edits on the draft TMDL Plan.
Examples of Stakeholder recommendations include:

- Additional monitoring to verify effectiveness of measures implemented;
- Review of all existing development codes, ordinances, and policies to identify where revisions could be made to reduce non-point source water pollution;
- Design and implement a citizen education program to make citizens aware of the non-point source water pollution problem and their role in improving the water quality;
- Encourage the continuing formation of volunteer groups to conduct community based stream protection efforts such as restoring vegetative cover within riparian areas, stream clean-up, and reporting of problems;
- Conduct screening level analyses of structural and non-structural BMPs;
- Investigate grant and funding opportunities to fund these efforts;
- Propose best management practices (BMPs) or other ways to correct problems at each location; and
- Evaluate technical assistance needed and how to administer assistance.

10.0 INTERIM MILESTONES

The ultimate goal of this implementation plan is to bring Franks Creek into compliance with water quality standards, which will result in its being listed as supporting from the 303(d) list of impaired waters. This goal will be measured by the concentration of fecal coliform and E. coli in samples, but milestones along the way will include both water quality measurements, the implementation of BMPs and load reductions for each BMP. The construction of BMPs in the urban area will be to some extent dependent on opportunities presented, while milestones may be tailored to the resources available.

In order to achieve the TMDL it is recommended that there be a 57% load reduction of FC in Franks Creek. Although the type of source is known, there is very limited data available on the effectiveness of existing and/or potential management measures available to address the sources. Furthermore, there are also limited financial resources available to stakeholders and local governments to address nonpoint sources. A list of management measures and other general actions to be implemented during the first 3 years of the plan around the Franks Creek watershed is shown in Section 12.0 Plan Implementation, Table 10.

In order to bring Franks Creek to compliance, sub – goals and objectives are listed below. These address the watershed issues outlined in the previous sections of this report:

GOAL #1: Implement cost – shared best management practices (BMPs) to achieve targeted agricultural reductions.

Objective: Educate targeted landowners in funding available and procedures for implementing BMPs on their properties.

Objective: Install appropriate BMPs such as, but not limited to, exclusion fencing, riparian buffers, cover crops, and stream crossings on pastures.

GOAL #2: Reduce inputs in urban, university, and residential areas through education.

Objective: Encourage installation of urban streamside forest buffers, where possible.

Objective: Encourage installation of homeowner Low Impact Development (LID) measures.

Objective: Educate homeowners in funding available for forested buffers.

Objective: Use media to increase awareness of water quality issues and good stewardship practices.

Objective: Include education about water quality and stewardship in local school curricula.

Objective: Offer educational programs and literature through homeowners' associations and other neighborhood or civic organizations.

Objective: Expand the state Adopt-a-Stream program in the watershed.

GOAL #3: Implement stormwater management practices to reduce inputs from public works.

Objective: Install and monitor demonstration Low Impact Development (LID) sites.

Objective: Improve enforcement of Erosion and Sediment Control regulations.

Objective: Improve efficiency of street sweeping practices.

Objective: Seek opportunities for remediation and increased stormwater infiltration with redevelopment and new construction.

Objective: Reduce sanitary sewer overflows.

Objective: Prevent infiltration/exfiltration from sanitary sewers.

GOAL #4: Through planning activities, identify and prioritize opportunities for stream protection and restoration, and ensure that codes and design standards are "water quality friendly."

Objective: Revise as necessary master plans and action lists for watershed.

Objective: Review and adopt codes and design standards as needed.

Objective: Encourage future development using smart development guidelines.

Objective: Encourage stream restoration other suitable infiltration practices in areas of redevelopment.

GOAL #5: Reduce urban and residential inputs by performing inspection, monitoring and maintenance activities to eliminate illicit discharges, ensure proper stormwater system performance and prevent pollution.

Objective: Inspect all stormwater outfalls.

Objective: Detect and address non – storm water/illicit discharges.

Objective: Maintain and repair stormwater structures.

Objective: Provide guidelines to downtown businesses regarding acceptable wastewater disposal procedures.

11.0 RECOMMENDATIONS FOR MONITORING AND CRITERIA FOR MEASURING SUCCESS

The largest data gap for the Franks Creek Watershed is lack of monitoring data. The City of Hahira and Lowndes County should conduct sampling each year as BMPs are being implemented. This information will help verify which BMP projects are most beneficial. This

information will be used not only in determining how to proceed or revised the management plan, but also in other nearby watersheds.

According to EPA standards, monitoring is recommended at rotation sites throughout the watershed as well as biological and habitat assessments every two years. The monitoring program to assess implementation progress may also be based on a volunteer monitoring program such as Adopt – A – Stream. GAEPD will provide assistance, upon request, with setting up, designing, and implementing monitoring programs.

12.0 PLAN IMPLEMENTATION

The objective of TMDL implementation is to restore impaired water quality to meet water quality standards. From a broader perspective, Georgia's water quality management strategy addresses three things:

1. Protection: Prevent the degradation of healthy waters.
2. Restoration: Develop and execute plans to eliminate impairments.
3. Maintaining Restored Waters: Institutionalize technical and administrative procedures to prevent or offset new pollutants.

A list of management measures and other general actions to be implemented during the first 3 years is shown in Table 10.

TABLE 10 IMPLEMENTATION SCHEDULE

2009	
Measurable Milestone	**Party Responsible**
Complete final TMDL Extended Revision Plan.	SGRC
Contact Stakeholder and Advisory Groups to present and discuss funding options and future goals.	SGRC
Apply for a Section 319(h) Grant by November.	SGRC, EPD
2010	
Measurable Milestone	**Party Responsible**
Execute contract with EPD	SGRC, EPD
Employ a part - time watershed coordinator.	SGRC
Coordination and Liaison with Watershed Citizens, Stakeholders, and Advisory Groups.	SGRC
Present a community educational workshop.	SGRC
Implement BMPs.	SGRC
Create website.	SGRC
2011	
Measurable Milestone	**Party Responsible**
Employ a part - time watershed coordinator.	SGRC
Coordination and Liason with Watershed Citizens, Stakeholders, and Adivsory Groups.	SGRC

Implement BMPs.	SGRC, Landowners
Create brochure.	SGRC
Update website.	SGRC
Present a rural/urban educational workshop/field day.	SGRC
Hold Adopt - A - Stream workshop.	SGRC, EPD
Locate and map all stormwater outlets.	SGRC
Submit semi - annual reports for GRTS update. Submit load reductions each August 31st.	SGRC
2012	
Measurable Milestone	**Party Responsible**
Employ a part - time watershed coordinator.	SGRC
Coordination and Liason with Watershed Citizens, Stakeholders, and Adivsory Groups.	SGRC
Implement BMPs	SGRC, Landowners
Update website.	SGRC
Hold Adopt - A - Stream workshop.	SGRC, EPD
Present a rural/urban educational workshop/field day.	SGRC
Submit semi - annual reports for GRTS update. Submit load reductions each August 31st.	SGRC
2013	
Measurable Milestone	**Party Responsible**
Employ a part - time watershed coordinator.	SGRC
Coordination and Liaison with Watershed Citizens, Stakeholders, and Advisory Groups.	SGRC
Implement BMPs.	SGRC, Landowners
Update website.	SGRC
Create brochure.	SGRC
Present a rural/urban educational workshop/field day.	SGRC
Submit final project close - out report to EPD for review and approval.	SGRC
Annually	
Measurable Milestone	**Party Responsible**
Education Outreach (website, media, workshops/field days, etc).	SGRC
Encourage and install appropriate BMPs.	SGRC, Lowndes County
Expand the Adopt - A - Stream Program.	SGRC, EPD
Improve enforcement of Erosion and Sediment Control regulations.	SGRC, Lowndes County
Review and revise Master Plan.	SGRC, Lowndes County
Submit semi - annual reports for GRTS update. Submit load reductions each August 31st.	SGRC

During each semi – annual evaluation of implementation on Franks Creek a reassessment of implementation priorities will be made by the Advisory Group to readjust and fine – tune the targeting approach in concert with the staged implementation approach. If reasonable progress

toward implementing the management practices is not demonstrated, the Advisory Group will consider additional implementation actions.

If it is demonstrated that reasonable and feasible management measures have been implemented for a sufficient period of time and TMDL targets are still not being met, additional measuring may be needed. If after three years the Advisory Group determines that load reductions are being achieved as management measures are implemented, then the recommended appropriate course of action would be to continue management measure implementation and compliance oversight. If it is determined that all proposed control measures have been implemented, yet the TMDL is not achieved, further investigations will be made to determine whether: 1) the control measures are not effective; 2) fecal coliform loads are due to sources not previously addressed; or 3) the TMDL is unattainable.

As with all programs, funding is an integral component in making a program not only happen, but a success. There are numerous funding opportunities for local governments, non-profits, and individuals from federal, state, and local sources. Opportunities may include, but not limited to: U.S. Environmental Protection Agency, GA Environmental Protection Division, U.S. Department of Agriculture – Natural Resource Conservation Service, U.S. Fish and Wildlife Programs, and GA Environmental Facilities Authority. These are only a few of the many funding sources available. It is important to note that funding sources and opportunities change on a yearly basis, so always check for the most up-to-date information.

13.0 REFERENCES

Georgia Department of Natural Resources. Environmental Protection Division. 2006. Final Georgia 2006 305(b)/303(d) List. Retrieved from the World Wide Web, http://www.dnr.state.ga.us/dnr/environ/.

Georgia Department of Natural Resources. Environmental Protection Division. 2008. Draft Georgia 2008 305(b)/303(d) List. Retrieved from the World Wide Web, http://www.dnr.state.ga.us/dnr/environ/.

Georgia Department of Natural Resources. Environmental Protection Division Georgia Adopt-A-Stream Program. What is Georgia Adopt-A-Stream. Retrieved from the World Wide Web, http://www.riversalive.org/aas.htm.

Georgia Department of Natural Resources Pollution Prevention Assistance Division. You're the Solution to Water Pollution brochure.

Georgia Museum of Natural History & Georgia Department of Natural Resources. 2009. Retrieved from the World Wide Web, http://museum.nhm.uga.edu/gawildlife/gawwregions.html.

Georgia Soil & Water Conservation Commission. 2009. Guidelines for Streambank Restoration. Retrieved from the World Wide Web, http://www.gaswcc.org/PDF/Guidelines%20for%20Streambank%20Restoration.pdf.

Hyatt, J. A., and Jacobs, P. M. 1996. Geomorphology, Vol. 17:305-316. Retrieved from the World Wide Web, http://www.easternct.edu/personal/faculty/hyattj/ressknew.htm#new.

North Carolina State University. 2001. Conservation Tillage. Retrieved from the World Wide Web, http://www.cals.ncsu.edu/sustainable/peet/tillage/c03tilla.html.

Southern Georgia Regional Commission. 2008. Greater Lowndes County Comprehensive Plan.

United States Census Bureau. 2009. American Fact Finder. Retrieved from the World Wide Web, http://factfinder.census.gov/servlet/SAFFPeople?_sse=on.

United States Department of Agriculture. 1983. Soil Survey Lowndes County, Georgia.

United States Department of Agriculture. Natural Resources Conservation Service. Best Management Practices.

United States Fish and Wildlife. 2009. Listed Endangered Species in Georgia. Retrieved from the World Wide Web, http://athens.fws.gov/endangered/counties_endangered.html.

United States Geological Survey. 2009. Georgia Water Information Network. Retrieved from the World Wide Web, http://ga2.er.usgs.gov/gawater/countysites.cfm?code=019.

14.0 Plan Appendices

- **A. Nine (9) – Key Element Summary**
- **B. Watershed Maps (HUC)** #0311020405
- **C. Land Use Maps: Current and Future**
- **D. Field Notes and Pictures**
- **E. Copies of Public Notices and Other Literature**
- **F. Meeting Minutes**

APPENDIX A: NINE (9) – KEY ELEMENT SUMMARY

Beginning with FY03 grants, the United States Environmental Protection Agency (EPA) requires all implementation, demonstration, and outreach – education projects funded under Section 319 of the federal Clean Water Act to be supported by a Watershed Plan which includes the following nine listed elements. To be eligible for Section 319 funding watershed plans must address all nine elements. The nine EPA required elements, and the location of the plan component addressing these elements are listed below.

A. An identification of the causes and sources or groups of similar sources that will need to be controlled to achieve the load reductions estimated in this watershed based plan (and to achieve any other watershed goals identified in the watershed based plan), as discussed in item (b) immediately below. Sources that need to be controlled should be identified at the significant subcategory level with estimates of the extent to which they are present in the watershed (e.g., X numbers of dairy cattle feedlots needing upgrading, including a rough estimate of the number of cattle per facility; Y acres of row crops needing improved nutrient management or sediment control; or Z linear miles of eroded streambank needing remediation).

- Causes of pollution in the watershed that will need to be controlled are found in Section 3.0 Water Quality Impairments and Total Maximum Daily Loads (TMDLs) and 5.0 Identification and Ranking of Significant Sources of Implementation of the completed watershed improvement plan.

B. An estimate of the load reductions expected for the management measures described under paragraph (c) below (recognizing the natural variability and the difficulty in precisely predicting the performance of management measures over time). Estimates should be provided at the same level as in item (a) above (e.g., the total load reduction expected for dairy cattle feedlots; row crops; or eroded streambanks).

- Estimates of the load reductions expected for the management measures recommended for implementation are found in Section 7.0 Recommendations for Additional Management Measures of the completed watershed improvement plan.

C. A description of the NPS management measures that will need to be implemented to achieve the load reductions estimated under paragraph (b) above (as well as to achieve other watershed goals identified in this watershed-based plan), and an identification (using a map or a description) of the critical areas in which those measures will be needed to implement this plan.

- A description of the measurements that are recommended for implementation to achieve the estimated load reductions can also be found in Section 7.0 Recommendations for Additional Management Measures of the completed watershed improvement plan.

D. An estimate of the amounts of technical and financial assistance needed, associated costs, and/or the sources and authorities that will be relied upon, to implement this plan. As

sources of funding, States should consider the use of their Section 319 programs, State Revolving Funds, USDA's Environmental Quality Incentives Program and Conservation Reserve Program, and other relevant Federal, State, local and private funds that may be available to assist in implementing this plan.

- Estimates of the amounts of technical and financial assistance needed and associated costs for the implementation of this plan can be found in Section 12.0 Plan Implementation.

E. An information/education component that will be used to enhance public understanding of the project and encourage their early and continued participation in selecting, designing, and implementing the NPS management measures that will be implemented.

- The Information and Education component of the watershed management plan can be found in Section 7.0 Recommendations for Additional Management Measures.

F. A schedule for implementing the NPS management measures identified in this plan that is reasonably expeditious.

- A schedule for implementing the NPS management measures identified in this plan can be found in Section 12.0 Plan Implementation.

G. A description of interim, measurable milestones for determining whether NPS management measures or other control actions are being implemented.

- A description of interim, measurable milestones for the implementation phase of the watershed plan can be found in Section 6.0 Identification of Applicable Existing Management Measures and 10.0 Interim Milestones.

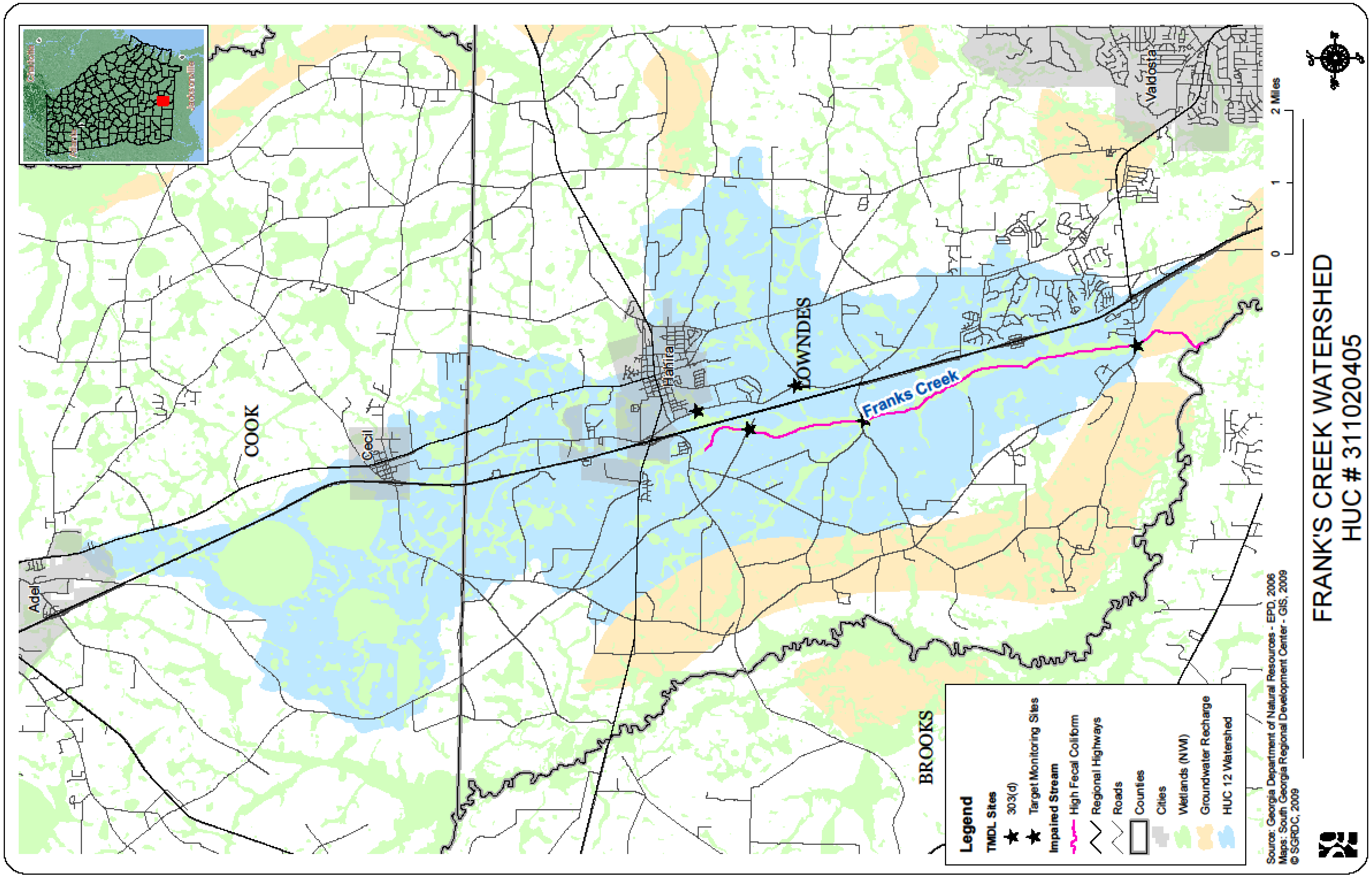
H. A set of criteria that can be used to determine whether loading reductions are being achieved over time and substantial progress is being made towards attaining water quality standards and, if not, the criteria for determining whether this watershed based plan needs to be revised or, if a NPS TMDL has been established, whether the NPS TMDL needs to be revised.

- Section 12.0 Plan Implementation contains the required set of criteria.

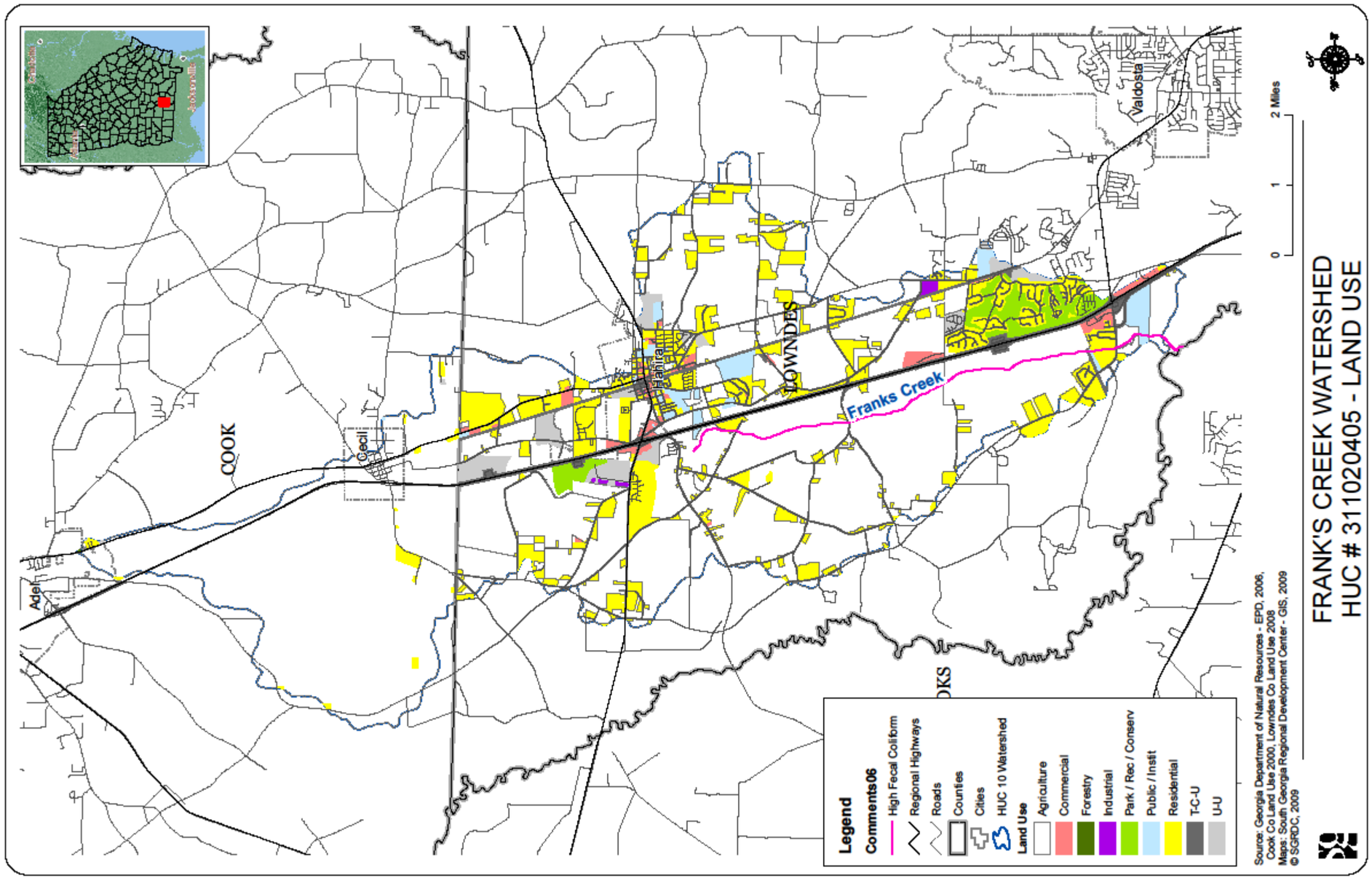
I. A monitoring component to evaluate the effectiveness of the implementation efforts over time, measured against the criteria established under item (h) immediately above.

The required monitoring component for the watershed plan can be found in Table 3 Franks Creek Water Quality Results (E. Coli).

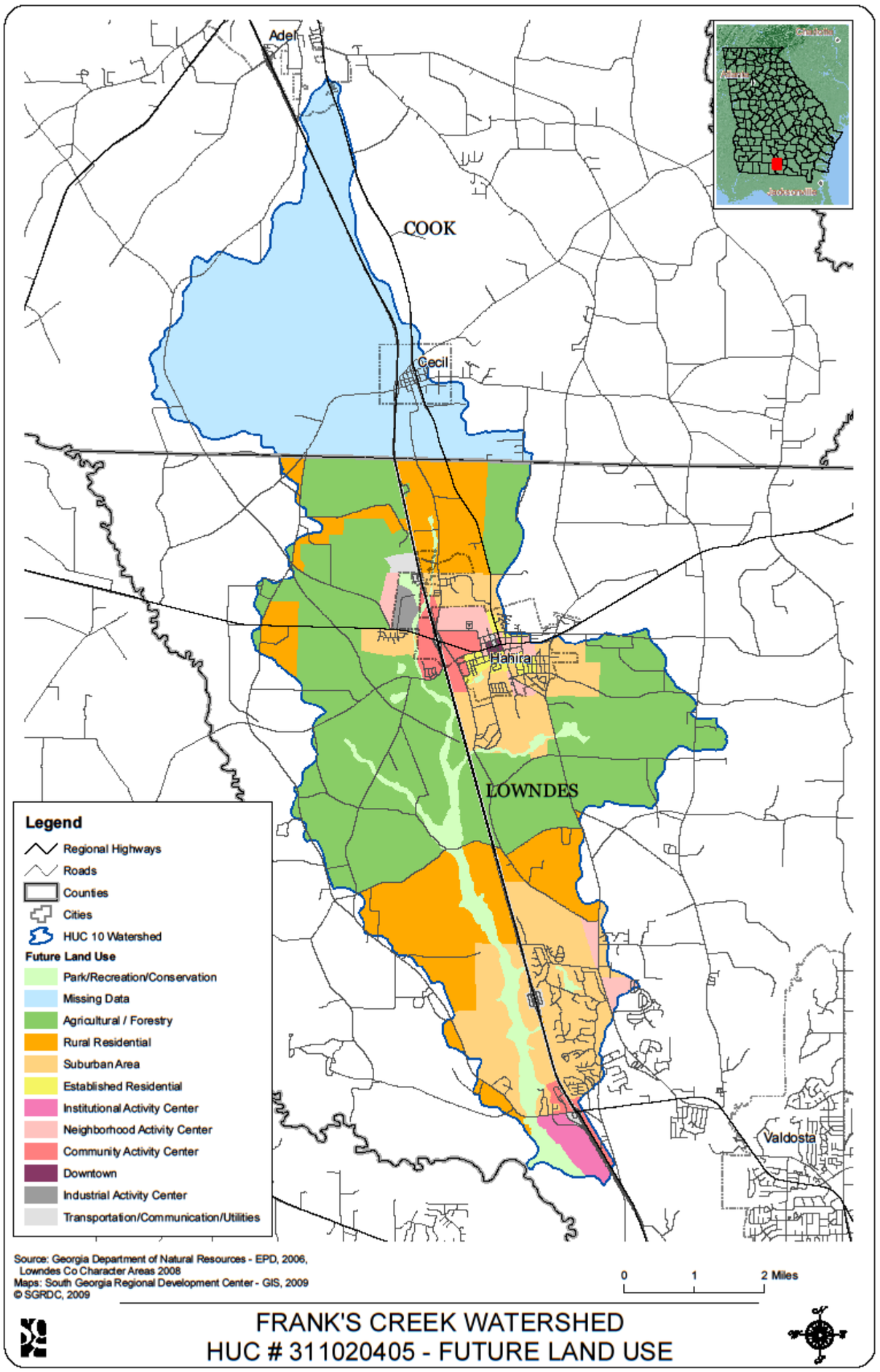
APPENDIX B: WATERSHED MAPS (HUC) #311020302
(FIGURE 1)



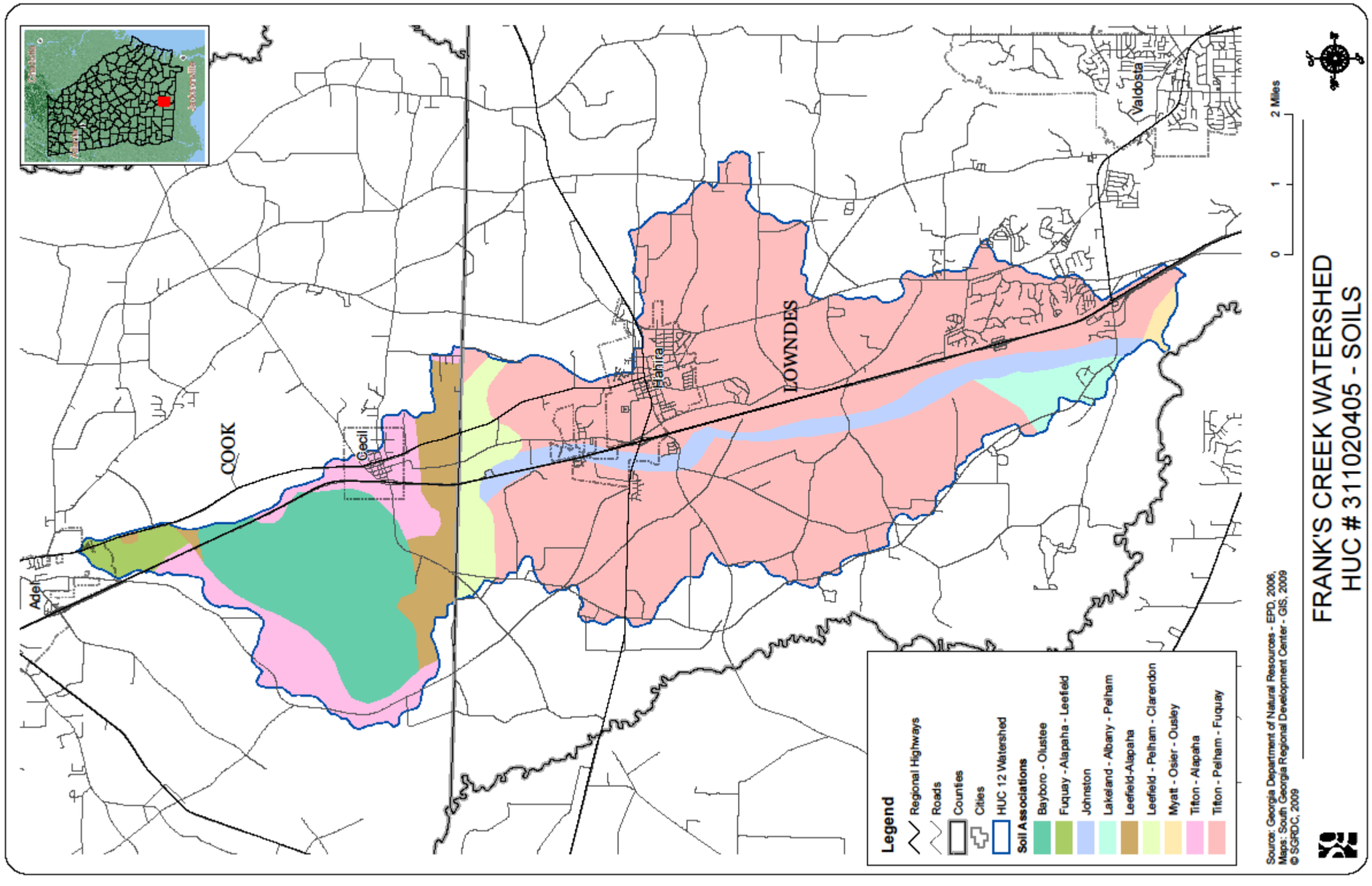
APPENDIX C: MAPS
(FIGURE 2)



(FIGURE 3)


Adel
COOK
Cecil
Hahira
LOWNDES
Valdosta
Legend
Regional Highways
Roads
Counties
Cities
HUC 10 Watershed
Future Land Use
Park/Recreation/Conservation
Missing Data
Agricultural / Forestry
Rural Residential
Suburban Area
Established Residential
Institutional Activity Center
Neighborhood Activity Center
Community Activity Center
Downtown
Industrial Activity Center
Transportation/Communication/Utilities
Source: Georgia Department of Natural Resources - EPD, 2006,
Lowndes Co Character Areas 2008
Maps: South Georgia Regional Development Center - GIS, 2009
© SGRDC, 2009
0
1
2 Miles
FRANK'S CREEK WATERSHED
HUC # 311020405 - FUTURE LAND USE

(FIGURE 4)


FRANK'S CREEK WATERSHED
HUC # 31102040405 - SOILS
0
1
2 Miles
Legend
Regional Highways
Roads
Counties
Cities
HUC 12 Watershed
Soil Associations
Bayboro - Olustee
Fuquay - Alapaha - Leefield
Johnston
Lakeland - Albany - Pelham
Leefield-Alapaha
Leefield - Pelham - Clarendon
Myatt - Osier - Ousley
Tifton - Alapaha
Tifton - Pelham - Fuquay
Source: Georgia Department of Natural Resources - EPD, 2006.
Maps: South Georgia Regional Development Center - GIS, 2009
© SGRDC, 2009
LOWNDES
COOK
Valdosta
Hahira
Cecil
Adel

APPENDIX D: TARGETED MONITORING PLAN AND PICTURES

TARGETED MONITORING
DISSOLVED OXYGEN, E. COLI, TEMPERATURE, CONDUCTIVITY, AND PH

Submitted to:
Georgia Environmental Protection Division
February 21, 2008

Submitted by:
South Georgia Regional Development Center

I. INTRODUCTION

Targeted monitoring is intended to provide a much better picture of the water quality conditions located within the impaired stream's watershed. By conducting targeted monitoring, potential sources and areas of concern will be more easily identified. Also, funding and other resources can be better used in areas of the watershed that show the greatest need for attention. This can help open the door for projects that target areas of the watershed to receive funding to implement best management practices (BMPs) that are recommended to address water quality violations. In this plan, each method will be described in detail for E. coli, dissolved oxygen (DO), temperature, conductivity, and pH. Also, included in this plan will be each sample site location and maps of each impaired stream showing individual sampling sites.

II. METHODS

E. coli
Procedure:

In – stream field collection:
There are several methods for obtaining a sample from the stream depending on stream access, depth of water, and safety. If SGRDC staff can safely enter the stream on foot the sample will be taken where the main current is flowing. While wading to this location, staff will try not to disturb the sediment due to bacteria attached or living in the soil. A sterile bag will be used to collect all samples. Before entering the water, bags will be labeled correctly and completely (e.g. for Franks Creek – FC Site 1). Standing upstream, the sample will be collected 3 – 5 inches below the surface water or at wrist level if depth is impossible to reach due to low levels of water flowing. Using the two white tabs to pull open the bag, without touching the inside, it will be placed at a reasonable depth to be filled. The ends of the twist bag will be used to whirl the bag shut and securely closed by testing the seal. The sample will then be placed in a cooler of ice and transported back to the RDC for further examinations.

If sampling cannot be done safely by wading, a sample will be taken from a bridge using a bucket and rope. Before taking the sample the bucket will be rinsed out three (3) times with sample water. From the bridge, the bucket and rope will be lowered midstream into the fast flowing section of the water. Once the bucket has been filled it will then be pulled up for sampling. A sterile bag will be labeled correctly and used to collect a sample from the bucket. Using the two white tabs to pull open the bag, without touching the inside, it will be inside the bucket and filled with water. The ends of the twist bag will be used to whirl the bag shut and securely closed by testing the seal. The sample will then be placed in a cooler of ice and transported back to the RDC for further examinations.

If the site of the location site has a curved bank then the sample will be taken near the outside of the curve. Samples will not be taken at the stream banks edge since this may cause the water to be stagnant or not well mixed with the rest of the water. Samples will be taken and analyzed once per season for Franks Creek, Little Brushy Creek, New River, Two Mile Branch, and Westside Branch.

Plating:
Once samples have been collected and transported back to the RDC, plating will occur. Three 3M Petrifilms will be used and placed on a level surface. Lifting the top film and using a 1 mL fixed volume pipette a sample will be dispensed on the center bottom film. Once the pipette is completely emptied the sample will be plated and slightly tilted to spread the sample evenly and the top film will be placed down slowly to prevent trapping air bubbles. Each sample will be placed in a 35 degree Celsius incubator, with the clear side up in stacks of no more than 20 plates. Samples will be removed after a 24 hour time period. In order to determine E. coli colonies the number of blue colonies with gas will be counted on each plate and recorded. All samples will be evaluated by accuracy, comparability, completeness, precision, and representativeness.

Temperature
Water temperature is not only important to swimmers and fisherman, but also to industries and even fish and algae. Temperature also can affect the ability of water to hold oxygen as well as the ability of organisms to resist certain pollutants which makes the temperature of water important.

Procedure:
Using the thermometer provided in the LaMotte Kit it will be placed midstream near sample site location and left for 5 minutes submerged under water. It will then be read and recorded as Celsius and later calculated to Fahrenheit.

All data will be recorded onto a Physical/Chemical Data Form provided by Georgia Adopt – A – Stream (Appendix A) per each site.

III. SITES

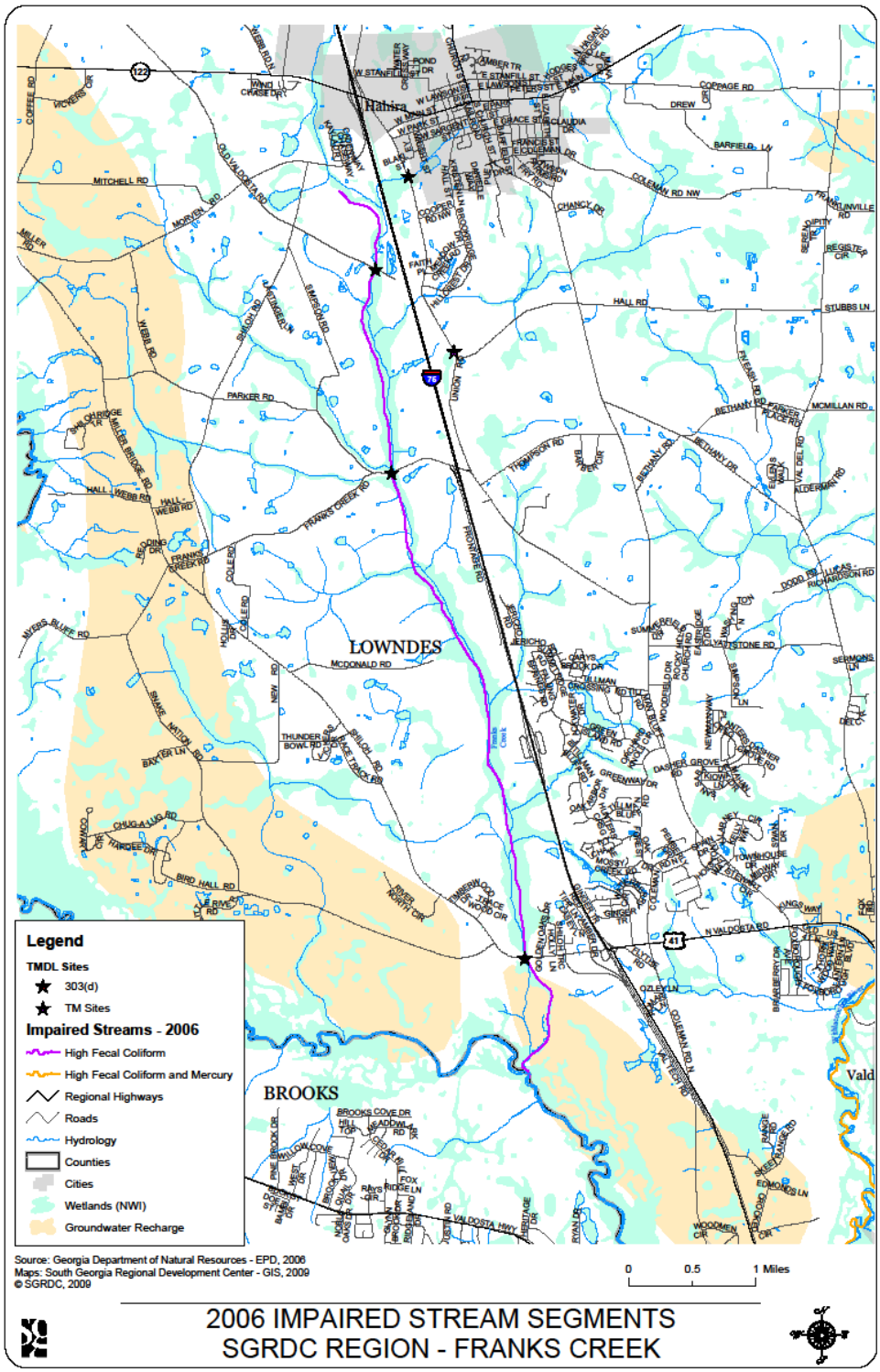
The following streams, along with each site, will be monitored for **E. coli**:

- Franks Creek (Lowndes)
    1. Located in Stone Creek Golf Club on Tillman Bluff Rd. (tributary)
       GPS Coordinate: 30.916064 N, -83.359107 W
    2. Located where Shiloh Rd. crosses over Franks Creek
       GPS Coordinate: 30.89376 N, -83.366572 W
    3. Located where Union Rd. crosses over Franks Creek
       GPS Coordinate: 30.98296 N, -83.381192 W
    4. Located where Morven Rd. crosses over Franks Creek
       GPS Coordinate: 30.984298 N, -83.391985 W
    5. Located where Old Valdosta Rd. (dirt) crosses over Franks Creek
       GPS Coordinate: 30.972399 N, -83.38559

IV. SCHEDULE

Schedule for E. Coli
The sampling schedule for E. coli is one (1) sample, per season, per stream over 4 calendar quarters. The thirty (30) day sampling period will not overlap the month of April/May and October/November due to changes in the in – stream water quality standard for bacteria. Sampling will begin in March 2008 and end in February 2009.

IV. MAPS


Legend
TMDL Sites
303(d)
TM Sites
Impaired Streams - 2006
High Fecal Coliform
High Fecal Coliform and Mercury
Regional Highways
Roads
Hydrology
Counties
Cities
Wetlands (NWI)
Groundwater Recharge
LOWNDES
BROOKS
Hahira
Source: Georgia Department of Natural Resources - EPD, 2006
Maps: South Georgia Regional Development Center - GIS, 2009
© SGRDC, 2009
0
0.5
1 Miles
2006 IMPAIRED STREAM SEGMENTS
SGRDC REGION - FRANKS CREEK

PICTURES:

APPENDIX E:
COPIES OF PUBLIC NOTICES AND OTHER LITERATURE

APPENDIX F:
MEETING MINUTES