

**STATE OF GEORGIA
RECOMMENDED TIER 2 TMDL IMPLEMENTATION
PLAN**

Hazel Creek
Chattahoochee River Basin

Local Watershed Governments

I. INTRODUCTION

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

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

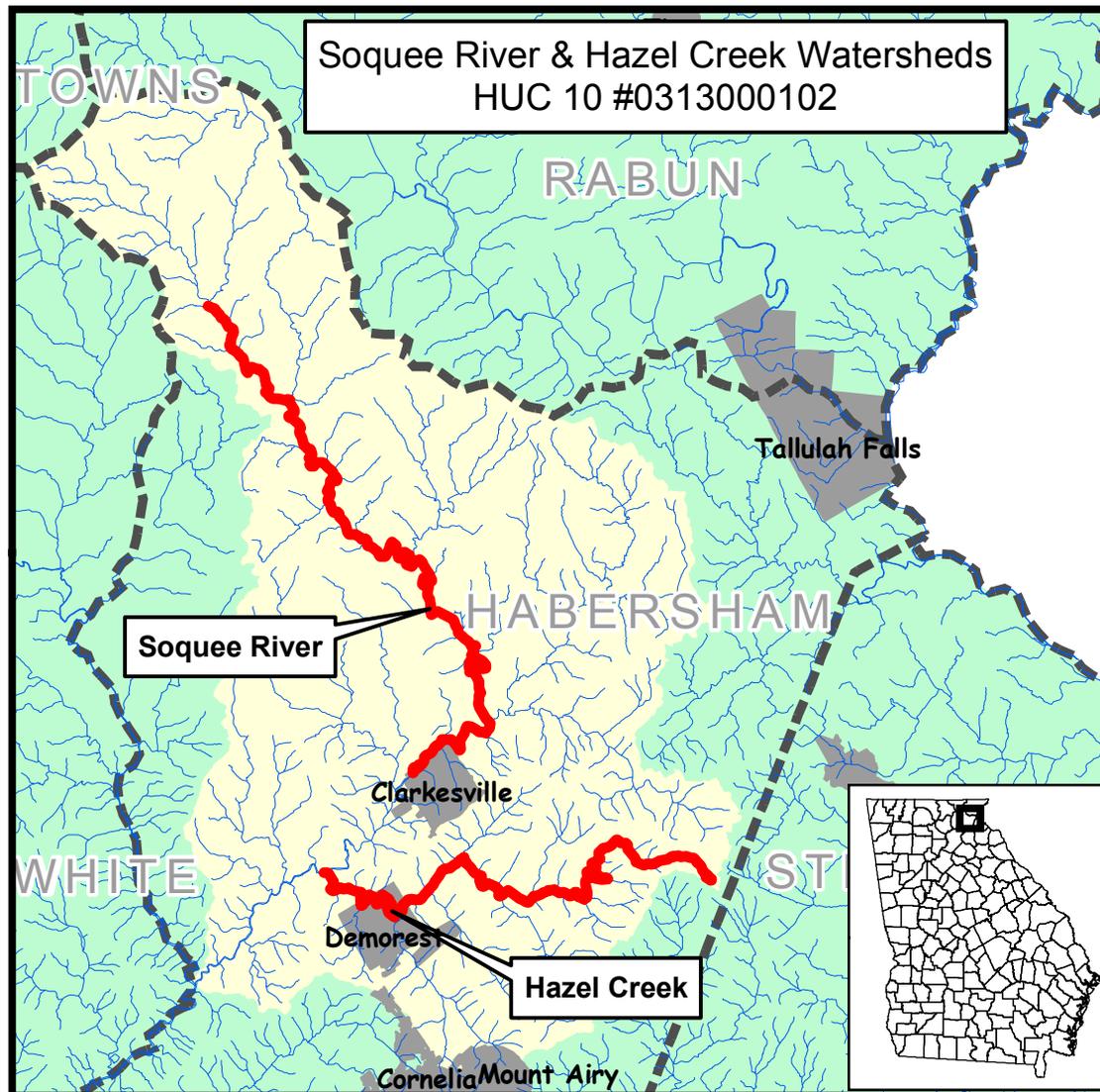


Table 1. IMPAIRMENTS

IMPAIRED STREAM SEGMENT	IMPAIRED SEGMENT LOCATION	IMPAIRMENT
Soquee River	Goshen Creek to SR 17, Clarkesville	Fecal Coliform Bacteria
Hazel Creek	Habersham County	Biota(sediment)

II. GENERAL INFORMATION ABOUT THE WATERSHED

Write a narrative describing the watershed, HUC 10#0313000102. Include an updated overview of watershed characteristics. Identify new conditions and verify or correct information in the TMDL document using the most current data. Include the size and location of the watershed, political jurisdictions, and physical features which could influence water quality. Describe the source and date of the latest land cover/use for the watershed. Describe and quantify major land uses and activities which could influence water quality. See the instructions for more information on what to include.

The Hazel Creek Watershed is located in northeastern Georgia in Habersham County. The Creek flows through the City of Demorest and discharges into the Soquee River below the City of Clarkesville. Dominant land uses in the 20,490 acre watershed, as reported in the White Creek and Hazel Creek Sediment TMDL (EPD, 2003) and based on 1995 Landsat Thematic Mapper digital images, are forest (14,088 ac), pasture and hay (4,240 ac), row crops (998 ac), and a mixture of residential and urban uses (10 ac). The City of Cornelia water intake is located on Hazel Creek in the City of Demorest. While regional land use was updated in 2004, the County has not recently updated their land use map. Activities most likely to influence sediment delivery to the creek are erosion of stream banks in pastures, runoff from croplands, commercial forestry activities, unpaved roads, and land disturbing activities in the urban and developed areas. There have been no recent major development activities in the vicinity of the City of Demorest.

Loads from sediment sources were estimated in the TMDL and reported in the following table.

{NAME OF STREAM SEGMENT}

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

STREAM SEGMENT NAME	LOCATION	MILES/AREA	DESIGNATED USE	PS/NS
Hazel Creek	Habersham County, vicinity of Demorest	20,490 ac	Fishing	NS

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

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

Table 2. SOURCES OF IMPAIRMENT AS INDICATED IN TMDLs

PARAMETER 1	WQ STANDARD	SOURCES OF IMPAIRMENT	NEEDED REDUCTION FROM TMDL
Bio (Sediment)		Unpaved roads (10,100 T/ac/yr)	60% to 8196 T/yr
		Cropland runoff (10,518 T/ac/yr)	
		Commercial forestry activities (unk)	
		Pastures (2434 T/ac/yr)	
		Land disturbing activities (unk)	
		Streambank erosion (unk)	

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

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

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

Based on latest available landuse data, the extensive potential sources of sediment delivery are pastures, croplands, and commercial forestry activities in the forested areas. In addition, there are miles of unpaved roads within the watershed which could generate sediment delivery at stream crossings. Urban land disturbing activities are limited, but the City of Demorest is located adjacent to the lower reach of Hazel Creek. Visual surveys of pastures in the Soquee Watershed have revealed substantial bank erosion where cattle have access to streams. Latest available information indicates there were 81 "cattle sites" in the Hazel Creek Watershed.

On April 20, 2004 stakeholders meeting did not yield any input pertinent to major sources of sediment to Hazel Creek. The City of Clarkesville, with the support of the Soquee Watershed Association, is in the process of developing and conducting a monitoring plan and watershed assessment funded by a Section 319 grant, intended to identify major sources of water quality impairments in the Soquee River Watershed (including Hazel Creek).

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

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

PARAMETER 1	POTENTIAL SOURCES	ESTIMATED EXTENT OF CONTRIBUTION	ESTIMATED MAGNITUDE OF CONTRIBUTION	COMMENTS
Sediment	Cropland runoff	Extensive	10,518 T/ac/yr	TMDL estimate
	Land disturbing activity	Limited	Minor	
	Pastures	Extensive	2,434 T/ac/yr	TMDL estimate
	Unpaved roads	Extensive	10,100 T/ac/yr	TMDL estimate
	General streambank erosion	Extensive	Substantial	
	Commercial forestry activity	Limited	Minor	

V. STAKEHOLDERS

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

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

An initial stakeholder meeting was conducted on May 20, 2004 to introduce the TMDL Implementation Plan preparation process and solicit general comments on possible sources, solutions, and future activities for the Soquee River and Hazel Creek. The observations and recommendations of the stakeholder group were as follows:

Possible Sources

During the presentation, attendees noted that for the most part, homebuilders and graders are abiding by the new E&S law and are using appropriate BMPs.

The lower reaches of the Soquee River have significant streambank erosion. NOTE: the lower reaches of the Soquee River are on the “partially supporting” list of impaired waters instead of the “not supporting” list.

Possible Solutions

During the presentation, attendees began discussing some possible programs like rewarding builders and graders who are performing above and beyond in order to focus on the positives instead of the negatives OR publicly announcing environmentally friendly builders or graders as such. Some attendees said that some of the builders and graders who are not following regulations or using appropriate BMPs are not even from Habersham County (most of the time).

Possible Activities

Form a new Keep America Beautiful (KAB) affiliate. The last time a KAB affiliate was located in Habersham County was approximately five years ago.

Meeting Announcements

It was suggested that we try to distribute announcements to the stakeholders by the 1st Friday of each month for the HBA of Habersham and White Counties newsletter.

Public Outreach

All agreed that public outreach is very important for homebuilders and the public. When Project WET was brought up during the presentation, audience members mentioned Brenda Hunt, a Life Sciences 7th grade teacher from North Habersham Middle School, as a good resource for environmental education. She has been working with Justin Ellis, from the SRWA.

Questions and Comments

Are there are plans for dredging or correcting some of the problems associated with the Habersham Mills Lake? This lake is downstream from the “not supporting” segment of the Soquee River. In recent months, there has been local discussion about the dam breaching. Tiffannie said that she would research this and report back to the group at the next stakeholders meeting.

The stakeholder group will be again convened and review and comment on this recommended TMDL Implementation Plan as provided in Section VIII, Planned Outreach.

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

Table 4. COMMITTEE MEMBERS

NAME/ORG	ADDRESS	CITY	STATE	ZIP	PHONE	E-MAIL
Habersham County BOC	City of Clarkesville Council City of Demorest Council	Clarkesville Demorest	GA GA	30523 30535		
Habersham Co. Chamber of Commerce	668 Hwy. 441 Bus.	Cornelia	GA	30531		
Dr. Sue Kelly	Piedmont College					skelly@piedmont.edu
Dr. Brent Beall	N. Ga. Technical College Hwy. 197 N.	Clarkesville	GA	30523		
Darcie Boden	Upper Chattahoochee Riverkeeper, 615 F Oak St., Ste. 1000	Gainesville	GA	30501		
Justin Ellis	Soquee River Watershed Assoc., P.O. Box 1901	Clarkesville	GA	30523		
Habersham County Schools	P.O. Box 70	Clareksville	GA	30523S		
Mike Giles	Ga. Poultry Federation P.O. Box 763	Gainesville	GA	30503		
Dave Wicker	Fieldale Farms Corp. P.O. Box 558	Baldwin	GA	30511		
Karen McLain	HBA of Habersham Co.					FAX 706-778-2492
Habersham Co. Farm Bureau	3395 Camp Creek Rd.	Mt. Airy	GA	30523		
Stephen Patrick	Habersham Co. Extension Office, 555 Monroe St., Unit 20, Box 13	Clarkesville	GA	30523		
Steve Patton	Habersham Co. Planning Office, 185 B. Scoggins Dr.	Demorest	GA	30535		
Linda Eubanks	Habersham Co. Extension Office, 555 Monroe St., Unit 50, Box 13	Clarkesville	GA	30523		

Steve Leslie	Chestatee-Chattahoochee RC&D, 170 Scoggins Dr.	Demorest	GA	30535		
The Nature Conservancy	1330 W. Peachtree St., #410	Atlanta	GA	30309		
Chattowah Open Land Trust	135 N. Christopher's Run	Alpharetta	GA	30004		
Trust for Public Land	1447 Peachtree St., NE, Suite 601	Atlanta	GA	30309	404-873-7306	FAX 404-875-9099
US Fish & Wildlife	247 Milledge St.	Athens	GA	30605		
Georgia Forestry Commission	P.O. Box 819	Macon	GA	31202	478-751-3485	
Georgia Forestry Association	500 Pinnacle Court, Ste. 505	Norcross	GA	30071	770-416-7621	
Southeastern Wood Producers	P.O. Box 9	Hilliard	FL	32046	904-845-7133	
American Forest & Paper Assoc.						

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

VI. MANAGEMENT MEASURES AND ACTIVITIES

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

Table 5. MANAGEMENT MEASURES AND ACTIVITIES

GENERAL MEASURES APPLICABLE TO ALL PARAMETERS

MEASURE	RESPONSIBILITY	DESCRIPTION	SOURCE OF FUNDING	STATUS	ENACTED/ IMPLEMENTED	EFFECTIVENESS (Very, Moderate, Weak)
Part V Environmental Criteria	Habersham County and Cornelia	County Land Development Resolution amended to include Wetlands Protection Regulations	Local	Current (active)	11/20/00	Very
Part V Environmental Criteria	Habersham County	County Land Development Resolution amended to include water supply watershed protection	Local	Current (active)	11/20/00	Very
Part V Environmental Criteria	Habersham County	County Land Development Resolution amended to include Mountain Protection	Local	Current (active)	11/20/00	Very
MDDES Permit	Georgia EPD	Permitting Process for land disturbance activities	Local/State	Current (active)	Recent	Very
Permit Tracking	Habersham County and Soquee Watershed Assoc.	SRWA, a local community based organization is working with Habersham County Planning Dept. to develop a more comprehensive tracking system for land disturbance permits for development sites.	Local	Proposed	Proposed	Moderate
Soquee Watershed Monitoring and Assessment	Clarksville and Soquee Watershed Partnership	Monitoring and watershed assessment to identify nonpoint source impacts and sources and causes of impairments	Sec. 319 grant	Ongoing	2004	Will identify major causes and sources

GENERAL MEASURES APPLICABLE TO INDIVIDUAL PARAMATERS

Commercial Forestry

ORDINANCE/ACT- IVITY/MEASURE	RESPONSIBILITY	DESCRIPTION	SOURCE OF FUNDING	STATUS	ENACTED/ IMPLEMENT- ED	EFFEC- TIVENESS
Federal Clean Water Act Section 404 (Ag and Forestry)	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.		Current	June 6, 1988	EPA identifies silviculture as the lowest contribution source of nonpoint pollution
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.		Current	November 1995	
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		Current		
GA Growth Planning Act (OCGA 12-2-8)	GA DNR, Department of Community Affairs, and local units of government	Authorized GA DNR to develop minimum planning standards and procedures that local jurisdictions could adopt and enforce pertaining to the protection of river corridors, mountain tops, water supply watersheds/reservoirs, groundwater recharge areas, and wetlands. Silvicultural activities may be exempted from permitting requirements provided the activity complies with BMPs			1991	
Georgia Forestry Commission Monthly BMP Assurance Examination	Georgia Forestry Commission (matters involving enforcement are generally referred to GA EPD)	In an effort to document "reasonable assurance" that water quality will be proactively protected during regular ongoing silvicultural operations, the GCF will offer a monthly BMP assurance examination of active sites. All active of ongoing sites will be identified either through 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.		Current	1/1/03	EPA identifies silviculture as the lowest contribution source of nonpoint pollution

ORDINANCE/ACT-IVITY/MEASURE	RESPONSIBILITY	DESCRIPTION	SOURCE OF FUNDING	STATUS	ENACTED/IMPLEMENT-ED	EFFEC-TIVENESS
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.		Current	1964	
Georgia's Best Management Practices	Georgia Forestry Commission (matters involving enforcement are generally referred to GA EPD)	Inform landowners, foresters, timber buyers, loggers site preparation and reforestation contractors and others involved with silvicultural operations about commonsense, economical effective practices to minimize nonpoint source and thermal pollution.		Current	1989, 1997	EPA identifies silviculture as the lowest contribution source of nonpoint pollution

E & S Control

ORDINANCE/ACT-IVITY/MEASURE	RESPONSIBILITY	DESCRIPTION	SOURCE OF FUNDING	STATUS	ENACTED/IMPLEMENT-ED	EFFEC-TIVENESS
Land Disturbance Activities Training and Certification Program	Habersham County	Develop a training and certification program for individuals involved with land disturbance activities. The program should include local engineers, developers, contractors, builders, county personnel, landscape architects, and others who intend to perform similar construction.				A certification program for erosion and sediment control and stormwater management ensures everyone involved in land disturbing activities is aware of proper construction, maintenance, and importance of sediment and erosion control measures and stormwater management facilities.
Ordinance Revisions	Habersham County	Review the current Erosion & Sediment control ordinance and modify as appropriate. Include requirements for professionals involved in erosion and sediment control design and construction to be certified by Henry County. Include requirements for pollution prevention at the construction site through the preparation of an Erosion, Sedimentation & Pollution Control Plan to address issues such as trash, construction debris, leaking vehicles, storage of chemicals, etc.				There are proposed changes to the state's erosion and sediment control program. Channel protection and conservation subdivision ordinances will provide further guidelines for construction activities.

VII. MONITORING PLAN

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

Table 6. MONITORING PLAN

PARAMETER(S) TO BE MONITORED	ORGANIZATION	STATUS (CURRENT, PROPOSED, PLANNED)	TIME FRAME		PURPOSE (If for delisting, date of SQAP submission)
			START	END	
Multiple including suspended solids, bacteria, biology and water chemistry	Soquee Watershed Partnership and City of Clarkesville	Funded, staffed, quality assisted plan submitted to EPA for review	10/04	10/06	Conduct a baseline assessment of water quality conditions and identify sources and causes of nonpoint source inputs to the system with emphasis on sediment and bacteria. Basin-wide monitoring of the Chattahoochee-Flint basin group

VIII. PLANNED OUTREACH FOR IMPLEMENTATION

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

Table 7. PLANNED OUTREACH

RESPONSIBILITY	DESCRIPTION	AUDIENCE	DATE
Georgia Mountains RDC	Review recommended TMDL Implementation Plan with Stakeholder Group and revise plan as appropriate	Soquee River and Hazel Creek Stakeholder Advisory Group	01/05 – 05/05
Georgia Mountains RDC	Complete plan outreach activities specified in Section 106 grant funded contract	Local governments, major stakeholders, public	01/05 – 05/05
Soquee Watershed Partnership	Specified in Section 319(A) funded contract	Stakeholders, public	10/04 – 08/07

FORESTRY

RESPONSIBILITY	DESCRIPTION	AUDIENCE	DATE
Georgia Forestry Commission	Conduct forestry Best Management Practices educational training at Master Timber Harvester and continuing logger education programs, civic programs, and landowner meetings.	Foresters, timber buyers and loggers, site preparation contractors, landowners	Continuous

IX. MILESTONES/ MEASURES OF PROGRESS OF BMPs AND OUTREACH

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

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

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

Table 8. MILESTONES

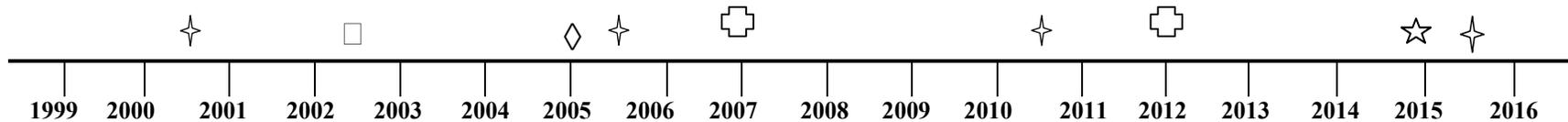
MANAGEMENT MEASURE	RESPONSIBLE ORGANIZATIONS	STATUS		COMMENT
		PROPOSED	INSTALLED	
Approve Soquee quality assurance plan and conduct monitoring	Clarkesville, Soquee Watershed Partnership	X		Quality assurance plan prepared and submitted to EPA for review
Complete Soquee Watershed assessment	Clarkesville, Soquee Watershed Partnership	X		Assessment has been funded with a Section 319 grant
Conduct and complete Soquee outreach activities	Clarkesville, Soquee Watershed Partnership	X		Outreach has been funded by above grant
Outreach activities	Georgia Mountains RDC	X		Funded by Section 106 grant
Part V Env. Criteria – Wetlands	Habersham County, Cornelia, Clarkesville		X	Ordinances adopted and enforced by local governments – very effective
Part V Env. Criteria – Water	Habersham County, Cornelia, Clarkesville,			Ordinances adopted and enforced by local governments – very effective. Moderate

Supply Watershed	Habersham County		X	community support
Part V Env. Criteria – Mountain Protection	Habersham County		X	Ordinance adopted and enforced by county – very effective – strong community support
NPDES Permit	Georgia EPD		X	Georgia EPD oversees and monitors program
Permit Tracking	Habersham County and Soquee Watershed Assoc.	X		Recommended action in SRWA/Riverkeeper Restoration Project
Federal Clean Water Act Section 404 (Ag and Forestry)			Continuous	GFC can report status on accomplishments or complaints investigated involving this act to the RDC as needed.
Memo to the Field: Application of BMPs to mechanical silvicultural site preparation activities for the establishment of pine plantations in the southeast (Silviculture)			Continuous	GFC can provide status reports as needed
Federal Farm Bill (Swampbuster, Ag)			Continuous	Status reports can be provided as needed
GA Growth Planning Act (OCGA 12-2-8)			Continuous	GFC can determine applicability and BMP implementation for local units of government
Georgia Forestry Commission Monthly BMP Assurance Examination			Continuous	Status reports can be provided as needed
Sediments, nutrients, pesticides, and habitat				
Georgia Water Quality Control Act (OCGA 12-5-20)			Continuous	GFC investigates and mediates silvicultural complaints on behalf of EPD. Unresolved complaints are turned over to EPD for enforcement. Status reports can be provided to RDC as needed
Georgia's Best Management Practices			Continuous	

MANAGEMENT MEASURE	RESPONSIBLE ORGANIZATIONS	STATUS		COMMENT
		PROPOSED	INSTALLED	
Federal Clean Water Act Section 404 (Ag and Forestry)			Continuous	GFC can report status on accomplishments or complaints investigated involving this act to the RDC as needed.
Memo to the Field: Application of BMPs to mechanical silvicultural site preparation activities for the establishment of pine plantations in the Southeast (Silviculture)			Continuous	GFC can provide status reports as needed
Federal Farm Bill (Swampbuster, Ag)			Continuous	Status reports can be provided as needed
GA Growth Planning Act (OCGA 12-2-8)			Continuous	GFC can determine applicability and BMP implementation for local units of government.
Georgia Forestry Commission Monthly BMP Assurance Examination			Continuous	Status reports can be provided as needed
Georgia Water Quality Control Act (OCGA 12-5-20)			Continuous	GFC investigates and mediates silvicultural complaints on behalf of EPD. Unresolved complaints are turned over to EPD for enforcement. Status reports can be provided to RDC as needed.
Georgia's Best Management Practices			Continuous	

PROJECTED ATTAINMENT DATE

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



- Scheduled EPD basin Group Monitoring ✦
- TMDL Completed □
- TMDL Implementation Plan Accepted ◇
- Evaluation of implementation plan/water quality improvement ⊕
- Project Attainment ☆

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Date Submitted to EPD:	December 20, 2004	Revision:	

APPENDIX B.

UPDATES TO THIS PLAN

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