

STATE OF GEORGIA
TIER 2 TMDL Implementation Plan (Revision # 01)

Segment Name: Mill Creek Date: 9/30/2009

River Basin: Coosa

Local Watershed Governments:

Murray County

City of Chatsworth

City of Eton

Whitfield County

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 non-point 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 non-point sources of pollutants, milestone schedules to show development of the BMPs (*measurable milestones*), and a monitoring plan to determine BMP effectiveness.

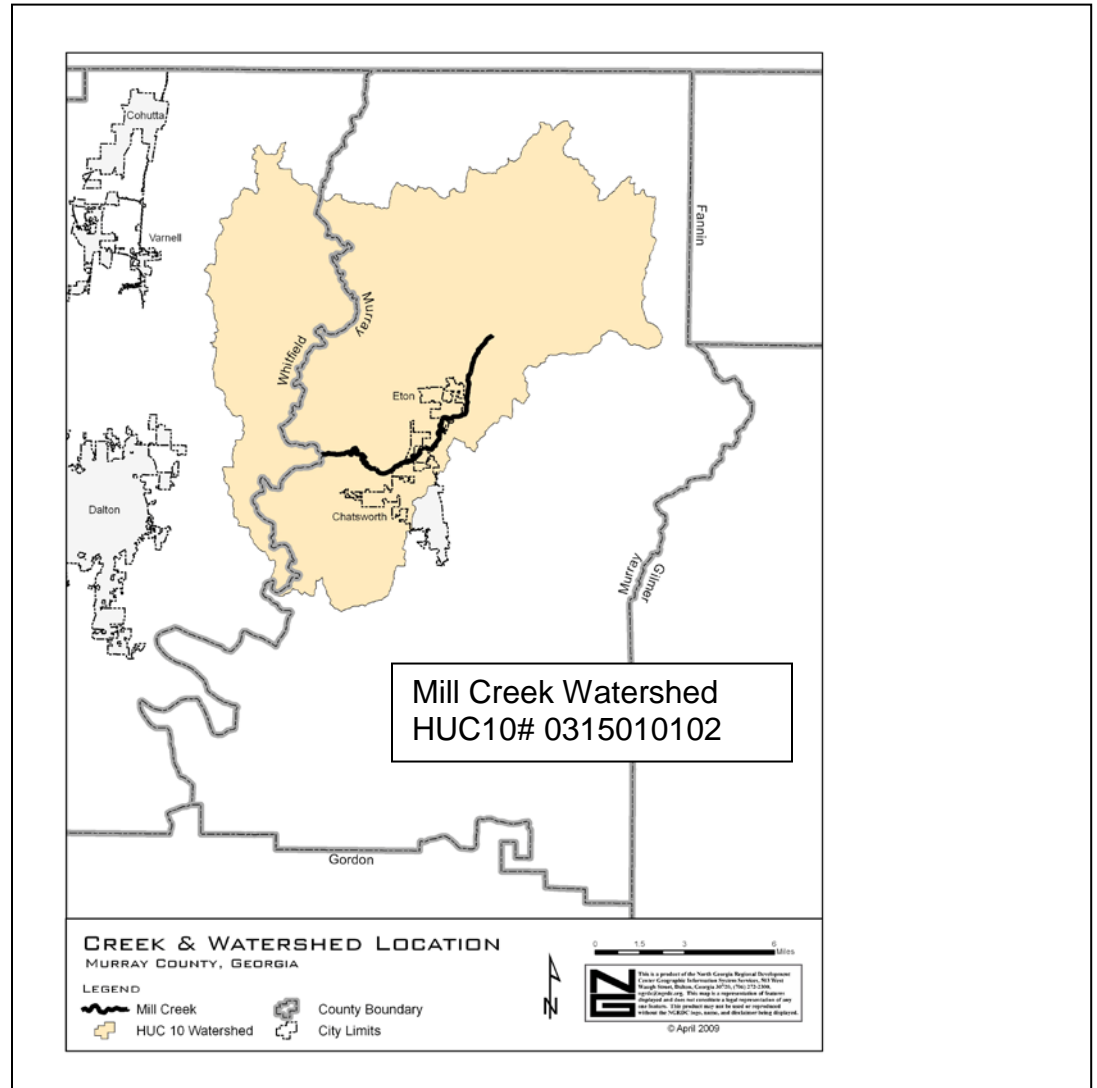


Table 1. IMPAIRED SEGMENTS IN THE HUC 10 WATERSHED

		EXTENT	
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IMPAIRED SEGMENT	IMPAIRED SEGMENT LOCATION	(mi/ac)	CRITERIA VIOLATED	EVALUATION
Mill Creek	Crandall Ellijay Rd.(C.R. 27) to Conasauga River	10 miles	Fecal Coliform	Non supporting

II. GENERAL INFORMATION ABOUT THE HUC 10 WATERSHED AND THE INDIVIDUAL IMPAIRED SEGMENT

This section reviews HUC 10 watershed characteristics followed by pertinent information on the drainage delineation of the individual stream segment. New conditions or changes to information contained in the TMDL study documents should be in **bold** and underlined.

The HUC10# 0315010102 watershed is comprised of 91,205 acres and is located in both Whitfield and Murray Counties. The headwaters of the creek originate in the Chattahoochee National Forest in the extreme northeast section of the watershed. Major roads include U.S. 411 and Ga. 225, which travel north-south, and U.S. 76/Ga. 52, which travel east-west. Approximately 60% of the incorporated city limits of Chatsworth and all of the city of Eton are located in the watershed. The stream segment identified by the Georgia Environmental Protection Division’s 303(d) list as impaired in the watershed is Mill Creek from Crandall Ellijay Rd. (C.R.27) to the Conasauga River. The adjoining table shows the most recent land use data for the watershed. This land use data was compiled from air photos, tax digests and windshield surveys for recent updates of Comprehensive Plans for Whitfield and Murray Counties. The acreages and percentages differ from the land cover information provided in the TMDL.

As indicated in the table, the largest land use category is agriculture at 37%. Agriculture primarily uses consist of cattle and horse grazing and poultry operations, although there is also some row cropping. Other significant land use includes parks/recreation/conservation at 20% (most of this is within the Chattahoochee National Forest); residential at 16%; and undeveloped land at 20 percent. Residential uses are scattered throughout the watershed both within subdivisions and scattered lots. The city of Chatsworth is served by centralized sewer by the Chatsworth Water Works. The Water Works also provides some centralized sewer services to an industrial area north of Eton and two schools located east of Eton. The Chatsworth Water Works also draws water from springs located near the City of Eton.

HUC 10# 0315010102 Watershed		
Land Use Classification	Acreage	% of Total
Agriculture/Forestry	33607	36.8%
Commercial	423	0.5%
Industrial	1255	1.4%
Park/Recreation/Conservation	18686	20.5%
Public/Institutional	1620	1.8%
Residential	14605	16.0%
Transportation/Communication/Utilities	2420	2.7%
Undeveloped/Vacant	18591	20.4%
Total:	91205	100
Source: Murray Comprehensive Plan, October 2005; and Whitfield Comprehensive Plan, October 2008		

Major organizations, which are pursuing water quality improvements in the watershed include the Conasauga River Alliance, whose goals are to educate local citizens regarding water quality issues, and conduct demonstration projects such as re-establishing riparian buffers, stream bank restorations, and implementing agriculture best management practices; the Conasauga Watershed Adopt-a-Stream program, which conducts river clean-up activities and stream monitoring; and the Natural Resource Conservation Service, who works with farmers to implement agriculture best management practices.

Status of Section 319 projects?
Other Agriculture BMP projects?
NRCS projects?
Visual Assessment Observations?

The impaired stream segment drains two smaller HUC 12 watersheds. The northeastern watershed (HUC 12# 031501010209) contains the City of Crandall and rural areas to the north. The southwestern watershed (HUC 12# 031501010211) drains the City of Eton, and rural areas to the southwest.

The two HUC 12's are similar in character, and will be treated as a unit.

Mill Creek HUC 12# 031501010209 Watershed		
Land Use	Acreage	
Agriculture	2099.203985	28.23%
Commercial	43.8692412	0.59%
Conservation	650.3848354	8.75%
Forestry	20.4890931	0.28%
Industrial	228.5647508	3.07%
Residential	1404.513745	18.89%
Parks/Recreation	5.022886508	0.07%
Public/Institutional	60.62256554	0.82%
Railroad R/w	60.18225411	0.81%
Road R/W	291.9164629	3.93%
Transportation/Communication/Utilities	13.49294836	0.18%
Vacant	2546.23784	34.24%
Water	<u>11.88578502</u>	0.16%
	7436.386393	

Source: Murray Comprehensive Plan, October 2005

Mill Creek HUC 12# 031501010211 Watershed		
Land Use		
Agriculture	2523.766798	33.50%
Commercial	78.3315007	1.04%
Forestry	8.93153188	0.12%
Industrial	550.2437752	7.30%
Residential	1373.597468	18.23%
Parks/Recreation	88.91638074	1.18%
Public/Institutional	146.3056488	1.94%
Railroad R/w	14.55967201	0.19%
Road R/W	365.0033447	4.85%
Transportation/Communication/Utilities	6.799438359	0.09%
Vacant	2344.213248	31.12%
Water	<u>32.64724867</u>	0.43%
	7533.316055	

Source: Murray Comprehensive Plan, October 2005

The average of the land use percentages in the two HUC 12's is roughly as follows:

Agriculture	30.9
Commercial	0.8
Conservation	4.4
Forestry	0.2
Industrial	5.2
Residential	18.6
Parks/Recreation	0.6
Public/Institutional	1.4
Trans/Com/Util	5.0
Vacant	32.7
Water	0.3

A comparison of these averages with those in the land use figures above will show that the land use characteristics in the two areas are almost identical.

Current programs in place to address water quality in the watershed include:

The Georgia Water Quality Control Act (OCGA 12-5-20), funded by Federal, State, and Local governments and administered by the GA Environmental Protection Division, makes it unlawful to discharge excessive pollutants (sediments, nutrients, pesticides, animal wastes, etc.) into State waters in amounts harmful to public health, safety, or welfare, or to birds, animals or aquatic life, or the physical destruction of stream habitats.

Murray County Environmental Health Office's Rules and Regulations for On-site Wastewater Management are administered by local county government and Georgia Department of Human Resources.

The Georgia Rules and Regulations for Water Quality Control, Chapter 391—3-6-20 & 21 for CAFOs 301 to 1,000 animal units, administered by the GA Department of Agriculture and the GA Environmental Protection Division outlines the swine and non-swine feeding operation permit requirements for Concentrated Animal Feeding Operations (CAFOs) with more than 300 animal units. CAFOs of more than 300 but equal to or less than 1,000 animal units receive a land application system (LAS) permit. Larger CAFOs with more than 1,000 animal units must obtain a NPDES permit from EPD.

The National Pollution Discharge Elimination System (NPDES) Permit Regulations for CAFOs over 1,000 animal units, administered by the U.S. Environmental Protection Agency & GA Environmental Protection Division is a permitting program created to protect and improve water quality by regulating Concentrated Animal Feeding Operations (CAFOs) and providing minimum permit requirements for CAFOs of more than 1,000 animal units.

Chatsworth Waterworks' Sanitary Sewer Maintenance Program conducts sanitary sewer system inventories and inspections; infiltration and inflow identification and reduction; and sewer line and manhole rehabilitation.

According to the 2009 TMDL Evaluation for Twenty-Nine Stream Segments in the Coosa River Basin for Fecal Coliform, none of the Mill Creek watershed is in the MS4 area (Table 6, p.14); none of the landfills listed in Table 25, p.25 is in the HUC 12, and none of the Dalton Utilities' LAS impacts the HUC 12.

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. By definition, “wasteload allocations” (WLA) for municipal and industrial wastewater discharges and (WLA_{sw}) for storm water outfalls are established in permitted areas, while “load allocations” (LA) are established for non-point sources of pollution. **Wasteload allocations are assigned by Georgia EPD during the NPDES permitting process and are not part of the TMDL implementation planning process, which deals solely with non-point sources of pollutants.**

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

STREAM SEGMENT NAME	LOCATION	CRITERIA VIOLATED	WLA	WLA _{sw}	LA	TMDL
Mill Creek	Crandall Ellijay Rd. (C.R.27) to the Conasauga River	Fecal Coliform			6.67E+12	4.07E+12

Table 3. contains information presented in the TMDL study that this implementation plan addresses.

Table 3. POTENTIAL NON-POINT SOURCES OF IMPAIRMENT INDICATED IN THE TMDLS

CRITERIA VIOLATED :	WQ STANDARD	SOURCES OF IMPAIRMENT	NEEDED % REDUCTION (FROM THE TMDL)
Fecal coliform	1,000 per 100 ml (geometric mean Nov. – April) and 200 per 100 ml (geometric mean May - Oct.)	Failing Septic Systems ; agriculture operations (cattle, poultry, other ; wildlife ; urban development ; land application systems ; landfills	63%

IV. IDENTIFICATION AND RANKING OF POTENTIAL NON-POINT SOURCES OF IMPAIRMENT

This section identifies and describes **in order of importance**, as determined through this TMDL implementation planning process, the extent and relative contributions from historic as well as current potential non-point sources of pollutants to the water quality impairment.

The comments below are based, in part, on observations made during the course of a visual field survey undertaken on May 26, 2009. The report of observations and conclusions can be found in Appendix C.

1. Agriculture: Agriculture accounts for about 31% of land use in the HUC 12's. The visual survey suggests that cattle and poultry are widespread in the watershed. Cattle were observable in streams, and there was much evidence on the eroded banks of cattle accessing waterways. Chicken houses are common landscape features. The 2007 agricultural census estimates from USDA indicate that there are 6,772 head of cattle county-wide, and 18,169,550 chickens. These figures and the results of the visual survey leave a distinct impression that cattle and poultry are possibly the greatest source of fecal coliform in the impaired segment.
2. Urban development/runoff: Approximately 0.8% of the HUC 12's is in commercial use, 5.2% in industrial use, and 18.6% in residential use. Since other land use categories for which statistics are available can be either rural or urban, it is safe to say that the area that can produce urban run-off exceeds 24.6% listed in the three categories above, a significant portion of the land mass. However, it is difficult to quantify urban run-off, and the fecal coliform component would most likely originate from domestic animals, and un-noticed sewer leaks. There is little to suggest that contamination is originating in commercial and industrial areas, though dumpsters can harbor wildlife, and contain trash contaminated with fecal coliform.
3. Wildlife: 32.7% of the land in HUC 12 is classified as vacant, and is very likely wooded, to judge from aerial views, and 0.2% is in forest. Wildlife activity is not confined to those areas, however, and 32.9% of the land represents only an absolute minimum for wildlife habitat. In the HUC 12's, the visual survey did not note wetlands, or water fowl, and there is no reason to believe that there would be a concentration of water fowl there. Water-oriented animals, such as beavers, could account for some contamination, but land dwelling species, such as deer (25/square mile according to DNR), spend considerable time away from the water, and their vegetated/forested habitats have a buffering effect on streams.
4. Septic System failures: Data from the Murray County Environmental Health Office indicate a high septic system failure rate. Prior to 2005, repair and addition permit statistics were recorded together, so relevant data is available only from 2005 through 2008, a period of four years. During that period, 1,015 permits were issued, 410 (40.4%) of which were for repairs. Since residential use accounts for 18.6% of land use in the HUC 12's, the statistics suggest that septic system failure plays a role in fecal coliform contamination.
5. Wastewater treatment and collection facilities: According to the *2009 TMDL Evaluation for Twenty-Nine Stream Segments in the Coosa River Basin for Fecal Coliform*, there is no MS4 area in the Mill Creek watershed (Table 6, p.14); None of the landfills listed in Table 25, p.25 is in the HUC 12's, and Dalton Utilities' LAS has no impact there. According to the Chatsworth Water Department, approximately

400 acres of the area is sewerred, though most residential uses have not tapped in, and small spills over the years have been localized and addressed quickly.

Table 4. offers a simple format to rank **in order of importance**, as determined through this TMDL implementation planning process, the extent and relative contribution to the water quality impairment from all the potential non-point sources of pollution identified in Section IV. A “rating scale” of 0.5 to 5 has been developed to rank the sources. The rating chart provides guidance for rating the estimated extent (Rating A) and portion of the contribution (Rating B) from each potential non-point source and cause:

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

Table 4. EVALUATION OF POTENTIAL SOURCES OF STREAM SEGMENT IMPAIRMENT

APPLICABLE TO CRITERION 1: Fecal Coliform

IMPAIRMENT SOURCES	ESTIMATED EXTENT OF CONTRIBUTION		ESTIMATED PORTION OF CONTRIBUTION		IMPACT RATING (A X B)
	Comments	Rating (A)	Comments	Rating (B)	
Agriculture	Prominent in the watershed.	31	Cattle have free access to waterways.	5	155
Urban development/run-off	Urban development accounts for at least 24.6% of land use.	24.6	Impaired segment drains, Eton, Crandall, and much of Chatsworth.	5	123
Wildlife	Potential wildlife habitat constitutes the largest land use category	>32.9	Impairment begins far upstream of concentrations of vacant/undeveloped.	3	>98.7
Septic system failures	Many if not most residential uses are un-sewered	18.6	Health Department data suggest 40.4% failure rate.	3	55.8

Wastewater treatment and collection facilities.	Since their sewer infrastructure in the HUC 12 consists only of the sewer mains, the area occupied is negligible.	0.5	Spills have been small and localized, and have been addressed quickly.	1	0.5
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V. CURRENT AND ACTIVE MANAGEMENT MEASURES AND ACTIVITIES

Table 5A. identifies significant current and active Best Management Practices (BMPs) that have been installed to address potential non-point sources of impairment listed in Section IV, Table 4., and provides ratings of each management measure’s estimated Load Reduction Potential (LRP) when applied to a specifically identified non-point source. The rating chart provides guidance for rating the BMP Load Reduction Potential applied to a specifically identified non-point source:

BMP Load Reduction Potential Rating Chart (Percent Removal of Pollutant by the BMP)	Rating
None or negligible (approximately 0-5%)	.5
Low to medium (approximately 5-25%)	1
Medium to High (approximately 25-75%)	3
High (approximately 75% or more)	5
Unknown	UNK

Table 5A. CURRENT AND ACTIVE MANAGEMENT MEASURES AND ACTIVITIES

GENERAL AND SPECIFIC MEASURES APPLICABLE TO CRITERION 1: _____

BMPs (1)	RESPONSIBILITY (2)	DESCRIPTION OF MEASURES (3)	FUNDING & RESOURCES (4)	IMPAIRMENT SOURCES (5)	DATE (6)	BMP LRP RATING (7)
Georgia Water Quality Control Act (OCGA 12-5-20)	Ga. Environmental Protection Division	Makes it unlawful to discharge 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	Federal, State, Local Governments	Wastewater treatment and collection	On-going	5
Rules and Regulations for On-site Wastewater Management	Murray County Board of Health, Environmental Health Office	Stringent application/enforcement of the regulations	Local county government/ State Department of Human Resources	Wastewater Treatment and Collection	In place; on-going	5 (in new development)
Septic System	Conasauga River	Administer State/Federal grants to cost/share	Section 319(h) Grant through	Failing Septic	1/1/2007	5

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Repair Assistance Program	Alliance.	with land owners pump-out and repair of failing systems or install new systems to replace straight pipes	Ga. Environmental Protection Division (from 25% to 75% match on sliding schedule based on proximity to impaired stream)	Systems	through 9/30/2011	
Agriculture BMP Installation Assistance Program	Conasauga River Alliance	Administer State/Federal grants to cost/share with land owners the installation of agriculture BMPs (pasture management, fencing along streams, alternative water supplies for cattle, poultry manure stack houses, etc.	Section 319(h) Grant through Ga. Environmental Protection Division (60% grant/40% match)	Agriculture	1/1/2007 through 6/30/2010	5
Environmental Quality Incentives Program (EQIP)	Natural Resources Conservation Service	Voluntary program that provides technical and cost share assistance for protection of water resources via pasture management, stream bank and water body protection including livestock access limitation.	Federal (Farm Bill 2002) 75% cropland cost share with possible additional incentive payments; 50% cost share for forestry and wildlife	Agriculture	In place, on-going	3
Continuous Conservation Reserve Program	Natural Resources Conservation Service	Provides technical assistance, rental payments and cost share funding to address specific natural resource concerns including protection of ground and surface waters, soil erosion and wildlife habitat. Eligible practices include tree planting, grassed waterways, wildlife habitat buffers, and shallow water area for wildlife and filter strips.	Federal Annual rental payment for land taken out of production and 90% cost share for practice installation.	Agriculture	In place, on going	1
Georgia Rules and Regulations of Water Quality Control, Chapter 391-3-6-20&21 for CAFOs 301 to 1000 animal units	Georgia Dept. of Agriculture, Georgia Environmental Protection Division	Outlines the Swine and non-swine Feeding Operation Permit Requirements for Concentrated Animal Feeding Operations (CAFOs) with more than 300 animal units. CAFOs of more than 300 but equal to or less than 1000 animal units receive a land application system (LAS) permit. Larger CAFOs with more than 1000 animal units must obtain a NPDES permit from EPD.	Federal and State	Agriculture	In place, on-going	5 (in new developments)
National Pollutant Discharge Elimination System (NPDES) Permit Regulations for CAFOs over 1000 animal units	U.S. Environmental Protection Agency & Ga. Environmental Protection Division	Permitting program created to protect and improve water quality by regulating Concentrated Animal Feeding Operations (CAFOs) and providing minimum permit requirements for CAFOS of more than 1000 animal units.	Federal and State	Agriculture	In place, on-going	5 (in new developments)

Work Sheet for Table 5B. is designed to evaluate the capacity of existing or installed BMPs described in Table 5A. that have been implemented to reduce pollutant loadings from significant non-point sources identified in Table 4. Apply this work sheet as a local guide to evaluate BMPs in

achieving water quality goals, establishing priorities for grant or loan programs, and identifying priorities for local watershed assessments and management plans.

Work Sheet for Table 5B. EVALUATION OF CURRENT AND ACTIVE MANAGEMENT MEASURES AND ACTIVITIES

MEASURES APPLICABLE TO SPECIFIC PARAMETER: Fecal Coliform Bacteria

IMPAIRED SOURCES (1) (From Table 4)	IMPACT RATING (2) (From Table 4)	APPLICABLE BMP's (3) (From Table 5 A)	EVALUATION SUMMARY (4)	ADDITIONAL INFORMATION / ACTIONS NEEDED (5)
Wastewater Treatment and Collection	0.5	Georgia Water Quality Control Act (OCGA 12-5-20)	Effective enforcement will prevent or minimize discharges containing fecal coliform.	None needed.
Wastewater Treatment and Collection	0.5	Rules and Regulations for On-site Wastewater Management	Effective enforcement will prevent or minimize discharges containing fecal coliform.	None needed.
Wastewater Treatment and Collection	0.5	Sanitary sewer system inventory and inspection; infiltration and inflow identification and reduction; sewer line and manhole rehabilitation.	Effective implementation will prevent or minimize discharges containing fecal coliform.	None needed.
Failing Septic Systems	55.8	Septic System Repair Assistance Program	Section 319 (h) – funded Septic System Repair Assistance Program could reduce fecal coliform from this source 75 to 100%.	Septic system owners will need a certain amount of education to maintain systems properly.
Agriculture	155	Agriculture BMP Installation Assistance Program	The Section 319 (h) Programs along with NCRS programs could reduce fecal coliform from this source 75 to 100%.	Requires effective education, marketing, and technical assistance.
Agriculture	155	Environmental Quality Incentives Program (EQIP)	The Section 319 (h) Programs along with NCRS programs could reduce fecal coliform from this source 75 to 100%.	Requires effective education, marketing, and technical assistance.
Agriculture	155	Continuous Conservation Reserve Program	The Section 319 (h) Programs along with NCRS programs could reduce fecal coliform from this source 75 to 100%.	Requires effective education, marketing, and technical assistance.
Agriculture	155	Georgia Rules and Regulations of Water Quality Control, Chapter 391-3-6-20&21 for CAFOs 301 to 1000 animal units	Enforcing permitting requirements could almost eliminate fecal coliform from this source.	None needed.
Agriculture	155	National Pollutant Discharge Elimination System (NPDES) Permit Regulations for CAFOs over 1000 animal units	Enforcing permitting requirements could almost eliminate fecal coliform from this source.	None needed.
Wildlife	98.7	Controlled quota hunts on Land Application System Property	Could reduce fecal coliform from wildlife somewhat.	None needed.

Urban run-off	123	National Pollutant Discharge Elimination System (NPDES) Permit Regulations Phase II MS4 Permits	Enforcing storm water management program BMP's could remove fecal coliform from this source 25 to 50%.	Institute storm water management program.
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Table 5B. identifies new management measures that could improve or supplement current Load Reduction Potential (LRP) ratings or enhancements to existing BMPs that have been judged inadequate for achieving the load reductions. Evaluations in the Work Sheet for Table 5B. have determined that additional or enhanced management measures are necessary to more effectively reduce pollutant loads from the most likely non-point sources of impairment. The rating chart provides guidance for rating the Load Reduction Potential (LRP) of a BMP applied to a specifically identified non-point source:

New or Enhanced BMP Load Reduction Potential Rating Chart (Percent Removal of Pollutant by the BMP)	Rating
None or negligible (approximately 0-5%)	.5
Low to medium (approximately 5-25%)	1
Medium to High (approximately 25-75%)	3
High (approximately 75% or more)	5
Unknown	UNK

Table 5B. RECOMMENDED NEW MANAGEMENT MEASURES AND ACTIVITIES

APPLICABLE TO CRITERION 1:

NEW BMPs (1)	RESPONSIBILITY (2)	DESCRIPTION (Identify whether new or enhanced) (3)	FUNDING & RESOURCES (4)	IMPAIRMENT SOURCES (5)	TARGET DATE (6)	NEW BMP LRP RATING (7)
Septic system owners will need a certain amount of education to maintain systems properly.	Conasauga River Alliance.	Enhancement to sustain effectiveness of Septic System Repair Assistance Program	Federal, State and Cost-share grants	Failing Septic Systems	2010	5
Requires effective education, marketing, and technical assistance.	Conasauga River Alliance, Natural Resources Conservation Service	Agriculture BMP Installation Assistance Program	Federal, State and Cost-share grants	Agriculture	2010	5
Requires effective education, marketing, and	Natural Resources Conservation Service	Environmental Quality Incentives Program (EQIP)	Federal, State and Cost-share grants	Agriculture	2010	5

technical assistance.						
Requires effective education, marketing, and technical assistance.	Natural Resources Conservation Service	Continuous Conservation Reserve Program	Federal, State and Cost-share grants	Agriculture	2010	3
Institute storm water management program.	Chatsworth Waterworks	System for collecting and treating storm water	Federal, State, Chatsworth Waterworks	Urban run-off	TBD	5

VI. MONITORING PLAN

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 Quality Assurance Plan (SQAP) for Georgia EPD approval is mandatory if monitoring data is to be qualified to support listing decisions.**

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

Table 6. MONITORING PLAN

APPLICABLE TO CRITERION 1: fecal coliform

PARAMETER (S) TO BE MONITORED (1)	RESPONSIBLE ENTITY (2)	STATUS (CURRENT, PROPOSED, OR RECOMMENDED) (3)	TIME FRAME (4)		PURPOSE (If for listing assessment, date of SQAP submission) (5)
			START	END	
Fecal coliform and other bacteria	Conasauga River Alliance	According to a MOA, Conasauga River Alliance will draw samples that will be analyzed by Dalton Utilities.	October, 2009	Undetermined	Assist with 319(h) project selection; monitor improvements in water quality due to 319(h) grants.

VII. PLANNED OUTREACH FOR IMPLEMENTATION

Table 7. lists and describes local outreach activities that will be conducted to support this implementation plan or to help improve water quality in the segment watershed.

Table 7. PLANNED OUTREACH FOR IMPLEMENTATION

APPLICABLE TO CRITERION 1:

RESPONSIBILITY (1)	DESCRIPTION (2)	AUDIENCE (3)	START OR COMPLETION DATE (4)
NWGRC	Distribute copies of the Plan	All stakeholders and local governments	October 1, 2009
NWGRC/County	Prepare and distribute press release describing the Plan and where to obtain copies	Readers of local newspapers	October 12, 2009
NWGRC/County	Prepare PowerPoint presentations and present to civic groups and local agencies	Civic groups and local agencies	October 12, 2009
Conasauga River Alliance	Conduct general education activities regarding non-point source pollution and applicable BMPs, and promote the availability of Section 319 (h) grant assistance.	Local governments and citizens	October 12, 2009

VIII. MILESTONES AND BENCHMARKS OF PROGRESS FOR BEST MANAGEMENT PRACTICES (BMPs) AND OUTREACH

Table 8. shows what milestones and benchmarks have been developed to validate the progress of local best management measures identified in Tables 5A., 5B., and other sections of this plan in reducing pollutant loads from identified non-point sources of impairment.

Table 8. MILESTONES OF PROGRESS

BMP (1)	MILESTONE / BENCHMARK (2)	RESPONSIBLE ORGANIZATION (3)	METHOD / TIMELINE (4)	BMP STATUS (5)	
				INSTALLED TABLE 5A.	PROPOSED TABLE 5B.
Georgia Water Quality Control Act (OCGA 12-5-20)	Continued effective enforcement to minimize discharges containing fecal coliform.	GA Environmental Protection Division, Chatsworth Water Department	Ongoing.	X	
Rules and Regulations for On-site Wastewater Management	Continued effective enforcement to minimize discharges containing fecal coliform.	Murray County Board of Health, Environmental Health Office, GA DHR	Ongoing.	X	
Sanitary sewer system inventory and inspection; infiltration and inflow identification and reduction; sewer line and manhole rehabilitation.	Continue to inventory and inspect sewer system, identify and reduce infiltration and inflow, and rehabilitate sewer lines and manholes.	Chatsworth Water Department	Ongoing.	X	
Septic System Repair Assistance Program	Continue to implement projects within the boundaries of available funding.	Conasauga River Alliance	Ongoing.	X	
Agriculture BMP Installation Assistance Program	Continue to assist local farmers with installation of standard agricultural BMP's.	Conasauga River Alliance, Natural Resources Conservation Service	Ongoing	X	
Environmental Quality Incentives Program (EQIP)	Continue to provide technical and cost-share assistance for protection of water resources via pasture management, stream bank and water body protection, including livestock exclusion.	Natural Resources Conservation Service	Ongoing.	X	
Continuous Conservation Reserve Program	Continue to promote federal annual rental payments and cost-sharing to take land out of conventional agricultural	Natural Resources Conservation Service	Ongoing	X	

	production in favor of tree planting, grassed waterways, wildlife habitat buffers, and shallow water areas for wildlife, et al.			
Georgia Rules and Regulations of Water Quality Control, Chapter 391-3-6-20&21 for CAFOs 301 to 1000 animal units	Continue to enforce CAFO regulations and permit requirements.	GA Department of Agriculture, GA Environmental Protection Division	Ongoing	X
National Pollutant Discharge Elimination System (NPDES) Permit Regulations for CAFOs over 1000 animal units	Continue requiring permits and enforcing requirements for CAFO's of 1,000 + animals.	U.S. Environmental Protection Agency, GA Environmental Protection Division	Ongoing	X
Hunting	Continue hunting wildlife to reduce fecal coliform levels.	Private owners and individuals.	Ongoing	X
Septic system education.	Begin providing education to septic system owners to enable them to properly maintain their systems.	Conasauga River Alliance, septic system installers	April 1, 2010	X
BMP marketing, education, and technical assistance.	Begin promoting relevant BMP practices among the general public, including pet litter management.	Conasauga River Alliance, Natural Resource Conservation Service, local newspapers and county agents.	April 1, 2010	X
Environmental Quality Incentives Program marketing, education, and technical assistance.	Expand promotion of technical and cost-share assistance for pasture management, stream bank and water protection, and livestock exclusion.	Conasauga River Alliance, Natural Resource Conservation Service, local newspapers and county agents.	April 1, 2010	X
Continuous Conservation Reserve Program marketing, education, and technical assistance.	Expand promotion of federal annual rental payments and cost-sharing to take land out of conventional agricultural production in favor of tree	Conasauga River Alliance, Natural Resource Conservation Service, local newspapers and county agents.	April 1, 2010	X

	planting, grassed waterways, wildlife habitat buffers, and shallow water areas for wildlife, et al.			
Storm water management plan	Begin studying the feasibility of establishing storm water collection and treatment facilities.	Chatsworth Water Department	TBD	X

IX. STAKEHOLDERS

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.

Notes on the June 23, 2009 Murray County TMDL meeting concerning Holly, Polecat, and Mill Creek impaired segments

Present: Tom Martin, Chatsworth Waterworks; Doug Cabe, Limestone Valley RC&D; Tim Summey, Chatsworth Waterworks; Cindy Askew, NRCS; Nicholas Mooneyhan, NRCS; John Lugthart, Dalton State College; Larry Vanden Bosch, NGRDC; Kevin McAuliff, NGRDC

LVB stated that the group was to rank FC contamination sources in importance.

Discussion began with **Holly Creek**:

Tom Martin noted that pollution was a cumulative result of many sources.

LVB suggested that agricultural and septic system failures might be primary sources of FC pollution, and that and wildlife urban run-off might rank after them. He remarked that Dalton Utilities seems no longer to be a polluter.

John Lugthart asked if there were FC data for pristine streams, and someone mentioned Jacks River in Murray County.

LVB suggested that due diligence on septic systems is better now than in the past, and Tom M. noted that most of the area above the impairment had no high-intensity development, and Cindy A. added that there was little agriculture there.

Tom M. was of the opinion that Cattle and horses were likely sources of FC in Murray County, but Cindy A. noted that nutrient management plans are in place in most of the County. Upon these remarks, the group indicated a consensus that wildlife was a primary source of FC in Murray's waters.

Doug C. pointed out that there was a high incidence of septic system failures in the Holly Creek Watershed.

Discussion moved to **Polecat Creek**:

LVB noted that the Polecat Creek impairment is long.

Tom M. noted that much poultry is produced on the east side of Hwy 225, and that lots of litter is spread. Cindy A. concurred. Tom, Cindy and LVB agreed that agriculture is likely the primary FC source in the watershed, followed by failing septic systems. Tom added that the very large deer population in the area probably contributes to the situation.

Discussion moved to **Mill Creek**:

LVB noted that the Mill Creek impairment stretches for 12 miles, and that both Chatsworth and Eton contribute urban run-off.

Tom suggested that agriculture and wildlife are major contributors.

Some inconclusive discussion about dogs, cats, and urban run-off followed.

Cindy noted that areas of the cities are still on septic systems, and Tom added that though Eton is sewerred, only 10 – 20% of development is connected.

Doug remarked that the Floodtown area and CCC Camp Road are notorious for septic failures.

LVB mentioned control measures, and stressed the need for education on an individual basis. Cindy said that there needs to be more talk about waste storage structures, and dead chicken composting.

Notes on September 10, 2009 Murray County TMDL meeting concerning impaired segments on Mill, Holly, and Polecat Creeks

Present: Jim Bartley, City of Eton; Gary Brock, Chatsworth City Council; Dick Barnes, Murray County Land Development Officer; Nick Mouneyhan, NRCS; Bill Henderson, NRCS; Doug Cabe, Limestone Valley RC&D; Joshua Smith, Conasauga River Alliance; John Loughridge, GSWCC, David Howerin, NWGRC; Kevin McAuliff, NWGRC

NWGRC staff explained that the TMDL Plans took into account findings of visual surveys supplemented by images found on Google, land use statistics, and other factors, and that the object of TMDL planning is the reduction of fecal coliform in identified segments.

Mill Creek

Staff mentioned observing cattle and chicken houses throughout the Mill Creek watershed, and asked the committee members for their input on agriculture, and other potential sources of impairment, noting that the stream drains Crandall, Eton, and some of Chatsworth. He also mentioned the RC's estimate of the intensity of other contamination sources, giving a summary of all categories.

Doug Cabe of the Limestone Valley RC&D suggested that percolation of soils east of Eton is poor, and that septic failure might be a greater factor than estimated, and staff asked whether the impact factor should be raised.

Dick Barnes, the County Land Development Officer, pointed out that there is little development in much of the watershed, and that much of Eton is sewered. Tim Summey of the Chatsworth Waterworks added that almost all the industry is on sewer. Some discussion about Eton and Crandall residential uses followed.

Bill Henderson of NRCS interjected that there is free cattle access in the vicinity of CCC Camp and Loughridge Roads, but noted that most poultry operations in the vicinity have stackhouses.

Staff asked once again whether the septic failure impact factor should be raised and, after a very brief discussion, the committee concluded that it should not be.

After a brief mention of agriculture and forestry, staff asked if there was a consensus on the impact ratings assigned in the draft plan and, upon general agreement, continued on to Holly Creek.

Holly Creek

Staff reminded Doug Cabe that they had worked together on a study of failed septic systems, and asked if he correctly recalled that there was a high failure rate in some places in the watershed, and Doug agreed, but noted that Jason Osgathorpe of Chatsworth Waterworks was of the opinion that a good deal of discharges involved grey water.

Staff noted that while agriculture has an impact, it was not a widespread use in the HUC 12, and advanced the opinion that wildlife might be the greatest source of fecal coliform contamination, but noted that the visual survey had not recorded any wetlands. At that point, Dick Barnes interjected that there were extensive areas of wetland in the vicinity of Fox Bridge Road, amounting to 50 or 60 acres on Dalton Utilities' land, and that there were beavers and cattails there. Staff asked if the wildlife impact estimate needed to be raised, but Dick said that he and Jason Osgathorpe had done water sampling in the wetlands, and that the fecal coliform content was not unusually high, despite the beaver population.

Staff noted the rarity of commercial and industrial uses in the watershed, despite a 23% residential use there, and asked if there was agreement that the latter use was of medium impact. With no disagreement, he noted that wastewater collection and treatment was of low impact. There was a suggestion that Dalton Utilities' land application system might be a major contributor, but staff noted that the impairment began long before the stream reached that facility and, observing that no one from Dalton Utilities was present to address the issue, said that he would discuss the question with a representative of the Utilities. Some noted that the impairment began above the land application, and voiced the opinion that it was the result of cumulative factors. Dick Barnes noted that the facility had been completely reworked and that, if the water quality in the Utilities' wetlands is any indication, the operation is not likely a major source of pollution.

There was some further discussion where Doug Cabe pointed out that there is a good bit of wildlife in the land application area. Staff asked whether there was a consensus on the impact ratings assigned in the draft plan and, upon general agreement, continued on to Polecat Creek.

Polecat Creek

Staff noted that the visual survey detected chicken houses, but no cattle. He added that observations in the HUC 12 suggested that animal husbandry is not prominent there, and Bill Henderson of NRCS and Dick Barnes confirmed the opinion, the latter stating that pulpwood occupied much land that would otherwise be agricultural.

Staff went through the rating chart, explaining that due to generally low intensity uses in the HUC 12, wildlife appeared to be the major contributing factor in fecal coliform contamination, and that the visual survey's notice of an apparent beaver dam seemed to back up the surmise.

Staff summarized the rankings, noting that Dalton Utilities' LAS accounts for 24% of the land use, and echoed some sentiments voiced during the discussion of the Holly Creek HUC 12.

Then he asked committee members their assessment of the fairness of the ratings, at which point Dick Barnes mentioned the presence of many chicken houses. Bill Henderson answered, saying that most of the chicken houses in the vicinity are not in the HUC, though a few are. It was also noted that the impairment began in land considered “vacant” or residential.

Staff recognized a consensus of agreement on the ratings, and asked about potential new BMP’s. No one present knew of BMP’s not underway in the HUC, but David Howerin suggested that additional monitoring would be appropriate. Doug Cabe agreed, calling for more sampling and in multiple places. David Howerin added that sampling is done as funding is available, and that much of the data for the NWGRC region is obsolete.

With no further comments from the committee, the meeting closed.

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

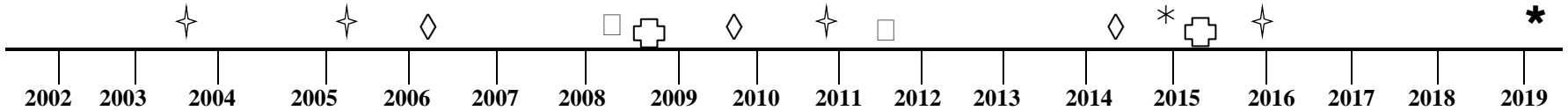
Table 9. STAKEHOLDER ADVISORY GROUP MEMBERS

NAME/ORG	ADDRESS	CITY	STATE	ZIP	PHONE	E-MAIL
Jason Osgatharp, Murray County Environmental Health Officer	709 Old Dalton-Elijay Highway	Chatsworth	GA	30705	706-695-0266	jlosgatharp@dhr.state.ga.us
Dick Barnes, Murray County Land Development Officer	P.O. Box 1129	Chatsworth	GA	30705	706-695-2413	mcldo@windstream.net
Steve Loughridge, farmer	1363 Loughridge Road	Chatsworth	GA	30705	706-695-4531	Steve.loughridge@murray.k12.ga.us
Josh Smith, Conasauga River Alliance		Dalton	GA	30720	423-309-2630	Jsmith.cra@gmail.com
John Lughart, Dalton State College	650 College Drive, Division of Natural Sciences	Dalton	GA	30720	706-272-2485	Jlughart@daltonstate.edu
Cindy Askew, Natural Resource Conservation Service	208C N.Duke Street,	Lafayette	GA	30728	706-638-2207, ext 3	Cindy.askew@ga.usda.gov
John Loughridge, Ga. Soil and Water Conservation Commission	700 East 2 nd Avenue, Suite J	Rome	GA	30161	706-295-6131	jloughridge@gaswcc.org
Tom Martin, Chatsworth Water Works	P.O.Box 100	Chatsworth	GA	30705	706-695-9496	tomm@chatsworthwater.com
Tim Sumney, Chatsworth Wastewater Treatment	P.O.Box 100	Chatsworth	GA	30705	706-695-9496	wwpcp@chatsworthwater.com

Plant						
Katie Owens, Upper Coosa River Program	P.O Box 737	Armuchee	GA	30105	706-279-9001	kowens@tnc.org
Gary Brock, City of Chatsworth	107 Old Salem Way	Chatsworth	Ga	30705	706-260-1910	cgbrock@windstream.net
Jim Bartley, City of Eton	P.O. Box 407	Eton	GA	30724	706-695-2652 Cell: 706-264-2272	mrjb@windstream.net

PROJECTED IMPLEMENTATION TIMELINE

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
- ◇ Tier 2 TMDL Implementation Plan Received by EPD
- ⊕ Evaluation of Implementation Plan / Water Quality Improvement
- * Projected Implementation Timeline for Plans Prepared in 2006
- * Projected Implementation Timeline for Plans Prepared in 2009

Prepared By:	Kevin McAuliff		
Agency:	NWGRC		
Address:	503 West Waugh Street		
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Date Submitted to EPD:	Sept. 30, 2009		Revision:

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APPENDIX A.

OUTREACH ATTENDANCE

Following is a list of the local governments, agricultural or commercial forestry organizations, significant landholders, businesses and industries, and local organizations, including environmental groups and individuals, with a major interest in this watershed.

NAME/ORG	ADDRESS	CITY	STATE	ZIP	PHONE	E-MAIL
Jason Osgatharp, Murray County Environmental Health Officer	709 Old Dalton-Ellijay Highway	Chatsworth	GA	30705	706-695-0266	jlosgatharp@dhr.state.ga.us
Dick Barnes, Murray County Land Development Officer	P.O. Box 1129	Chatsworth	GA	30705	706-695-2413	mcldo@windstream.net
Steve Loughridge, farmer	1363 Loughridge Road	Chatsworth	GA	30705	706-695-4531	Steve.loughridge@murray.k12.ga.us
Josh Smith, Conasauga River Alliance		Dalton	GA	30720	423-309-2630	Jsmith.cra@gmail.com
John Lugthart, Dalton State College	650 College Drive, Division of Natural Sciences	Dalton	GA	30720	706-272-2485	Jlugthart@daltonstate.edu
Cindy Askew, Natural Resource Conservation Service	208C N.Duke Street,	Lafayette	GA	30728	706-638-2207, ext 3	Cindy.askew@ga.usda.gov
John Loughridge, Ga. Soil and Water Conservation Commission	700 East 2 nd Avenue, Suite J	Rome	GA	30161	706-295-6131	jloughridge@gaswcc.org
Tom Martin, Chatsworth Water Works	P.O.Box 100	Chatsworth	GA	30705	706-695-9496	tomm@chatsworthwater.com
Tim Sumney, Chatsworth Wastewater Treatment Plant	P.O.Box 100	Chatsworth	GA	30705	706-695-9496	wwpcp@chatsworthwater.com
Katie Owens, Upper	P.O Box 737	Armuchee	GA	30105	706-279-9001	kowens@tnc.org

Coosa River Program						
Gary Brock, City of Chatsworth	107 Old Salem Way	Chatsworth	Ga	30705	706-260-1910	cgbrock@windstream.net
Jim Bartley, City of Eton	P.O. Box 407	Eton	GA	30724	706-695-2652 Cell: 706-264-2272	mrjb@windstream.net

APPENDIX B.

STATUS REPORTS / UPDATES TO THIS PLAN

If there are any revisions to an existing plan, this section will describe the date, section or table updated, and a summary of what was changed and why. A Status Report / Updates on Existing Local TMDL Implementation Plans and Watershed Remediation will be attached as a separate document.

New plan.

APPENDIX C.

VISUAL FIELD SURVEYS, NOTES, PHOTOGRAPHS, AND MAPS.

SEE ATTACHMENT.

APPENDIX D.
INSTRUCTIONS AND GUIDANCE

