

TIER 2 TMDL Implementation Plan (Revision 01)

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

River Basin: Coosa Basin

Local Watershed Governments:

Murray County

Gordon 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.

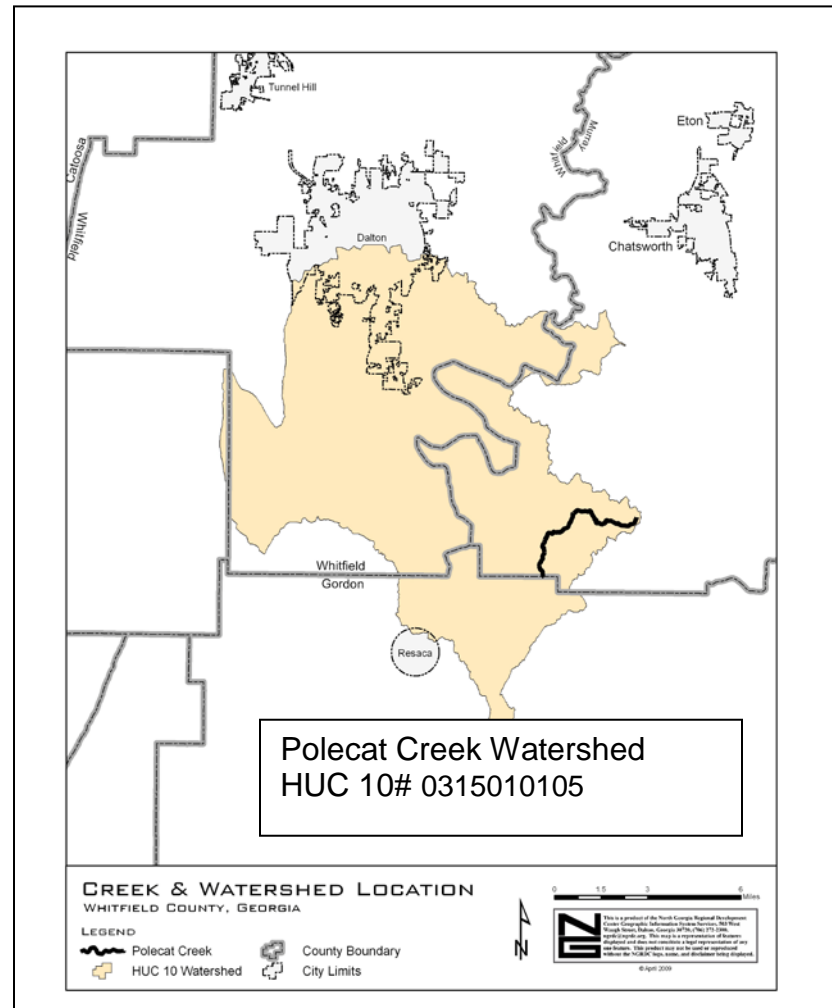


Table 1. IMPAIRED SEGMENTS IN THE HUC 10 WATERSHED

IMPAIRED SEGMENT	IMPAIRED SEGMENT LOCATION	EXTENT (mi/ac)	CRITERIA VIOLATED	EVALUATION
Polecat Creek	Headwaters to Conasauga River (Murray and Gordon Counties)	10 miles	Fecal coliform	Non Supporting
Drowing Bear Creek	Tar Creek to Little Creek (Whitfield County)	4 miles	Fecal coliform	Non Supporting
Swamp Creek	Little Swamp Creek to Conasauga River (Whitfield County)	3 miles	Fecal coliform	Non Supporting
Conasauga River	Holly Creek to Oostanaula River	24 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 HUC 10# 0315010105 watershed is comprised of 67,361 acres and is located in portions of Whitfield, Murray and Gordon Counties. This plan is for one of the segments identified by the Georgia Environmental Protection Division’s 303(d) list in this watershed, which is Polecat Creek from its headwaters to the Conasauga River. This plan only deals with the segment located in Murray County. The northern portions of the watershed located in Whitfield County contain approximately ½ of the city of Dalton’s urbanized areas containing a mix of industrial, commercial and residential uses, which are served by a centralized sewer system. The southern portions are located in Gordon County and are more rural in nature, as are the areas in Murray County. A small area in the western portion of the watershed is located in the Chattahoochee National Forest. The watershed is experiencing considerable new development, particularly along major highway corridors. Major highways traveling through the watershed include I-75, U.S. 41, and Ga. Hwys. 225 and 136. The following land use data is from land use surveys conducted in conjunction with Comprehensive Plans that have been completed in each county. (Murray’s was last updated in 2005; Whitfield’s in 2008; and Gordon’s in 2007). The data were compiled from air photos, county tax digests, and field surveys. These acreages and percentages differ from the land cover information provided in the TMDL Study completed by GA EPD in January 2009.

HUC 10#: 0315010105 Watershed		
Land Use Classifications	Acreage	% of Total
Agriculture/Forestry	18036	26.77%
Commercial	1775	2.64%
Industrial	4034	5.99%
Park/Recreation/Conservation	5173	7.68%
Public/Institutional	3073	4.56%
Residential	11749	17.44%
Transportation/Communication/Utilities	6556	9.73%
Undeveloped/Vacant	16681	24.76%
Water Bodies	23	0.03%
Resaca City Limits	261	0.39%
Total:	67361	100

A sizable portion (25%) of the watershed is vacant or undeveloped and is mostly wooded. The next largest land use category is agriculture at 27% of the total area. Agricultural activities consist primarily of pastures containing cattle and horses and several large poultry growing operations. The third largest land use area is residential at 17%. Except for within the city of Dalton, residential land use is highly scattered in subdivisions or along county roads and relatively low density. Transportation, Communications, and Utilities also represent 10% of the total area. The two largest uses in this category are the Dalton Municipal Airport and the Dalton Utilities Land Application System (LAS). Approximately 55% of Dalton's LAS area is located in this watershed; the balance of their 9,200 acres is located in the Holly Creek Watershed. Other significant land uses include industrial (6%) and commercial at (3%), which are located primarily in the Dalton urban area and along I-75. Approximately 5,000 acres of the Chattahoochee National Forest is also located in the watershed.

The Conasauga River is a major source of water supply for Dalton Utilities, which provides potable water to Whitfield County, approximately 10% of Murray County, and small portions of Gordon and Catoosa Counties. The intake is located just north of Ga. Hwy 52. A Source Water Assessment was completed by Dalton Utilities in August, 2001. As it concerns potential sources of fecal coliform, the SWAP identified 58 CAFOs in the water supply watershed, which were presumed to be poultry houses and 9 Agricultural Waste Lagoons.

Whitfield County's Comprehensive Plan recommends the preservation of permanent greenspace within all floodplains within the County including those along Swamp Creek. These provisions are proposed to be implemented via voluntary conservation easements. The Conasauga River is also classified as a major river and is subject to the Georgia Planning Act Part V Environmental Protection Regulations promulgated by the Georgia Department of Community Affairs and the Georgia Environmental Protection Division.

Major organizations, which are pursuing water quality improvements in the watershed include The Nature Conservancy, which works closely with landowners, government agencies, and industries to establish best management practices, restore and protect riparian habitat, and establish permanent conservation easements; 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; and the Natural Resource Conservation Service, which works with farmers to implement agriculture best management practices. Dalton Utilities also strives to protect the environment and is a member of various associations and partnerships that focus on environmental issues. Dalton Utilities has also enlisted assistance from these groups on several occasions such as coordinating The Nature Conservancy for stream buffer restoration projects on land owned by Dalton Utilities that borders the Conasauga River. The utility has purchased some land upstream that may erode water quality. In addition, the utility has implemented various security measures, such as restricted access, to protect the water quality at the raw water intake and water treatment plant.

The HUC 12 # 03150101504 watershed is the smaller watershed that contains the impaired segment of Polecat Creek located in Murray County. Approximately ½ of the watershed is within Gordon County. The total size of this watershed is 10,955 acres. The largest land use category is undeveloped/vacant land (31%), followed by agriculture (26%), and residential at 22 percent. Approximately 1,571 acres of the Dalton Utilities Land Application System spray irrigation fields are located in the watershed.

Polecat Creek Watershed HUC 12#: 03150101504		
Land Use		
Agriculture	1282.60915	19.69%
Commercial	1.581013088	0.02%
Forestry	1400.653266	21.51%
Industrial	1.565865937	0.02%
Residential	933.9826692	14.34%
Public/Institutional	12.62320408	0.19%
Road R/W	133.9945028	2.06%
Transportation/Communication/Utilities	1572.079922	24.14%
Vacant	1160.744812	17.82%
Water	13.00132288	0.20%
	<u>6512.835728</u>	

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.

Whitfield 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.

Dalton Utilities’ 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, there is no MS4 area in the Polecat Creek watershed is in the (Table 6, p.14); none of the landfills listed in Table 25, p.24 is in the HUC 12, and approximately 1,572 acres (24.14% of land use) of the Dalton Utilities’ LAS is located in 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
Polecat Creek	Headwaters to Conasauga River (Murray and Gordon Counties)	Fecal Coliform			1.49E+12	1.65E+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	200 counts per 100 milliliters during May - October ; 1000 counts per 100 milliliters during November - April	Failing Septic Systems ; Agricultural operations (cattle, poultry, other) ; wildlife ; urban development ; land application systems ; landfills	11%

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.

- Wildlife: 1,161 acres, 18% of the land use in the HUD 12 is classified as Vacant, and are very likely wooded, to judge from aerial views. In addition, 1,401 acres, 21% of the land area, is in forestry. Those figures suggest that a minimum percentage of 39% of land use is wildlife habitat. Wildlife would appear to be a probable source of fecal coliform in the impaired segment.
- Failing Septic Systems: 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 934

acres or 14% of land use in the HUC 12, the statistics suggest that septic system failure may not play a major role in fecal coliform contamination.

3. Urban development/run-off: Commercial and industrial use together account for less than 0.04% of land use in the HUC 12, and residential use accounts for about 14%. This suggests that urban run-off and residential run-off should be considered one category.
4. Agricultural uses and activities: There are 1,283 acres in agricultural use in the HUC 12, almost 20% of land use there. The visual survey noted chicken houses, though no cattle. A few goats were seen within a few yards of the creek. The 2007 agricultural census estimates from USDA indicate that there are 6,772 head of cattle county-wide, and 18,169,550 chickens.
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 Polecat Creek watershed is in the (Table 6, p.14); None of the landfills listed in Table 25, p.24 is in the HUC 12, and approximately 1,572 acres (24.14% of land use) of the Dalton Utilities' LAS is located in the HUC 12.

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: _____.

IMPAIRMENT SOURCES	ESTIMATED EXTENT OF CONTRIBUTION		ESTIMATED PORTION OF CONTRIBUTION		IMPACT RATING (A X B)
	Comments	Rating (A)	Comments	Rating (B)	

Wildlife	Vacant and forest uses amount to 39% of land use in the HUC 12. Since wildlife are not confined to those areas, the percentage represents an absolute minimum.	>39	Visual survey evidence from the Hwy 226/Beamer Ck (tributary of Polecat Ck) crossing suggests the presence of a beaver dam.	3	>117
Failing septic systems	Residential use accounts for only 14% of the land use in the HUC 12.	14	There is a fairly high rate of septic tank failure county-wide.	3	42
Urban development/run-off	Commercial and industrial use together account for less than 0.04% of land use in the HUC 12, and residential use accounts for about 14%. This suggests that urban run-off and residential run-off should be considered one category.	See "Failing septic systems."	There is almost no urban development other than residential. See "Failing septic systems."	See "Failing septic systems."	See "Failing septic systems."
Wastewater collection and treatment facilities.	Almost a quarter of the HUC 12 is occupied by Dalton Utilities' Land Application System.	24.1	According to a representative of Dalton Utilities, the LAS is very heavily monitored, and is not a large source of fecal coliform contamination.	1	24.1
Agriculture	The visual survey noted chicken houses, but no cattle.	20	The general impression from the visual survey is that animal husbandry is not prominent in the HUC 12.	1	20

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	Rating
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(Percent Removal of Pollutant by the BMP)	
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: fecal coliform

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 Repair Assistance Program	Conasauga River Alliance.	Administer State/Federal grants to cost/share with land owners the pump-out and repair of failing systems or install new systems to replace straight pipes	Section 319(h) Grant through Ga. Environmental Protection Division (from 25% to 75% match on sliding schedule based on proximity to impaired stream)	Failing Septic Systems	1/1/2007 through 9/30/2010	5
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	Federal Annual rental payment for land taken out of production and 90% cost share for practice installation.	Agriculture	In place, on going	1

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		include tree planting, grassed waterways, wildlife habitat buffers, and shallow water area for wildlife and filter strips.				
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)
Controlled quota hunts on Land Application System Property	Dalton Utilities/ DNR Game Management Program	Controlled hunts are intended to thin the growing deer and turkey population.	Local (Dalton Utilities)	Wildlife	2001, on going	1
Sanitary Sewer Maintenance Program	Dalton Utilities, Chatsworth Water Works	Sanitary sewer system inventory and inspection; infiltration & inflow identification and reduction; sewer line and manhole rehabilitation	Federal, State, Dalton Utilities, Chatsworth Water Works	Urban run-off	In place, on going	5

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

IMPAIRMENT 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)
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Wastewater Treatment and Collection	24.1	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	24.1	Rules and Regulations for On-site Wastewater Management	Effective enforcement will prevent or minimize discharges containing fecal coliform.	None needed.
Wastewater Treatment and Collection	24.1	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	42	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	20	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	20	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	20	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	20	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	20	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	>117	Controlled quota hunts on Land Application System Property	Could reduce fecal coliform from wildlife somewhat.	None needed.

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)
Provide septic system owners with 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
Furnish 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
Furnish effective education, marketing, and technical assistance.	Natural Resources Conservation Service	Environmental Quality Incentives Program (EQIP)	Federal, State and Cost-share grants	Agriculture	2010	5
Furnish 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	2020	5
Seek MOA	Conasauga River	Way of monitoring fecal coliform to help rate the	Federal and State	All sources.	2012	NA

between Conasauga River Alliance and Dalton Utilities for Conasauga River Alliance to draw water samples from outside the LAS monitoring area to be analysed by Dalton Utilities.	Alliance and Dalton Utilities	effectiveness of BMP's.	Grants.			
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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, DO, pH, BOD5, Total Suspended Solids, Phosphorus, Nitrate-Nitrogen	Dalton Utilities	Current	Coincides with LAS Permit	On-going	Monitor effectiveness of land application system

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	
NWGRC/County	Prepare and distribute press release describing the Plan and where to obtain copies	Readers of local newspapers	
NWGRC/County	Prepare PowerPoint presentations and present to civic groups and local agencies	Civic groups and local agencies	
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	

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	Continued effective	Murray County Board of	Ongoing.	X	

for On-site Wastewater Management	enforcement to minimize discharges containing fecal coliform.	Health, Environmental Health Office, GA DHR		
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 production in favor of tree planting, grassed waterways, wildlife habitat buffers, and shallow water areas for wildlife, et al.	Natural Resources Conservation Service	Ongoing	X
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 planting, grassed waterways, wildlife habitat buffers, and shallow water areas for wildlife, et al.	Conasauga River Alliance, Natural Resource Conservation Service, local newspapers and county agents.	April 1, 2010	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 sewered, 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

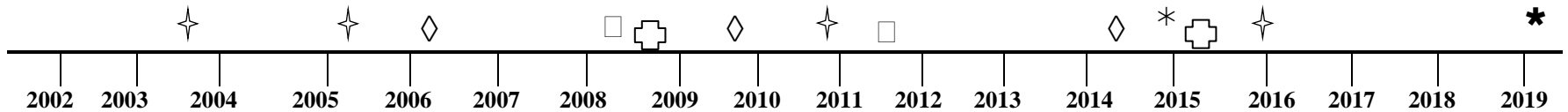
Table 9. STAKEHOLDER ADVISORY GROUP MEMBERS







NAME/ORG	ADDRESS	CITY	STATE	ZIP	PHONE	E-MAIL
Jason Osgatharp, Murray County Environmental Health Officer	709 Old Dalton-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 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 Plant	P.O.Box 100	Chatsworth	GA	30705	706-695-9496	wwpcp@chatsworthwater.com
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		
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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,	1363 Loughridge Road	Chatsworth	GA	30705	706-695-4531	Steve.loughridge@murray.k12.ga.us

farmer						
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
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Tim Sumney, Chatsworth Wastewater Treatment Plant	P.O.Box 100	Chatsworth	GA	30705	706-695-9496	wwpcp@chatsworthwater.com
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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.

APPENDIX C.

VISUAL FIELD SURVEYS, NOTES, PHOTOGRAPHS, AND MAPS.

SEE ATTACHMENT.

APPENDIX D.
INSTRUCTIONS AND GUIDANCE
