

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

Segment Name: Holly Creek Date: 6/30/2009

River Basin: Coosa

Local Watershed Governments:

Murray County

City of Chatsworth

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.

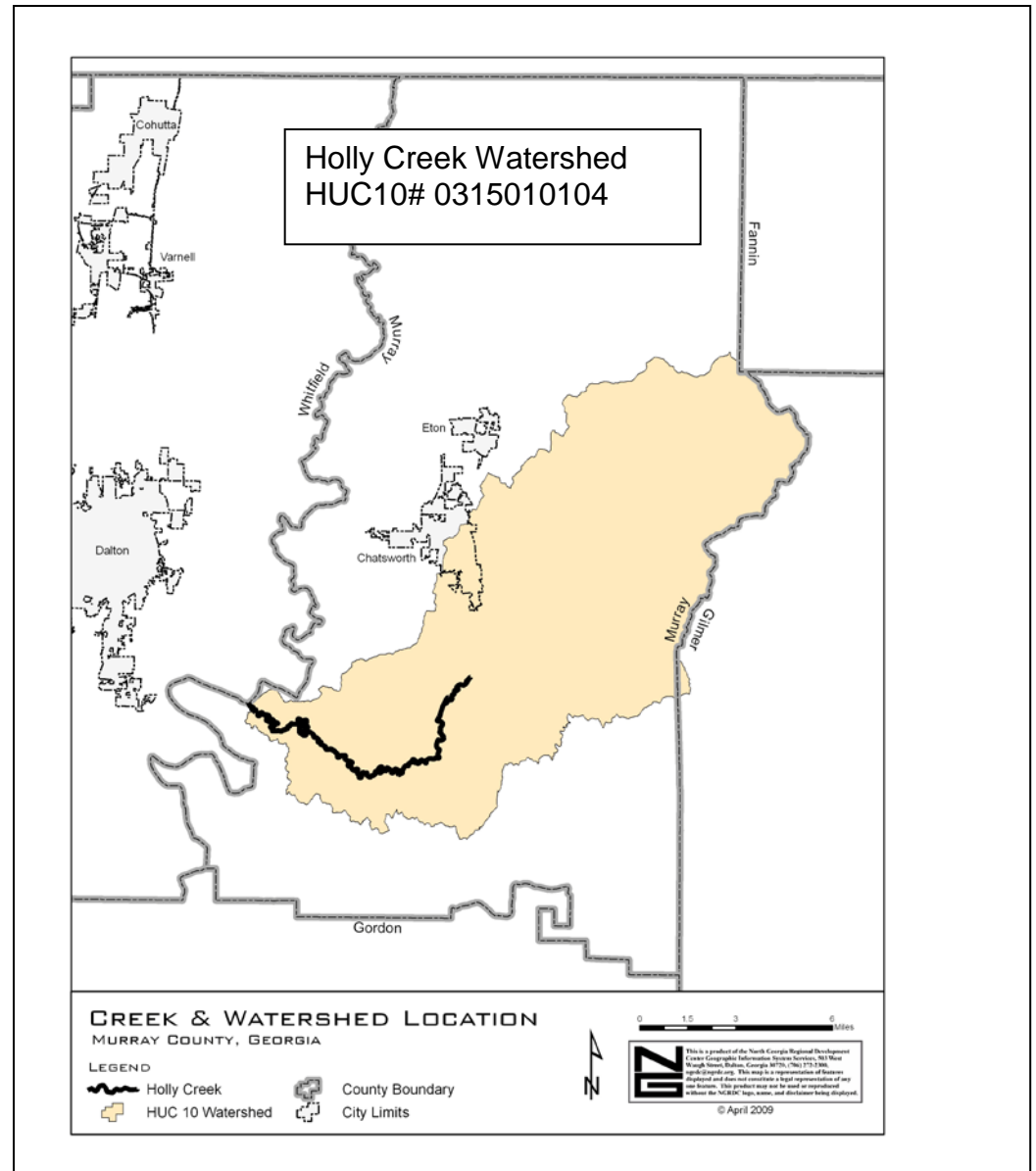


Table 1. IMPAIRED SEGMENTS IN THE HUC 10 WATERSHED

IMPAIRED SEGMENT	IMPAIRED SEGMENT LOCATION	EXTENT (mi/ac)	CRITERIA VIOLATED	EVALUATION
Holly Creek	Downstream of the City of Chatsworth	4 miles	Fecal coliform	Non supporting
Holly Creek	Rock Creek to the Conasauga River	8 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.

Holly Creek watershed HUC10# 0315010104 is comprised of 74,317 acres and is located entirely in Murray County. The headwaters of the watershed originate within the Chattahoochee National Forest and end at the conjunction of Holly Creek with the Conasauga River. Major roads that travel through the watershed include U.S. 411, U.S. 76, and Ga. State Routes 52 and 225. Approximately 40% of the incorporated city of Chatsworth is located within the watershed as is Fort Mountain State Park. Stream segments identified by the Georgia Environmental Protection Division's 303(d) list in HUC 10 # 0315010104 is Holly Creek (Rock Creek to the Conasauga River) and Holly Creek (Downstream Chatsworth). This plan is for the segment from Downstream Chatsworth. The latest land use surveys were conducted in conjunction with a Comprehensive Plan update completed for Murray County in November, 2005. Land use data was derived from air photos, the County Tax Digest, and windshield surveys. These acreages and percentages differ from the land cover information provided in the TMDL.

Holly Creek Watershed HUC 10 # 0315010104

Land Use Classification	Area (Acres)	% of Total Area
Agriculture	7806.2	11.00%
Commercial	424.3	<1%
Conservation	20533.6	28.00%
Forestry	5923.7	8.00%
Industrial	375.6	<1%
Parks and Recreation	3660	5.00%
Public, Institutional	639	<1%
Road R/W	1492.8	2.00%
Railroad R/W	72.4	<1%
Residential	10275.9	14.00%
Trans., Comm., Utilities	2512.6	3.00%
Vacant	20345	27.00%
Water	256.6	<1%
Total	74317.7	100.00%

Source: Murray County Comprehensive Plan, November, 2005

As seen in the table, the combination of vacant land use (27%) and conservation land use (28% via the National Forest) represents a majority of land use in the watershed. The next largest land use category is residential at 14%. Residential land use is scattered throughout the watershed in the form of developed subdivisions and scattered lots located along county roads. Residential concentrations are found within the city of Chatsworth. Agriculture represents 11% of land use consisting of cattle and horse grazing on small pastures and 11 major poultry producers.

Approximately 45% (4,140 acres) of the 9,200 acres of Dalton Utilities' Land Application System is in the Holly Creek watershed. Dalton Utilities entered into a Consent Decree with the U.S. Environmental Protection Agency in 2001, which mandated upgrades to the overall collection system and land application system. The upgrades and improvements were completed and the Consent Decree was officially closed in its entirety in November 2005. The City of Chatsworth also operates a wastewater treatment plant in the watershed.

The City of Chatsworth maintains a water intake on Holly Creek near the city in the upper reaches of the watershed. A Source Water Assessment was completed in

December, 2003. Since Holly Creek is a water supply watershed, watershed streams above the water intake will also be 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 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.

HUC 12 Watershed Including Impaired Segment		
Land Use Classification	Area (Acres)	% of Total Area
Agriculture	2788	14.00%
Commercial	69	<1%
Forestry	4459.4	22.00%
Industrial	82.6	<1%
Public, Institutional	64.8	<1%
Road R/W	446.4	2.00%
Residential	4583.1	23.00%
Trans./Comm./Utilities	2485.4	12.50%
Vacant	4729.4	24.00%
Water	158.3	<1%
Total	19866.4	100.00%

Source: Murray County Comprehensive Plan, November, 2005

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 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 smaller HUC 12 watershed area that contains the impaired segment contains 19,866 acres. Major land uses in this watershed consist of residential (24%), forestry

(22%), and agriculture (14%) Also included is approximately 2,482 of Dalton Utilities' Land Application System area. This segment of Holly Creek is not a source of public water supply.

A visual assessment conducted in June, 2009 confirms the land use characteristics indicated by the data. (See appendix for results.) Agricultural activity consists of small cattle or horse grazing operations as well as 6 major poultry operations.

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.

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.

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 (WLASw) 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
Holly Creek	Downstream Chatsworth	Fecal Coliform	2.97E+11		4.36E+12	5.17E+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	74%

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. Wildlife: 4729.4 acres, 24% of the land use in the HUD 12 is classified as Vacant, and are very likely wooded, to judge from aerial views. In addition, 4459.4 acres, 22% of the land area, is in forestry. Those figures suggest that a minimum percentage of 46% of land use is wildlife habitat.
2. Urban development/runoff: Less than 1% of the HUC 12 is in commercial use, less than 1% in industrial use, and 23% 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 23% 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.

3. **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 23% of land use in the HUC 12, the statistics suggest that septic system failure plays a role in fecal coliform contamination.
4. **Agriculture:** There are 2,788 acres in agricultural use in the HUC 12, 14% of land use there. The visual survey noted both chicken houses and cattle, and suggests that chicken houses are very common, and cattle have direct access to streams. 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 Holly Creek watershed is in the (Table 6, p.14); None of the landfills listed in Table 25, p.25 is in the HUC 12, and approximately 2,485 acres (12.5% 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: Fecal Coliform.

IMPAIRMENT SOURCES	ESTIMATED EXTENT OF CONTRIBUTION	ESTIMATED PORTION OF CONTRIBUTION	IMPACT RATING
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	Comments	Rating (A)	Comments	Rating (B)	(A X B)
Wildlife	Much habitat available.	46	No wetlands noted in visual survey.	3	138
Urban development/run-off	Residential development is widespread, though commercial and industrial uses are rare..	23	HUC 12 drains a good deal of suburban-type development.	3	69
Failing septic systems	There is a large area of residential development contiguous to the impaired segment in the middle of the HUC.	23	The county has a high septic failure rate overall.	3	69
Agriculture	Cattle and chicken houses noted in visual survey.	14	Cattle with free access to waterways.	3	42
Wastewater treatment and collection facilities	Dalton Utilities' LAS accounts for 12.5% of land use in the HUC.	12.5	According to a representative of Dalton Utilities, the LAS is very heavily monitored, and is not a large source of fecal coliform contamination.	1	12.5

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: 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 9/30/2011	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 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	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	Federal and State	Agriculture	In place, on-going	5 (in new developments)

301 to 1000 animal units		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.				
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

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.

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 technical assistance.	Natural Resources Conservation Service	Environmental Quality Incentives Program (EQIP)	Federal, State and Cost-share grants	Agriculture	2010	5
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	2020	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, DO, pH, BOD5, Total Suspended Solids, Phosphorus, Nitrate-Nitrogen	Dalton Utilities	Current	Coincides with LAS Permit	On-going	Monitor effectiveness of land application system
Fecal Coliform and other bacteria	Conasauga River Alliance/ Dalton Utilities	According to a MOA, the 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	October 12, 2009

	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	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	
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	Natural Resources Conservation Service	Ongoing.	X	

	protection, including livestock exclusion.			
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	Conasauga River Alliance, Natural Resource Conservation Service, local newspapers and county agents.	April 1, 2010	X

	livestock exclusion.			
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 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

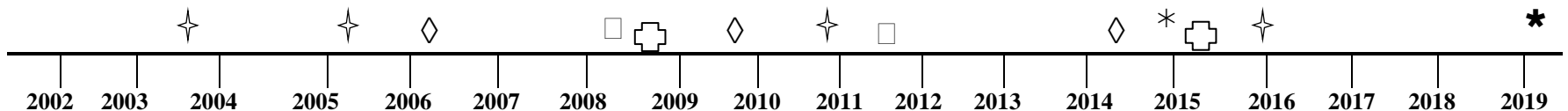
NAME/ORG	ADDRESS	CITY	STATE	ZIP	PHONE	E-MAIL
Jason Osgatharp, Murray County Environmental Health Officer	709 Old Dalton-Ellijay Highway	Chatsworth	GA	30705	706-695-0266	jlogatharp@dhr.state.ga.us
Dick Barnes, Murray County Land Development Officer	P.O. Box 1129	Chatsworth	GA	30705	706-695-2413	mcldo@windstream.net
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

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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 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

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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	709 Old Dalton-Elijay Highway	Chatsworth	GA	30705	706-695-0266	jlosgatharp@dhr.state.ga.us

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Officer						
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 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

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.

A plan was submitted in 2006. The section on Recommended New Management Measures and Activities is entirely new.

The water in the segment has been re-tested since the former plan was submitted.

APPENDIX C.

VISUAL FIELD SURVEYS, NOTES, PHOTOGRAPHS, AND MAPS.

APPENDIX D.
INSTRUCTIONS AND GUIDANCE
