

STATE OF GEORGIA

TIER 2 TMDL Implementation Plan (Revision # 01)

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

River Basin: Coosa

Local Watershed Governments:

Whitfield County

City of Dalton

City of Varnell

City of Cohutta

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.

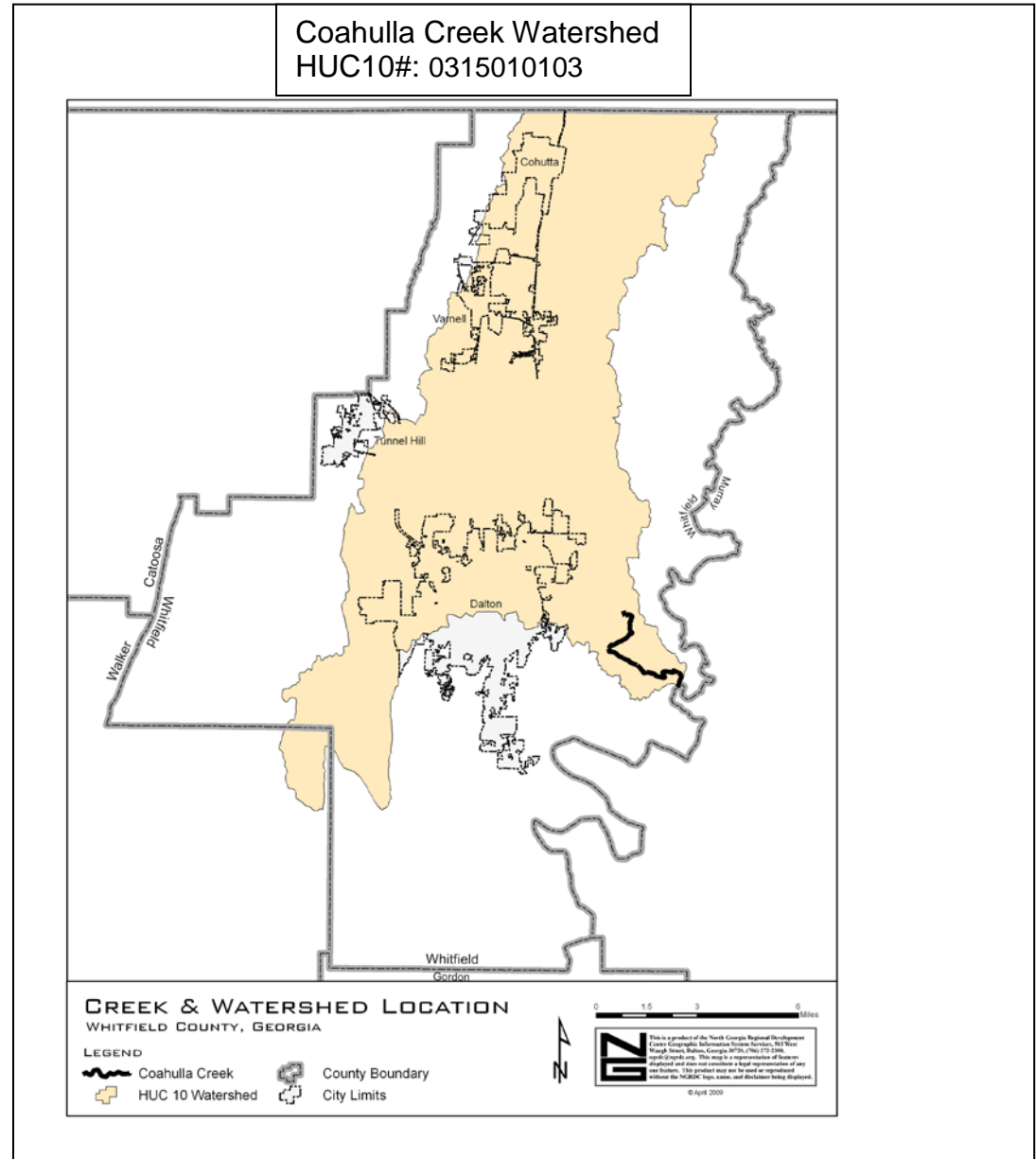


Table 1. IMPAIRED SEGMENTS IN THE HUC 10 WATERSHED

IMPAIRED SEGMENT	IMPAIRED SEGMENT LOCATION	EXTENT (mi/ac)	CRITERIA VIOLATED	EVALUATION
Coahulla Creek	Mill Creek to Conasauga River	5 miles	Fecal coliform	Not 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.

HUC10# 0315010103 Watershed is comprised of 71,417 acres within the portion located in Georgia. A considerable portion of the watershed also extends into Tennessee. The portion in Georgia is located primarily in Whitfield County; however there is also a small area in Walker County. One of the stream segments identified by the Georgia Environmental Protection Division’s 303(d) list in HUC 10 # 0315010103 is Coahulla Creek from Mill Creek to the Conasauga River.

Coahulla Creek HUC#10: 0315010103

Land Use Classification	Acres	% of total area
Agriculture	32719	45.81
Commercial	1785	2.5
Industry	1397	1.96
Multi-family	583	0.82
Public/Institutional	2438	3.41
Parks/Rec/Conservation	3453	4.84
Single family residential	18060	25.29
Trans/Comm/Utilities	334	0.47
Vacant	10421	14.59
Water	227	0.32
Total:	71417	100

The northern areas of the watershed are very rural and sparsely settled. There are three municipalities located in the watershed including Dalton, Varnell and Cohutta. The southern areas of the watershed are more intensely developed, particularly around and within the City of Dalton, which has a population of approximately 33,000 persons. Major highways traveling through the watershed include State Routes 71, 2, 201 and 52, and U.S. Routes 41 and 76 and Interstate 75. The following land use data is for that portion of the watershed contained only within Whitfield County. The data is derived from land use surveys conducted in conjunction with a Comprehensive Plan update completed in 2008. These acreages and percentages differ from the land cover information provided in the TMDL Study completed by Ga. EPD in January 2009.

As seen in the adjoining table, a moderate percentage of land use within the watershed is vacant (15%). Agriculture represents 45% of land use and consists primarily of pastures for cattle and horse grazing as well as 30 poultry producers. The next largest land use category is residential at 26%. 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 cities of Dalton, Varnell and Cohutta. The most densely

Source: Whitfield County Comprehensive Plan, October 2008

settled areas are in Dalton. Residential development is steadily increasing throughout the watershed. Dalton Utilities provides sewer service within the city of Dalton, and also provides sewer service to some areas in the incorporated areas along Cleveland Highway and areas located north and east to the city of Dalton that are located in this watershed. There is also a private wastewater system located on Bay Drive. The remainder of the

watershed is primarily served by individual septic systems. Dalton and Whitfield County are Phase II permitted MS4s and are in the process of developing a storm water management program.

Coahulla Creek 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. A Source Water Assessment Plan (SWAP) was completed in August, 2001 by Dalton Utilities. As it concerns potential sources of fecal coliform, the SWAP identified 30 CAFO's in the watershed, which were presumed to be poultry houses. There are also two sewer lift stations and two NPDES permits (Varnell Elementary School and Whispering Pines Mobile Home Park) located in the watershed.

Whitfield County has prepared and adopted a Comprehensive Plan, which recommends the preservation of permanent greenspace within all floodplains within the County including those along Coahulla Creek. This plan is proposed to be implemented via voluntary conservation easements. Since Coahulla Creek is a water supply watershed, watershed streams 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 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 Resources Conservation Service, who 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 with 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#: 031501010307 watershed is the smaller watershed that contains the Coahulla Creek impaired segment. The total land area within this smaller watershed is 15,428 acres. The largest land use category is agriculture at 40%; followed by residential at 33%. Vacant, undeveloped land is 17 percent.

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.

Coahulla Creek HUC#12: 031501010507		
Land Use Classification	Acres	% of total area
Agriculture	6232	40.39
Commercial	330	2.14
Industry	415	2.7
Multi-family	33	0.21
Public/Institutional	421	2.73
Parks/Rec/Conservation	108	0.7
Single family residential	5053	32.75
Trans/Comm/Utilities	162	1.05
Vacant	2674	17.33
	Total: 15428	100

Source: Whitfield County Comprehensive Plan, October 2008

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*, 20% of the Coahulla Creek watershed is in the MS4 area (Table 6, p.14); none of the landfills listed in Table 25, p.25 is in the HUC 12, and none of the Dalton Utilities' LAS impacts the HUC 12.

III. CAUSES AND SOURCES OF SEGMENT IMPAIRMENT(S) LISTED IN TMDLs

Table 2. provides information contained in the current TMDL for the impaired water body. By definition, "wasteload allocations" (WLA) for municipal and industrial wastewater discharges and (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
Coahulla Creek	Mill Creek to Conasauga River	Fecal coliform		1.59E+11	5.84E+12	6.66E+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)
<i>Fecal Coliform</i>	<i>1,000 per 100 ml (geometric mean Nov. – April) and 200 per 100 ml (geometric mean May - Oct.)</i>	<i>Failing septic systems ; agriculture operations (cattle, poultry, other ; wildlife ; urban development ; land applications systems ; landfills</i>	<i>46%</i>

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 18, 2009. The report of observations and conclusions can be found in Appendix C.

1. Agricultural activities: There are 6,232 acres of agricultural/forest land in the HUC 12, accounting for 40.39% of land use there. While the land use data for Whitfield County does not separate agriculture from forestry, the visual survey indicates that much of the agricultural land appears to be dedicated to grazing cattle and horses. The 2007 agricultural census estimates from USDA indicate that there are 5,672 head of beef cattle and 27 head of dairy cows throughout Whitfield County. Comparison of these statistics with earlier figures suggest that the number of cattle has dramatically decreased since 2001, but existing herds often have direct access to streams, and can foul the water. Though the visual survey did not identify chicken houses in the HUC 12, the 2007 agricultural census estimates from USDA indicate that there are 23,932,550 broilers and 240,295 laying hens in the County. It seems more than probable that at least some of those chickens are located in this watershed. Agricultural run-off is a likely source of fecal coliform in Coahulla Creek.

2. Septic system failures: The Whitfield County Environmental Health Office reported that it issued 131 new septic system permits and 99 repair permits county-wide during FY-09. This contrasts sharply with the figures for FY-2000 when it issued 524 new septic system permits and 86 repair permits county-wide, and reflects the down-turn in the carpet industry. During the ten year period from FY-99 to FY-09, the Environmental Health Office issued 3,375 new system permits, and 1,455 repair permits. That is to say that, during that period, 30% of permits issued were for repairs. Given that almost 33% of the HUC 12 is in residential use, a 30% overall septic system failure rate suggests that malfunctioning systems could account for a good bit of fecal coliform in Coahulla Creek.

3. Urban development/runoff: 5,086 acres of the HUC 12 watershed (33%) are in residential use, 330 acres (2.14%) are in commercial use, and 415 (2.7%) acres are in industrial use. Since other land use categories available from the data may be either urban or rural, it is safe to say that the urban environment exceeds the 37.84% accounted for by the categories listed above. However, it is very difficult to quantify urban run-off, and the fecal coliform component would most originate from domestic animals, and un-noticed sewer leaks. There is little to suggest that contamination is originating in commercial and industrial areas, which represent less than 5% of the land use, though dumpsters can harbor wildlife, and contain trash contaminated with fecal coliform.

4. Wildlife: 2,674 acres in HUC 12 are classified as vacant, and are very likely wooded, to judge from aerial views. While that figure represents only 17.33% of the land mass, but wildlife activity is not confined to that area, which represents an absolute minimum for wildlife habitat. In the HUC 12, the visual survey did not note a large amount of water fowl, and there is no reason to believe that there would be a concentration of water fowl there. Water-oriented animals, such as beavers, could account for some contamination, but land dwelling species, such as deer (25/square mile according to DNR), spend considerable time away from the water, and their vegetated/forested habitats have a buffering effect on streams.

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*, 20% of the Coahulla Creek watershed is in the MS4 area (Table 6, p.14); None of the landfills listed in Table 25, p.25 is in the HUC 12, and none of the Dalton Utilities' LAS impacts the HUC 12.

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 B:	Rating
Rating Chart to Estimate Geographic Extent of the Source or Cause in the Contributing Watershed	Rating Chart to Estimate Portion of Contribution from the Source to the Pollutant Load Causing the Impairment	

None or negligible (approximately 0-5%)	None or negligible (approximately 0-5%)	0.5
Scattered or low (approximately 5-20%)	Scattered or low (approximately 5-20%)	1
Medium (approximately 20-50%)	Medium (approximately 20-50%)	3
Widespread or high (approximately 50% or more)	Widespread or high (approximately 50% or more)	5
Unknown	Unknown	UNK

Table 4. EVALUATION OF POTENTIAL SOURCES OF STREAM SEGMENT IMPAIRMENT

APPLICABLE TO CRITERION 1: Fecal Coliform.

IMPAIRMENT SOURCES	ESTIMATED EXTENT OF CONTRIBUTION		ESTIMATED PORTION OF CONTRIBUTION		IMPACT RATING (A X B)
	Comments	Rating (A)	Comments	Rating (B)	
Agricultural activities	Agriculture/Forestry, much of which appears to be animal husbandry, is widespread in the HUC 12, accounting for 40.39% of land use there. However, since separate data for agriculture is not available, it is safe to say only that agriculture accounts for less than 40.39 % of land use.	Medium <40.39	The visual survey indicates the presence of cattle and horses in the HUC 12, and notes direct animal access to waterways. Agriculture is a very common land use in the HUC 12.	Medium 3	<121.17
Failing Septic Systems	A high septic system failure rate over a ten-year period suggests that this is a contributing factor. Residential use accounts for around 33% of land use in the HUC 12.	Medium 33	Septic failure rate is 30% or more.	Medium 3	99
Urban run-off	This factor is difficult to estimate, though it would take a lot of household pets animals to equal the amount of waste produced by farm animals. The urban area exceeds 37.84% of land use.	Medium >37.84	The quantity of waste produced by farm animals would far exceed that produced by household pets.	Low 1	>37.84
Wildlife	So-called vacant land accounts for slightly less than 17.33% of land use in the HUC 12. The visual survey does not identify any concentrations of waterfowl, and land animals tend to live in vegetated/forested areas where there is some stream buffering to reduce waste run-off.	Scattered >17.33	It is difficult to quantify the amount of fecal coliform contamination in streams, but absent a large identified populations of water fowl and mammals, the impact of wildlife associated with comparatively minor land use is probably low.	Low 1	17.33

Wastewater collection systems	A representative of Dalton Utilities noted that since their sewer infrastructure in the HUC 12 consists only of the sewer mains, the area occupied is negligible.	Negligible 0.5	A Dalton Utilities representative indicated that there have been no major overflows in many years,	Low 1	0.5
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V. CURRENT AND ACTIVE MANAGEMENT MEASURES AND ACTIVITIES

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

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

Table 5A. CURRENT AND ACTIVE MANAGEMENT MEASURES AND ACTIVITIES

MEASURES APPLICABLE TO SPECIFIC PARAMETER: Fecal Coliform Bacteria

BMP's (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	In place; on-going	5
Rules and Regulations for On-site Wastewater Management	Whitfield 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

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

NPDES Phase II MS4 Permits	Dalton Utilities, Whitfield County	and manhole rehabilitation Storm water management program consisting of both technical and educational BMP's to reduce pollution in jurisdictional storm water system.	City of Dalton, Whitfield County	Urban run-off	The City of Dalton has transferred its permit to Dalton Utilities	3
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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)
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	99	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	<121.7	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.

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Agriculture	<121.7	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	<121.7	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	<121.7	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	<121.7	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.	Requires effective education, marketing, and technical assistance.
Wildlife	>37.84	Controlled quota hunts.	It is doubtful that this practice could reduce fecal coliform from this source by even 10%.	None needed.
Urban run-off	17.33	National Pollutant Discharge Elimination System (NPDES) Permit Regulations for Phase II MS4 Permits	Enforcing stormwater management program BMP's could remove fecal coliform from this source 25 to 50%.	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: fecal coliform

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
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
Effective education, marketing, and technical assistance.	Natural Resources Conservation Service	Environmental Quality Incentives Program (EQIP)	Federal, State and Cost-share grants	Agriculture	2010	5
Effective education, marketing, and technical assistance.	Natural Resources Conservation Service	Continuous Conservation Reserve Program	Federal, State and Cost-share grants	Agriculture	2010	3
Seek MOA between Conasauga River Alliance and Dalton Utilities for Conasauga River Alliance to draw water samples from unmonitored segment to be analyzed by Dalton Utilities	Conasauga River Alliance and Dalton Utilities	Way of monitoring fecal coliform to help rate the effectiveness of BMP's.	Federal and State Grants.	All sources	2012	NA

VI. MONITORING PLAN

This section describes parameters to be monitored, status, whether monitoring is required for watershed assessments or storm water permits, and the intended purpose. **Submittal of a Sampling Quality Assurance Plan (SQAP) for Georgia EPD approval is mandatory if monitoring data is to be qualified to support listing decisions.**

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

Table 6. MONITORING PLAN

APPLICABLE TO CRITERION 1: fecal coliform

PARAMETER (S) TO BE MONITORED (1)	RESPONSIBLE ENTITY (2)	STATUS (CURRENT, PROPOSED, OR RECOMMENDED) (3)	TIME FRAME (4)		PURPOSE (If for listing assessment, date of SQAP submission) (5)
			START	END	
Fecal coliform and other bacteria	Conasauga River Alliance/Dalton Utilities	Recommended	October, 2012	Undetermined	Assist with 319(h) project selection; monitor improvements in water quality due to 319(h) grants.
Fecal Coliform, chemicals, minerals	Dalton Utilities	Ongoing	Ongoing		Drinking water quality (upstream from this segment)

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: Fecal Coliform.

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	Ongoing

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, Whitfield County	Ongoing.	X	
Rules and Regulations for On-site Wastewater Management	Continued effective enforcement to minimize discharges containing fecal coliform.	Whitfield County Board of Health, Environmental Health Office, GA DHR	Ongoing.	X	
Sanitary sewer system inventory and inspection; infiltration and inflow identification and reduction; sewer line and manhole rehabilitation.	Continue to inventory and inspect sewer system, identify and reduce infiltration and inflow, and rehabilitate sewer lines and manholes.	Dalton Utilities	Ongoing.	X	
Septic System Repair Assistance Program	Continue to implement projects within the boundaries of available funding.	Conasauga River Alliance	Ongoing until September 30, 2011.	X	
Agriculture BMP	Continue to assist local	Conasauga River Alliance,	Ongoing	X	

Installation Assistance Program	farmers with installation of standard agricultural BMP's.	Natural Resources Conservation Service		
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
Controlled quota hunts on Land Application System Property	Continue hunting wildlife to reduce fecal coliform levels.	Dalton Utilities, DNR Game Management Program	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	Begin promoting relevant BMP practices among the	Conasauga River Alliance, Natural Resource	April 1, 2010	X

assistance.	general public, including pet litter management.	Conservation Service, local newspapers and county agents.		
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
Storm water management plan	Begin studying the feasibility of establishing storm water collection and treatment facilities.	Dalton Utilities	TBD	X

IX. STAKEHOLDERS

This section describes outreach activities engaging local stakeholders in the TMDL implementation plan preparation process, including the number of attendees, meeting dates, and major findings and recommendations.

Notes on the June 18, 2009 Whitfield County TMDL meeting concerning Coahulla, Swamp, and Drowning Bear Creek impaired segments.

Present: Greg Jones, County Commissioner; Harold Brooker, County Commissioner; Cindy Askew, NRCS; Chad Mulkey, Whitfield County Environmental Health; Kevin Herrit, County Planner; Dena Haverland, Dalton Utilities; Denise Wood, Dalton City Council; Larry Vanden Bosch, NGRDC; Kevin McAuliff, NGRDC

Harold Brooker was of the opinion that human waste is a primary source of fecal coliform in streams.

Chad Mulkey added that older housing stock, high densities, poor soils, and homeowners who can't afford to fix failed systems contribute to the problem.

Brooker said that septic systems east of the Cleveland Hwy worsen the situation.

LVB suggested that urban runoff and domestic animals are sources of contamination.

Dena Haverland replied that a storm water utility feasibility study is underway.

LVB remarked on the importance of education in changing people's habits, adding that the government can't force people to change, and cited ag BMP's as an example of constructive change.

There was mention of wastewater treatment facilities at Whispering Pines and the Varnell School, and of wildlife, especially waterfowl as sources of contamination.

Brooker remarked that there are now more deer than ever, and that there are large numbers of beaver, waterfowl, and other animals, and reiterated his belief that septic systems are a major source of fecal coliform, especially on the east side of the Cleveland Hwy.

Cindy Askew observed that there was much forested land in areas shown as ag on the map.

Chad observed that there is not much runoff from forested land.

Cindy noted that fecal coliform counts are very variable due to collection timing and other factors, and that it is important to concentrate on *significant* sources.

LVB mentioned the Georgia Water Quality Control Act as a source of protection.

Cindy added that NDPES permits are required for new poultry installations.

Dena noted the importance of sewer, and Brooker concurred.

LVB observed that much of the **Drowning Bear Ck. Watershed** is heavily developed, and that some older housing stock is not on sewer.

Greg added that urban runoff is a source of contamination in that watershed.

LVB and Denise Wood commented that domestic animals contribute to urban runoff contamination.

LVB moved on to the **Swamp Ck Watershed**, commenting that it is more agricultural, and that though Conn. 3 is highly developed, it is sewerred.

Cindy noted that there are several poultry operations in the watershed, but that studies on macrovertebrates suggest that the watershed system is in good shape.

Denise noted that septic systems tend to be forgotten after installation, and that regulations requiring periodic pumping could be helpful.

Cindy mentioned that 319 funding will be linked to the 303d list in the future.

Dena mentioned MS4 permits for stormwater.

Notes on September 3, 2009 Whitfield County TMDL meeting for impaired segments on Coahulla, Drowning Bear, and Swamp Creeks

Present: Chad Mulkey, Whitfield County Environmental Health; Denise Wood, Dalton City Council; Doug Cabe, Limestone Valley RC&D; Joshua Smith, Conasauga River Alliance; Kent Benson, Whitfield County Engineer; Randy Waskul, County Commissioner; Ch. L. Hert, Whitfield County; Mary Gazaway, Georgia EPD; John Loughridge, GSWCC; Dena Haverland, Dalton Utilities; David Howerin, NWGRC; Kevin McAuliff, NWGRC

NWGRC staff opened the meeting by introducing Mary Gazaway of EPD's TMDL Implementation Program, who explained that the purpose of the plans underway is to reduce the fecal coliform in listed segments, and that various individuals and agencies have their own motives for desiring that goal.

Randy Waskul, Whitfield County Commissioner, asked Ms. Gazaway whether the source of fecal coliform had been identified as human or animal, and was told that that determination had not yet been made, but would be in the future.

NWGRC staff described the planning process to date, and gave an overview of the TMDL Plan documents that had been distributed, explaining how the impact of potential fecal coliform sources had been assessed.

Coahulla Ck.

Randy Waskul expressed the opinion that, in light of earlier studies and the low human population, agriculture and wildlife must play a large part in FC contamination.

Denise Wood, City of Dalton Councilwoman and Mohawk employee, suspected that faulty septic systems were less than 33%, and that agriculture and wildlife were large contributors. She based this on a plant failure where contamination was speciated out, and 90% was fecal and 10% e-coli, indicating that geese and wildlife were responsible.

Chad Mulkey said that the soils there were not good, and that they have done a lot of repair work over there.

NWGRC staff asked if there were an evolving consensus that agriculture and failing septic systems were major sources of FC, and established that such was the case. He then asked about urban run-off, noting that the Coahulla drains most of Dalton, but that the current focus was on the HUC 12 at hand.

Randy Waskul believed that septic failures were a major cause, given the concentration, since wildlife could not impair the stream. There was mention that even in some long-sewered urban areas many residences had never tapped in. Staff interjected that the conflation of ag/forestry made the data more difficult to interpret, and asked whether there was general agreement concerning the ranking established in the Coahulla draft plan. Doug Cabe noted that contamination content would vary with sampling sites, and staff added that there was an impaired segment on Jacks River which could be accounted for only by wildlife, and that a certain amount of FC would always be present in waterways.

Staff turned the committee's attention to BMP's and pollution control measures. After some discussion, there was general agreement that the septic repair assistance program, voluntary ag BMP's, EQIP, and the Conservation Reserve Program were the ones whose effectiveness should be considered the meeting. NWGRC staff asked if Conasauga River Alliance staff might be able to suggest new BMP's. Doug Cabe answered by describing a targeted septic repair program where potential participants selected by their proximity to streams would be invited to meetings where vouchers would be issued. He speculated that the program would be implemented in the Holly Ck watershed during Spring of 2010. He added that under a 2006 grant ag BMP implementation is still underway. He noted that the EQIP program was available at a 75% cost share rate.

Doug said that the Continuous Conservation Reserve Program is especially useful for stream buffers, and Mary Gazaway emphasized the documented effectiveness of vegetative buffers.

NWGRC staff noted that though the agricultural census indicates that the cattle population has dropped, there is much evident pasture land in the county, and that with the end of the drought, the number of cattle would likely increase eventually.

Drowning Bear Creek.

NWGRC staff noted that the watershed is heavily urbanized, and asked for input on fecal coliform sources and their extent, as analyzed in the draft TMDL Plan, and discovered a general agreement.

There was a short discussion of commercial and industrial contribution to the problem, and there was a general feeling that current regulations limit fecal coliform run-off from those sources.

Swamp Creek

Staff noted that Swamp Creek originates on the mountain, and asked for input on fecal coliform sources and their extent, as analyzed in the draft TMDL Plan, and discovered a general agreement after some discussion.

Ms. Gazaway wondered if actual animals were observed as potential sources, and staff admitted that animals had not been seen, but that wetlands implied their presence, whereupon Ms. Gazaway noted that urban encroachment was very likely driving wildlife into the area under consideration.

There was little further discussion, and the meeting ended in general accord on the findings incorporated in the draft Plan.

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

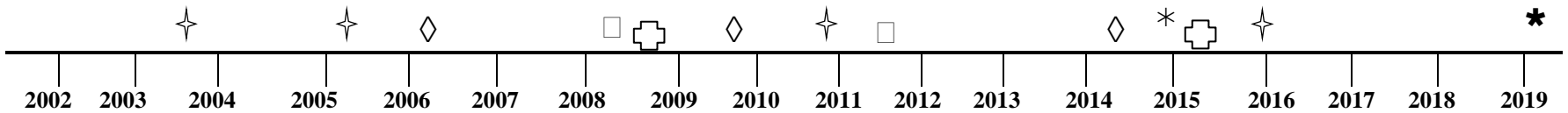
**WHITFIELD COUNTY
WATER QUALITY (TMDL) STAKEHOLDER ADVISORY GROUP MEMBERS**

NAME/ORG	ADDRESS	CITY	STATE	ZIP	PHONE	E-MAIL
Josh Smith, Conasauga River Alliance		Dalton	GA	30702	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
Dena Haverland, Dalton Utilities	P.O. Box 869	Dalton	GA	30722	706-278-1313	dhaverland@dutil.com
Mark Marlow, Dalton Utilities	P.O. Box 869	Dalton	GA	30722	706-278-1313	mmarlow@dutil.com
Robert McLeod, Whitfield County Administrator	P.O. Box 248	Dalton	GA	30722	706-275-7500	rmcleod@whitfieldcountyga.com
Kevin Herrit, Whitfield Co. Planner	P.O. Box 248	Dalton	GA	30720	706-876-1695	kherrit@whitfieldcountyga.com
Chad Mulkey, Whitfield Co. Environmental Health Specialist, County Health Dept.	1407 Burleyson Drive	Dalton	GA	30720	706-272-2005	csmulkey@dhr.state.ga.us
Katie Owens, Upper Coosa River Program	P.O. Box 737	Armuchee	GA	30105	706-234-1404	kowens@tnc.org
Denise Wood, Dalton City Council; Mohawk Industries	P.O. Box 1205	Dalton	GA	30722	706-428-8118	Denise_Wood@mohawkind.com

Greg Jones, Whitfield Board of Commission	P.O. Box 248	Dalton	GA	30722	706-275-7500	gjones@whitfieldcountyga.com
Randy Waskul, Whitfield Board of Commission	P.O. Box 248	Dalton	GA	30722	706-275-7500	rwaskul@whitfieldcountyga.com
Charles Acree					706-463-0742	chastriplecrown@yahoo.com

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: <u>Kevin McAuliff</u>	
Agency: <u>NWGRC</u>	
Address: <u>503 West Waugh Street</u>	
City: <u>Dalton</u> ST: <u>GA</u> ZIP: <u>30720</u>	
E-mail: <u>kmcauliff@nwgrc.org</u>	
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.

Plan for Coahulla Creek
HUC 10 # 0315010103

NAME/ORGANIZATION	ADDRESS	CITY	STATE	ZIP	PHONE	E-MAIL
Josh Smith, Conasauga River Alliance		Dalton	GA	30702	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
Dena Haverland, Dalton Utilities	P.O. Box 869	Dalton	GA	30722	706-278-1313	dhaverland@dutil.com
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Robert McLeod, Whitfield County Administrator	P.O. Box 248	Dalton	GA	30722	706-275-7500	rmcleod@whitfieldcountyga.com
Kevin Herrit, Whitfield Co. Planner	P.O Box 248	Dalton	GA	30720	706-876-1695	kherrit@whitfieldcountyga.com
Chad Mulkey, Whitfield Co. Environmental Health Specialist, County Health Dept.	1407 Burleyson Drive	Dalton	GA	30720	706-272-2005	csmulkey@dhr.state.ga.us
Katie Owens, Upper Coosa River Program	P.O Box 737	Armuchee	GA	30105	706-234-1404	kowens@tnc.org
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Randy Waskul, Whitfield Board of Commission	P.O. Box 248	Dalton	GA	30722	706-275-7500	rwaskul@whitfieldcountyga.com
Charles Acree					706-463-0742	chastriplecrown@yahoo.com

APPENDIX C.

VISUAL FIELD SURVEYS, NOTES, PHOTOGRAPHS, AND MAPS.

SEE ATTACHMENT.

APPENDIX D.
INSTRUCTIONS AND GUIDANCE
