

STATE OF GEORGIA
TIER 2 TMDL IMPLEMENTATION PLAN REVISION 1

Segment Name Conasauga River
Coosa River Basin
April 28, 2006

Local Watershed Governments Whitfield County,
Murray County, Gordon County, City of Dalton

I. INTRODUCTION

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

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

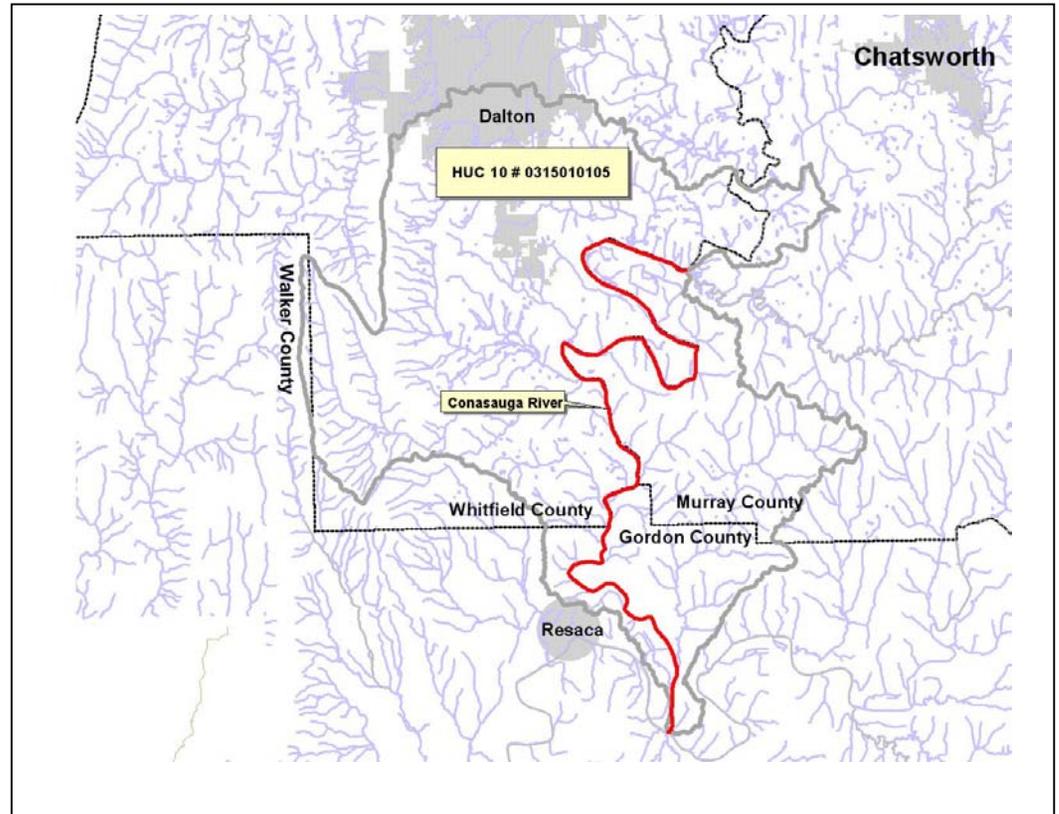


Table 1. IMPAIRMENTS

	IMPAIRED SEGMENT LOCATION	IMPAIRMENT	TMDL ID
Conasauga River	Holly Creek to Oostanaula River	Fecal Coliform Bacteria	CSA0000111

II. GENERAL INFORMATION ABOUT THE WATERSHED

Write a narrative describing the watershed, HUC 10# 0315010105. Include an updated overview of watershed characteristics. Identify new conditions and verify or correct information in the TMDL document using the most current data. Include the size and location of the watershed, political jurisdictions, and physical features that could influence water quality. Describe the source and date of the latest land cover/use for the watershed. Describe and quantify major land uses and activities that could influence water quality. See the “Instructions for Completing the Georgia Total Maximum Daily Load (TMDL) Tier 2 Implementation Plan” for more information on what to include.

The Conasauga River HUC 10# 0315010105 watershed is comprised of 69,608 acres and is located in portions of Whitfield, Murray and Gordon Counties. The northern portions of the watershed located in Whitfield County contain approximately ½ of the city of Dalton’s urbanized areas containing a mix of industrial, commercial and residential uses, which are served by a centralized sewer system. The southern portions are located in Gordon County and are more rural in nature, as are the areas in Murray County. A small area in the western portion of the watershed is located in the Chattahoochee National Forest. The watershed is experiencing considerable new development, particularly along major highway corridors. Major highways traveling through the watershed include I-75, U.S. 41, and Ga. Hwys. 225 and 136. One of the stream segment identified by the Georgia Environmental Protection Division’s 303(d) list in HUC 10 # 0315010105 as impaired is the Conasauga River from Holly Creek to

Conasauga River Watershed HUC 10# 0315010105

Land Use Classification	Area (Acres)	% of Total Area
Agriculture	5997.5	9%
Commercial	1452.2	2%
Industrial	3516.8	5%
Public, Institutional	703	1%
Residential	10262.9	15%
Vacant	31505	45%
Parks/Recreation	5207.1	7%
Right of Way	2131.4	3%
Transportation, Communication, Utilities	6214.5	9%
Water	710.7	1%
Forestry	1907.8	3%
Total	69608.9	100%

Source: Murray Comprehensive Plan, November, 2005; Whitfield Comprehensive Plan, February, 2002; Gordon County Comprehensive Plan, April, 1992

Oostanaula River. The following land use data is from land use surveys conducted in conjunction with Comprehensive Plans that have been completed in each county. (Murray’s was last updated in 2005; Whitfield’s in 2002; and Gordon’s is currently being updated). The data were compiled from air photos, county tax digests, and field surveys. These acreages and percentages may differ from the land cover information provided in the TMDL. A sizable portion (45%) of the watershed is vacant or undeveloped and is mostly wooded. The next largest land use category is residential at 15% of the total area. Except for within the city of Dalton, residential land use is highly scattered in subdivisions or along county roads and relatively low density. Agricultural land represents 9% of the area. Agricultural activities consist primarily of pastures containing cattle and horses and several large poultry growing operations. Transportation, Communications, and Utilities also represent 9% of the total area. The two largest uses in this category are the Dalton Municipal Airport and the Dalton Utilities Land Application System (LAS). Approximately 55% of Dalton’s LAS area is located in this watershed; the balance of their 9,200 acres is located in the Holly Creek Watershed. Other significant land uses include industrial (5%) and commercial at (2%), which are located primarily in the Dalton urban area and along I-75. Approximately 5,000 acres of the Chattahoochee National Forest is also located in the watershed.

The Conasauga River is a major source of water supply for Dalton Utilities, which provides potable water to Whitfield County, approximately 10% of Murray County , and small portions of Gordon and Catoosa Counties. The intake is located just north of Ga. Hwy 52. A Source Water Assessment

was completed by Dalton Utilities in August, 2001. As it concerns potential sources of fecal coliform, the SWAP identified 58 CAFOs in the water supply watershed, which were presumed to be poultry houses and 9 Agricultural Waste Lagoons.

Whitfield County has prepared and adopted a Greenspace Conservation Plan, which recommends the preservation of permanent greenspace within all floodplains within the County including those along the Conasauga River. This plan is proposed to be implemented via voluntary conservation easements. The Conasauga River is also classified as a major river and is subject to the Georgia Planning Act Part V Environmental Protection Regulations promulgated by the Georgia Department of Community Affairs and the Georgia Environmental Protection Division.

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

{Conasauga River}

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

STREAM SEGMENT NAME	LOCATION	MILES/AREA	DESIGNATED USE	PS/NS
Conasauga River	Holly Creek to Oostanaula River	24	Fishing	NS

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

After reviewing the TMDLs written for this stream, complete the following tables with the information found in the TMDLs. List each parameter for which the stream segment is impaired and the water quality standard not met. See the “Instructions for Completing the Georgia Total Maximum Daily Load (TMDL) Tier 2 Implementation Plan” for the water quality standards. Enter the needed reduction from the TMDL. Describe the sources and causes of each impairment identified in the TMDLs.

Table 2. SOURCES OF IMPAIRMENT AS INDICATED IN TMDLs

PARAMETER 1	WQ STANDARD	SOURCES OF IMPAIRMENT	NEEDED REDUCTION FROM TMDL
Fecal Coliform	1,000 per 100 ml (geometric mean Nov. – April) and 200 per 100 ml (geometric mean May - Oct.)	Urban Run-off, Non-Point Sources - Failing Septic Systems, Agriculture operations (poultry, cattle)	50%

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

INVESTIGATE AND EVALUATE the extent and relative contributions from causes or sources of the impairment for each parameter listed in Table 2. Write a narrative describing efforts made or procedures used to verify the significance and extent of the sources or causes of each impairment listed in the TMDLs. Include: 1) involvement of stakeholder group; 2) review of land cover data; 3) field surveys; and 4) other pertinent sources of information consulted.

The following table shows existing land use within the smaller HUC 12 watershed that contains the impaired segment. As indicated by the data, this watershed is much more rural than the HUC 10 watershed described above, primarily because a major portion of the Dalton urban area contained in the HUC 10 watershed does not spread into the smaller, HUC 12 watershed. The largest land use category in the HUC 12 watershed is vacant, undeveloped at 51% (17,179 acres) with most of this consisting of woodlands land cover. The next largest land use category is agriculture at 12% (4,021 acres) consisting primarily of pastures containing cattle and horses, approximately 10 to 12 large poultry growing operations, and land cultivated for crops. Residential land use occupies 3,758 acres or 11% of the watershed. The majority of the residential development is highly scattered and low density, with the majority served by on-site septic systems. Only a small portion of the eastern edge of city of Dalton (approximately 276 acres) is located within the watershed and served by public sewer.

Conasauga River (Holly Creek to Oostanaula) HUC 12 Watershed

Land Use Classification	Area (Acres)	% of Total Area
Agriculture	4021.9	12%
Commercial	436	1%
Industrial	1308.9	4%
Public, Institutional	275.9	<1%
Residential	3758.4	11%
Vacant	17179	51%
Parks/Recreation	44.4	<1%
Forestry	507.8	2%
Right of Way	706.2	2%
Transportation, Communication, Utilities	4528.4	14%
Water	626.9	2%
Total	33393.8	99%

A visual survey was also conducted within the watershed and confirms the land use data. (See Appendix C for results of the Visual Survey).

Members of both the Murray County and Whitfield County Stakeholders Advisory Committees were also convened to review potential contributing causes. Members involved represented the Whitfield, Murray, and Gordon County Land Development Offices, Whitfield, Murray and Gordon County Environmental Health Offices, Dalton Utilities, farmers, the Conasauga River Alliance, the Nature Conservancy, the Natural Resources Conservation Service, landowners and the Georgia Soil and

Source: Murray Comprehensive Plan, November, 2005; Whitfield Comprehensive Plan, February, 2002; Gordon County Comprehensive Plan, April, 1992

Water Conservation Commission. A discussion of land use within the HUC 12 watershed with stakeholders confirms information compiled from the land use data and visual survey.

Based upon land use data and the visual surveys, the potential sources of impairment within the watershed include:

- 1. Malfunctioning Septic Systems/Straight Pipes.** The Whitfield County Environmental Health office reported that it issued 358 new septic system permits and 235 system repair permits county wide in FY 2005. Per the TMDL, 6,444 septic systems were installed between 1990 and 2000 with 1,422 repaired during that period. The Murray County Environmental Health office reported that it issued 215 new septic system permits and 106 system repair permits county wide in FY 2005. Per the TMDL, 6,230 septic systems were installed between 1990 and 2000 with 582 repaired during that period. A study conducted by the North Georgia Regional Development Center in January, 2000 concluded that system failures are common in both Murray and Whitfield counties. The Gordon County Environmental Health Office reports that it issued 356 new septic system permits and 248 system repair permits county wide in FY 2005. Per the TMDL, 4,201 septic systems were installed between 1990 and 2000, and 610 systems were repaired during that period. There are 3,758 acres of residential land use within the HUC 12 watershed area, the majority of which are on individual septic systems. At an approximate average density of 2 acres per unit, there are an estimated 1,800 septic systems in the watershed. In some cases, older homes may not have a septic tank or drainfield and instead discharge directly to a stream. National studies have indicated that as much as 10 percent of older homes and 2% of middle aged houses located within 45 meters of a stream have used straight pipes. Visual observations noted that there are a number of residences located relatively close to the many streams in the watershed.
- 2. Agricultural Activities, Pasture Run-off & Poultry Operations.** There are over 4,021 acres of agricultural land within the HUC 12 watershed area consisting primarily of cattle and horse grazing areas as well as major poultry growing operations. Per the Natural Resources Conservation Service (NRCS), Gordon County had an estimated 19,000 beef cattle, and 560 dairy cattle county wide in 2001. Whitfield County had 15,000 beef cattle and 320 dairy cattle, and Murray County had 1,850 beef cattle and 300 dairy cattle. Stakeholder comments indicated that dairy cattle were no longer present in Whitfield County and that current cattle populations may be less than in 2001. Visual observations indicated that there are many cattle and/or horse grazing areas located adjacent to streams in the watershed, and that the livestock have direct access to the streams for drinking water. Poultry production is also an extensive activity in each of the counties with Whitfield County having 2,704,000 broilers sold in 2001; Murray County, 3,180,000; and Gordon County, 10,304,000 as in indicated by NRCS. Many of these poultry operations spread poultry manure on pastures within the watershed.
- 3. Wildlife.** 17, 179 acres (51%) of the HUC 12 watershed containing the impaired segment is vacant or forested land that contains a variety of wildlife. The most populous large species is deer estimated by the Georgia Department of Natural Resources at 40 animals per square mile in Gordon County, 25 animals per square mile in Whitfield and Murray Counties, and estimated to be between 45-50 animals per square mile at the Dalton LAS property. Visual observations also noted that other species include duck, geese, and turkey within the watershed.
- 4. Wastewater Treatment Facilities and Sewage Collection Facilities.** Approximately 276 acres of the city of Dalton are located in the watershed and served with public sewer. The Loopers Bend and Riverbend Wastewater Treatment Plants along with 5,060 acres of the Dalton Utilities LAS area are also located within the watershed. Dalton Utilities entered into a Consent Decree with the U.S. EPA in 2001. The Consent Decree had one portion pertaining to the collection system and one to the land application system. These portions of the

Consent Decree were satisfactorily completed and closed in September 2004. The Consent Decree was closed in its entirety in November 2005.

5. **Urban Storm Water Run-off /storm sewer system discharges.** Approximately 276 acres of the city of Dalton are located within the watershed and are served by stormwater run-off systems.

Combining information provided in the TMDL document, stakeholder knowledge, existing watershed assessments, and the watershed evaluation conducted for this plan, identify the potential sources or causes most likely to contribute to each identified impairment (parameter) in Table 3. If available information is inadequate to estimate the extent and relative contribution of significant potential sources or causes, recommend appropriate management actions (watershed assessments, monitoring, etc.) to determine the potential sources or causes and relative contributions. In Table 3, list the significant potential sources or causes of each impairment. Estimate the geographic extent of each potential source or cause as percent of the contributing watershed area, percent of stream miles affected, or number per square mile and enter the appropriate rating (from the following table) in the column entitled "Rating (A)". Estimate the relative contribution of each major source or cause to the pollutant causing the impairment and enter the appropriate rating (from the following table) in the column entitled "Rating (B)". Calculate a relative impact ratings for each source or cause by multiplying "Rating (A)" by "Rating (B)". Comments on the source of information used to determine the extent or contribution may be entered in the applicable columns in Table 3.

The following table provides guidance for rating the estimated extent and portion of the contribution from each potential source and cause.

Estimated Geographic Extent of the Source or Cause in the Contributing Watershed (Percent of area or stream miles)	Estimated Contribution of the Source or Cause to the Pollutant Load Causing the Impairment (Percent of load)	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 3. CONCLUSIONS MADE OF POTENTIAL SOURCES OF STREAM SEGMENT IMPAIRMENT

PARAMETER 1: Fecal Coliform

POTENTIAL SOURCES OR CAUSES	ESTIMATED EXTENT OF CONTRIBUTION		ESTIMATED PORTION OF CONTRIBUTION		IMPACT RATING (A X B)
	Comments	Rating (A)	Comments	Rating (B)	
Malfunctioning Septic Systems or straight pipes to streams	Residential use is 11 % of land area and 90% is on septic systems	1	All three Counties report a significant amount of failures.	3	3
Active pasture run-off - cattle & horse access to streams	Agricultural use is 12 % of land area	1	Cattle/horse grazing adjacent to streams is frequently located throughout the watershed	3	3
Poultry Operations	There are approximately 6 operations in the HUC 12 watershed	1	Poultry operations are frequently located close to impaired streams	3	3
Wild animal waste	Vacant, undeveloped land and forestry land is 53 % of land area	.5	Mostly deer habitat is located throughout the watershed, although other species such as turkey, duck and geese are also found .	1	.5
Urban Storm Water Run-off /storm sewer system discharges	Approximately 276 acres of the city of Dalton (less than1%) is located within the watershed	1	Only approximately 276 acres is served by storm water run-off systems.	.5	.5
Sewage System Leaks and spills	Approximately 15% of the watershed (5,060 acres) is located within Dalton's Land Application System area; less than 1% of the watershed is served with public sewer.	1	Dalton Utilities has made many improvements to its wastewater treatment plants, collection system and LAS and has satisfied all the requirements of a 1998 U.S. EPA Consent Order	.5	.5

V. STAKEHOLDERS

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

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

On October 18, 2005, NGRDC in partnership with the CVRDC and the Northwest Georgia Regional Water Resources Partnership conducted a workshop entitled “**Clean Water- the TMDL Link**”, which was attended by Whitfield, Murray, and Gordon County residents and officials. This workshop provided excellent information on the TMDL process, its requirements, the potential causes for stream impairments, and the various tools that can be utilized to clean up the rivers.

A meeting was held with the Stakeholders Advisory Committee on February 16, 2006, which was well attended by the members, NGRDC personnel, and Mary Gazaway of Georgia EPD. At the meeting, the RDC presented information regarding the Clean Water Act requirements, water quality monitoring data and the TMDLs that had been prepared for two impaired segments of the Conasauga River by Georgia EPD. The RDC led a discussion on possible sources for the pollutant parameters by explaining its efforts to identify and verify potential pollution sources via visual surveys and land use analysis throughout the watershed. NGRDC discussed the results of the field survey and confirmed the conclusions regarding the sources of impairment. NGRDC also presented draft program measures deemed necessary to reduce the amount of fecal coliform entering the streams in the watershed. A discussion was held regarding proposed implementation measures. All members concurred with the proposed measures.

List the watershed stakeholder advisory group committee members, described in Project Task #1 of the Scope of Services, in following table.

Table 4. STAKEHOLDER ADVISORY GROUP MEMBERS

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

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Development Officer						
Steve Loughridge, farmer	1363 Loughridge Road	Chatsworth	GA	30705	706-695-4531	Steve.loughridge@murray.k12.ga.us
Craig Earnest, Bowater, Inc.	P.O. Box 697	Calhoun	GA	30703	706-629-8634	
Frank Sagona, Conasauga River Alliance	125 Redbud Rd. NE. Suite 7	Calhoun	GA	30703	706-625-7044	fjsagona@aol.com
John Lugthart, Dalton State College	650 College Drive, Division of Natural Sciences	Dalton	GA	30720	706-272-2485	Jlugthart@daltonstate.edu
Paul Johnson, SE Aquatic Research Institute	5385 Red Clay Road	Cohutta	GA	30710	706-694-3957	
Cindy Askew, Natural Resource Conservation Service	1407 Burleyson Drive	Dalton	GA	30720	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	cwater@alltel.net
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
Lenard Whaley, Whitfield County Administrator	P.O. Box 248	Dalton	GA	30722	706-275-7500	blove@whitfieldcountyga.com
Jean Garland, Whitfield Co. Zoning Administrator	1407 Burleyson Drive, Suite 1	Dalton	GA	30720	706-275-7474	jgarland@whitfieldcountyga.com
Jerrel Autry, Whitfield Co. Environmental Health Specialist, County Health Dept.	1407 Burleyson Drive	Dalton	GA	30720	706-272-2005	whitenv@yahoo.com

Randy Dowling, Gordon County Administrator	201 N. Wall Street	Calhoun	GA	30703	706-629-3795	rdowling@gordoncounty.org
Christy Blair, Gordon Co. Environmental Health Office	318 N. River Street	Calhoun	GA	30703	706-674-1440	chblair@dhr.state.ga.us
Shawn Clouse, The Nature Conservancy	109 King Street, Suite 1	Dalton	GA	30720	706-279-9001	sclouse@tnc.org
Walter Parsons, City of Dalton Assistant City Administrator	P.O. Box 1205	Dalton	GA	30722	706-529-2401	wparsons@cityofdalton-ga.gov

In Appendix A, list the names, addresses, telephone numbers, and e-mail addresses for local governments, agricultural or commercial forestry organizations, significant landholders, businesses and industries, and local organizations including environmental groups and individuals with a major interest in this watershed, as described in Project Task #1 of the Scope of Services. (See Appendix A.)

VI. MANAGEMENT MEASURES AND ACTIVITIES

Identify and list in Table 5A the significant management measures or activities which have or will be taken in the contributing watershed to address sources or causes of the impairment(s). List significant management measures and activities in Column 1 and responsible organizations in Column 2. Describe the measure or activity in Column 3 and sources of funding or resources in Column 4 (you may wish to adapt the generic language included in the “Standard Language for Management Measures and Activities” to local applications) In Column 5, enter one of the following codes describing the status of the measure or activity: (A) installed and active; (AE) active and **will be** enhanced or expanded; (R) required in the future by law, regulation or permit conditions; (P) currently proposed, but not required; and (N/R) **additional new recommended** or (N/E) **recommended enhanced** management measures and activities. In Column 6 enter the rating of the estimated existing or proposed extent of application of the measure or activity or percentage of individual sources to which the management actions have or will be applied (see the following table). In Column 7 enter a rating of the estimated effectiveness of the management measures and activities (see following table). Effectiveness may be estimated by local experts or derived from tables included in the “Standard Language for Management Measures and Activities”.

The following table provides guidance for rating the estimated extent and portion of the contribution for each significant potential source and cause.

Estimated Extent of Application or Percentage of Individual Sources to Which the Mangement Measure or Activity Has or Will be Applied in the Contributing Watershed	Estimated Effectiveness or Percent Removal of Constituent (Percent of load)	Rating
None or negligible (approximately 0-5%)	None or negligible (approximately 0-5%)	.5
Scattered or low (approximately 5-20%)	Low to medium (approximately 5-25%)	1
Medium (approximately 20-50%)	Medium to High (approximately 25-75%)	3
Widespread or high (approximately 50% or more)	High (approximately 75% or more)	5
Unknown	Unknown	UNK

Table 5A. MANAGEMENT MEASURES AND ACTIVITIES

GENERAL MEASURES APPLICABLE TO ALL PARAMETERS

MEASURE	RESPONSIBILITY	DESCRIPTION	SOURCES OF FUNDING & RESOURCES	STATUS CODE	TARGET DATE	EXTENT RATING (Area, #)	EFFECT. RATING (Reduction)
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	A	In place, on-going		
Georgia Planning Act, Part V Environmental Protection Regulations	Whitfield, Murray and Gordon Counties, Ga. Environmental Protection Division	Implement minimum standards for Major River Protection including mandatory setbacks and buffer areas on the Conasauga River	County Government	R	Jan. 1, 2007	3	3 (in new developments)

MEASURES APPLICABLE TO SPECIFIC PARAMETER: Fecal Coliform Bacteria

MEASURE	RESPONSIBILITY	DESCRIPTION	POTENTIALSOURCES OF FUNDING & RESOURCES	STATUS	TARGET DATE	EXTENT RATING	EFFECT. RATING
Rules and Regulations for On-site Wastewater Management	Whitfield, Murray, Gordon County Boards of Health, Environmental Health Offices	Stringent application/enforcement of the regulations	Local county government/ State Department of Human Resources	A	In place; on-going	5	5 (in new development)
Septic System Repair Assistance Program	Conasauga River Alliance.	Administer State/Federal grants to cost/share with land owners the repair of failing systems or install new systems to replace straight pipes	Section 319(h) Grant through Ga. Environmental Protection Division (60% grant/40% match)	NR	1/1/2007 through 6./30/2010	3	5
Septic System Repair Assistance Program	Gordon County, Coosa Valley RDC	Seek funding and administer State/Federal grants to cost/share with land owners the repair of failing systems or install new systems to replace straight pipes	Section 319(h) Grant through Ga. Environmental Protection Division (60% grant/40% match)	NR	1/1/2008 through 6./30/2011	3	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,	Section 319(h) Grant through Ga. Environmental Protection Division (60% grant/40% match)	NR	1/1/2007 through 6./30/2010	3	5

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		alternative water supplies for cattle, poultry manure stack houses, etc.					
Agriculture BMP Installation Assistance Program	Gordon County, Coosa Valley RDC	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)	NR	1/12008 through 6./30/2011	3	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) 50% cost share with possible additional incentive payments.	A	In place, on-going	1	3
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 50% cost share for practice installation.	A	In place, on going	1	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	A	In place, on-going	1	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	A	In place, on-going	1	5 (in new developments)
Sanitary Sewer Maintenance Program	Dalton Utilities	Sanitary sewer system inventory and inspection; infiltration & inflow identification and reduction; sewer line and manhole rehabilitation	Federal, State, Dalton Utilities	A	In place, on going	1	5
Storm water	Dalton, Whitfield	Adopt and implement Phase II Storm	Federal, State, Local governments	R	1/2007	3	5 (in new

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Management Regulations	County	Water Management Regulations, which will require use of physical structures to treat storm water run-off prior to entering streams					developments)
Controlled quota hunts on Land Application System Property	Dalton Utilities, Ga. DNR Game Management Program	Controlled hunts are intended to thin the growing deer and turkey population.	Local (Dalton Utilities)	A	2001, on going	.5	5

The purpose of Table 5B is to initiate and guide a “first-cut” evaluation of the capacity of existing, currently proposed, and future required management measures and activities to achieve the load reductions specified in the TMDL (and meet water quality goals) and where needed, identify potential feasible and effective measures and practices which could be encouraged and supported to further reduce pollutant loadings from significant potential sources. Though completely voluntary, such recommendations would provide an effective local guide to effective management actions to achieve local water quality goals, establish priorities for grant or loan programs (Section 319 (h), EQUIP, SRF), establish eligibility for grants for Tier plans and implementation, and identify priorities for local watershed assessments and protection plans.

In Columns 1 and 2 of Table 5B, enter each significant potential source and its’ corresponding impact ratings from Table 3. Review Table 5A and list significant management practices and activities applicable to each significant cause or source. Evaluate and compare the estimated extent and relative contribution of each significant cause or source with the extent and effectiveness of the applicable management measures and in conjunction with appropriate local stakeholders or organizations, make a best current determination of whether the existing or proposed management practices would achieve the load reductions needed to achieve the TMDL. Summarize conclusions and rationale in Column 4. If more information is needed to adequately determine the significant sources or causes and their relative contributions so note and recommend management actions needed to adequately identify sources such as monitoring, watershed assessments, or Tier 1 implementation plans in the last column. If the current, proposed and required management measures are judged inadequate to achieve the needed load reductions for significant sources, recommend, in consultation with the advisory groups, additional management activities, programs, and measures which would effectively reduce pollutant loads from the source. List such measures in the final column and list as a recommended activity in the milestones (Table 8).

TABLE 5B: EVALUATION OF MANAGEMENT MEASURES AND ACTIVITIES APPLIED TO SPECIFIC SOURCES OR CAUSESAPPLICABLE TO SPECIFIC PARAMETER: Fecal Coliform Bacteria

SIGNIFICANT POTENTIAL SOURCE (S) OR CAUSE(S) (From Table 3)	IMPACT RATING (From Table 3)	EXISTING, CURRENTLY PROPOSED, OR REQUIRED MANAGEMENT MEASURES OR ENHANCEMENTS APPLICABLE TO EACH SIGNIFICANT SOURCE (From Table 5A)	EVALUATION: WILL THE ESTIMATED EXTENT OF APPLICATION AND EFFECTIVENESS OF EXISTING, CURRENTLY PROPOSED, AND REQUIRED MANAGEMENT MEASURES BE ADEQUATE TO ACHIEVE THE SOURCE REDUCTION SPECIFIED BY THE TMDL?	IF MANAGEMENT MEASURES ARE ESTIMATED TO BE INSUFFICIENT, RECOMMEND ADDITIONAL MANAGEMENT MEASURES AND ACTIVITIES WHICH COULD EFFECTIVELY REDUCE LOADS FROM SIGNIFICANT SOURCES
Malfunctioning Septic Systems or straight pipes to streams	3	Rules and Regulations for On-Site Wastewater Management	Effective administration and enforcement of existing rules will prevent or minimize future failures. The Septic System Repair program funded with Section 319(h) funds could effectively reduce 75 to 100% of fecal coliform coming from this source.	Successful implementation will require education of landowners and effective marketing of the program's availability.
		Septic System Repair Assistance		Additional funding may be necessary to continue the Section 319 program.
Active pasture run-off – Cattle & horse access to streams	3	Cost share of Agricultural BMPs (pasture management, fencing along streams, alternative water sources, etc.)	The Section 319(h) programs along with the NRCS programs could effectively reduce 75 to 100% of fecal coliform from these sources.	Successful implementation of these programs will require effective technical assistance, education and marketing to farmers.
		EQIP Program		Additional funding may be necessary to continue the Section 319 program.
		Conservation Reserve Program		Additional funding may be necessary to meet need.
Poultry Operations	3	Cost share of Agricultural BMPs (poultry manure stack houses and nutrient management plans)	The Section 319(h) programs along with the NRCS programs could effectively reduce 75 to 100% of fecal coliform from these sources	Successful implementation of these programs will require effective technical assistance, education and marketing to farmers.
		EQIP Program		Additional funding may be necessary to continue the Section 319 program.
		Conservation Reserve Program		Additional funding may be necessary to meet need.
Urban Storm water run-off	.5	National Pollutant Discharge Elimination System (NPDES) Permit Regulations	Application of these permit requirements apply to new developments. If effectively administered, these programs will eliminate 75 – 100 % of fecal coliform from these sources.	No additional management measures are needed.
		Implement Phase II Storm Water Management Program and require use of physical structures to treat storm water run-off prior to entering streams		No additional management measures are needed.
Sewer System Leaks and Spills	.5	Sanitary sewer system inventory and inspection; infiltration & inflow identification and reduction; sewer line and manhole rehabilitation	Effective administration and enforcement of existing rules will prevent or minimize future failures.	No additional management measures are needed.

Wildlife	.5	Controlled quota hunts on Dalton Utilities Land Application System Property	The hunts are conducted regularly and the practice has been successful in reducing wildlife population to a properly managed amount..	Nor further measures are required or needed.
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VII. MONITORING PLAN

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

Table 6. MONITORING PLAN

PARAMETER (S) TO BE MONITORED	ORGANIZATION	STATUS (CURRENT, PROPOSED, PLANNED)	TIME FRAME		PURPOSE (If for delisting, date of SQAP submission)
			START	END	
Fecal Coliform, DO, ph, BOD5, Total Suspended Solids, Phosphorus, Nitrate-Nitrogen	Dalton Utilities	Current, on-going	Coincides with LAS Permit	On-going	Monitor effectiveness of the land application system.
Fecal Coliform	Conasauga River Alliance	Proposed	1/1/2007	12/31/2009	Assist with 319(h) project selection; monitor improvements in water quality due to Section 319(h) grants.
Fecal Coliform, Chemicals, minerals	Whitfield County and City of Dalton	Proposed	1/1/2007	On-going	Monitor implementation impacts from Storm Water Management Program

VIII. PLANNED OUTREACH FOR IMPLEMENTATION

List and describe outreach activities, including those described in the Scope of Services that will be conducted to support this plan and the implementation of it.

Table 7. PLANNED OUTREACH

RESPONSIBILITY	DESCRIPTION	AUDIENCE	DATE
NGRDC	Distribute copies of the Plan	To all stakeholders & local governments	4/15/2006
NGRDC/County	Prepare and distribute press release describing the plan and where to attain copies	To the local newspapers	4/30/2006
NGRDC/County	Prepare Power Point presentations and present to civic groups & local agencies	Civic Groups and local agencies	5/15/2006
Conasauga River Alliance	Conduct general education activities regarding non-point source pollution and applicable BMPs; and, promote availability of Section 319(h) grant assistance.	Local governments, Local citizens	In place now and on-going

IX. MILESTONES/ MEASURES OF PROGRESS OF BMPs AND OUTREACH

This table will be used to periodically track and report progress of significant management practices and activities identified or recommended in Tables 5A, 5B, and other sections of this plan, including outreach, additional monitoring and assessments, and the enhancement or installation of management measures and activities. Identify and list significant planned or recommended activities and the target date of accomplishment. Provide room to comment on the effectiveness of the management measure, how much support the measure was given by the community, what was learned, how the measure might be improved in the future, and any other observations made. This table can be "pulled out" of this template and used to report and track progress.

Table 8. MILESTONES

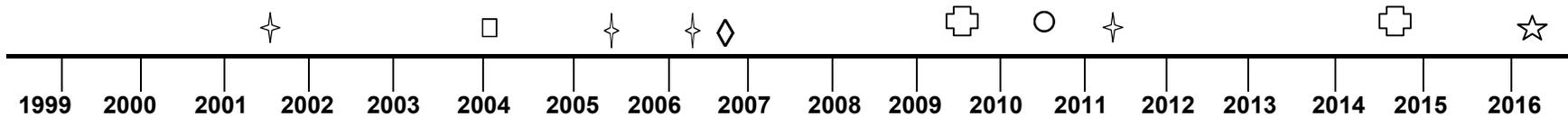
MANAGEMENT MEASURE OR ACTIVITY	RESPONSIBLE ORGANIZATIONS	STATUS		COMMENT
		PROPOSED	INSTALLED	
Rules and Regulations for On-site Wastewater Management	Whitfield, Murray, Gordon County Boards of Health, Environmental Health Offices		X	The environmental health office will continue to effectively enforce and administer the existing regulations.
Septic System Repair Assistance Program	Conasauga River Alliance/ Whitfield and Murray County Health Depts.	X		Application has been approved; implementation to begin 10/30/2006.
Septic System Repair Assistance Program	Gordon County Health Dept./Coosa Valley RDC	X		Section 319(h) application needs to be prepared and submitted.

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Agriculture BMP Installation Assistance Program	Conasauga River Alliance/ Natural Resource Conservation Service	X		Application has been approved; implementation to begin 10/30/2006.
Agriculture BMP Installation Assistance Program	Gordon County, Coosa Valley RDC	X		Section 319(h) application needs to be prepared and submitted.
Environmental Quality Incentives Program (EQIP)	Natural Resources Conservation Service		X	Program assistance is available. Program outreach needs to be conducted. Assistance is provided to farmers as requested.
Conservation Reserve Program	Natural Resources Conservation Service		X	Program assistance is available. Program outreach needs to be conducted. Assistance is provided to farmers as requested.
Georgia Rules and Regulations for Water Quality Control, Chapter 391-3-6-20&21 for CAFOs 301 to 1000 units	Georgia Dept. of Agriculture, Georgia Environmental Protection Division		X	Permits will be issued as needed.
National Pollutant Discharge Elimination System (NPDES) Permit Regulations for CAFOs over 1000 units	U.S. Environmental Protection Agency & Ga. Environmental Protection Division		X	Permits will be issued as needed.
Controlled Quota Hunts on Land Application area	Dalton Utilities, GaDNR		X	Will be continued as needed.
Sanitary sewer system inventory and inspection; infiltration & inflow identification and reduction; sewer line and manhole rehabilitation	Dalton Utilities		X	Activities underway as needed.
Implement Phase II Storm Water Management Program and require use of physical structures to treat storm water run-off prior to entering streams	Dalton and Whitfield County	X		Development of the Storm Water Management Program is underway. Implementation is expected 1/1/2007

PROJECTED ATTAINMENT DATE

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



- Scheduled EPD Basin Group Monitoring ✦
- TMDL Completed □
- Revised TMDL Implementation Plan Accepted ◇
- Plan Status Evaluation Report ⊕
- Plan Update or Revision, if Necessary ○
- Project Attainment for Plans Prepared in 2006 ☆

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Date Submitted to EPD:	March 31, 2006	Revision:	

The preparation of this report was financed in part through a grant from the U.S. Environmental Protection Agency under the provisions of Section 106 of the Federal Water Pollution Control Act, as amended.

APPENDIX A.
STAKEHOLDERS

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

NAME/ORG	ADDRESS	CITY	STATE	ZIP	PHONE	E-MAIL
Jason Osgatharp, Murray County Environmental Health Officer	709 Old Dalton-Ellijay Highway	Chatsworth	GA	30705	706-695-0266	jlosgatharp@gdph.state.ga.us
Dick Barnes, County Land Development Officer	P.O. Box 1129	Chatsworth	GA	30705	706-695-2413	mcldo@alltell.net
Steve Loughridge, farmer	1363 Loughridge Road	Chatsworth	GA	30705	706-695-4531	Steve.loughridge@murray.k12.ga.us
Craig Earnest, Bowater, Inc.	P.O. Box 697	Calhoun	GA	30703	706-629-8634	
Frank Sagona, Conasauga River Alliance	125 Redbud Rd. NE. Suite 7	Calhoun	GA	30703	706-625-7044	fjsagona@aol.com
John Lugthart, Dalton State College	650 College Drive, Division of Natural Sciences	Dalton	GA	30720	706-272-2485	Jlugthart@daltonstate.edu
Paul Johnson, SE Aquatic Research Institute	5385 Red Clay Road	Cohutta	GA	30710	706-694-3957	
Cindy Askew, Natural Resource Conservation Service	1407 Burleyson Drive	Dalton	GA	30720	706-638- 2207, ext 3	Cindy_askew@ga.usda.gov
Machelle Simmons, Natural Resource Conservation Service	717 South Wall Street, Box 1	Calhoun	GA	30701	706-629-2582	Machelle.simmons@ga.usda.gov
John Loughridge, Ga. Soil and Water	700 East 2 nd Avenue, Suite J	Rome	GA	30161	706-295-6131	jloughridge@gaswcc.org

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Conservation Commission						
Tom Martin, Chatsworth Water Works	P.O.Box 100	Chatsworth	GA	30705	706-695-9496	cwater@alltel.net
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
Jim Davis, Whitfield County Administrator	P.O. Box 248	Dalton	GA	30722	706-275-7500	blove@whitfieldcountyga.com
Jean Garland, Whitfield Co. Zoning Administrator	1407 Burleyson Drive, Suite 1	Dalton	GA	30720	706-275-7474	jgarland@whitfieldcountyga.com
Jerrel Autry, Whitfield Co. Environmental Health Specialist, County Health Dept.	1407 Burleyson Drive	Dalton	GA	30720	706-272-2005	whitenv@yahoo.com
Jim Welch, Murray County Commissioner	P.O. Box 1129	Chatsworth	GA	30705	706-695-2413	mcgovt@alltel.net
Brian Anderson, Whitfield County Commission Chairman	P.O. Box 248	Dalton	GA	30722	706-275-7500	banderson@whitfieldcountyga.com
Don Cope, President and Chief Executive Officer, Dalton Utilities	P.O. Box 869	Dalton	GA	30722	706-278-1313	dcope@dutil.com
Randy Dowling, Gordon County Administrator	201 N. Wall Street	Calhoun	GA	30703	706-629-3795	rdowling@gordoncounty.org
Alvin Long, Gordon County Commission Chairman	P.O. Box 580	Calhoun	GA	30703	706-629-3795	
Christy Blair, Gordon County Environmental Health Office	318 N. River Street	Calhoun	GA	30703	706-674-1440	chblair@dhr.state.ga.us
Shawn Clouse, The Nature Conservancy	109 King Street, Suite 1	Dalton	GA	30720	706-279-9001	sclouse@tnc.org

APPENDIX B

UPDATES TO THIS PLAN

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

APPENDIX C
VISUAL FIELD SURVEY

Visual Field Survey

For

**Conasauga River TMDL Segment
(Holly Creek to Oostanaula River)**

December 2005

Prepared by the North Georgia Regional Development Center.

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INTRODUCTION

1.1 Location

The impaired segment of the Conasauga River is located along the border of Whitfield and Murray County line, and it runs into Gordon County past Resaca. The Conasauga River's HUC 12 watershed expands across all three of these counties.. The impaired segment and the HUC 12 watershed are shown below in Figure 1.

1.2 Watershed Description

The Conasauga River TMDL segment watershed is comprised of 33,191.8 acres of land inside Whitfield and Murray County. The TMDL segment is located within HUC 10 – 0315010105 and flows south. Based upon our most recent existing land use data for Whitfield and Murray County, mapping of the TMDL segment watershed shows that land cover within the watershed is varied. Roughly 51% of the land is classified as vacant, 14% is utilities, 12% of the land is classified as agriculture, and 11% is classified as residential. The table below breaks down each land cover and their percentage in the Conasauga River watershed.

Table 1. Watershed Land Cover

Land Cover Classification	Area (Acres)	% of Total Area
Agriculture	4021.9	12%
Commercial	436	1%
Industrial	1308.9	4%
Public	275.9	<1%
Residential	3758.4	11%
Vacant	17179	51%
Parks/Recreation	44.4	<1%
Forestry	507.8	2%
R/W (Roads)	706.2	2%
TCU	4528.4	14%
Water	626.9	2%
Total	33393.8	100%

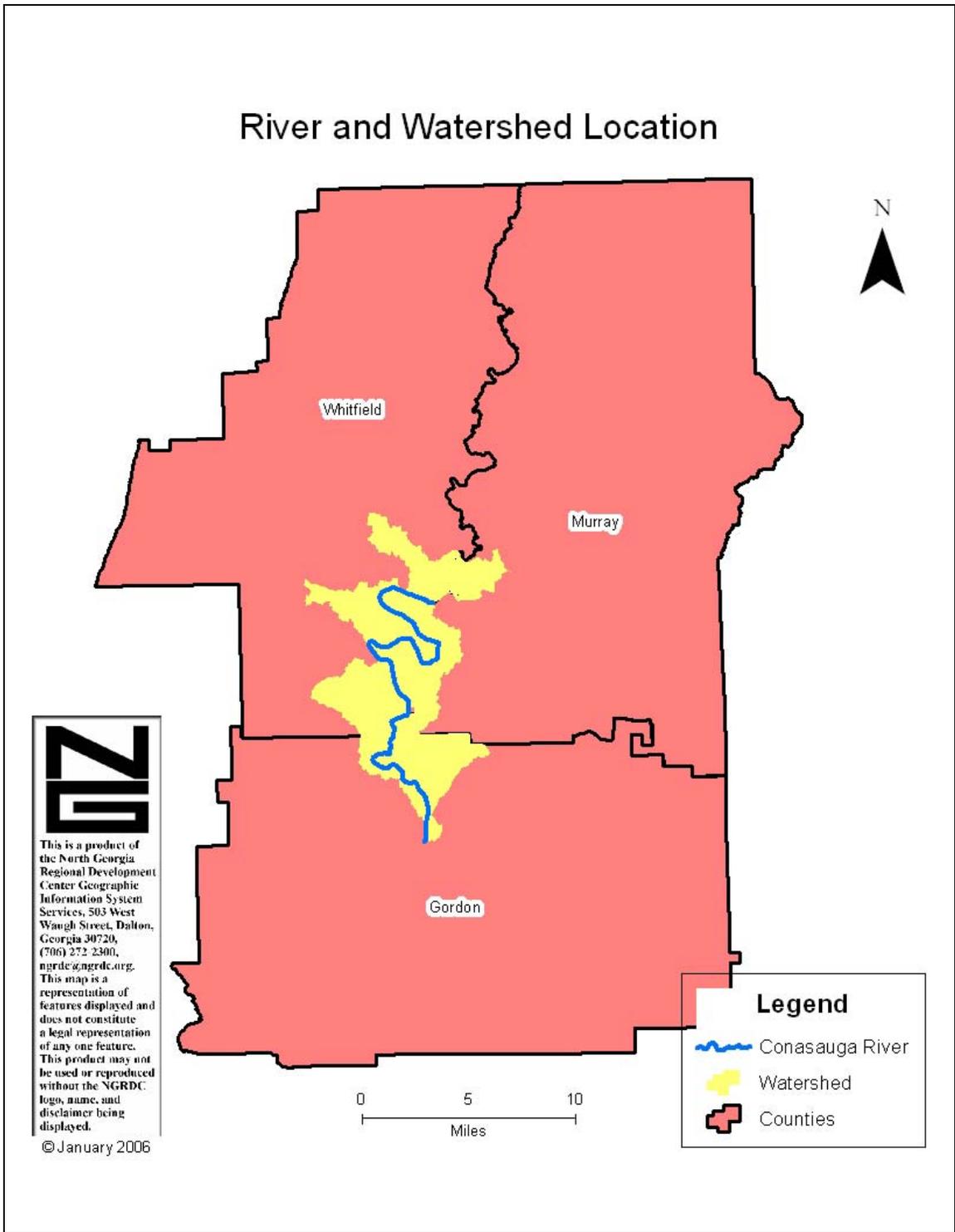


Figure 1

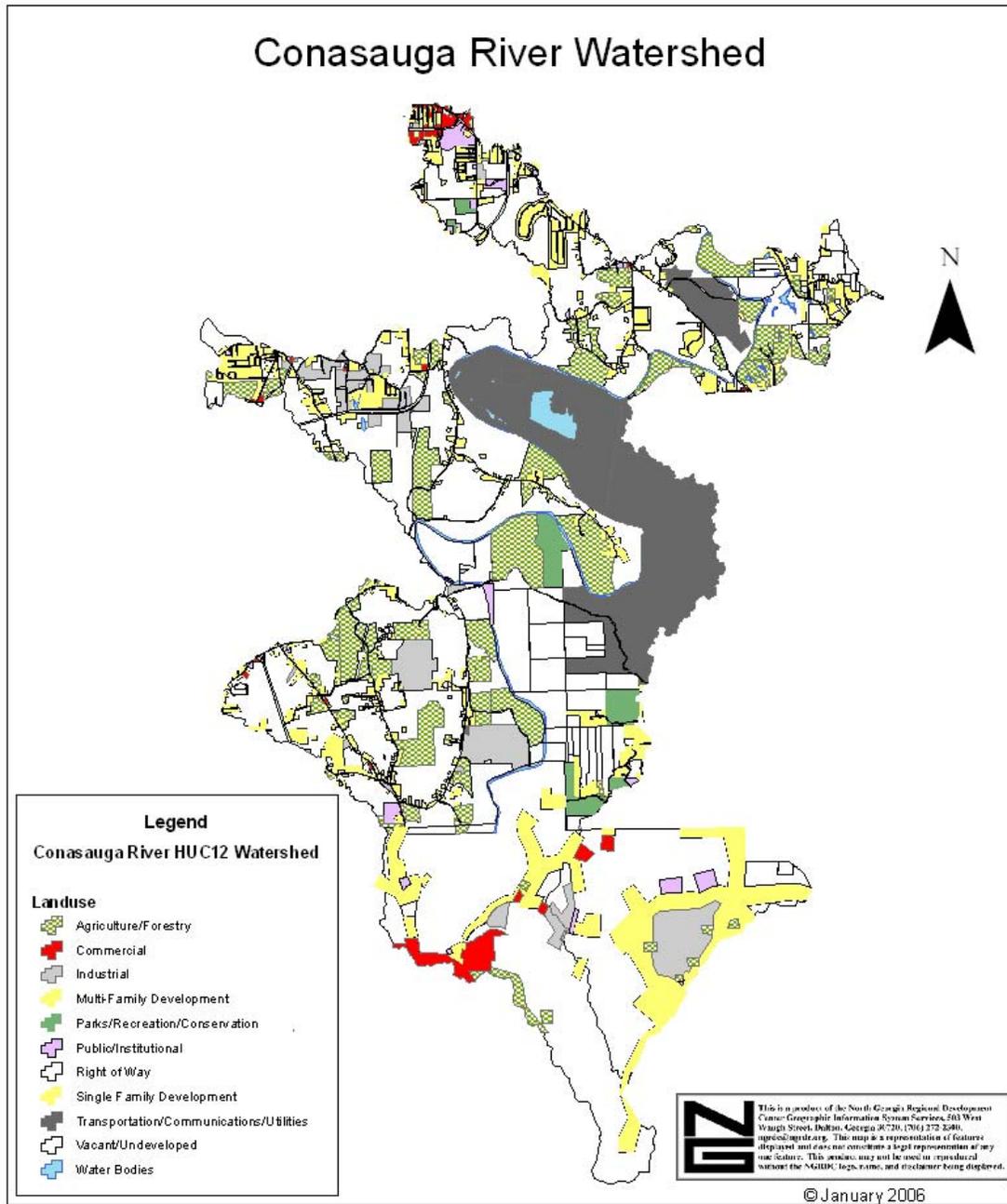


Figure 2

2.0 METHODOLOGY

The Source Water Assessment Project (SWAP, December 2003)) was studied to determine the locations of any known point sources and potential individual sources of pollution in relation to the area of interest. Aerial photos were also used as another means to compile information and further evaluate the area.

A windshield survey of the watershed area adjacent to the stream segment was the initial step. There are three road crossings on the Conasauga River TMDL segment (Tilton Bridge Road, Ellijay Road, and Fog Road). All three road crossings were visited during the windshield survey. The stream was not conducive to walking for reasons such as private property and no trespassing signs posted. The road crossings were not the only places in the watershed that were visited however. Many potential problem areas within the TMDL stream segment were visited to confirm land use aerial photography. The purpose of the stream segment visual survey was to identify and observe possible sources of pollution. Observations were documented and captured in photographs of the stream channel and its surroundings.

3.0 Field Findings

3.1 General Characteristics

The field findings discussed here are the results of the visual survey at road crossings as well as visual surveys throughout the entire TMDL stream segments watershed. A pretty thick vegetative buffer bordered the Conasauga River TMDL segment, but there are also a few areas with little to no buffer at all. The Creek had a nice moving flow, and it did not seem to be congested with much debris. General photographs of the stream condition at access points to the segment are shown below in Figure 3.



Figure 3. Conasauga River at Tilton Bridge Road (looking downstream)



Figure 4. Farmland in the watershed

3.2 Point Sources

Public sewer run by Whitfield County is serving a small portion of the watershed, approximately 276 acres inside the city of Dalton.

3.3 Non-Point Sources

The watershed is rural in nature, and has farms with cows and horses that may have some non-permitted animal feeding operations (Figure 4). There is also a good amount of wildlife in this area as well. Poultry production is prominent in all three counties in the Conasauga River watershed. There are also plenty of places where cattle and horses have easy access to the surrounding streams. The majority of the Conasauga River watershed is served by septic systems. There are numerous homes located directly on the river and along its tributaries.



Figure 5. Conasauga River at Tilton Bridge Road

4.0 Ranks Assigned To Pollution Sources

There are a variety of pollution sources that are affecting the Conasauga River TMDL segment. Animal waste from the surrounding wildlife is a low to moderate source of fecal coli form, as well as waste from horse or cattle farms. Straight pipes and leaking or failing septic tanks are also another moderate source of fecal coli form bacteria affecting sporadic areas along the stream segment. Agricultural run-off and leaking or failing septic systems may be the main contributor, but it is not the sole problem.

5.0 Summary of Findings

There are potential point source discharges flowing directly or indirectly into the TMDL segment. There are many non-point sources in the TMDL stream segments watershed as well. The field survey and background investigation identified urban runoff, wildlife and domestic waste, and possible septic tank leaking and/or failure.

