Macon County, Tennessee Solid Waste Planning Region Solid Waste Needs Assessment



Prepared by: The Upper Cumberland County Development District and Macon County, Tennessee June 2011

as required by The Solid Waste Management Act (T.C.A. §68-211-811).

TENNESSEE DEPARTMENT OF ENVIRONMENT AND CONSERVATION Division of Solid Waste Management 401 Church Street, 8th Floor Nashville, TN 37243-1533 **SECTION 1:** Provide a table and chart of the region's population during the past ten (10) years with a projection for the next five (5) years. Provide a breakdown by sub- table and sub-chart, or some similar method to detail county and municipality populations. Considering the trends, discuss the affect on the solid waste infrastructure needs over the next five (5) years.

Year	Unincorporated	Red Boiling Springs	Lafayette	Macon County
2000	15,422	1,067	3,956	20,445
2001	15,728	1,079	4,004	20,811
2002	15,698	1,074	3,999	20,771
2003	15,784	1,078	4,035	20,897
2004	15,959	1,087	4,085	21,131
2005	15,989	1,087	4,160	21,236
2006	16,203	1,100	4,241	21,544
2007	16,264	1,103	4,328	21,695
2008	16,471	1,115	4,421	22,007
2009	16,409	1,112	4,536	22,057
2010	17,768	1,115	4,590	23,473
2011	18,014	1,117	4,644	23,775
2012	18,260	1,119	4,698	24,077
2013	18,506	1,121	4,752	24,379
2014	18,909	1,125	4,701	24,735
2015	19,187	1,150	4,755	25,092

Sources: Historic data are from the U.S. Census Bureau. Projections are based on data from the University of Tennessee CBER Data compiled by the Upper Cumberland Development District, 2010.

Macon County, Demographics, Statistics and General Information:

Macon County is located on the Eastern Highland Rim of the Upper Cumberland region of Tennessee and covers 307 square miles. The county borders Kentucky on the north by Allen and Monroe Counties and on the south by Smith and Trousdale Counties in Tennessee. The northern portion of the county lies in the highland rim, while the southern area is in the central basin.

The county seat is Lafayette, which is 65 miles from Nashville. Lafayette is served by State Highways 10 and 52, with access to interstate 1–40 and I–65. The Lafayette Municipal Airport is located west of the City Limits. The County is a part of the Nashville, Davidson, Murfreesboro, and Franklin Metropolitan Statistical Area.

Macon County's population growth has been moderate for the past several years. This is primarily due to the large manufacturing job losses. The growth that has occurred has been largely related to spillover from the Nashville MSA. Lafayette is expected to show continuing moderate growth, while Red Boiling Springs growth will continue at a slower rate.

Economic Impact of Increasing Retiree Population

"Retire Tennessee" is a strong program that has wide spread support throughout the state and local governmental agencies. This program intends to capture a portion of the 12,000 "boomers" who retire daily. Macon County, with its proximity to the larger Nashville metropolitan region is estimated to attract this group as new Macon County citizens.

Using an input-output economic model to analyze the expenditures that each retiree makes and its impact on jobs, it is estimated that a retiree creates one-half to one new job in a community. Planning for and anticipating the increase in a retiree population can address the demands for housing, transportation, health care and retail infrastructure within the county.

Tourism Industry in Macon County

The State of Tennessee is accessible to 75% of the total population of the United States and which has become an increasingly important factor in the State's economic development. In 2009, tourism in Macon County generated \$6.06 million in direct tourist spending; it produced \$990,000 million in worker income and created \$360,000.00 in local tax revenues. (University of Tennessee-Knoxville, Tourism Institute, 2010)

SECTION 2:

Provide a table and chart showing the region's economic profile for the county and its municipalities for the last ten (10) years with a projection for the next five (5) years. This can be accomplished by using the following economic indicators:

• Taxable sales, property tax generation, and per capita income, valuation by break down of each economic sector, county or municipal budgeting information and commonly accepted economic indicators.

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SECTION 3:

Elaborate on the region's solid waste stream. Compare the current waste stream with trend anticipated over the next five (5) years, and discuss how this new total will be handled. Include in this discussion how problem wastes like waste tires, used oil, latex paint, electronics and other problem wastes are currently handled and are projected to be handled in the next five (5) years. What other waste types generated in this region require special attention? Discuss disposal options and management of these waste streams as well as how these waste streams will be handled in the future. Include in this discussion how commercial and industrial wastes are managed. Also, provide an analysis of any wastes entering or leaving the region, noting the source and amounts of such wastes.

Macon County is a unique case study in how to divert higher percentages of waste with minimal funds. The department, year after year continues to achieve high diversion rates with less funding. A good example of this is their ability to reach a 93% diversion rate in 2010. This impressive diversion rate occurred even after the suspension of their school and tire recycling program for four months, due to funding cuts.

Solid Waste Program	Existing Regional Solid Waste Programs	Future Regional Solid Waste Programs
Residential Solid Waste Collection	Macon County provides its citizens with one convenience center to utilize for waste and recycling. Both the cities of Lafayette and Red Boiling Springs offer once per week curbside waste removal. Also, there are three private companies that provide waste removal services to the residents of Macon County.	Neither of the two cities plans to suspend their curbside waste collection programs. This will allow the county department to continue to focus on educating the public, collecting waste at the convenience center and diverting waste from the landfill. No major changes are planned, unless funds become available for a new convenience center.
Recycling	See Chart Below for more details.	Due to budget cuts within the county government, the department has had to suspend recycling in 2010 for over four months. Unless funds become available the department will have to suspend recycling efforts in the future.
Waste Reduction	The Macon county solid waste department currently has a 93% diversion rate.	The County Solid waste department will continue to meet and exceed the 25% diversion rate.

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	The Macon County Solid Waste	The county solid waste department
Problem	Department has a recycling brochure to	does not plan on changing the fee scale
Waste	explain where citizens can recycle	or the items that are collected at the
Management	problem waste. The department	convenience center. However, the
Management	charges \$55 per ton for most problem	department plans on expanding their
	waste. There is a \$95 per ton charge	efforts to encourage businesses to
	for tires and a \$1 per can charge for	recycle more commodities. The
	paint(latex/oil). Latex is solidified with	department may need to find an
	mulch and the oil based paint is stored	additional funding stream to keep the
	until a HHW event is held. The recycling	school recycling program afloat.
	brochure also lists the sites throughout	
	the county that takes motor oil and	
	batteries and provides other	
	suggestions on how to handle	
	unwanted items.	
Public	The key to the success of the public	The department plans to continue
Education &	education program is the consistent	utilize the newspaper, radio and TV to
Information	message for the last 10 years. The	further the educational process. The
	utilization of multimedia outlets,	department will also continue to
	outreach, national and state events and	participate in State and National events.
	written material has helped to	The demonstration for the second
	consistently convey the message.	The department is planning on
		expanding its educational program.
Disposal	The Macon County Convenience center	The county does not have plans to
	waste is transported to the Smith	divert from this plan in the next ten
	County Landfill.	years.
Planning	The department is planning on	At this time, the department is not
	maintaining the existing program, with	planning on making any long term
	the expansion of educational efforts to	changes to the current program.
	businesses.	

Macon County Recycling Program



The Macon County Solid Waste Department has achieved a waste reduction rate of 93% (real time methodology), exceeding the State mandated 25% goal. The key to their program is not more staff, more equipment and more room. The key is education. Although they need more funds to hire staff, purchase equipment and construct facilities at the convenience center, they have built a strong educational program that has shown real results.

Their educational efforts, with a month long event, special campaigns, school contests and utilization of local media has been very successful. The department is able to get a brochure in the hands of each citizen that goes through any drive-thru in the county during the month of November. This includes banks, City Hall, Telephone Company and Electric Company.

The solid waste department attempts to use local vendors for the recycled material, whenever possible. Batteries, metals and propane tanks are all recycled locally, while electronics are recycled by a company out of Knoxville.

Commercial, Business and Industrial Diversion Efforts:

The county recycling brochure indicates that there are several auto parts dealers that accept used oil and batteries at no charge. As indicated in the 2010 Re-Trac report, four local auto part's dealers collected 53.86 tons of used oil. Some of the oil was burned to produce heat, while some vendor's had private contractor's to pick up the oil for recycling.

The solid waste department collects cardboard from drop off sites utilized by several local businesses and then transports the material, along with the recycling from the school system to the North Central Recycling Center in Hartsville.

Six Industries in Macon County diverted over 57,000 tons of material in 2010. These businesses did not recycle paper, other than cardboard. An expanded recycling program should include an educational component on how to set up a paper recycling program at each of their offices.

A future expanded recycling program should include a visit to Macon County General Hospital and the assisted living facilities. The institutional sector has shown success with recycling in other counties and may have funding available to implement a program.

SECTION 4:

Provide a detailed description of the waste collection system in the county and each municipality, including a narrative of the life cycle of solid waste from the moment it becomes waste (loses value) until it ceases to be a waste by becoming a useful product, residual landfill material or an emission to air or water.



Collection Program and Sites:

The City of Lafayette and Red Boiling Springs provide curbside garbage pickup for residents. In addition, there are three private haulers who provide weekly residential curbside pickup throughout the entire county. There is also a private hauler based outside the county, TDS provides residential and commercial waste pickup.

Convenience Center:

Macon County Transfer Station

1319 Heady Ridge Road, Red Boiling Springs, TN 37150

615-699-3707, Debbie Richardson Harper

Hours: Monday – Friday, 8:00am – 3:00pm, Second Saturday, 8:00am – 12:00pm Waste that is accepted at this site for a fee is sorted into class I, class III and recyclable. Accepts: electronics, lead acid & rechargeable batteries, antifreeze, empty propane cylinders, metal, appliances and tires. Also, paper, 1 & 2 plastic, metal, aluminum, household latex paint and cardboard.

Customers pay a fee of \$55.00 per ton for solid waste, \$95.00 per ton for non-manifested tires and \$1.00 per can for paint. The department pays the Smith County Landfill a tipping fee of \$33.00 per ton for transported waste from the convenience center.

- Electronic waste is transported by Scott Electronics, Knoxville, TN
- Tires are transported by Martin Tires, Marion, KY
- Batteries are taken to Macon Recycling & Salvage, Lafayette, TN
- Metal and Appliances are take to local salvage businesses
- Propane Cylinders are taken to local salvage businesses or Blue Rhino through Smith County Landfill.
- Antifreeze is sent out to Continental Oil, Lebanon, TN

Recyclable Drop Off Sites: accept paper, cardboard, 1 & 2 plastic, tin cans and aluminum

- 1. Westside Community on Hwy 52 at Jct. Hwy 141, Lafayette
- 2. Hardees/WalMart, 417 Hwy 52 by-pass, Lafayette
- 3. Career Center/UCHRA, 607 Hwy 52 by-pass, Lafayette
- 4. Martin's Hillwood Shopping Center, 730 Hwy 52, Red Boiling Springs
- 5. All Seven (7) County Schools

The material accepted at the drop-off sites and schools is transported weekly to North Central Recycling Center at 410 Trousdale Way, Hartsville. The Macon County Solid Waste Department is a member of the North Central Solid Waste Planning Region, which serves as board members of the non-profit. The recycling center that accepts the material and does not pay for the material.

Businesses, Industry and Commercial Sector:

The Macon County Solid Waste Department works with many operations that fall within this category to ensure that they are recycling. The department provides technical assistance and may even provide pick up services.

Private Haulers:

Ace Trash Disposal	615-669-5263
Kyle's Trash Service	615-688-8800
Macon Trash Service	615-666-5628

The waste generated throughout the county by citizens, government, businesses, industry and commercial endeavors is by in large transported to three landfills; Smith County, Upper Cumberland and Middle Point. Recycling is not available at the three landfills that Macon County waste is transported to by the county, cities or private haulers.

Year	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010
Diver sion	3503	1164	4582	5243	9548	10157	12633	37203	48170	54105	71119
Waste	11988	9282	8927	10291	12486	9568	9767.5	11220	14400	6866	6222

The Macon County Solid Waste Department has set up a comprehensive educational program to ensure that the residents and businesses in the county know where and how to recycle material. If material is not collected by the county program, a list is provided to customers/citizens of sites throughout the county that accepts problem waste.

Over the next five years, the department does not expect to see a significant change in the collection, sorting or disposal of waste. The department is expecting to expand their educational program, if funding continues to be available. Also, county officials have discussed the need for an additional transfer station, but funding is not available for this plan.

SECTION 5:

Provide organizational charts of each county and municipality's solid waste program and staff arrangement. Indentify needed positions, facilities, and equipment that a fully integrated solid waste system would have to provide at a full level of service. Provide a scale county level map indicating location of all facilities including convenience centers, transfer stations, recycling centers, waste tire drop-off sites, used oil collection sites, paint recycling centers, all landfills, etc. Identify any short comings in service and note what might be needed to fill this need.



The Solid Waste Department sorts material at the convenience center, hauls recycling from public drop-off sites, businesses and schools to the North Central Recycling Center, transports solid waste to the landfill and provides educational programming for the region. The department utilizes the janitorial and custodial staff of the school system to sort the material collected in the classrooms into bins set up in the parking lot of each school. (This cooperative system keeps the cost at a minimum for the school recycling program).

The department relies on grants to accomplish their tasks and the need for equipment is constant. At this time the department needs additional boxes and recycling roll-off containers to maintain and grow their business and school recycling program. Currently they estimate that they will need a new loader/bobcat, a new truck with a stellar hook lift, a forklift and horizontal baler in the future to continue providing the services to the region.

If county funding remains constant the Macon County Solid Waste Department will be able to maintain their recycling programs, unlike in 2010 when the program had to be suspended for four months, due to lack of funds. Another gap in services might cause the school system and some of the businesses to discontinue their recycling programs. It is the opinion of the Upper Cumberland Development District's Solid Waste Technical Assistance staff that a disruption in recycling services will cause a significant drop in recycling totals.



SECTION 6:

Describe current attitudes of the region and its citizens towards recycling, waste diversion, and waste disposal in general. Where recycling is provided, discuss participation within the region. Indicate current and ongoing education measures to curb apathy or negative attitude towards waste reduction. Are additional measures needed to change citizen's behaviors? If so, what specific behaviors need to be targeted and by what means?

After interviewing key stakeholders in the Macon County community, the Upper Cumberland Development District staff assessed that there appears to be a positive attitude towards recycling. The current solid waste director has built ownership in a wide cross section towards the idea of recycling. Her understanding of the importance of education is apparent and her willingness to perform a variety of duties serves the county well. Although, no formal survey has been conducted and no qualitative data exists, it appears that with the education program there is a heightened awareness that is visible in the general public on the importance of recycling.

The Macon County Solid Waste department's promotion of the idea of recycling/waste reduction as part of the recycling program is essential to the success of their sustainable waste management practices. In order to implement new systems, creative education and promotional activities must compliment regular operations. It is the opinion of the development district staff that this idea must be communicated on a regular basis with the Macon County government officials. This will ensure that sustainable practices are incorporated into the long range plans of the region.

Recycling is just one step away from the garbage can and is merely a stop gap measure. The larger picture of best management practices involves waste reduction and material reuse and this is where Macon County Solid Waste Department can realize success, with the support of the County Mayor and Commissioners.

The county wide school system recycling program is a case study on how to implement a comprehensive recycling program with limited resources and with multiple jurisdictions. The program involves the janitorial, cafeteria and administrative staff's full support. By assessing the needs of the staff and providing the equipment needed to collect the material, the solid waste department has overcome the negative feelings of adding more work. This ownership by the staff is the key to its success.

Opportunities do exist to improve the Macon County Solid Waste Department, although on a small scale with the limited funds and staff. An increase in commercial recycling, waste reduction, an increase in the amount of paper recycled and the composting of organic waste are three areas that the department might want to investigate and implement into long range goals.

SECTION 7:

The Solid Waste Management Act of 1991 requires all regions to reduce the amount of waste going into Class I landfills by 25%. Amendments to the Act allow for consideration of economic growth, and a "qualitative" method in which the reduction rate is compared on a yearly basis with the amount of Class I disposal. Provide a table showing the reduction rate by each of these goal calculation methodologies. Discuss how the region made the goal by each methodology, or why it did not. If the Region did not meet the 25% waste reduction goal, what steps or infrastructure improvements should be taken to attain the goal, and to sustain this goal into the future.

		Waste Reduction G	oal Calculation Metho	d
County	Compared to Base Year	Population Ratio	Economic- Population Ratio	Qualitative- Real Time
Macon				93.11

Macon County, in the last eight years has exceeded the 25% diversion rate, set by the State of Tennessee. Their commitment to education should be commended along with their ability to build a strong recycling program throughout the school system. If this model was duplicated in other districts it could affect real change in diversion rates and change the "throw away" culture that exists in the State.

Although Macon County is on the outskirts of the Nashville Metropolitan Statistical Area, it is seeing only a slight increase in population and sales tax collected. Overall the county is doing better than the state, as a whole. (UCDD date, 2010) The county is currently working on projects to rehabilitate sewer and waterlines, improve emergency management services and have begun discussions on the need for a new Industrial Park.

SECTION 8:

Chart 8A Using the example shown below, provide a chart indicating current collection and disposal capacity by facility site and the maximum capacity the current infrastructure can handle at maximum through put. Provide this for <u>both Class</u> <u>I and Class III/IV disposal and recycled materials</u>. Identify and discuss any potential shortfalls in materials management capacity whether these are at the collection or processor level.

Site Name(s)	Current	Maximum	Projected Life of	Shortfalls in Materials		
	Disposal by	Capacity	Facility	Management		
	Macon Co.					
Landfills						
Smith County Landfill						
Class I, Carthage,	2,094 tons	200 tons per day	75 years	Private company		
615-683-7927						
Smith County Landfill	913.09					
Class III, Carthage,	Tons	100 tons per day	75 years	Private company		
615-683-7927	TOUS					
Upper Cumberland						
Class I Landfill, Red	3,064.12	75 tons per day	7 years	Privata company		
Boiling Springs, 931-	Tons	75 tons per day	7 years	Private company		
258-3954						
Middlepoint Class I						
Landfill,	150.69	200 tons par day	20 10000	Privata company		
Murfreesboro,	Tons	200 tons per day	20 years	Private company		
615-849-4410						
Convenience Center:	1,861 Tons	No assessment	At current rates	Antiquated equipment and		
Heady Ridge Road,	passed over	of maximum	and projected	lack of funds for additional		
Red Boiling Springs	the scales in	capacity has	increases in	staff contribute to an		
615-699-3707	2010 to be	been completed	material, the site	inability to grow the		
	sorted.	or needed.	is adequate.	program substantially.		

(B) Provide a chart or other graphical representation showing service area coverage by public and private waste collectors within the county and municipalities. Include provider's name, area of service, population served by provider, frequency of collection, yearly tons collected, and the type of service provided. Chart 8B

Provider of Service	Service Area	Population Total Under This Service	Frequency of Service (Weekly, Bi- weekly, on call, etc.)	Annual Tonnage 2010	Type Service (Curbside, Convenience Center, Green Box)
City of Lafayette	City Limits	4,474	Once a week	Class I: 1,536.5 Class III: 493.99	curbside
City of Red Boiling Springs	City Limits	1,112	Once a week	Class I &III 909.39	curbside
Private Haulers	County wide	22,248	Dependent on contract with customer	*	curbside
Macon County Convenience Center	County wide	22,248	Drop Off	1,861	Convenience Center

*Businesses and Industry are covered by private haulers, who are not required to provide information to the Upper Cumberland Development District's request. Macon Trash Services, a private hauler shared that they haul about 6 tons a day.

SECTION 9: Complete the following chart and discuss unmet financial needs to maintain current level of service. Provide a cost summary for current year expenditures and projected increased costs for unmet needs.

	Expendit	ures	
Description	Present Need \$/year	Unmet Needs \$/year	Total Needs (Present + Unmet) \$/year
Salary and Benefits	126,535.00		
Transportation/hauling	11,110.00	(20,890.00)	32000.00
Collection and Disposal Systems			
Equipment			
Sites			
Convenience Center	54,000.00		
Transfer Station			
Recycling Center			
MRF			
Landfills			
Site			
Operation			
Closure			
Post Closure Care	14,600.00		
Administration (supplies,	19,450.00		
communication costs, etc.)	,		
Education			
Public			
Continuing Ed.			
Capital Projects			
	REVEN	UE	1
Host agreement fee			
Tipping fees			
Property taxes	120,583.00	(20,890.00)	141,473.00
Sales tax			
Surcharges			
Disposal Fees	66,500.00		
Collection charges			
Industrial or Commercial			
charges			
Residential charges			
Convenience Centers charges			
Transfer Station charges			
Sale of Methane Gas			
Other sources: (Grants, bonds,	15,000.00		
interest, sales, etc.)			

SECTION 10:

Identify all current revenue sources by county and municipality that are used for materials and solid waste management. Project future revenue needs from these categories and discuss how this need will be met in the future. Use Chart 9 as an example to present data.

The major challenge for all county departments is funding, especially for the solid waste department. In a "throw away" society, the importance of diverting waste is not on most citizens' radar. The best that a solid waste department can hope for is to maintain current budget levels, encourage citizens to find alternative avenues to divert unwanted items and hope that other funding sources materialize in the future.

The Macon County Solid Waste Department receives funds through the collection of property taxes, fees charged at the convenience center, grants, the sale of commodities and reimbursement for tire collection. Due to lack of funds from the collection of property taxes and budget constraints within the county, the solid waste department had to suspend the recycling program for five months.

Currently, the solid waste department has a fee structure for household waste and for problem waste that is delivered to the convenience center. This system provides additional funds to maintain the solid waste services.

To ensure that the county continues to improve their waste management system, the budget constraints will need to be addressed and the importance of diversion will need to be highlighted in future budget meetings with county officials. The Solid Waste Director believes that if the county can maintain the same budget, without the \$20, 890.00 cut; they can sustain the current services and realize a slight increase in diversion. As of June 2011, the county has restored the full solid waste department budget and the director is working towards providing more evidence on how the existing plan is needed to prepare for the future of the county.

The county has strong leaders; from the County Executive and his administration to the citizen groups that work on social, economic and environmental issues. These citizens, whether elected or not, are committed to improving the economic and social climate of Macon County and they understand the importance of having a comprehensive waste management system.

SECTION 11:

Discuss this region's plan for managing its solid waste system during the next five (5) years. Identify any deficiencies and suggest recommendations to eliminate deficiencies and provide sustainability of the system for the next five (5) years. Show how the region's plan supports the Statewide Solid Waste Management Plan.

Macon County has been greatly affected by the nation's economic slump; the current unemployment rate is close to 11% and over the last 10 years the county has lost most of its manufacturing jobs. As they redefine their goals and objectives in order to build a strong economy and provide for the quality of life of its citizens, the issue of waste management needs to be an important component of any planning.

As the county develops long range plans to address the need for a sustainable waste management system the existing system should be utilized. The existing curbside waste collection program in both the City of Lafayette and Red Boiling Springs needs to be analyzed to determine how to incorporate a recycling component.

It is the opinion of the Development District technical assistance staff that Macon County has an effective solid waste department that produces results under extreme budgetary constraints. If even a small amount of additional educational funding was made available to the department, greater results could be realized.