

# **Dekalb County, Tennessee Solid Waste Planning Region**



## **Solid Waste Needs Assessment**

**Prepared by:  
The Upper Cumberland County Development District  
June 2014**

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  
William R. Snodgrass TN Tower  
312 Rosa L. Parks Ave., 14<sup>th</sup> Floor  
Nashville, TN 37243**

## **INTRODUCTION**

The *Solid Waste Management Act of 1991* requires Tennessee local governments to prepare and maintain a comprehensive plan for managing their solid waste efficiently. To ensure that such planning is based on a solid foundation of relevant and objective knowledge of local conditions, the Act requires that the Development District staff coordinate, conduct and maintain an assessment of the solid waste needs for each municipal solid waste planning region. This assessment shall be revised every five years (*T.C.A. 68-211-811*).

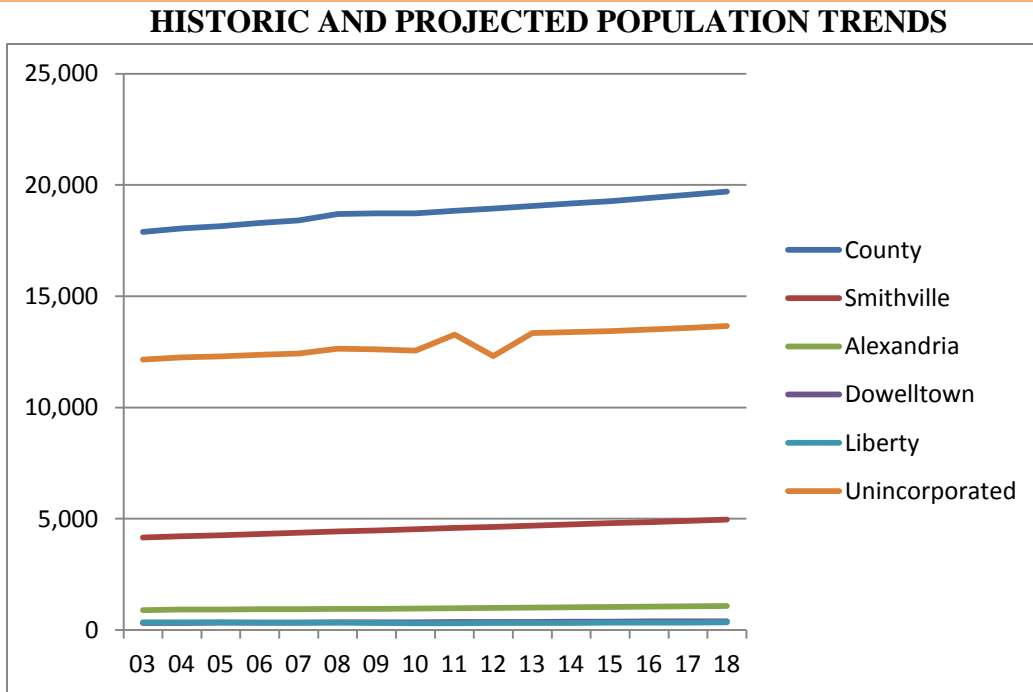
## **CATEGORIES OF INFORMATION REQUIRED:**

- Demographic information and projections
- An analysis of economic activity within the region
- A characterization of the waste stream
- Projections of solid waste generation
- An evaluation of the collection systems within the region
- An evaluation of existing solid waste management facilities and capacities, and of any new or expanded facilities planned
- A statement of solid waste management goals that are consistent with the state plan
- An analysis of existing or potential waste flows within the region and between adjacent regions
- A comparison of the projected volume of generated and imported waste, with available and projected capacity to manage it, and identification of potential shortfalls in that capacity
- Any additional information the commissioner may require

**ITEM 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 municipal populations. Considering the trends, discuss the effect on the solid waste infrastructure needs over the next five (5) years.

<b>DEKALB COUNTY HISTORIC AND PROJECTED POPULATION TRENDS</b>						
<b>Year</b>	<b>County</b>	<b>Smithville</b>	<b>Alexandria</b>	<b>Dowelltown</b>	<b>Liberty</b>	<b>Unincorporated</b>
2003	17,883	4,156	902	318	352	12,155
2004	18,051	4,210	917	323	347	12,254
2005	18,150	4,264	925	328	342	12,291
2006	18,289	4,318	931	333	337	12,370
2007	18,414	4,372	938	339	332	12,433
2008	18,693	4,426	948	344	327	12,648
2009	18,720	4,480	952	349	322	12,617
2010	18,723	4,530	966	355	310	12,562
2011	18,834	4,584	981	360	312	13,269
2012	18,945	4,638	996	365	315	12,311
2013	19,056	4,692	1,011	370	320	13,353
2014	19,167	4,746	1,026	375	325	13,395
2015	19,276	4,800	1,041	380	330	13,435
2016	19,419	4,854	1,056	385	335	13,509
2017	19,562	4,908	1,071	390	340	13,583
2018	19,705	4,962	1,086	395	345	13,657



Dekalb County is home to approximately 19,056 residents and has four incorporated cities and county seat, Alexandria, Dowelltown, Liberty, and Smithville, Tennessee. Dekalb County has, for the past several years, been experiencing moderate population growth. This is expected to continue for the foreseeable future. The very small towns of Dowelltown and Liberty have shown little or negative growth during the past several years. Alexandria has shown slow growth and Smithville has been increasing moderately. State regulations relating to annexation may slow the future growth of Smithville, but the unincorporated parts of the County are expected to continue to show moderate growth. These trends point to moderately increasing demands for solid waste services. DeKalb County has a landfill and 11 convenience centers. They intend on adding a transfer station in the future, which will help with the increasing demands for solid waste. Current solid waste infrastructure will not be required to change due to the efficient amount of convenience centers and the future transfer station. The cities of Alexandria and Smithville use curbside pick up for their waste and transport it to the local convenience centers, while the cities of Dowelltown and Liberty use a private hauler to transport their waste to the DeKalb County Landfill. All DeKalb County residents have access to the DeKalb County Convenience Centers. This system has worked well for the incorporated cities in DeKalb County and will continue as the demands for solid waste moderately increase. I strongly believe that DeKalb County should increase their recycling efforts to maximize revenue and to keep waste out of the Landfill.

**ITEM 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
- Evaluation by break down of each economic sector
- County or municipal budgeting information
- Other commonly accepted economic indicators

DE KALB COUNTY HISTORIC AND PROJECTED ECONOMIC INDICATORS																	
Year	Labor Force Data				Non-farm Wage and Salary Employment									Capita Income (\$'s)	Tax Collections (\$'s)	Retail Sales (\$000's)	Bank Deposits (\$000's)
	Total	Emp	Unemployment		Total	Goods Producing				Service Producing							
			Total	Rate(%)		Total	Total	Mfg	Other	Total	Trade	Health	Gvt				
2003	9,540	9,060	480	5.1	6,090	2,590	2,530	60	3,500	960	460	850	1,230	23,924	#N/A	106,363	269,823
2004	9,680	9,180	490	5.1	6,280	2,570	2,510	60	3,710	850	440	850	1,570	24,162	#N/A	116,100	276,581
2005	9,820	9,250	570	5.8	6,420	2,780	2,670	110	3,640	840	470	880	1,450	25,390	1,914,287	118,020	288,051
2006	10,260	9,700	560	5.4	6,650	2,970	2,850	120	3,680	880	480	900	1,420	26,427	2,395,169	125,895	270,439
2007	10,280	9,800	480	4.6	6,740	3,050	2,970	80	3,690	1,010	460	920	1,300	27,797	3,455,768	138,992	326,740
2008	10,170	9,490	680	6.7	6,450	2,920	2,870	50	3,540	920	460	920	1,240	28,808	3,309,119	132,034	341,017
2009	10,000	8,920	1,080	10.8	5,980	2,480	2,410	70	3,510	860	520	930	1,200	28,439	3,345,620	122,058	355,205
2010	10,000	9,020	970	9.7	5,890	2,430	2,370	60	3,460	890	560	920	1,090	29,981	4,102,116	124,563	369,591
2011	10,080	9,140	940	9.2	5,950	2,400	2,340	60	3,560	940	560	920	1,140	30,692	4,373,712	127,528	362,914
2012	9,930	9,160	770	7.7	5,960	2,500	2,440	60	3,460	920	570	930	1,040	31,562	4,705,399	138,300	365,587
2013	9,900	9,140	760	7.7	6,010	2,550	2,490	60	3,500	950	580	930	1,040	32,787	4,930,598	141,759	368,260
2014	9,950	9,190	750	7.5	6,060	2,600	2,540	60	3,540	980	590	930	1,040	34,421	5,178,499	144,866	370,933
2015	10,000	9,240	740	7.4	6,110	2,650	2,590	60	3,580	1,010	600	930	1,040	35,314	5,426,400	147,973	373,606
2016	10,050	9,290	730	7.3	6,160	2,700	2,640	60	3,620	1,040	610	930	1,040	36,207	5,674,301	151,080	376,279
2017	10,100	9,340	720	7.1	6,210	2,750	2,690	60	3,660	1,070	620	930	1,040	37,099	5,922,202	154,187	378,952
2018	10,150	9,390	710	7.0	6,260	2,800	2,740	60	3,700	1,100	630	930	1,040	39,167	6,170,103	157,294	381,625

Note: Labor force data are based on county of residence. Non-farm wage and salary data are based on county of employment.

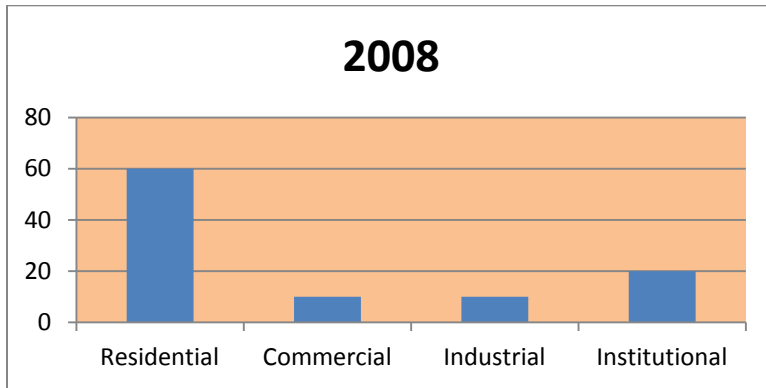
Sources: Historic employment data are from the Tennessee Department of Labor and Workforce Development, per capita income data are from the U. S. Bureau of Economic Analysis, retail data are from Tennessee Department of Revenue, and bank deposits are from the FDIC. All projections are by the UCDD staff.

### **ITEM 3**

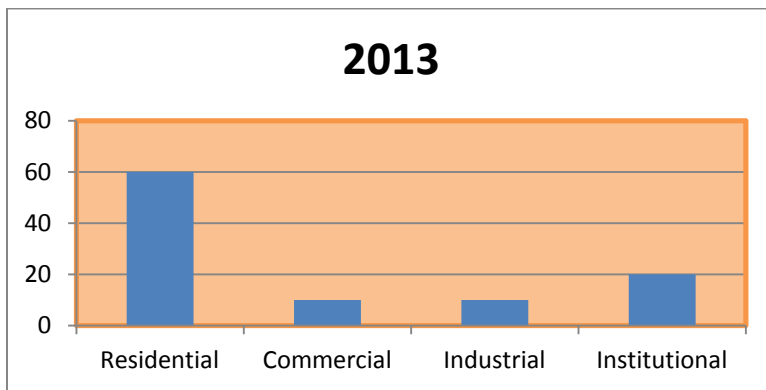
*Elaborate on the region's solid waste stream. Compare the current waste stream with the trend anticipated over the next five (5) years, and discuss how this new total will be handled. Include in this discussion how problem wastes like waste tires, used oil, latex paint, electronics and other problem 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.*

DeKalb County's waste stream has remained the same since 2008. As you can see, most of the waste in DeKalb County is produced from residential sources. DeKalb County is experiencing minimal growth and anticipates the waste stream to remain constant. More factories in the County are recycling. Problem waste, such as tires, are collected at each convenience center and recycled through Liberty Tire Company, however, there is a limit of four tires per household. There are used oil and antifreeze containers located at several of the convenience centers. Latex paint is collected every September at the Household Hazardous Waste Event day in Smithville. The latex paint, batteries, and electronics are recycled with a company in Knoxville, Tennessee. Metals are sold to Appletree Enterprises and Foutch Industries. The waste streams are currently transported to the DeKalb County Landfill by the County or private haulers. The cities of Alexandria and Smithville pick up their waste and transport it to the local convenience centers, while the cities of Dowelltown and Liberty use a private hauler to transport their waste to the DeKalb County Landfill. In the future DeKalb County is opening up their own Transfer Station. The DeKalb County Landfill will only accept Class III/IV materials in the Landfill and will transport their waste to another landfill in the region. The Class III/IV Landfill is expected to have a lifespan of 50 years after this change. All commercial and institutional waste are picked up and transported by private haulers to the Landfill. A container is placed at industries for a fee and picked up by the County. According to the 2013 DeKalb County Annual Progress Report, the County disposed of 43 tons per day in 2013.

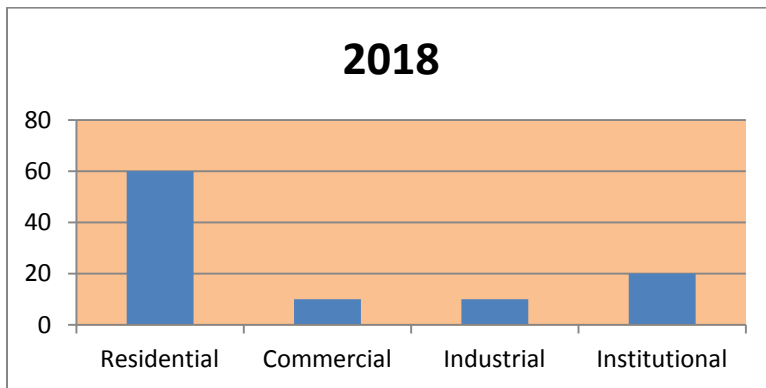
**DEKALB COUNTY ESTIMATED WASTE STREAM**



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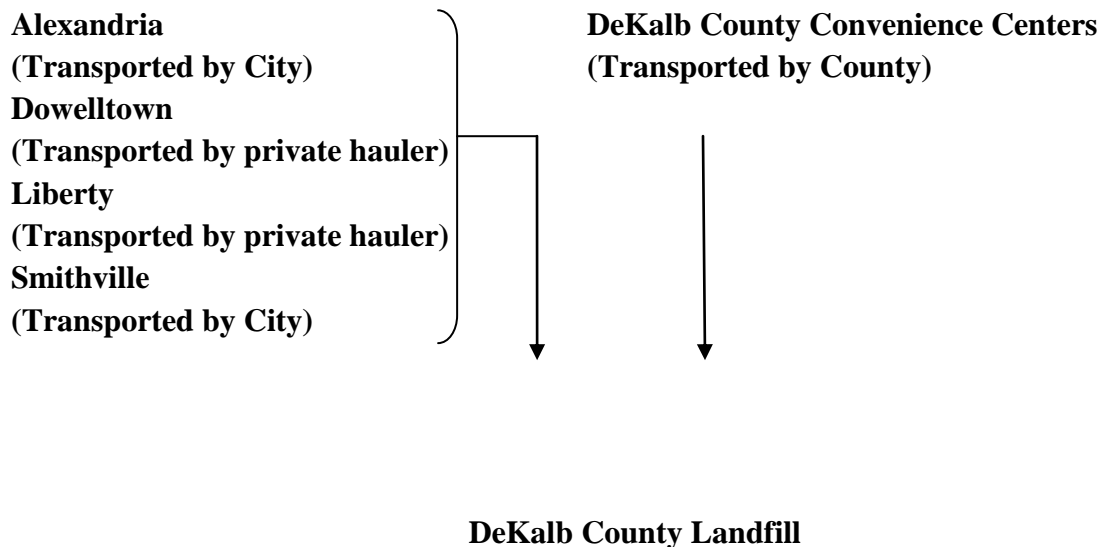


**ITEM 4**

*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. Label all major steps in this cycle noting all locations where wastes are collected, stored or processed, along with the name of operators and transporters for these sites.*

The waste from DeKalb County is disposed of in the DeKalb County Landfill. There are 12 convenience centers located in DeKalb County, including the Landfill, open to the County residents. Alexandria and Smithville offer curbside pickup to their residents, which are then transported to the local convenience center. Dowelltown and Liberty have the option to hire a private hauler or take their waste to the local convenience center. The private haulers available to DeKalb County are Allied, Cumberland Waste Disposal, Denny Lamp, Smith Port, Waste Management, and Wilson Brother Disposal. Temperance Hall, Silver Point, Blue Springs convenience centers as well as Wolf Creek, Cookeville Boat Dock, Pates Ford, and Golf Ridge green boxes require a permit in the future. DeKalb County has discussed shutting down a few of their convenience centers, but fear opposition from the community. I have included a picture of each of the 12 convenience center sites in DeKalb County. Also, I have included a picture of the future Transfer Station and potential recycling center.

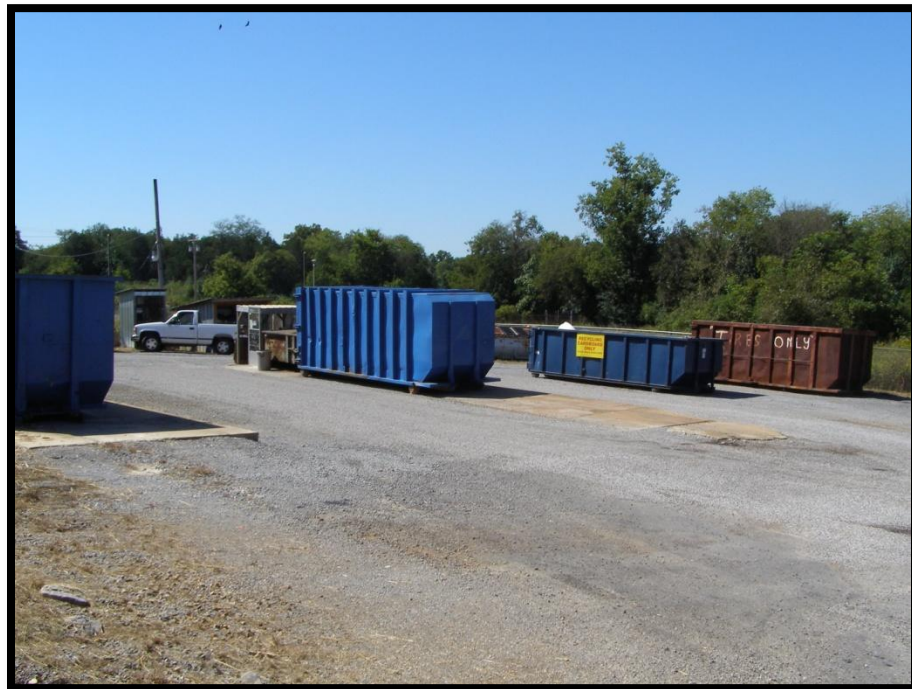
The following flow diagrams show the flow of solid waste and recyclables in the Region from initial collection points to eventual end-points.







**Alexandria Convenience Center**



**Alexandria Convenience Center**



**Belk Convenience Center**



**Belk Convenience Center**



**Blue Springs Convenience Center**



**Blue Springs Convenience Center**



**Cookeville Highway Convenience Center (Highway 56 North)**



**Cookeville Highway Convenience Center (Highway 56 North)**



**Keltonburg Convenience Center**



**Keltonburg Convenience Center**



**Landfill**



**Landfill**



**Liberty Convenience Center**



**Liberty Convenience Center**



**Highway 56 South Garbage & Recycling Center (McMinnville Highway)**



**Highway 56 South Garbage & Recycling Center (McMinnville Highway)**





**Sparta Highway Convenience Center (Mid Way)**



**Sparta Highway Convenience Center (Mid Way)**



**Silver Point Convenience Center**



**Silver Point Convenience Center**



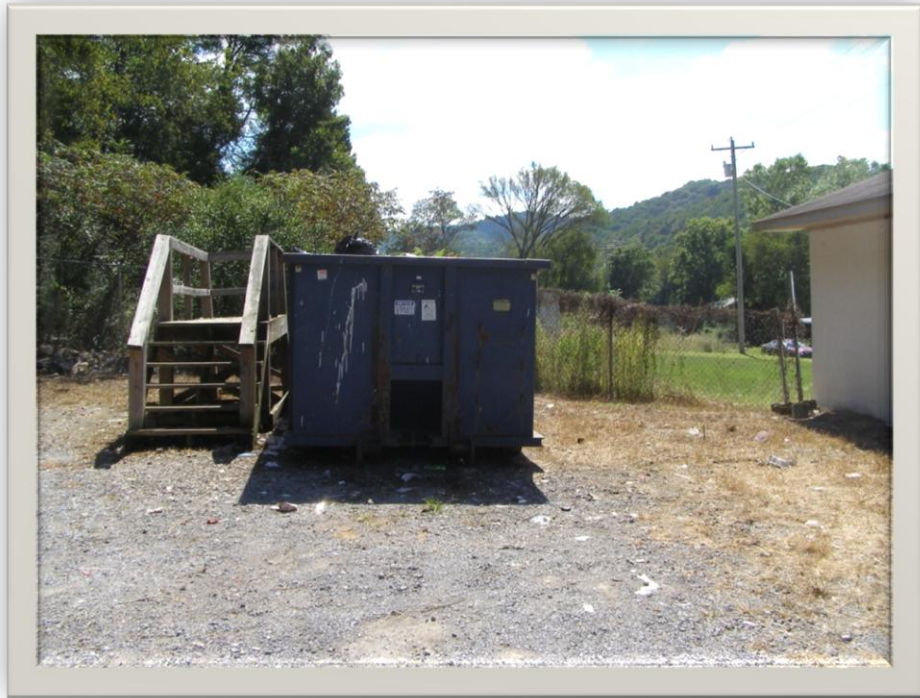
**Snow Hill Convenience Center**



**Snow Hill Convenience Center**



**Temperance Hall Convenience Center**



**Temperance Hall Convenience Center**



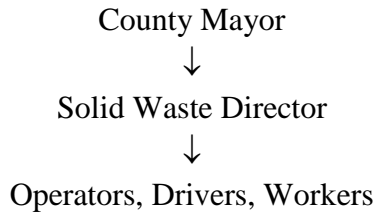
**Transfer Station and potential recycling center**

**ITEM 5**

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

**ORGANIZATIONAL CHARTS**

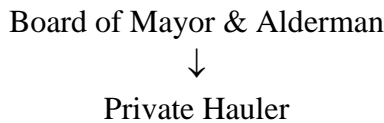
**DEKALB COUNTY**



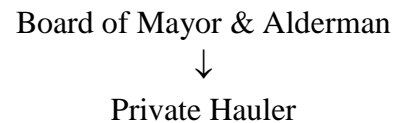
**ALEXANDRIA**



**DOWELLTOWN**



**LIBERTY**

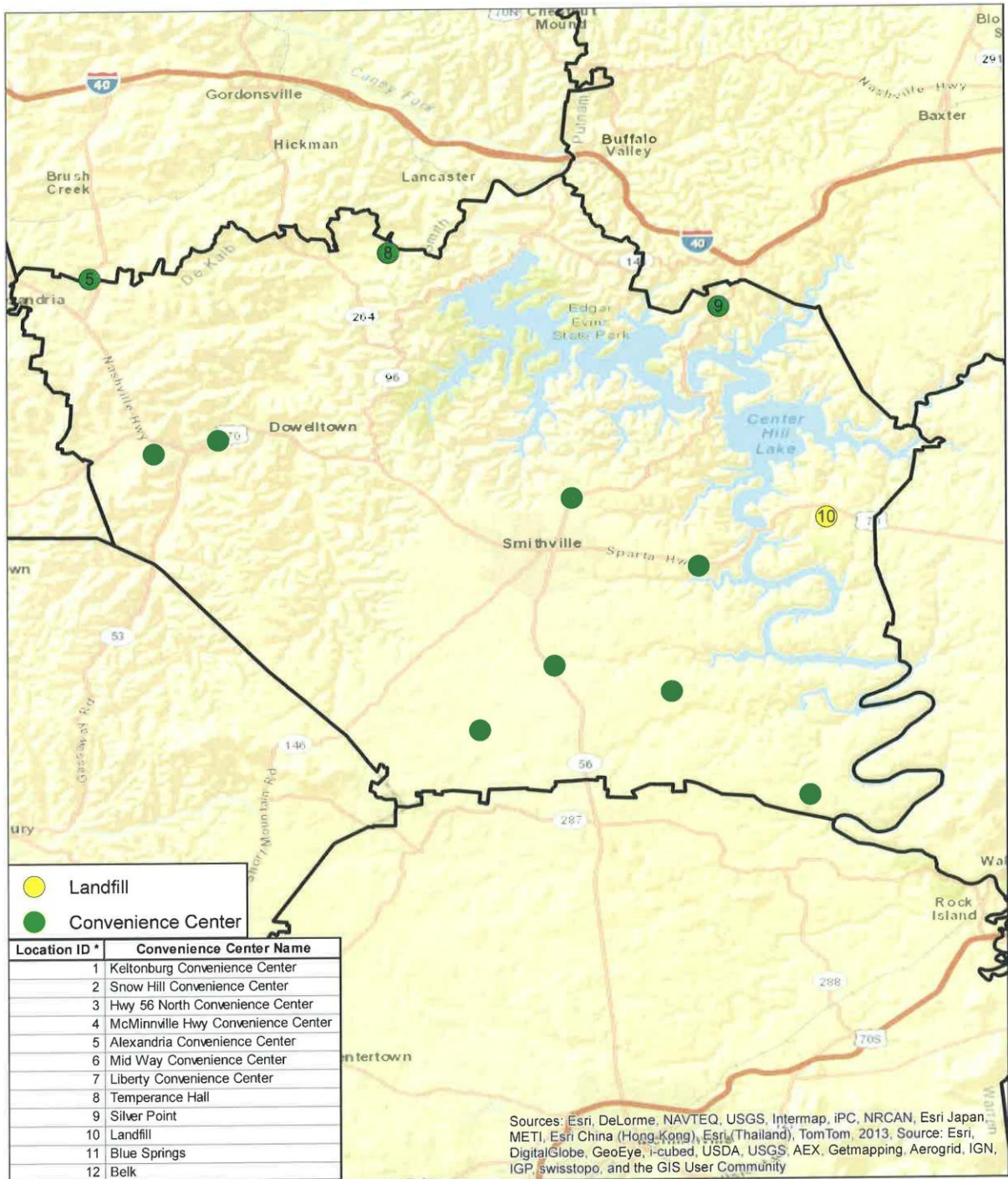


**SMITHVILLE**



The DeKalb County urgent cell has one year of life and there is 16 years of life left in the new cell. The future Transfer Station will allow the County to utilize their Landfill as a Class III/IV and transfer their waste to another landfill. The County has a bid in to Middlepoint Landfill and Smith County Landfill. DeKalb County is in need of a recycling center and recycling coordinator at the future Transfer Station. A baler, roll-back truck, front end loader, and containers would be helpful for everyday tasks at the future Transfer Station. In the past, DeKalb County has used

two different companies to bale their recyclable materials and both have went out of business. The equipment items requested would be ideal to make the County more self-sufficient.



## DeKalb County Convenience Center Location Map

This map is a product of the UCDD and is not to be used for engineering purposes. This map is not guaranteed accurate for any other uses than its intended purpose.



11/15/2013

**ITEM 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?*

DeKalb County citizens are anxiously awaiting the opening of the Transfer Station and are in support of the potential recycling center. A number of residents in DeKalb County are traveling to Putnam County to recycle their materials. Recycling is provided at the 12 convenience centers and containers are also placed at local businesses and the school system. A local musical group, which includes students from various schools, has been running for the past ten years and presents an educational program about recycling and teaches children about their responsibility for the Earth and communities. Quarterly, the County runs newspaper and radio advertisements regarding the importance of recycling. Special clean-up events are held in the County and are advertised at the convenience centers. A Litter Grant is provided to the County to host two events per year in the Spring and Fall. The purpose of the events are to clean-up certain areas in the County. It would be ideal for the County to place recycling trashcans at events in the area, such as the Smithville Jamboree. The potential recycling center, I believe, would increase the amount of participation in the County.



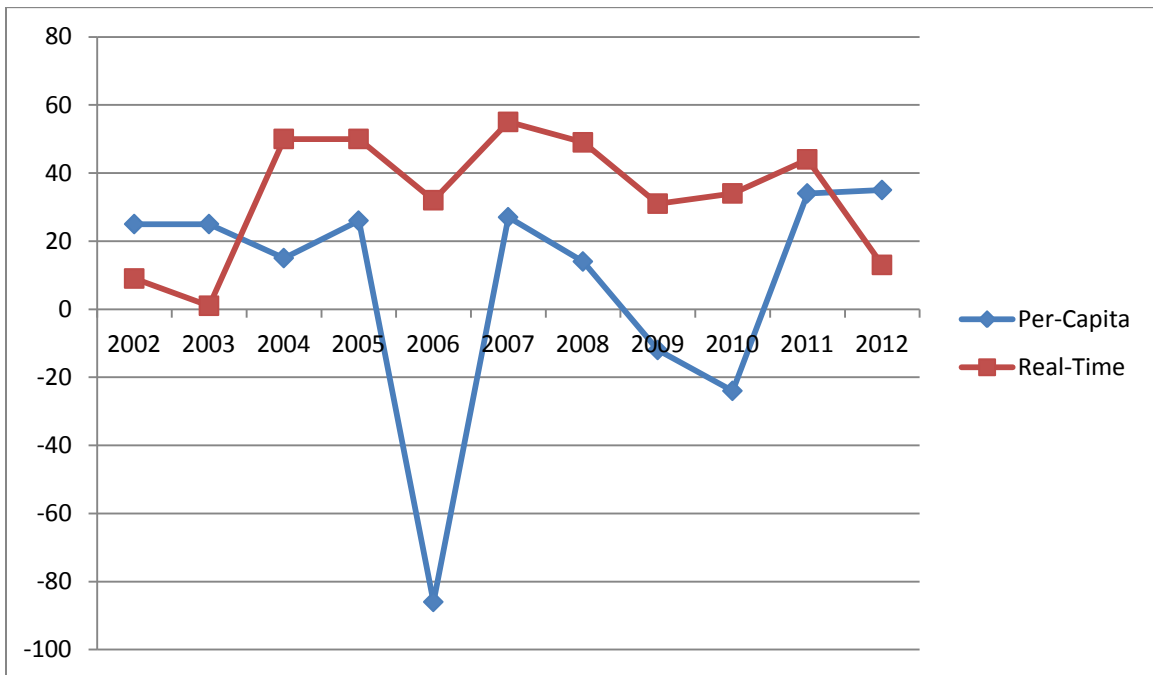
**ITEM 7**

*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.*

**DEKALB COUNTY REDUCTION RATE**

<b>Year</b>	<b>Per-Capita %</b>	<b>Real-Time %</b>
<b>2002</b>	<b>25</b>	<b>9</b>
<b>2003</b>	<b>25</b>	<b>1</b>
<b>2004</b>	<b>15</b>	<b>50</b>
<b>2005</b>	<b>26</b>	<b>50</b>
<b>2006</b>	<b>-86</b>	<b>32</b>
<b>2007</b>	<b>27</b>	<b>55</b>
<b>2008</b>	<b>14</b>	<b>49</b>
<b>2009</b>	<b>-12</b>	<b>31</b>
<b>2010</b>	<b>-24</b>	<b>34</b>
<b>2011</b>	<b>34</b>	<b>44</b>
<b>2012</b>	<b>35</b>	<b>13</b>

**DEKALB COUNTY REDUCTION RATE**



DeKalb County's real time percentages have met the State's 25% Waste Reduction Goal each year since 2004 with the exception of the year 2012. The base line year was under estimate, which leads to lower percentages. DeKalb County plans on continuing education in the community to improve recycling numbers in the future, especially in the school system. DeKalb County envisions a large recycling center next to the transfer center in the future. With the new recycling center, the County is, in my opinion, guaranteed to increase their recycling revenue. The County will continue to recycle at the convenience centers.

**ITEM 8**

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

**CURRENT DISPOSAL CAPACITY**

<b>Site Name (s)</b>	<b>Current Capacity</b>	<b>Maximum Capacity</b>	<b>Projected Life of Facility</b>
DeKalb County Landfill	32 Tons Per Day	Dependent on expansion plans and customer levels	16 years
Total:	32 Tons Per Day	N/A	N/A

DeKalb County Landfill currently has zero shortfalls in capacity. In the future the Landfill will be replaced with a Transfer Station and the Landfill will only accept Class III/IV materials. All materials in DeKalb County are disposed of in the DeKalb County Landfill. The lack of baler equipment and recycling storage produces a shortfall in materials management capacity. The Transfer Station being built will resolve somewhat of this issue. Purchasing needed equipment is a huge priority for the County. DeKalb County plans on adding a recycling center next to the transfer station, which will hopefully increase their recycling revenue in the future. The County believe that converting their Landfill to a Class III/IV facility and transferring their waste to another county landfill will save them money in the future due to the fact that all landfills will eventually need a new cell added, which costs an enormous amount of money.

*(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 Convenience, yearly tons collected and the type of service provided.*

**SERVICE AREA CHART**

<b>Provider of Service</b>	<b>Service Area</b>	<b>Population Total Under This Service</b>	<b>Frequency of Service (Weekly, Bi-weekly, on call, etc.)</b>	<b>Annual Tonnage Capacity</b>	<b>Type Service (Curbside, Convenience Center, Green Box)</b>
DeKalb County	County-wide	19,056	Anytime during the hours of operation	N/A	Convenience Center / Green Boxes
Smithville	City-wide	4,692	Weekly	N/A	Curb-side
Alexandria	City-wide	1,011	Weekly	N/A	Curb-side
Dowelltown	City-wide	370	Anytime during the hours of operation	N/A	Convenience Center / Green Box
Liberty	City-wide	320	Anytime during the hours of operation	N/A	Convenience Center / Green Box
Private Haulers	County-wide	13,353	Weekly	N/A	Curb-side

**ITEM 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.

<b>EXPENDITURES</b>			
Description	Present Need \$/year	Unmet Needs \$/year	Total Needs (Present + Unmet) \$/year
Salary and Benefits			
Transportation/hauling	\$94,235		\$94,235
Convenience and Disposal Systems	\$17,203		\$17,203
Equipment		\$200,000	\$200,000
Sites			
Convenience Center	\$288,739		\$288,739
Transfer Station			
Recycling Center		\$100,000	\$100,000
MRF			
Landfills	\$1,038,475		\$1,038,475
Site			
Operation	\$70,000		\$70,000
Closure			
Post Closure Care	\$65,000		\$65,000
Administration (supplies, communication costs, etc.)			
Education			
Public			
Continuing Ed.			
Capital Projects			
<b>EXPENDITURES</b>			
Host agreement fee			
Tipping fees	\$90,000		\$90,000
Property taxes			
Sales tax	\$628,786		\$628,786
Surcharges			
Disposal Fees			
Convenience charges			
Industrial or Commercial			

charges			
Residential charges	\$2,500		\$2,500
Convenience Centers charges			
Transfer Station charges			
Sale of Methane Gas			
Other sources: (Grants, bonds, interest, sales, etc.)	\$549,924		\$549,924

**ITEM 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.*

<b>Community</b>	<b>Current Revenue Source</b>
Dekalb County	General Fund & Tire Fees
Smithville	General Fund
Alexandria	General Fund
Dowelltown	General Fund
Liberty	General Fund

DeKalb County listed an equipment need of \$200,000 and a recycling center need of \$100,000. These funds are not currently in the budget and will hopefully be provided for using grants. DeKalb County could use some of their limited funds to go towards equipment and a recycling center, however, the majority of the funding would need to come from grants and recycling revenues. The Solid Waste Department relies on the County's general fund and tire fees. The potential recycling center would guarantee future revenue for the sale of recyclables. It is believed that the recycling center would increase the amount of individuals recycling in the County. Funding has been set aside for the transfer station and Landfill conversion. The convenience centers are covered using general funds.

**ITEM 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.*

DeKalb County plans on opening up a Transfer Station in the near future. This will hopefully cut down on Landfill costs and expand the life expectancy of the Landfill. The County residents do not pay to drop off their household waste at the Landfill. Individuals are charged \$35 a ton to dispose of class III waste. In the future, the County hopes to close their Class II Landfill and reopen the Landfill to a Class III/IV. Currently, the County is awaiting bids from Middlepoint Landfill and Smith County Landfill. I highly recommend a recycling center for the County and purchasing their own equipment. This will guarantee a profit in the future after a period of time. DeKalb County has listed that they have 12 convenience centers including the Landfill and four green box sites. Temperance Hall, Silver Point, Blue Springs convenience centers as well as Wolf Creek, Cookeville Boat Dock, Pates Ford, and Golf Ridge green boxes require a permit in the future. DeKalb County plans on getting a permit for these locations soon. The County has discussed closing some of the convenience centers in the next five years. It would be beneficial for the County to downsize their convenience centers when the transfer station becomes available. By downsizing the convenience centers the County would save money. The County is hopeful that they will be able to add on a recycling center next to the transfer station within the next five years. With the new recycling center, the County will be more likely to support the 25% recycling goal. Taking this step would provide the Solid Waste Department more funds. Also, the green box sites will need to be permitted in the future.



## **SOURCES**

U.S. Census Bureau

University of Tennessee CBER

Tennessee Department of Labor and Workforce Development

U.S. Bureau of Economic Analysis

Tennessee Department of Revenue

Federal Deposit Insurance Corporation

DeKalb County Operating Budget FY 2012-2013

2013 DeKalb County Solid Waste Annual Progress Report

Upper Cumberland Development District GIS Department

Interviews with DeKalb County Solid Waste Director