

**2008
UNICOI COUNTY
SOLID WASTE
DISTRICT
NEEDS
ASSESSMENT**

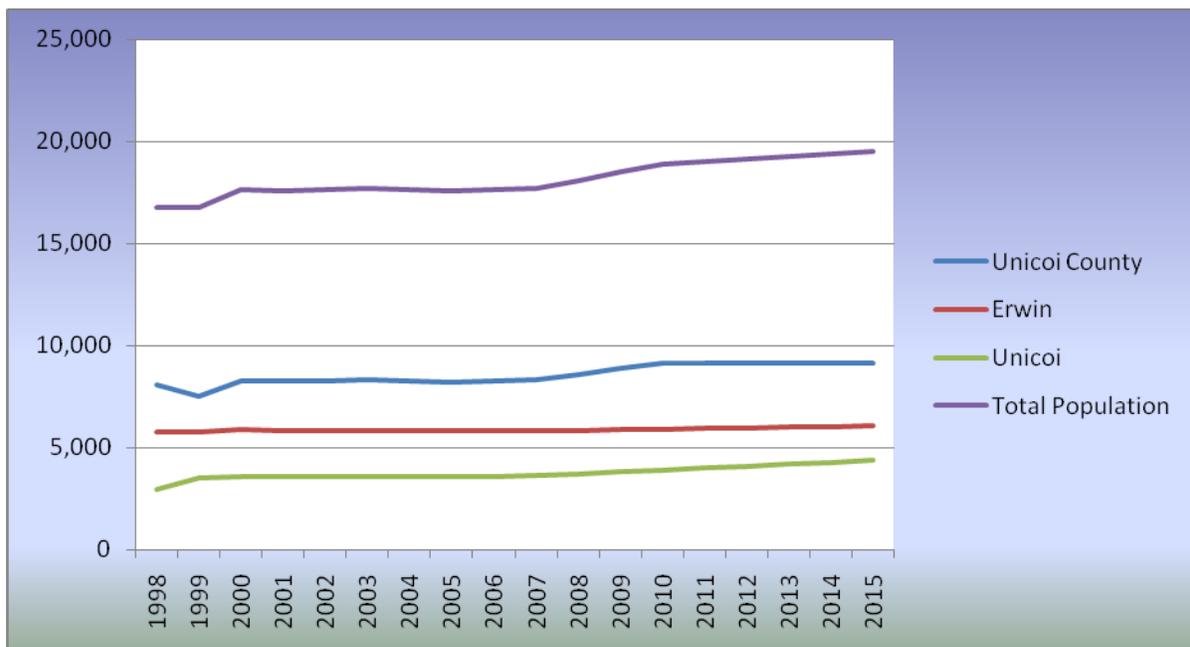


***Prepared by
First Tennessee Development District***

Item#1

Provide a table and chart showing the region's population for the last 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 all county and municipality populations. Discuss projected trends and how it will affect solid waste infrastructure needs over the next five (5) years.

Year	Unicoi County	Erwin	Unicoi	Total Population
1998	8,077	5,757	2,941	16,775
1999	7,513	5,737	3,519	16,769
2000	8,257	5,842	3,567	17,666
2001	8,237	5,771	3,554	17,562
2002	8,275	5,774	3,570	17,619
2003	8,326	5,779	3,592	17,697
2004	8,254	5,832	3,562	17,648
2005	8,217	5,799	3,565	17,581
2006	8,255	5,805	3,584	17,644
2007	8,289	5,809	3,601	17,699
2008	8,568	5,834	3,697	18,099
2009	8,847	5,859	3,793	18,499
2010	9,124	5,885	3,889	18,898
2011	9,119	5,920	3,985	19,024
2012	9,112	5,955	4,081	19,148
2013	9,109	5,990	4,177	19,276
2014	9,106	6,025	4,273	19,404
2015	9,103	6,064	4,369	19,536



Unicoi County's population growth over the next 5 years is not predicted to be significant enough to require any major changes in the solid waste management system. Steady growth in the total population of the County is expected thru 2015, while specific areas of the County's population should experience growth, not as dramatic as the overall county population. We believe the current system in place is sufficient to handle the Region's solid waste needs both for County residents and residents of Erwin. The Town of Unicoi does not provide collection service at this time and therefore Unicoi residents use the Limestone Cove Convenience Center.

Item #2

Provide a table and chart showing the region's economic profile for all county and 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:

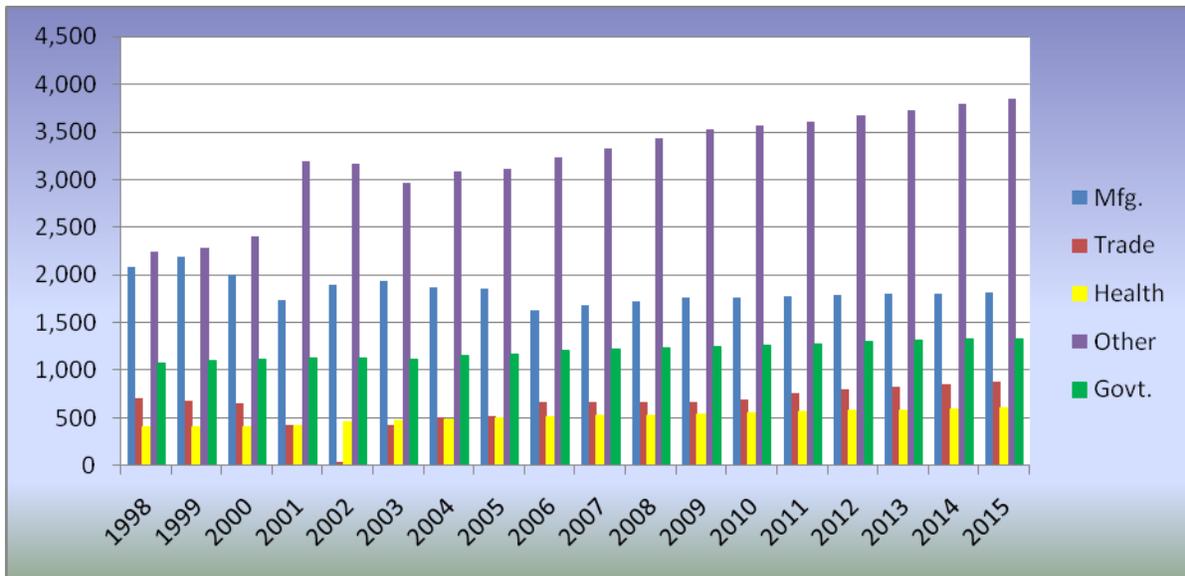
- **Taxable sales, property tax generation, and per capita income**
- **Evaluation by break down of each economic sector**
- **County or municipal budgeting information**
- **Other commonly accepted economic indicators**

Unicoi County, including municipalities, Historic and Projected Economic Indicators

<i>Year</i>	<i>Total Employment</i>	<i>Unemployed</i>	<i>Unemployment Rate</i>	<i>Per Capita Income</i>	<i>Retail Sales</i>
1998	7,500	410	5.20	\$19,506	\$65,367,044
1999	7,620	460	5.70	\$20,015	\$65,502,624
2000	7,770	580	7.00	\$21,608	\$65,396,742
2001	7,660	500	6.10	\$21,700	\$65,638,204
2002	7,590	570	6.90	\$21,968	\$65,773,784
2003	7,650	560	6.80	\$23,011	\$65,909,364
2004	7,720	530	6.40	\$25,321	\$66,074,644
2005	7,680	510	6.20	\$25,868	\$75,468,492
2006	7,870	520	6.10	\$26,635	\$89,919,732
2007	7,907	531	6.19	\$27,348	\$92,375,001
2008	7,936	538	6.24	\$28,081	\$95,062,238
2009	7,952	542	6.32	\$28,729	\$98,028,788
2010	7,981	547	6.34	\$29,431	\$101,267,847
2011	8,021	549	6.39	\$30,178	\$104,817,253
2012	8,058	550	6.43	\$30,894	\$108,708,042
2013	8,091	552	6.44	\$31,452	\$112,971,381
2014	8,133	556	6.46	\$32,010	\$116,721,670
2015	8,159	560	6.50	\$32,548	\$119,401,864

Source: U.S. Bureau of Economic Analysis, ETSU Bureau of Economic Research, Tennessee Comptroller of the Treasury, Tennessee Department of Labor, First Tennessee Development District staff.

The following table illustrates the breakdown of employment characteristics of non-farm related jobs in Unicoi County including the Town of Erwin and Town of Unicoi. These figures include all Unicoi Countians employed whether in Unicoi County or other counties. This table includes both service industry jobs and goods producing jobs.



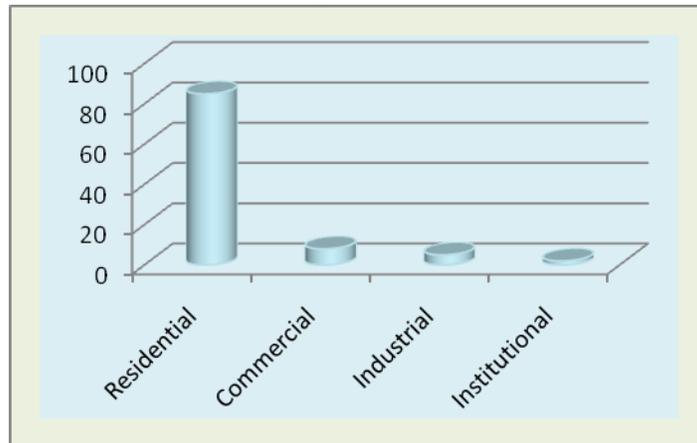
Source: U.S. Bureau of Economic Analysis, ETSU Bureau of Economic Research, Tennessee Comptroller of the Treasury, Tennessee Department of Labor, First Tennessee Development District staff.

Item #3

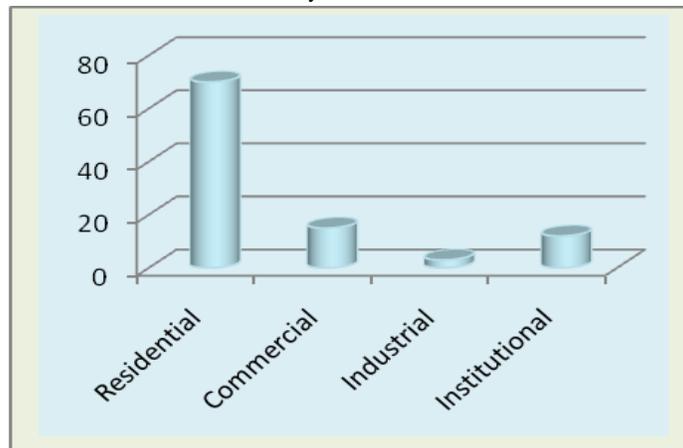
Elaborate on the entire region’s solid waste stream. Compare today’s waste stream with anticipated waste stream over the next five (5) years. How will the total waste stream be handled in the next five (5) years? Include in this discussion how problem wastes like waste tires, used oil, latex paint, electronics 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 or industrial wastes are managed. Also provide an analysis noting source and amounts of any wastes entering or leaving out of the region.

Unicoi County’s overall waste stream is comprised mainly of residential waste. There is currently few industries in the County that generate large volumes of industrial wastes. Nuclear Fuel Services, the County largest employer, generates large volumes of specialize waste and is therefore typically not included in the County’s MSW waste stream. Other large generators of waste in the County include the County School System and hospital facility. The following charts illustrate the past, present and future estimated waste streams in Unicoi County.

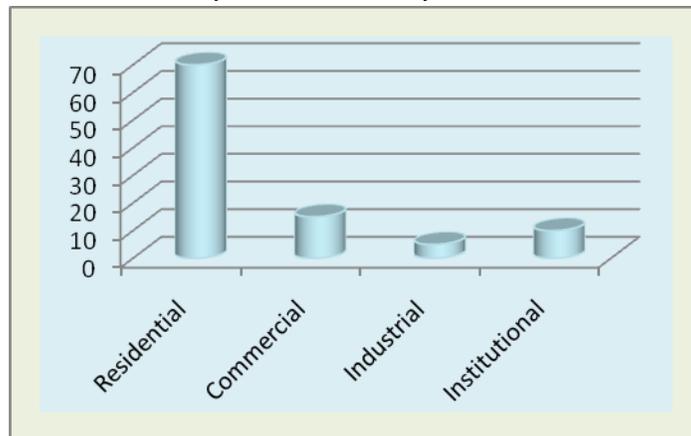
1999 Unicoi County Estimated Waste Stream



2007 Unicoi County Estimated Waste Stream



2012 Projected Unicoi County Waste Stream



Over the next 5 years, the total Unicoi County residential waste stream will be handled using the same system as is presently in place. Unicoi County's network of 3 staffed convenience centers have the capacity to meet population growth projections over the next five years. Special wastes such as tires, used oil and batteries are collected at each of the 3 convenience centers in the County and subsequently recycled. Unicoi County is a member of the Washington County Tire HUB program and transports tire to

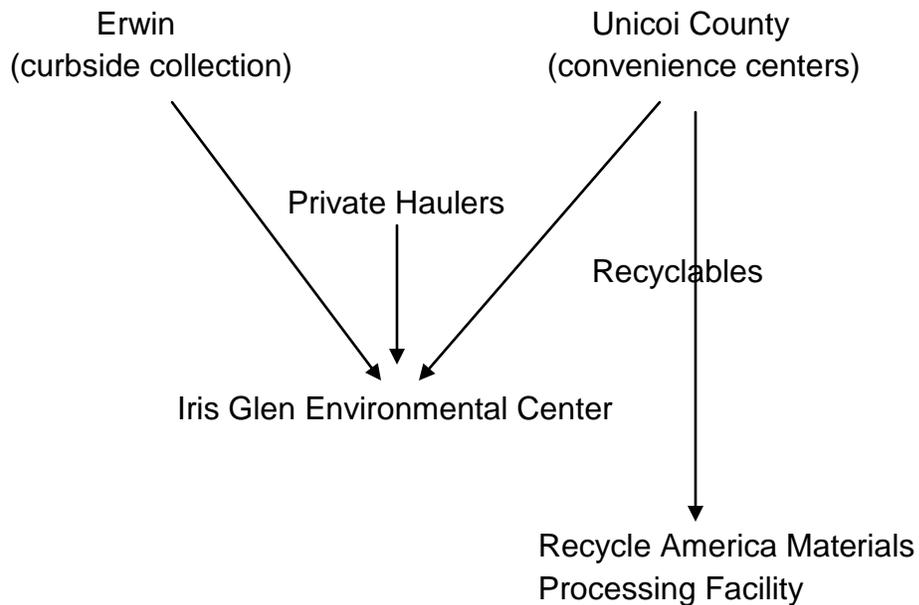
Johnson City for recycling. Currently, the County does not have a program for latex paint or electronics. Unicoi County officials are currently interested in hosting a one-day ewaste collection project in cooperation with the Recycling Marketing Cooperative for Tennessee. There are no other wastes, in the Region, that require special handling protocols. Industrial and commercial wastes are collected managed by the private sector, Unicoi County does not provide collection for private businesses. The Town of Erwin does provide some MSW collection for private entities on a subscription basis. All private business wastes collected by the Town of Erwin and all residential waste collected by Erwin's door-to-door program, is transported directly to disposal (Class I). Other residential solid waste generated in the County is transported from convenience centers to Class I disposal. There are no significant amounts of wastes entering the Region for disposal. Convenience center disposal is for Unicoi County residents only. All of the solid wastes generated in Unicoi County are transported out of the Region for disposal.

Item #4

Describe in detail the waste collection system of the region and every county and municipality. Provide 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.

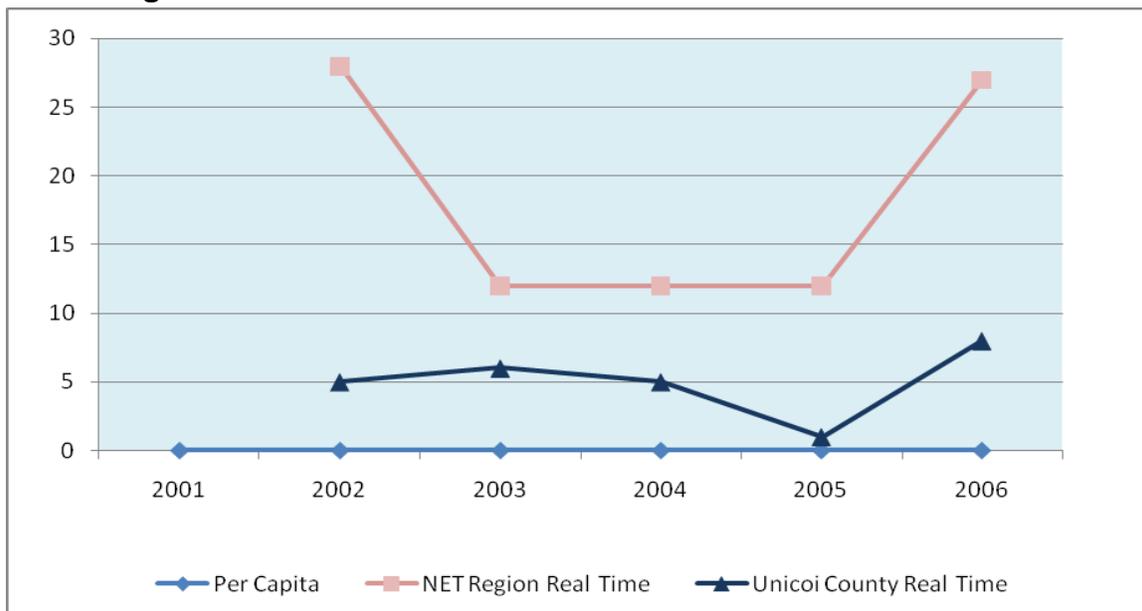
Unicoi County has two municipalities which are the Town's of Erwin and Unicoi. Erwin provides door-to-door collection of solid waste for all Town residents. Waste collected by the Erwin is transported directly to the Iris Glen Environmental Center in Johnson City for disposal. The Town of Unicoi does not provide solid waste collection services for residents. There are also two private companies that provide door-to-door collection for residents of the County. This is through a subscription service and is not associated with the Unicoi County solid waste program. All of the waste collected by private companies is transported directly to the Iris Glen Environmental Center. Commercial waste is collected by either private haulers or the Town of Erwin and is also transported directly to the Class I facility. The network of convenience centers is for residential wastes only.

Unicoi County has three sites to collect recyclables located at each of the County's three convenience centers. These sites are for all residents of Unicoi County to use. The following is a flow diagram indicating the flow of solid waste from the point of generation to the point of disposal. At no time during this process does the waste become a useful product.



Item #5

The Solid Waste Management Act of 1991 states that all regions must 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 reduction rate by each goal calculation methodology. Discuss how the region made the goal by each methodology or why they 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.



Unicoi County per capita waste reduction rate is less than zero based on the per capita waste reduction formula and when compared to the 1995/1999 base year.

Unicoi County Per Capita Waste Reduction Rate vs Real Time Comparison 2001 – 2006.

Year	NET Region Current Year Disposal	NET Region Base Year Disposal	NET Region Per Capita Waste Reduction Rate	NET Region Real Time Comparison	Unicoi County Real Time Comparison
2001	196,244 tons	150,983 tons	-19%	N/A	N/A
2002	203,693 tons	150,983 tons	-24%	28%	5
2003	222,202 tons	150,983 tons	-33%	12%	6
2004	233,842 tons	150,983 tons	-39%	12%	5
2005	237,539 tons	150,983 tons	-40%	12%	1
2006	236,613 tons	150,983 tons	-38%	27%	8

Since 2001, Unicoi County individually has not met the 25% waste reduction goal using either the “real time” or per capita calculation method. Unicoi County is a member of the Northeast Tennessee Solid Waste Planning Region, which consists of Carter, Johnson, Unicoi and Washington Counties. The Region has been successful in meeting the goal twice since 2001 using the “real time” calculation method. If evaluated independently, Unicoi County has failed to meet the goal using either method the last 6 years. This is primarily due to the lack of recycling and waste reduction data from private entities such as businesses and industries. Historically, across the State, Region’s that have a high participation rate from businesses and industries in reporting recycling data, typically achieve >25% waste reduction rate using the “real time” calculation method. Unicoi County along with other members of the Northeast Tennessee Region have been implementing a business and industry waste reduction and recycling reporting program through the First Tennessee Development District the past few years. This is voluntary program started by the Development District in 2001-2002. Around 50 businesses and industries in Unicoi County are surveyed each year by the Development District. Unfortunately, if participation is low, the percentage of waste reduction is also low.

One of the most important infrastructure improvements that needs to be made in the County is that recycling needs to become a more prevalent part of the Erwin solid waste management system. Currently Erwin has a successful yard waste diversion that diverts about 100 tons of material each year. However, given the concentration of business and household in the Town, more recycling opportunities need to be made available. To accomplish this goal, the Town will rely on state grant funds to assist with equipment purchases. If grants are not available, it is unlikely at this time, the Town will establish a recycling program.

Item #6

A. 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 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 collection or processor level.

<i>Site Name</i>	<i>Current Capacity</i>	<i>Maximum Capacity</i>	<i>Projected Life of Facility</i>
Hoover County Convenience Center	300 tons per month	600 tons per month	25 years
Limestone Cove Convenience Center	200 tons per month	400 tons per month	25 years
Higgins Creek Convenience Center	100 tons per month	200 tons per month	25 years
Iris Glen Environmental Center (Waste Management)	1,400 tons per day	Depends on expansion plans and customer levels.	17 years

There appears to be no shortfalls in the ability of Unicoi County to manage the current waste stream or the projected waste stream over the next 5 years. Unicoi County's network of staffed convenience centers have the capacity to manage 2X the amount of waste currently disposed of at these facilities. Additional tonnage would only increase the number of trips to the landfill. This transportation is currently done by a private hauling company contracted by the County. These 3 centers adequately serve the needs of residents of Unicoi County and there are no plans to add additional sites in the future.

B. Provide a chart or other graphical representation showing public and private collection service provider area coverage 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.

<i>Provider of Service</i>	<i>Service Area</i>	<i>Population Total Under This Service</i>	<i>Frequency of Service (Weekly, Bi-weekly, on call, etc.)</i>	<i>Tonnage Capacity (estimated)</i>	<i>Type Service (Curbside, Convenience Center, Green Box)</i>
Unicoi County	County-wide	17,572	Anytime during hours of operation	18,000 tons/year	Convenience Centers (3)
Erwin	City Limits	5,786	Weekly	N/A	Curbside
Allied Waste	County	N/A	Weekly	N/A	Curbside
Waste Management	County	N/A	Weekly	N/A	Curbsdie

Item #7

Complete the chart below 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.

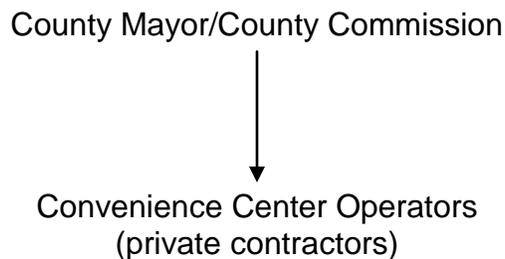
Expenditures			
<i>Description</i>	<i>Present Need \$/year</i>	<i>Unmet Needs \$/year</i>	<i>Total Needs (Present + Unmet) \$/year</i>
Salary and Benefits	\$17,400	\$0	\$17,400
Transportation/hauling	\$0	\$0	\$
Collection and Disposal Systems			
Equipment	\$0	\$0	\$0
New recycling containers (Unicoi County)	\$0	\$25,000	\$25,000
Replace SW compactors (Unicoi County)	\$0	\$100,000	\$100,000
New leaf vacuum (Erwin)	\$0	\$20,000	\$20,000
Sites			
Convenience Center	\$344,830	\$0	\$344,830
Transfer Station	\$0	\$0	\$0
Recycling Center	\$0	\$0	\$0
MRF	\$0	\$0	\$0
Landfills			
Site	\$0	\$0	\$0
Operation	\$0	\$0	\$0
Closure	\$0	\$0	\$0
Administration (supplies, comm. costs, etc.)	\$20,451	\$0	\$20,451
Education			
Public	\$0	\$0	\$0
Continuing Ed.	\$0	\$0	\$0
Capital Projects	\$0	\$0	\$0
REVENUE			
Host agreement fee	\$0	\$0	\$0
Tipping fees	\$0	\$0	\$0
Property taxes	\$379,821	\$0	\$379,821
Sales tax	\$0	\$0	\$0
Surcharges	\$0	\$0	\$0
Disposal Fees	\$0	\$0	\$0
Collection charges			
Industrial or Commercial charges	\$0	\$0	\$0
Residential charges	\$0	\$0	\$0
Convenience Centers charges	\$0	\$0	\$0
Transfer Station charges	\$0	\$0	\$0
Sale of Methane Gas	\$0	\$0	\$0
Other sources: (Grants, bonds, interest, etc.)	\$0	\$0	\$0

The only unmet financial needs exist in the replacing of old equipment or purchasing new recycling collection equipment in the Unicoi County and Erwin systems. These needs will be met at the time of purchase through grants, low interest loans or General Fund appropriations.

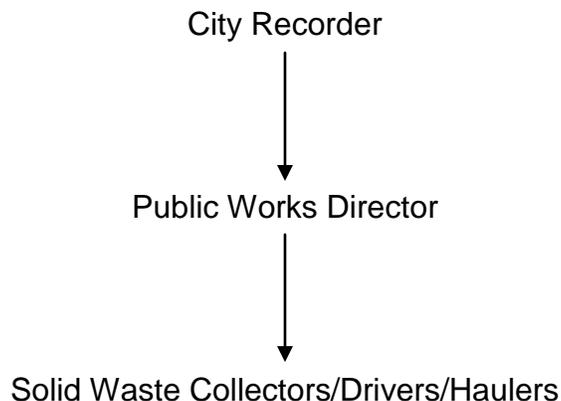
Item #8

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 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.

***Unicoi County
Solid Waste Department Organizational Chart***



***Town of Erwin
Solid Waste Department Organizational Chart***



There are currently no identified needs in staffing or facilities to provide a full level of service. Unicoi County and Erwin are currently delivering a level of service that is meeting the needs of their respected communities. Replacing aged and outdated equipment will continue to be a need in both of the entities over the next 5 years. However, none is needed to increase the level of service. A map showing all of the solid waste management facilities in the County is attached. Two short-comings in the County's solid waste management system are the need of to implement a continuous program for accepting and recycling e-waste and a program to accept latex paint to remove it from the HHW waste stream. Funding to implement a latex paint program is largest obstacle at this time facing Unicoi County.

Item #9

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 example in Chart 7 as an example to present data.

Community	Current Revenue Source
Unicoi County	Property Taxes
Erwin	Property Taxes
	Collection Fees

Future Solid Waste Management Needs (5 year projection)

Community	Equipment	Estimated Costs	Potential Revenue Source
Unicoi County			
	Recycling Collection Containers	\$25,000	Grants
	Replace SW Compactors	\$100,000	Grants/General Fund
Erwin			
	Replace Leaf Vacuum	\$20,000	Grants/General Fund

Unicoi County and Erwin will rely primarily on grant funding to meet equipment needs over the next 5 years. If necessary, general funds can be used to make emergency equipment purchases. Unicoi County does not own or operate a majority of its solid waste or recycling equipment at this time. It contracts with a private company for all services. Most of the equipment used in the system, except compactors and a few 40yd containers, is owned by Waste Management and leased by the County.

Item #10

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 on going 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?

Unicoi County residents have participated in the County's recycling program for many years. Participation through the program would be classified as low and comparable to many other small rural counties in the State. However, if grant funding is available, the County is set to expand the recycling program to include cardboard at local businesses and other institutional facilities.

There are currently no organized education programs in place to generate enthusiasm in the community. Several local citizens have expressed interest in being involved in the educational programming and therefore a community group will likely be organized in the next few months and lead by the County Mayor. Additional measures needed to change citizen's behavior and increase participation, include promoting the program in the community and offering additional opportunities for residents to participate.

Item #11

Discuss this region's plan for managing their solid waste management system for 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.

Unicoi County's plans for managing the solid waste management system over the next 5 years will remain very similar to the current operations. One area the County will try to improve is the effort to increase participation in the business and industry waste reduction/recycling reporting program through the First Tennessee Development District. In the coming years, Unicoi County officials will work more closely with major businesses and industries in the Region to further expand the voluntary reporting program. This program is extremely important to the Region in their efforts to attain the 25% waste reduction goal using the "real time" calculation method. Secondly, an e-waste recycling program should be implemented within the next 5 years to collect and eliminate electronics from the Class I waste stream. A one day e-waste collection event should probably be implemented first to determine community participation.

Sources:

U.S. Census Bureau

U.S. Bureau of Economic Analysis

ETSU Bureau of Economic Research

Tennessee Comptroller of the Treasury

Tennessee Department of Labor

First Tennessee Development District staff.

1999 Unicoi County Solid Waste District Needs Assessment Update

2001-2007 Unicoi County Annual Solid Waste Progress Report

Unicoi County Operating Budget document

Town of Erwin Budget document