

WARREN COUNTY, TENNESSEE

Solid Waste Planning Region



Solid Waste Needs Assessment

Prepared by:
The Upper Cumberland County Development District
June 2015

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., 14th 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.

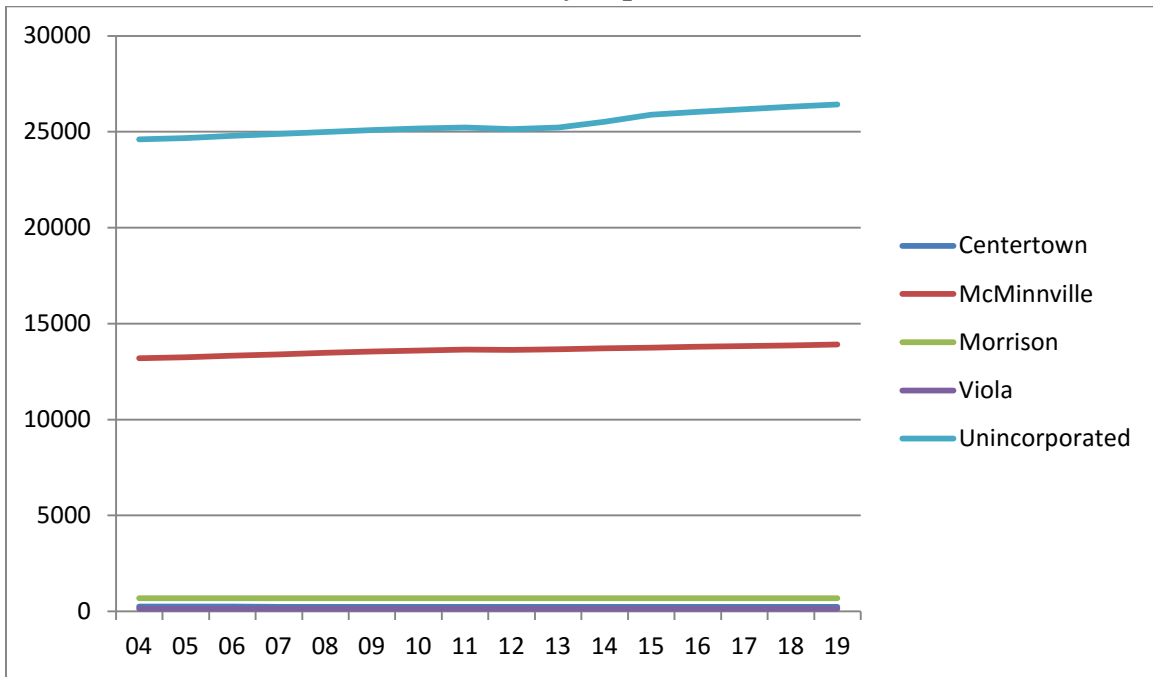
1.1 – Warren County Population Trends

Item # 1						
WARREN COUNTY						
HISTORIC AND PROJECTED POPULATION TRENDS						
Year	Warren County	McMinnville	Centertown	Morrison	Viola	Unincorporated
2004	38,864	13,190	248	689	137	24,600
2005	38,987	13,243	247	689	136	24,672
2006	39,190	13,326	246	690	135	24,793
2007	39,365	13,400	245	691	134	24,895
2008	39,534	13,472	244	692	133	24,993
2009	39,709	13,548	244	693	132	25,092
2010	39,839	13,605	243	694	131	25,166
2011	39,930	13,645	244	695	132	25,214
2012	39,835	13,622	244	691	132	25,146
2013	39,965	13,669	245	692	132	25,227
2014	40,300	13,709	245	695	135	25,516
2015	40,721	13,749	245	695	135	25,897
2016	40,896	13,789	245	695	135	26,032
2017	41,071	13,829	245	695	135	26,167
2018	41,246	13,869	245	695	135	26,302
2019	41,400	13,909	245	695	135	26,416

Sources: Historic data are from the U.S. Census Bureau.
Projections are based on estimates and data from the University of Tennessee CBER.

There is very little projected growth in population for Warren County over the next five years. Growth is flat in Viola, Morrison and Centertown. McMinnville has had very slow growth, and is anticipated to grow by only 1 % in the next five years. Unincorporated Warren County is projected to grow by 3.5 % in the next five years. As a whole, growth for Warren County is anticipated to be approximately 3% percent in the next five years.

1.2 Warren County Population Growth



Warren County's population growth has been quite slow over the past several years. This is primarily due to the large manufacturing job losses over several years. Retirees have contributed to this small amount of growth. The population is currently 39,839 – less than what was a projected rate of growth for 2015. Considering the slow rate of growth in the past ten years, and considering that the growth in population is not projected to increase exponentially, the solid waste infrastructure is adequate to continue providing solid waste services without any changes. Encouraging residents to recycle can help reduce the amount of waste that is transported to Class 1 Landfills. Warren County provides 12 Convenience Centers to county residents, distributed throughout the county. The City of McMinnville provides curbside household garbage collection on a weekly basis. Southern Central picks up waste from City of McMinnville and Warren County and takes solid waste to the transfer station at Southern Central. Waste is then hauled to Rhea County Landfill for disposal.

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

2.1 – Warren County Economic Indicators

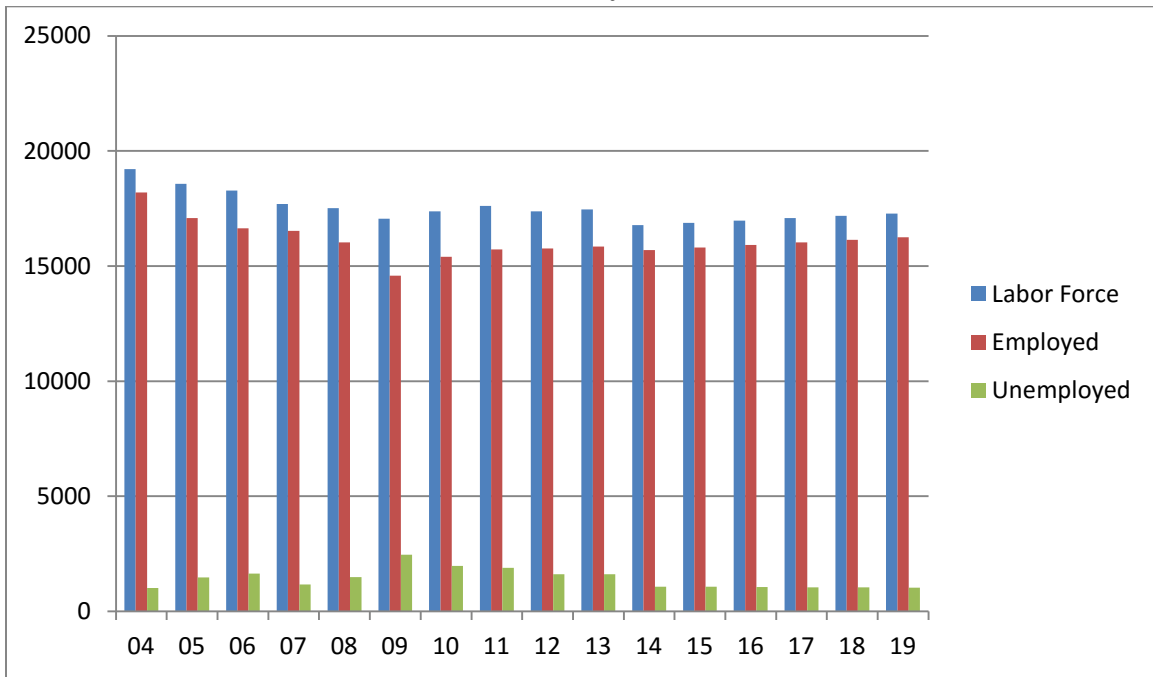
Item #2																	
WARREN COUNTY HISTORIC AND PROJECTED ECONOMIC INDICATORS																	
Year	Labor Force Data				Non-farm Wage and Salary Employment									Per Capita Income (\$'s)	Property Tax Collections (\$000's)	Retail Sales (\$000's)	Total Bank Deposits (\$000's)
	Total	Emp	Unemployed		Total	Goods Producing			Service Producing								
			Total	Rate(%)		Total	Mfg	Other	Total	Trade	Health	Gvt	Other				
2004	19,210	18,190	1,020	5.3	14,790	7,090	6,620	470	7,700	2,520	1,120	1,790	2,270	22,678	NA	392,880	569,889
2005	18,570	17,090	1,480	8.0	13,630	5,770	5,270	500	7,860	2,550	1,170	1,820	2,320	23,579	7,940	393,434	603,221
2006	18,280	16,640	1,640	9.0	12,690	4,650	4,100	550	8,040	2,600	1,300	1,800	2,340	24,473	8,244	393,026	637,494
2007	17,700	16,530	1,170	6.6	12,600	4,420	3,850	570	8,180	2,600	1,440	1,830	2,310	25,108	8,236	393,623	674,672
2008	17,520	16,030	1,490	8.5	12,270	3,990	3,410	580	8,280	2,510	1,580	1,880	2,310	25,450	8,339	376,947	683,179
2009	17,060	14,590	2,470	14.5	11,170	3,260	2,750	510	7,910	2,330	1,540	1,860	2,180	25,203	7,760	338,610	721,331
2010	17,380	15,410	1,980	11.4	11,530	3,490	2,990	500	8,040	2,400	1,530	1,950	2,160	26,284	8,466	349,136	731,773
2011	17,620	15,720	1,900	10.8	11,810	3,600	3,080	520	8,210	2,440	1,580	1,910	2,280	27,110	8,709	359,461	778,438
2012	17,380	15,770	1,610	9.3	11,950	3,780	3,280	500	8,170	2,410	1,600	1,880	2,280	28,463	8,737	374,316	808,796
2013	17,460	15,850	1,610	9.2	12,440	4,110	3,630	480	8,330	2,380	1,650	1,880	2,420	29,317	8,792	374,523	807,498
2014	16,780	15,700	1,080	6.4	12,700	4,300	3,840	460	8,390	2,400	1,630	1,880	2,480	30,196	8,900	381,673	796,329
2015	16,880	15,810	1,070	6.3	13,000	4,500	4,050	450	8,490	2,410	1,655	1,895	2,530	31,102	9,008	388,823	812,256
2016	16,980	15,920	1,060	6.2	13,300	4,700	4,260	440	8,590	2,420	1,680	1,910	2,580	32,035	9,116	395,973	828,501
2017	17,080	16,030	1,050	6.1	13,600	4,900	4,470	430	8,690	2,430	1,705	1,925	2,630	32,996	9,224	403,123	845,071
2018	17,180	16,140	1,040	6.1	13,900	5,100	4,680	420	8,790	2,440	1,730	1,940	2,680	33,986	9,332	410,273	861,972
2019	17,280	16,250	1,030	6.0	14,200	5,300	4,890	410	8,890	2,450	1,755	1,955	2,730	35,006	9,440	417,423	879,212

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.

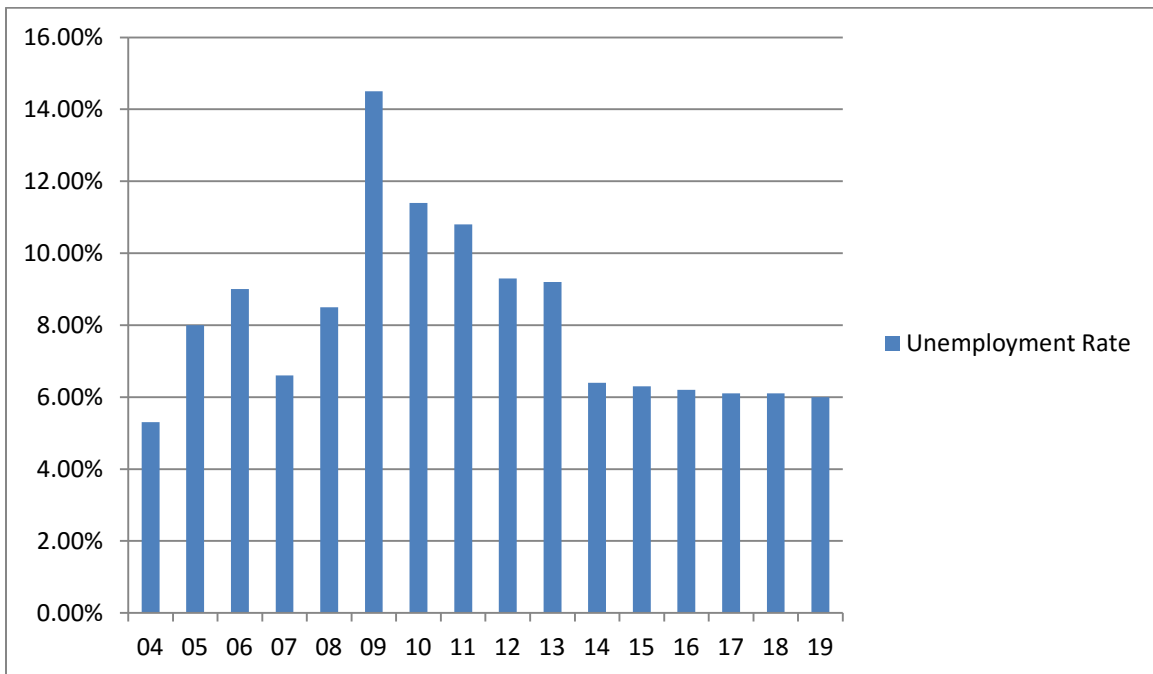
As the data in Item #2 above shows, the Warren County economy has been and remains relatively weak. The county lost a large number of manufacturing jobs, but this trend is recently beginning to reverse. Growth in health and other service sectors has remained strong. Retail sales and bank deposit growth have also shown some improvement lately, as shown in the following charts. Per capita income has increased, although not by much. Individual poverty rates are 21.5% and family poverty rates are 17.0%.

2.2 Warren County Labor Force



The total amount of workforce available to work in Warren County was numbered at 17,150 in 2014. Out of those, 15,950 were able to find jobs.

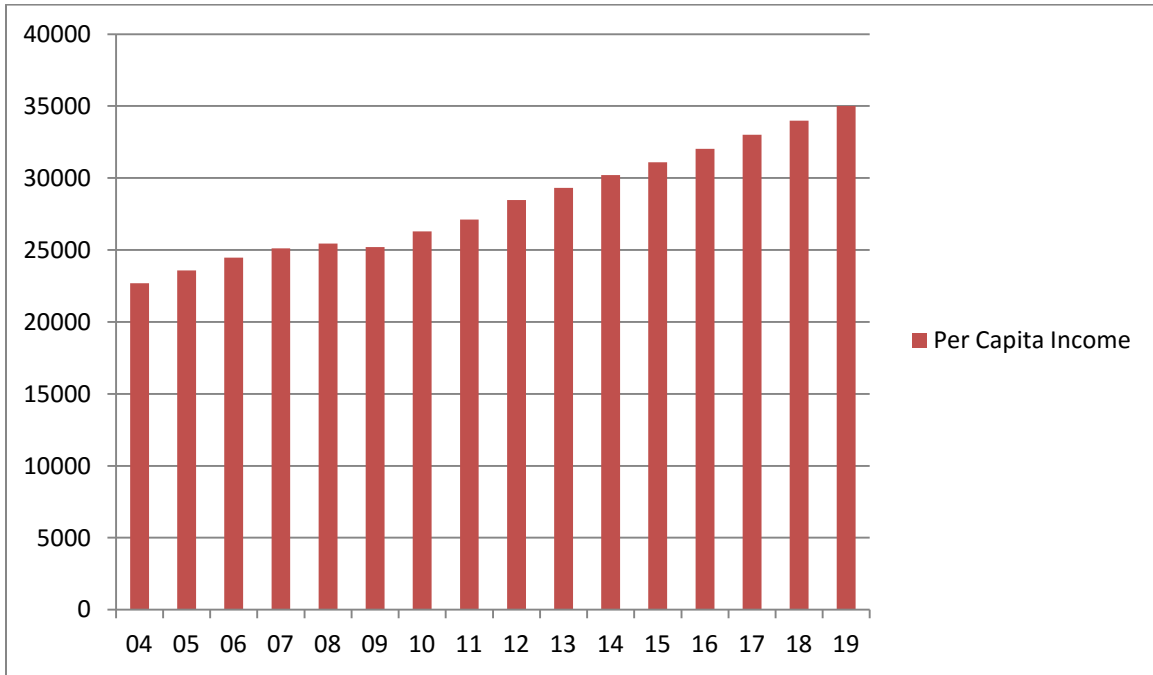
2.3 - Warren County Unemployment Rate



The unemployment rates have dropped to around 7%. This is a great improvement from the previous five years, considering the unemployment rate in 2009 was over 14%. The 7% unemployment rate is anticipated to remain

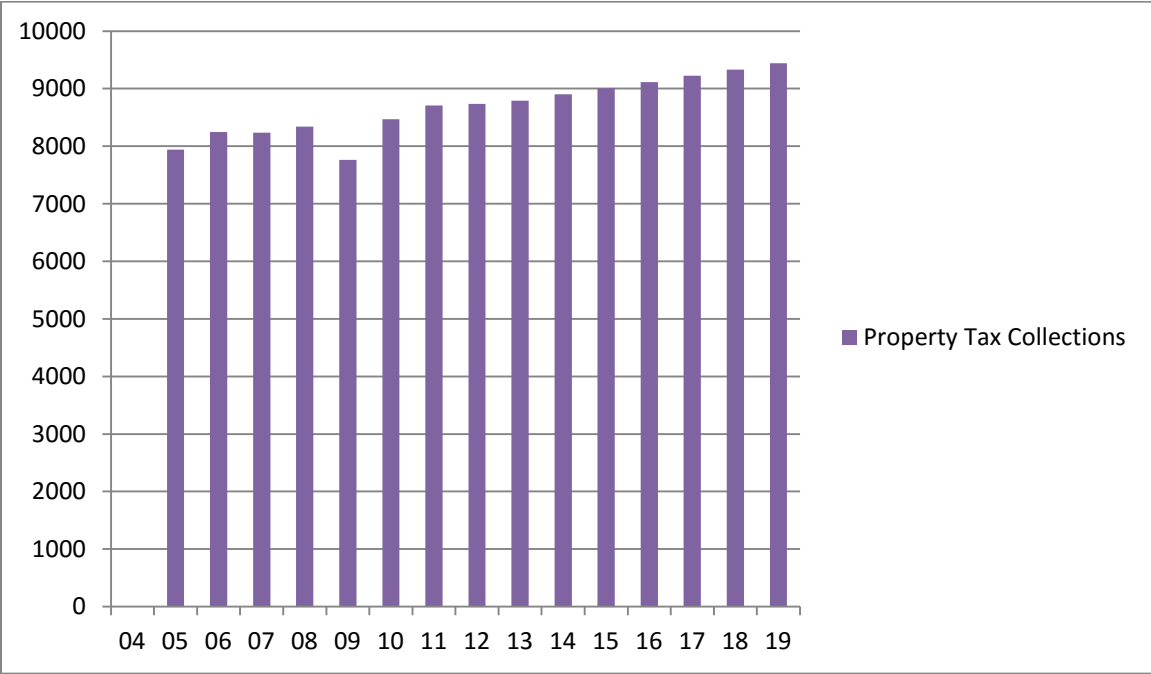
the same, or drop even a little more in the coming five years. Manufacturing jobs have been increasing, while nonmanufacturing jobs that are available remain the same.

2.4 - Warren County Per Capita Income



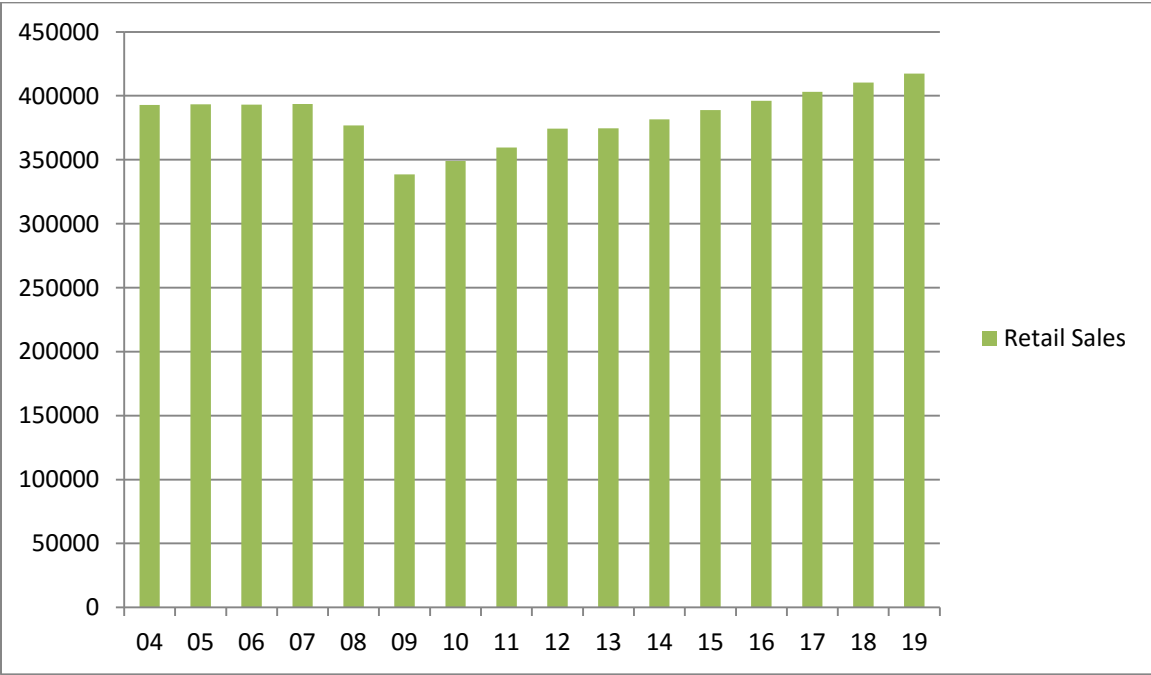
Per Capita Income for Warren County residents continues to increase every year. In 2013, the Median Family income was \$43,922. The Median Household Income was \$34,641. Per Capita income was \$30,731.00. Comparatively, the Per Capita income rate for Tennessee was \$40,457.00. The Per Capital income rate for the United States was \$46,049. The rate for Warren County is significantly lower than the rates in Tennessee or in the United States. This contributes to the high poverty rate, at 21.6% for individuals and 16.2% for families.

2.5 - Warren County Property Tax Collections



The 2014 Warren County Property Tax Collections amounted to \$8,900.00 in 2014. It is expected to grow in small increments for the next five years as population very slowly increases as retirees purchase property within the region.

2.6 - Warren County Retail Sales



Retail sales in 2013 were \$374,523. Retail sales in 2014 were \$370,311. Retail sales dropped by almost \$5,000 from 2013 to 2014, although it was anticipated that retail sales would increase. It is anticipated that retail sales will increase by approximately 7% over the next five years.

GENERAL SOCIAL AND ECONOMIC DATA
Warren County, Tennessee

Population	2010	Percent
Total – 2010 Census	39,839	100.0
White	35,650	89.5
Hispanic	3,224	8.1
Black	1,142	2.9
Age 0-4	2,597	6.5
Ages 5-14	5,529	13.9
Ages 15-19	2,527	6.3
Ages 20-64	23,161	58.0
Ages 65 and above	6,025	15.1
Median Age	39.3 years	
Total Households	15,850	100.0
Families	10,891	68.7
Nonfamily households	4,959	31.3
Employment, Labor Force	2004	2014
Labor Force Total	19,210	16,780
Employment	18,190	15,700
Unemployment	1,560	2,150
Rate (%)	5.3%	7%
Wages	2004	2014
Total Wages	22,678	30,196
Average Weekly	436.12	580.70
Retail Sales	2004	2014
(000's)	392,880	381,673
Personal Income	2000	2014
Median Family	37,835	43,922
Median Household	30,920	34,641
Individual Poverty Rates (%)	21.5%	
Family Poverty Rates (%)	17.0%	

Property Tax Rate	2014
Per \$1/100 Assessment County	\$2.30
Per \$1/100 Assessment McMinnville	\$3.97
Per \$1/100 Assessment Morrison	\$2.43

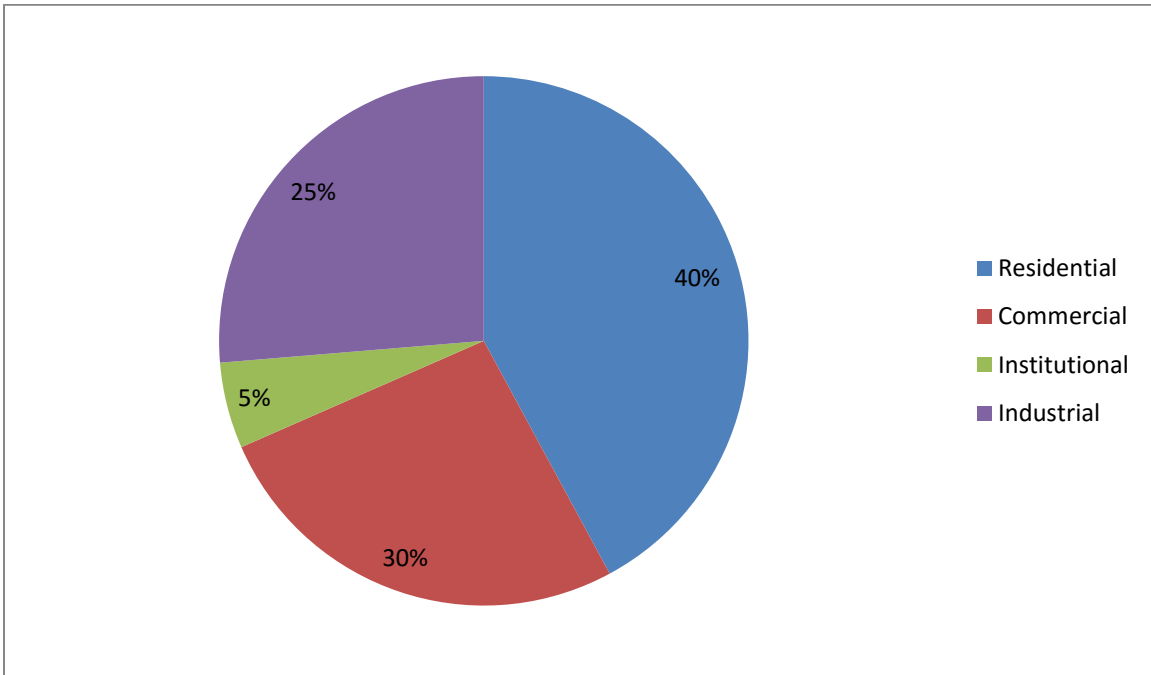
Tax Rates	2014
State Sales Tax Rate	7.00%
Local Sales Tax Rate	2.75%

Education	2014
High School Graduates	76.5%
Some College/Associates degree	6.2%
College Graduates or higher	12.1%

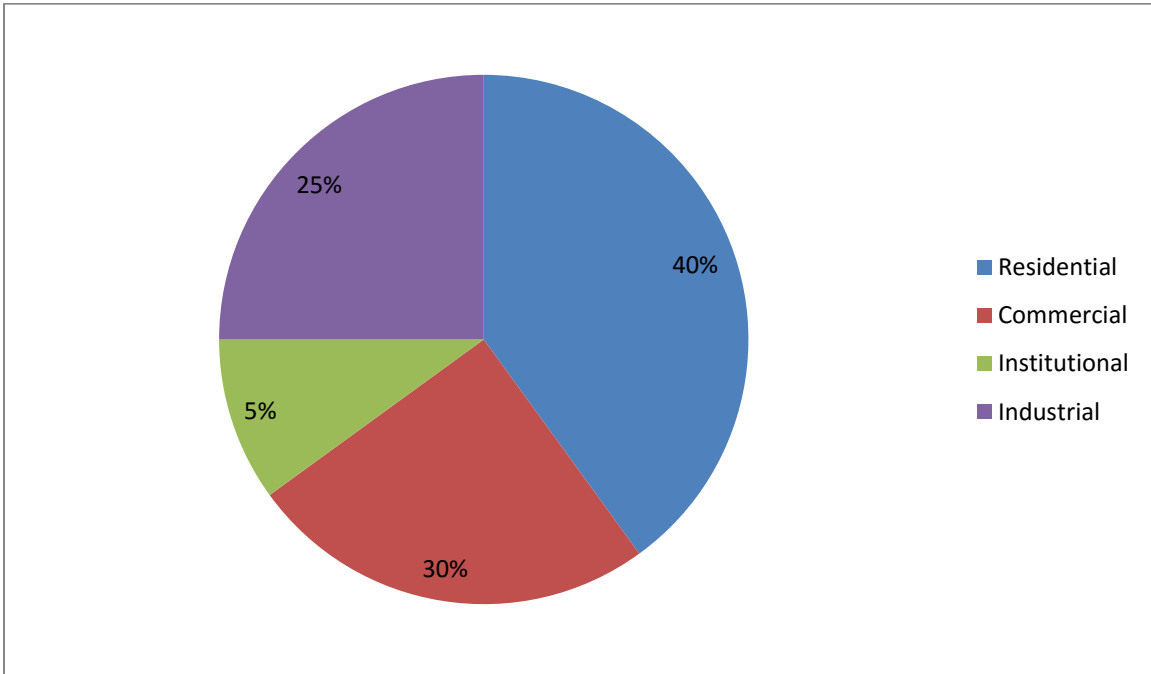
ITEM 3

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.

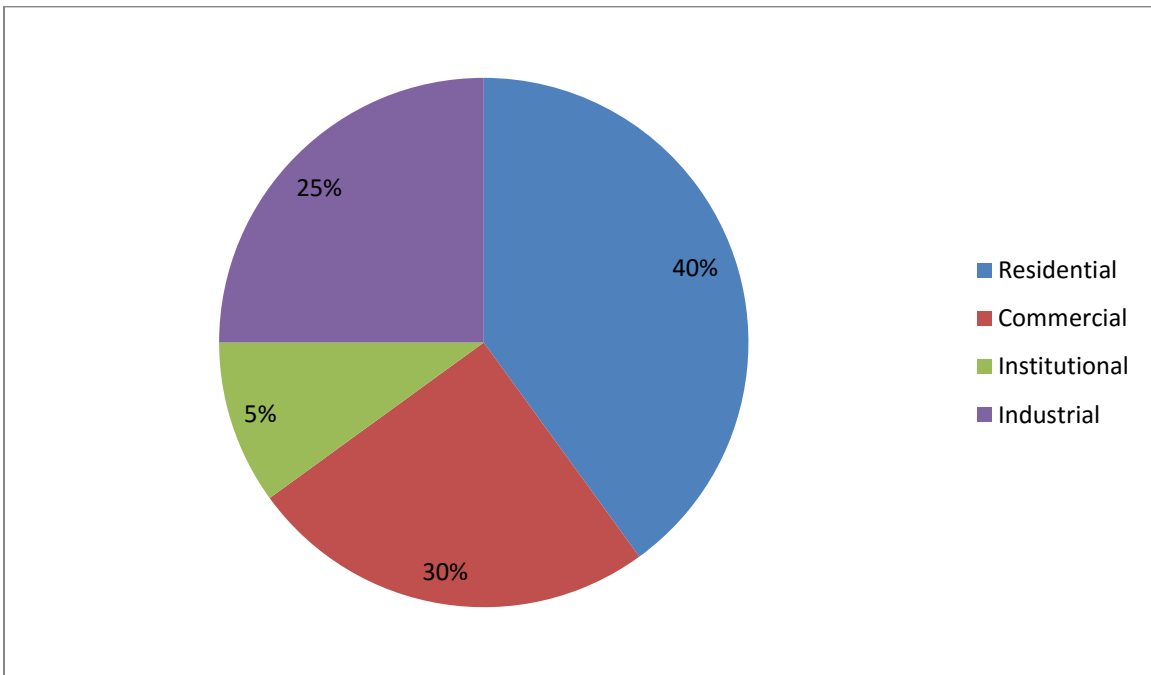
3.1 - 2010 Warren County Waste Stream



3.1 - 2014 Warren County Waste Stream



3.1 - 2019 Warren County Waste Stream



The current waste stream in Warren County is 40% residential, 30% commercial, 5% institutional and 25% industrial. The total population of Warren County grew 4.8 percent between the 2000 and 2010 Census and similar population growth should logically be expected over the next decade, although a recovering economy could conceivably increase that rate of growth. From 2010 to 2011 the amount of solid waste Warren County

sent to landfills increased by 7.75 percent, from 31,005 tons to 33,611 tons which is a significant yearly growth. However, as more businesses and industries, as well as the public, initiate or expand local recycling programs this growth rate can be expected to diminish. Encouraging recycling may offset increases. Increased efforts for waste diversion could significantly reduce the amount of waste generated in this county.

The county will continue to work to increase awareness of the availability of electronic waste recycling and is considering the initiation of a glass recycling program. Warren County will expand the number of sites that accept plastics and will partner with local schools in their efforts to promote and participate in recycling including phone books. Employees at convenience center sites will be educated on the importance of recycling which will aid them in encouraging patrons to sort and recycle as much of their solid waste as possible in order to reduce the amount of solid waste processed by the county thereby reducing the amount that goes to a landfill. Warren County has partnered with Waste-A-Way, a private recycling company converting waste to fluff, and diverts the maximum amount of waste the company can accept from the county. In some months this results in a recycling rate of up to 30%. Warren County encourages best practices of waste management including “reduce, reuse, and recycle” to decrease the amount of waste generated.

Problem wastes are being disposed of as follows: 1) Warren County has initiated a program to reduce the amount of paint that goes to the landfills. The program allows local residents to pick up any usable discarded paint at no charge, which has turned out to be an effective way to keep some paint out of the landfill. However, as the program is marketed, Warren County anticipates a higher rate of diversion. It currently diverts approximately 10% of oil and latex paint collected. Remaining paint is solidified and packed in a container with bark chips to absorb liquid. When full it is taken to Rhea County landfill. In 2014, 18.55 tons of latex paint was collected for disposal. 2) Waste tires are continued to be picked up by Liberty Tire for recycling, although there is a problem in the county with illegal tire dumps due to the unavailability of space to store tires until they are picked up. This solution will continue until there is another viable solution. This year 318.98 tons of truck and passenger tires were collected and recycled. 3) The State of Tennessee disposed of .92 tons of household hazardous waste generated by businesses and individuals living in Warren County collected at the Hazardous Waste event. 120 families participated. 4) Batteries, oil, antifreeze and electronics are collected at Convenience Centers to be sold and recycled. In 2014, 3.39 tons of batteries and 12.19 tons of oil were collected and sold bringing almost \$1,500 in revenue to the County. 40.15 tons of electronics were collected and recycled by Scott Computers, Knoxville, TN. There was no revenue generated from collecting electronics, but they were diverted from the waste stream. 5) Because Warren County is the “nursery capitol” of the U.S., there is a lot of plastic sheeting from greenhouses that needs disposal. Plastic that was previously taken to the landfill, is now collected and recycled. In 2014, 25 tons of rolled plastic from the Nursery Research Center were recycled.

Warren County has decreased the amount of waste the county disposes of by instructing county convenience employees to be more stringent about allowing only Warren County residents or property owners to use the county convenience centers, since a significant number of out of county residents have been crossing county lines to avoid a longer trip to their own county’s convenience centers.

Additional space at outlying convenience centers is needed to allow for adequate storage of the recyclables that are received. Temporary storage must be available until these recyclables can be moved to the central location

at the Fairgrounds Convenience Center for processing and delivery to the designated recipient or purchaser. More containment bins are needed for recyclable materials, and a storage trailer is needed for storing paint prior to processing it. The department needs newer and more reliable equipment to use for loading recyclables for transport. The county plans to continue its existing recycling programs and to expand them as funding for equipment and new programs become available through state grants or other funding mechanisms. The county plans to continue its recycling education and promotional events on an annual basis. In 2014, about 22 percent of the county's total solid waste was recycled and kept out of the landfills.

Warren County will continue to upgrade equipment and facilities as local funding becomes available. The county will also continue to pursue both government and private sector grants, even though these funds are limited and the field is very competitive. The Warren County Sanitation Department is also working to streamline the household solid waste handling process to make the best use of the facilities and equipment currently available. As new waste handling and disposal technology is developed – and becomes available and economically viable – the county will take advantage of those technologies to increase the efficiency and reduce the cost of the county's operation.

In 2014, Warren County's residential solid waste was collected in metal bins at the county's thirteen convenience centers which are spread throughout the county. From there, the waste was transported by county Sanitation Department trucks to the transfer station operated by Southern Central. The City of McMinnville uses its trucks to collect residential waste on a weekly basis from the heavy duty plastic containers it supplies to city residents. McMinnville's sanitation department then uses its trucks to transport the waste to Southern Central. Solid waste from both the city and the county is then hauled by Southern Central trucks to the Rhea County Landfill.

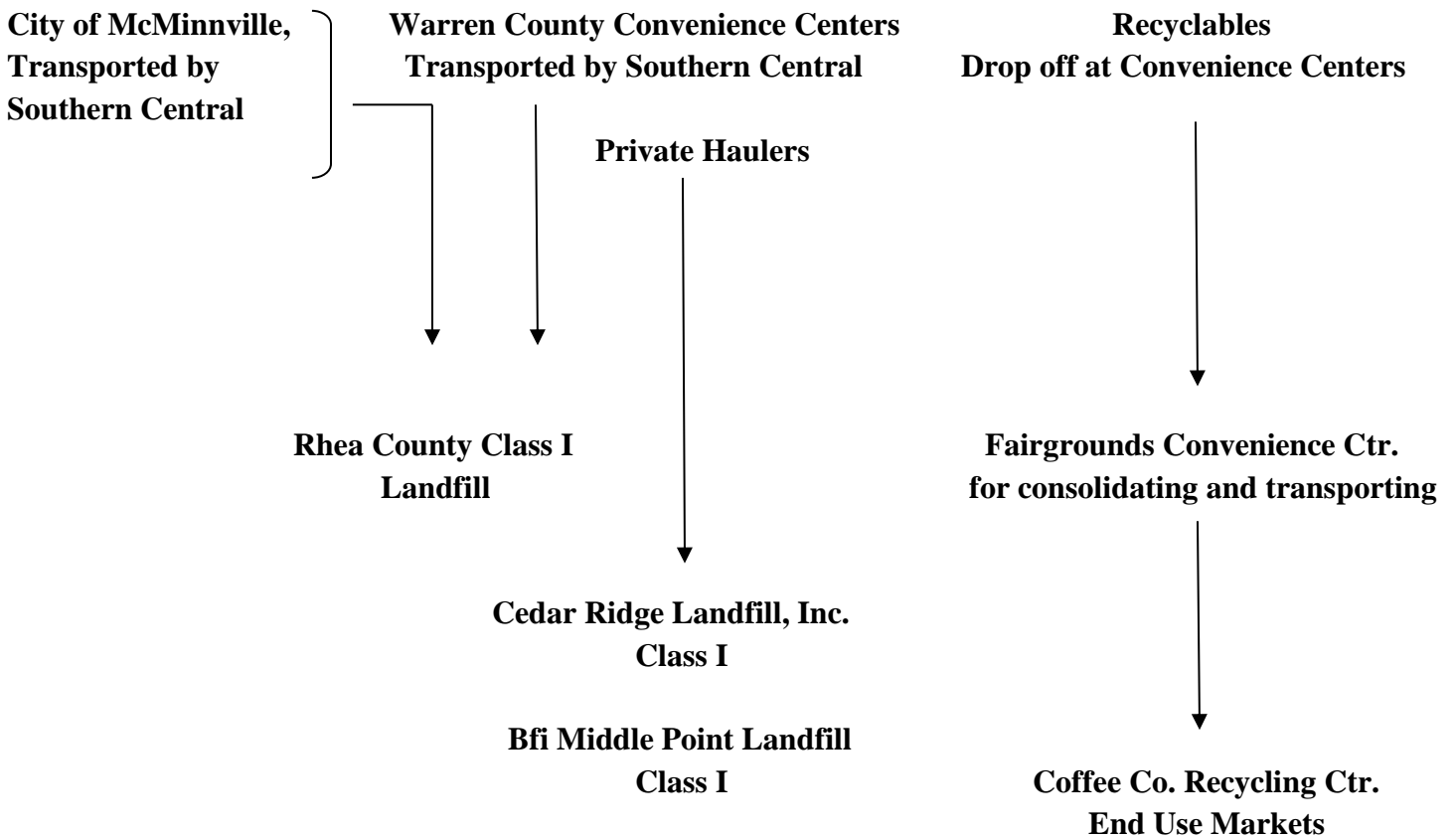
A total of 36,882 tons of solid waste were hauled to landfills in 2014. Waste Management hauled 2,869 tons to Cedar Ridge Landfill, Inc., from industries operating in Warren County. Commercial and Industrial waste is collected and transported by Waste Management to haul trash to Cedar Ridge Landfill, so Warren County is not responsible for that. Southern Central hauled a total of 33,766 tons of waste from the City of McMinnville and Warren County to Rhea County Class I Landfill. 9,791 tons came from McMinnville and 23,975 tons came from the Convenience Centers. Jarden Consumer Solutions transported 247 tons to Bfi Middlepoint Landfill for disposal. As previously stated, Warren County Solid Waste Department encourages industries and individuals to reduce, reuse and recycle to decrease the amount of waste that is disposed of in landfills.

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.

4.1 – NARRATIVE

SOLID WASTE COLLECTED



CONVENIENCE CENTERS

Fairview Convenience Center
1753 Fairview Road, McMinnville, TN
Operator Dannie



Viola Convenience Center
85 Viola Cemetery Road, Morrison, TN
Operator: Mr. Jones



Morrison Convenience Center
131 W. Railroad St., Morrison, TN
Operator: Mike



Smartt Convenience Center
199 Smartt Station Road, Morrison, TN 37357
Operator: Stanley



Fairgrounds Convenience Center
477 Fairgrounds Road, McMinnville, TN 37110
Operator: Mr. David Robertson



Earlyville Convenience Center
2234 Short Mountain Road, McMinnville, TN 37110
Operator: Eugene



Centertown Convenience Center
Line Street, McMinnville, TN 37110
Operator: General Oakes



Green Hill Convenience Center
131 Guthrie Road, McMinnville, TN 37110
Operator: Jack Jones



Midway Convenience Center
6056 Great Falls Road, Rock Island, Tn 38581
Operator: Buddy Couch



Rock Island Convenience Center
2926 Pine Bluff Road, Rock Island, TN 38581
Operator: Art Bedford



Rowland Station/Starlight Convenience Center
1402 Starlight Road, McMinnville, TN 37110
Operator: Jessie Fitz



Campaign Convenience Center
290 Jaco Street, Campaign, TN 38550
Operator: W. O. Osmond



Coffee County Recycling Center
Old Manchester Hwy., Tullahoma, TN 37388
(Private Recycling Company)

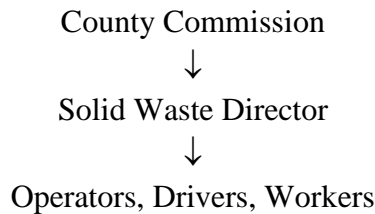


ITEM 5

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 collection sites, paint recycling centers, all landfills, etc. Identify any shortcomings in service and note what might be needed to fill this need.

5.1 - ORGANIZATIONAL CHART

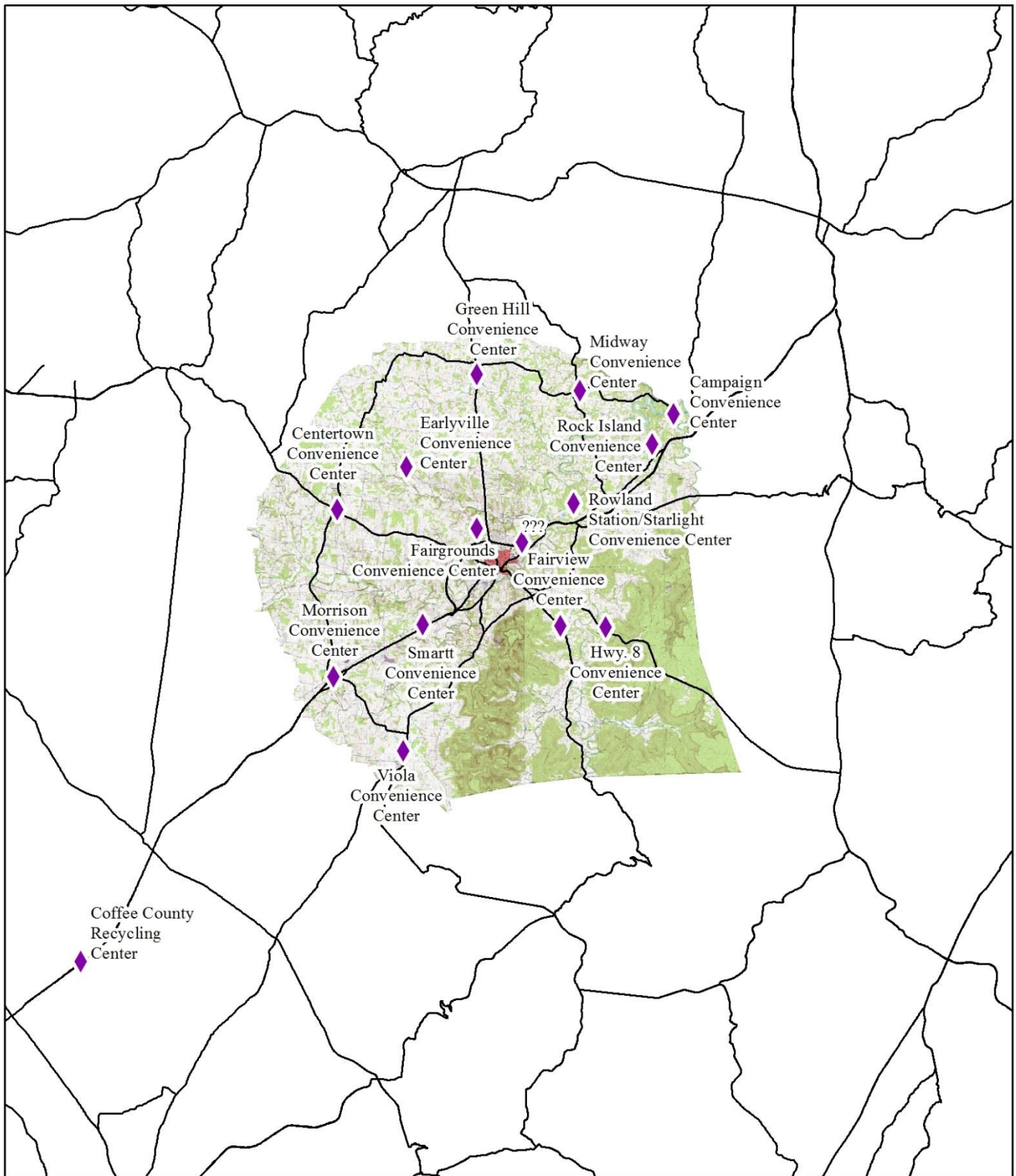
WARREN COUNTY



CITY OF McMINNVILLE



WARREN COUNTY CONVENIENCE CENTERS



Currently, there are 9 full-time and 22 part-time solid waste workers at the Convenience Centers and Solid Waste Department. Contracts with private companies to haul waste from the City of McMinnville and the 12 Convenience Centers are in place. Repairs on old equipment are done in-house. The system is operating as it should. Even if the waste increased, this system is working for waste disposal in Warren County although it is costly. The Convenience Centers are distributed throughout Warren County for the residents. In January 2015, the Hwy. 8 Convenience Center was closed because the landlord who owned the property would not renew the lease with the county. There are not any current plans to replace that Convenience Center as it is quite close to the Fairview Convenience Center which could be used by residents instead.

All convenience Centers are paved, with houses for the operators and porta-potties onsite. Centers have recycling bins for collection of recyclables. Each Center has a compactor to compact waste. All waste is picked up by a private hauling company, Southern Central Waste Service, LLC, who takes the waste to Rhea County to be landfilled. Recyclables are processed at Coffee County Recycling Center. In 2014, 800.96 tons of household trash was hauled to Waste-A-Way for disposal, at a cost of \$35,365.54 in tipping fees. A total of 6,866.28 tons were hauled by Southern Central to Rhea County, at a cost of \$289,164.53. Sales of recyclables (metals, newsprint, cardboard, batteries and oil) brought in a total of \$55,997.20 to help offset the cost of the tipping fees.

Several compactors are ageing and will need to be replaced in the next few years. In addition, more recycling bins are needed to collect and transport recyclables. A vehicle to transport recycling will be required within the next five years. A shed is needed to collect paint for storage so it can be accessible to residents free of charge to help with waste diversion.

It would be helpful for Warren County to have a space to process glass and plastic for resale. Although they collect plastic, it does not bring revenue to the county. It is simply transported to Coffee County Recycling Center, where it is baled and sold, profiting the Coffee County Recycling Center.

Landfills used by Warren County are as follows: Rhea County Landfill is approximately 75 miles away, and is where the county and City of McMinnville household trash is taken. This landfill is located on 178 acres and has room to expand the landfill for many decades. Bfi Middle Point Landfill is located at 750 E. Jefferson Pike, Murfreesboro, TN approximately 70 miles away. Life expectancy for this landfill less than 14 years. Cedar Ridge Landfill is located at 2340 Mooresville Hwy., Lewisburg, TN, approximately 90 miles away. Life expectancy of this landfill is less than six years. Industrial and commercial waste is transported from Warren County to both Cedar Ridge and Bfi Middlepoint.

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?

Education on recycling is provided to residents each year. Free informational materials with education on recycling and litter abatement are placed at the Warren County A&L Fair booth in a prominent location, sponsored by the Warren County Litter Grant program. Phone book recycling is encouraged in the public schools and has now become an annual event beginning in 2011. A friendly spirit of competition has encouraged the recycling as students work to recycle the most phone books to keep them out of the landfill. Residents are interested in recycling.

The only problem that interferes with recycling is that there are space limitations at convenience centers limiting the amount of recycling that can be stored until moved to the central location at the Fairgrounds Convenience Center for processing and delivery to designated recipients or purchasers. More containment bins are needed for recyclable materials and equipment is needed to load recyclables for transport. In order to increase recycling and decrease the amount of waste going into the landfill, employees will be trained on the importance of recycling so they can aid patrons in sorting and recycling as much waste as possible to divert it from the landfill.

County residents are encouraged to reduce, reuse and recycle to decrease the amount of waste that goes into the landfill. Warren County leads by example by diverting solid waste to local and regional recycling companies, including a company called Waste-A-Way, who converts waste into "fluff" for other uses. The county provides bins at the twelve convenience centers for the collection of cardboard, newsprint, plastic and aluminum. The county accepts and recycles metals, dry cell batteries, oil, antifreeze and electronics. Latex and oil based paint is collected and solidified or usable paint is given to local residents at no charge. Industries including Jarden Consumer Solutions, Bridgestone Americas Tire Operations, LLC, MPC, and Yorozu Automotive of TN, Walmart Stores, Inc., Dollar Generals, Helton, Inc., and McMinnville Electric System collect and recycle metals, corrugated cardboard, newspaper, pallets, mixed office paper and plastics. Commercial and Industrial accounts transport their own waste and sell their own recycling. They are encouraged to divert waste from the landfill by revenue from recycling, and to cut down on costs for transporting and landfilling waste.

In 2014, Warren County recycled about 22 percent of the county's total solid waste. Residents do not seem opposed to recycling and participate with county efforts to do so.

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.

Warren County currently maintains 12 (one closed in January 2014) Convenience Centers located throughout the county. These Convenience Centers offer residents a variety of recycling opportunities by providing containers for newsprint/paper, corrugated cardboard, plastics #1 and #2, aluminum cans, mixed metals, e-waste, used oil, antifreeze and batteries. Paint is collected and then usable discarded paint is provided free of charge to residents. Approximately 10% of paint is given away. As the program is publicized, it is expected that the amount of paint diverted from the landfill will increase. Warren County partners with the public school system to collect used phone books for recycling. The schools set up a program for collection, with the students participating in friendly competition. Employees will be provided training so they can help divert recyclables from the landfill at the convenience centers to help increase totals diverted from the landfill.

McMinnville Public Works and McMinnville Electric System diverted waste from the landfill. Public Works diverted 2,420.0 tons of bio-solids from the landfill. The Electric System diverted 612.0 tons of green waste from the landfill. Both businesses and government located in Warren County could be encouraged to recycle more and divert waste whenever possible from the landfill.

7.1 – Warren County Waste Diversion Rates

Year	Per-Capita %	Real-Time %
2010	78%	48%
2011	11%	11%
2012	60%	60%
2013	62%	62%

Although Warren County was not in compliance with the state mandated 25% reduction in waste in 2011, they have managed to remain in compliance for the last two years. Diverting waste to Waste-A-Way has made a difference to this county. In addition, to help with waste reduction through recycling for the future, Warren County requested recycling equipment through a recycling grant in 2014 and received that grant. The equipment received was a three 42-yard receiver container for cardboard and 8-yard front loader boxes for plastic to be used in four existing Convenience Centers. It is expected they have met their diversion goals for 2014, as they have found alternatives for waste that was previously landfilled, including plastic sheeting – over 25 tons – from the greenhouses of numerous nurseries located throughout Warren County.

ITEM 8

(a) 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 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.

8.1 (a) – Warren County Convenience Centers

Site Name (s)	Current Capacity	Maximum Capacity	Projected Life of Facility
Campaign Convenience Center	1,997.9 tons	4 tons	>25 Years
Centertown Convenience Center	1,997.9 tons	4 tons	>25 Years
Earlyville Convenience Center	1,997.9 tons	4 tons	>25 Years
Fairgrounds Convenience Center	1,997.9 tons	6 tons	>25 Years
Fairview Convenience Center	1,997.9 tons	4 tons	>25 Years
Green Hill Convenience Center	1,997.9 tons	4 tons	>25 Years
Hwy. 8 Convenience Center	0	0	Closed as of Jan. 2015
Midway Convenience Center	1,997.9 tons	4 tons	>25 Years
Morrison Convenience Center	1,997.9 tons	4 tons	>25 Years

Rock Island Convenience Center	1,997.9 tons	4 tons	>25 Years
Rowland Station/Starlight Convenience Center	1,997.9 tons	4 tons	>25 Years
Smartt Convenience Center	1,997.9 tons	4 tons	>25 Years
Viola Convenience Center	1,997.9 tons	4 tons	>25 Years
Cedar Ridge Landfill, Inc. – Class 1 SNL590000238	2,869 tons	6,000 tons	< 6 Years
Rhea County Class I Landfill SNL720000269	33,766 tons	60,000 tons	< 16 Years
Bfi Middle Point Landfill	247 tons	1,000 tons	<14 years
Total:	36,882 tons	117,000 tons	Annually for < 17 yrs

(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.

8.2 (b) – Warren County Solid Waste Service Areas

Provider of Service	Service Area	Population Total Under This Service	Frequency of Service (Weekly, Bi-weekly, on call, etc.)	Annual Tonnage Capacity	Type Service (Curbside, Convenience Center, Green Box)
Warren County	County-Wide	26,972	Hours of Operation	23,975	Convenience Center
McMinnville	City Limits	13,749	Weekly	9,791	Curbside
Waste Management	Industries	5 businesses	Weekly	2,869	Private pickup

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.

9.1 – Warren County Expenditures and Revenues 2014

EXPENDITURES			
Description	Present Need \$/year	Unmet Needs \$/year	Total Needs (Present + Unmet) \$/year
Salary and Benefits	411,875.00	20,593.75	\$432,468.75
Transportation/hauling	50,338.00	2,516.90	52,854.9
Collection and Disposal Systems (contr. w/ private & Gov't Agencies)	368,082.00	18,404.10	386,486.10
Equipment	39,481.00	287,060.00	326,541.00
Sites (development)	4,977.00	248.85	5,225.85
Convenience Center	N/A		
Transfer Station	N/A		
Recycling Center	N/A		
MRF	N/A		
Landfills	N/A		
Site	N/A		
Operation	N/A		
Closure	N/A		
Post Closure Care	N/A		
Administration (supplies, communication costs, etc.)	26,246.00	1,312.30	27,558.30
Education	8,000.00	10,000.00	18,000.00
Public			
Continuing Ed.			
Capital Projects			
EXPENDITURES			
Host agreement fee	N/A		
Tipping fees	N/A		
Property taxes	559,380.25		559,380.25
Sales tax (co. local option tax)	119,370.15		119,370.15
Surcharges	N/A		
Disposal Fees	3,415.00		3,415.00
Collection charges	N/A		
Industrial or Commercial charges	N/A		

Residential charges	2,600.00		2,600.00
Convenience Centers charges	N/A		
Transfer Station charges	N/A		
Sale of Methane Gas	N/A		
Other sources: (Grants, bonds, interest, sales, etc.)	Solid Waste Grant - 24,128.00 Recycling Y – 63,537.54 State Revenue Sharing - \$433,358.68		\$496,896.22

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.

10.1 – Warren County Solid Waste Revenue Sources

Community	Current Revenue Source
Warren County	County Property Taxes County Local Option Taxes Solid Waste Disposal Fees Sale of Recyclables Solid Waste Grants State Revenue Sharing
City of McMinnville	Waste pickup charge

10.2 – Warren County Solid Waste Equipment Needs

Community	Item	Estimated Cost	Potential Revenue Sources
Warren Co.	Two 30-Yard Roll-off Containers for metals	\$10,000 X 2 = \$20,000	Recycling Grant with 30% matching funds from county
Warren Co.	Two 35-Yard Roll-off Containers for newsprint	\$12,000 X 2 = \$24,000	Recycling Grant with 30% matching funds from county
Warren Co.	Shed for storing paint	\$8,000 - \$10,000	Recycling Grant with 30% matching funds from county
Warren Co.	3 – Trash Compactors	\$18,000 X 3 = \$54,000	Recycling Grant with 30% matching funds from county
Warren Co.	Four – 42-yard Receiver Boxes	\$7265.00 X 4 = \$29,060	Recycling Grant with 30% matching funds from county
Warren Co.	Truck for transporting recyclables	\$150,000.00	Recycling Grant with 30% matching funds from county

Warren County receives most of its operating funds from county property taxes, and county local option taxes. Additional revenue comes from the solid waste disposal fees charged, sale of recyclables, solid waste grants and state revenue sharing. As populations increase, the cost of solid waste disposal will increase also. It can be

offset by increasing the revenue that comes in from recycling. In addition to diverting the recycling, Warren County will explore options with composting. Each person throws away approximately 1,200 pounds of food waste per year away. If these could be taken out of the solid waste stream, it could decrease the amount spent on transporting and storing garbage at landfills. Revenue could possibly be developed by selling compost to landscape companies or individuals looking to landscape their own yards.

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.

Warren County does not own a landfill or transfer station; the Sanitation Department currently contracts with a private hauler to transport the county's solid waste 75 miles away to the Rhea County Landfill. The average tipping fee for 2013 was around \$44.00/ton. A new contract was negotiated in 2013 and as of June 2014, Warren County was paying approximately \$41.50/ton but that figure could go up or down due to fuel and handling costs. The figure was generally lower in 2014 but this may change over the next five years as the private carrier contracts are renewed and fuel and handling costs increase or decrease. There are currently no monitoring, remediation, or mandated improvements for city or county owned facilities, including convenience centers or transfer stations, planned for the next five years. Although Rhea County Landfill has a life expectancy of only 16 or less years, it is located on 178 acres with plenty of room to expand, so that landfill will may remain an option for Warren County for over 25 years.

The total expense for disposing of Warren County solid waste was \$1,202,117.70. This amount was primarily funded through County Local Option Taxes, and County Property Taxes. Additional revenue was collected through the solid waste fee collected through the utility department, the sale of recycled materials, solid waste grants, and state revenue sharing. The credit amount collected was \$1,071.90. Excess is used to improve the solid waste department. Currently, the Warren County Sanitation Department currently has nine full-time employees and 22 part-time employees.

The large majority of Sanitation Department is 10 years old, or older, and much of it has already surpassed its life expectancy. The antiquated inventory of equipment causes difficulty in maintaining and sustaining waste disposal and recycling needs. A significant amount of time is devoted to performance of maintenance and repair of equipment. Although in-house work is cost-effective, the amount of time spent on repair is excessive at times. Warren County will continue to upgrade equipment and facilities as local funding becomes available. The county will also continue to pursue both government and private sector grants, even though these funds are limited and the field is very competitive. The Warren County Sanitation Department is working to streamline the household solid waste handling process to make the best use of the facilities and equipment currently available.

There are space limitations at outlying convenience centers. Additional space is needed to allow for adequate storage of the recyclables received. Temporary storage must be available until these recyclables can be moved to the central location at the Fairgrounds Convenience Center for processing and delivery to the designated

recipient or purchaser. More containment bins are needed for recyclable materials, and a storage trailer is needed for storing paint prior to processing it. The department needs newer and more reliable equipment to use for loading recyclables for transport. The replacement of aging equipment and additional containers for recyclables are currently the two most needed improvements for Warren County Solid Waste facilities. Some progress was made in 2015 thanks to a state Recycling Equipment Grant received by the Solid Waste Department in 2014.

Warren County is working hard to follow the Statewide Solid Waste Management Plan. They are getting recycling containers to increase the amount of waste that can be collected for recycling. They are working with businesses to encourage recycling and waste diversion practices. Collection for difficult waste is set up throughout the county. Electronics are recycled, plus batteries, oil and antifreeze. They host a Household Hazardous Waste Day each year to keep this waste out of the landfills. This year 120 families participated. Education is provided through the TDOT Litter Grant. In the past, Warren County has not been able to reach the 25% waste diversion rate required by TDEC. However, for the last two years they have managed to reach that goal. Convenience centers are set up around the county to collect both household waste and recyclables. They apply for grants to help fund new equipment necessary for the continued operation of the Warren County Solid Waste Department, and allot money through a variety of funds to cover the costs associated with managing the county solid waste.

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