

Knox
Solid Waste
Needs Assessment
2013

Item # 1 Demographic Information & Projections

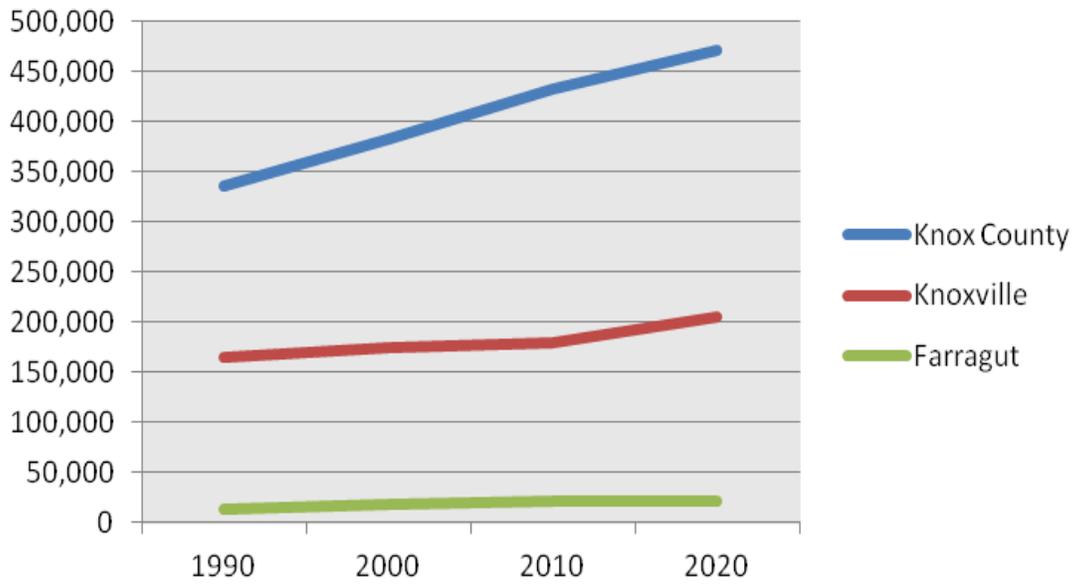
The following table and charts illustrate the population trends of the region, which includes respective municipalities, total municipal residents and county only residents. The 2020 projections are based on existing trends for each jurisdiction as well as knowledge of the area.

The county as a whole is expected to continue to increase in population between 2010 and 2020. Knox County will continue to see growth over the State, but will not meet the growth rate of the East Tennessee Region. Knox County will continue to see modest growth during the next needs assessment time period that should keep the solid waste issues manageable in the future.

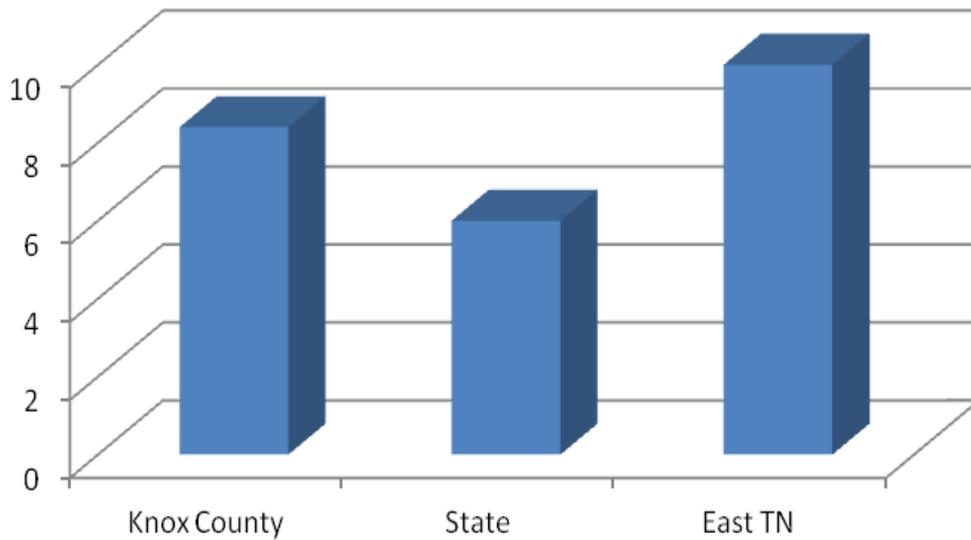
The entities of the region will see the following growth. The City of Knoxville will show a 13% anticipated growth during the next needs assessment, that will increase demands on solid waste. Some of those demands may be the shifting of responsibility between the County and City due to growth boundaries. Any growth will be more residential in nature that will not place a large burden on the solid waste stream over the next needs assessment. The City of Farragut will see their growth rate continue, but at a lesser pace than the last twenty years. Any growth that they will show will not affect the solid waste stream in that the County is already providing the services for their residents. There are no known factors over the next needs assessment that should greatly affect the forecasted growth in the area. The region of Knox County has the potential for another explosion of growth during the next needs assessment in terms of residential growth. This growth will not affect the solid waste stream in terms of disposal in that the region has a very active recycling program and their per capita of waste generated per residents has been reduced from 3.2 tons to 2.4 tons per individual. Probably more important than that is the per capita ton that is disposed in class I landfill has been reduced from 2.1 tons to 1.5 tons that is projected during the next five years. Any tourism growth can continue to be handled with the recycling programs that are in place. The future waste stream should not become unmanageable in the future.

Jurisdiction	1990	2000/% change	2010 / %	2020 / %
Knox County	335,749	382,032/12.1%	432,226 / 11.6%	471,912 / 8.4%
Knoxville	165,121	173,890/5.1%	178,874 /2.8%	205,806 / 13.1%
Farragut	12,783	17,720 /27.9%	20,676 / 14.3%	22,062/ 6.3%

Population Increase

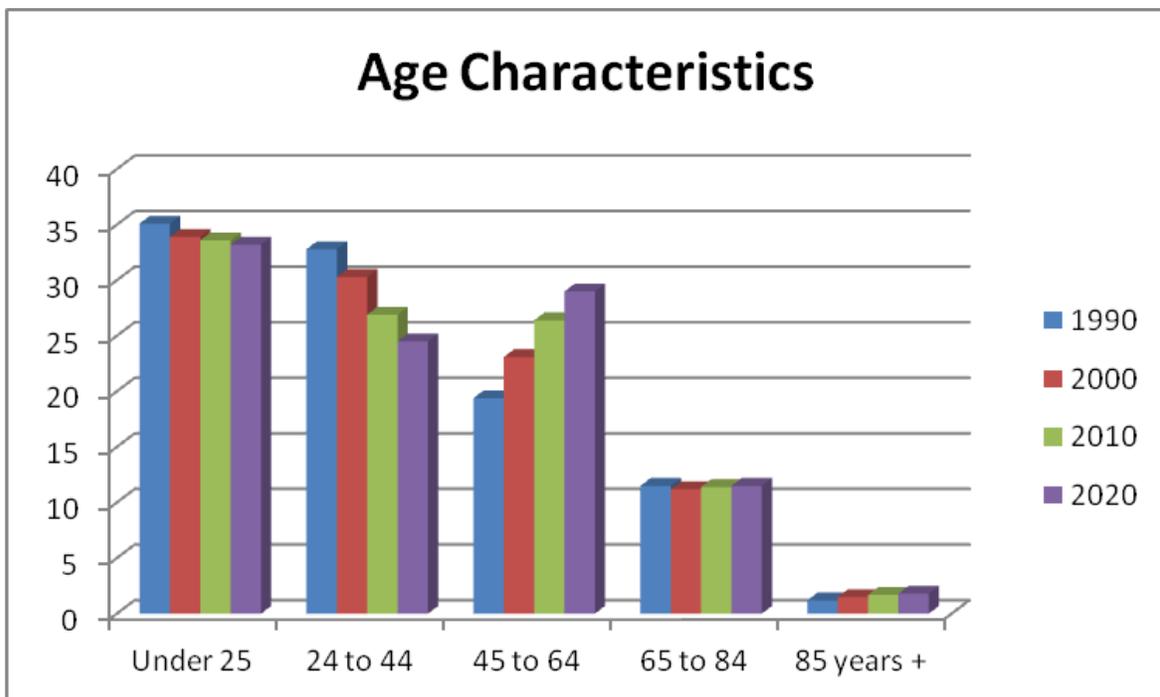


2020 projection by Percentage



The median age in Knox County has increased every census year from 30.0 (1980), 33.7 (1990), 36.0 (2000), and 37.29 (2010). As the region gets older, one could suggest that more recycling will be done in the future that will help to reduce the amount of waste that is going into the landfill. Also, the amount of waste per household will also go down as families get older and children move out of the home.

Ages	1990 Number of People	Percent	2000 Number of People	Percent	2010 Number of People	Percent
Under 25	94,489	35.1	129,585	33.9	144,665	33.6
25 to 44	145,536	32.8	115,957	30.3	116,712	26.9
45 to 64	65,194	19.4	88,075	23.1	114,358	26.4
65 to 84	38,647	11.5	42,822	11.2	38,864	11.4
85 years and older	4,043	1.2	5,593	1.5	7,343	1.7

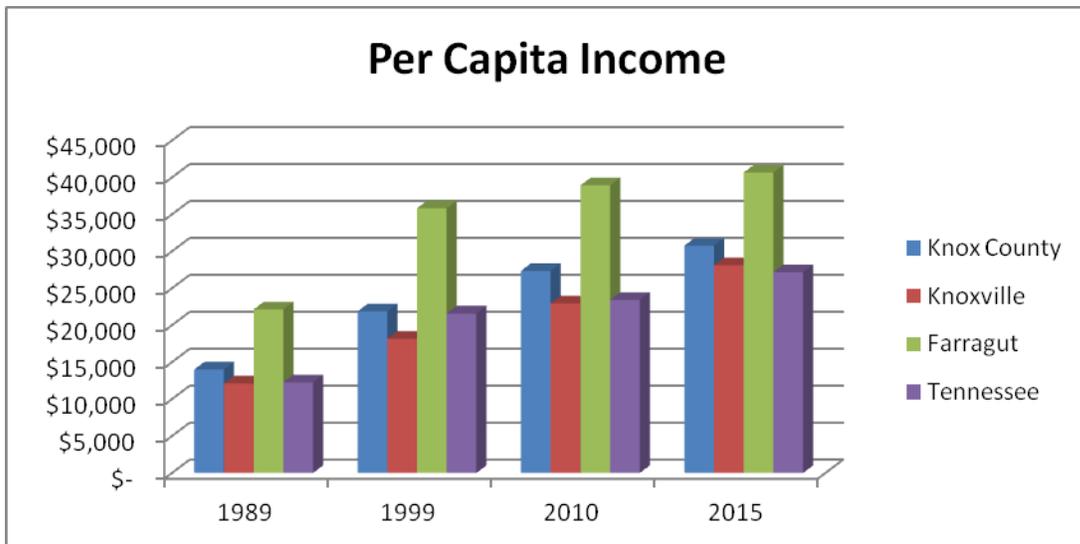


Item 2 Analysis of Economic Activity with the Region

As one examines the economic activity in the region and how those activities can affect the solid waste stream in the future. The use of the following economic indicators can give one a true picture of what to expect in the future. This being said one has to realize the economy went through a very tough downward spiral that will skew some of the numbers, but one should still be able to predict future growth using these economic indicators. The first economic indicator is the per capita income. The following table and charts show the per capita incomes for the county and each municipality in 1990, 2000 and 2010. The existing trends are expected to continue for each municipality and the county, though increases will likely be smaller in the future for most municipalities.

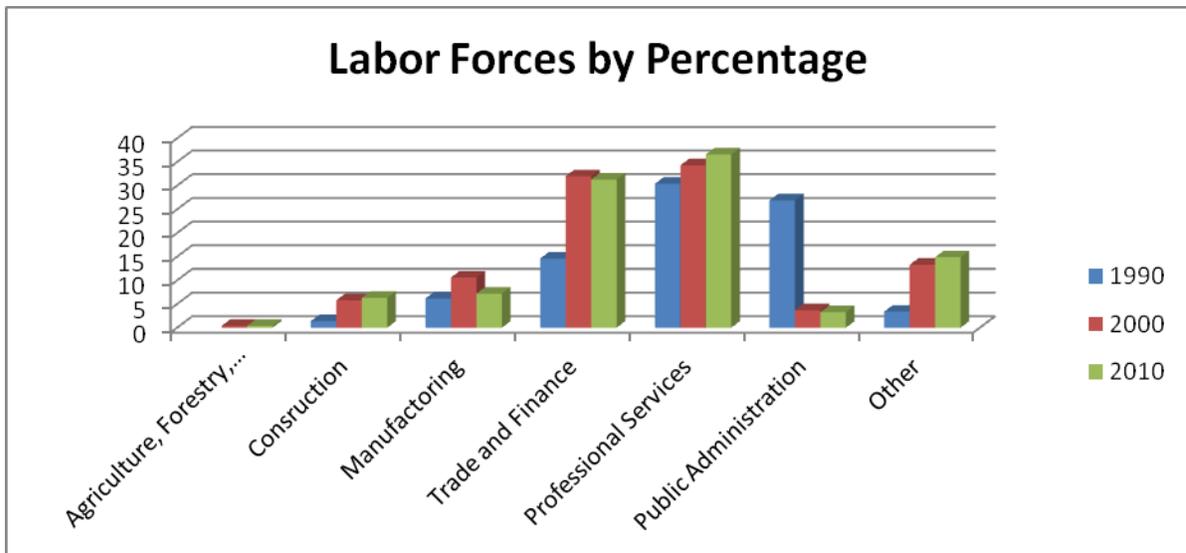
In looking at per capita incomes, one must realize that this purchasing power is largely affected by the in-migration of working-age people, 25 to 64 years of age. Conversely, the higher proportions of young and old people are often associated with lower rates of per capita income growth. The estimates for the current per capita incomes show that most all entities have experienced an increase in the purchasing power of their residents. Most residents are likely to use this increased purchasing power to spend more monies in the future. This is likely to mean an overall increase in solid waste generated by economic growth. However, this increase in solid waste will be from the consumer industries and not large industries that have the potential to create problem waste. The region of Knox has seen its per capita increase 48.8% in the last twenty years. This increase is compared to the State increase of 47.7%. It is estimated that the Knox region will still experience an increase, but the increase will be slightly lower over the next 5 year period to about 16.5%. Knox County region will still continue to out distant the State's per capita income. Farragut will remain above the State and Knox County and the City of Knoxville will still be behind the State.

Jurisdiction	1989	1999	2010	2015
Knox County	\$14,007	\$21,875	\$27,352	\$31,865
Knoxville	\$12,108	\$18,171	\$22,953	\$25,352
Farragut	\$22,139	\$35,830	\$38,916	\$40,473
Tennessee	\$12,255	\$21,587	\$23,418	\$27,282



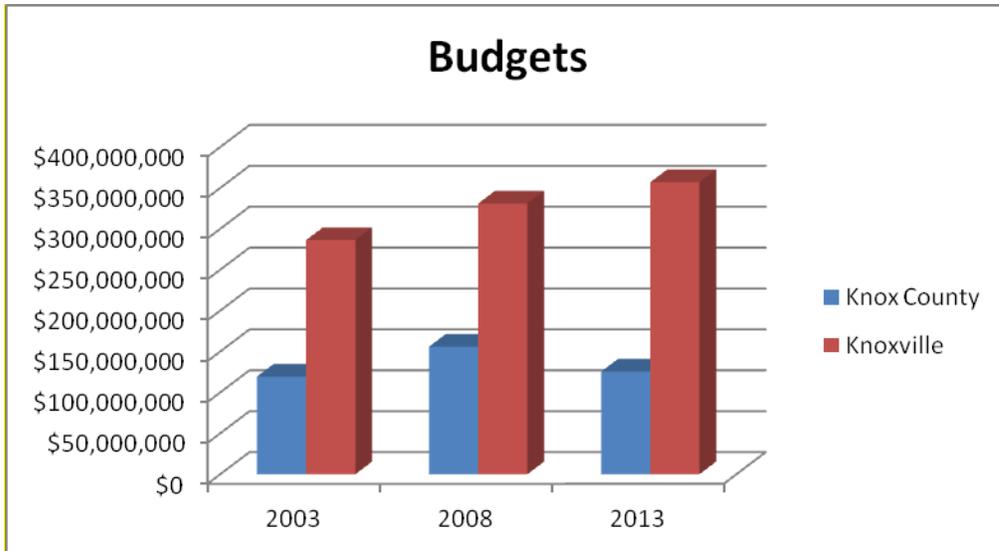
The following table takes a look at the types of businesses in Knox County that can have an effect on the amount of solid waste being generated. The table looks at the percentage of each classified work from 1990, 2000 and 2010. The Census Bureau changed their classification in 1997, so the seven shown are based on a uniform categorization by the author to derive at similar numbers for comparison. As the table below shows, manufacturing jobs have continued to decline which will generally produce a lot of cardboard, paper and glass that can be recycled. The trade and finance jobs have maintained a strong second in job creations for the region; they can produce a lot of paper and food waste that can be handled by the region. The professional service has continued to rise in the region and will also create a lot of paper and food waste that can be handled by the region.

Industry	1990	2000	2010
1. Agriculture, Forestry, Fisheries, Mining	1.4%	.4%	.4%
2. Construction	6.2%	5.8%	6.3%
3. Manufacturing	14.6%	10.6%	7.2%
4. Trade and Finance	30.4%	32.0%	31.3%
5. Professional Services	26.9%	34.3%	36.6%
6. Public Administration	3.4%	3.7%	3.3%
7. Other	17.1%	13.3%	14.9%

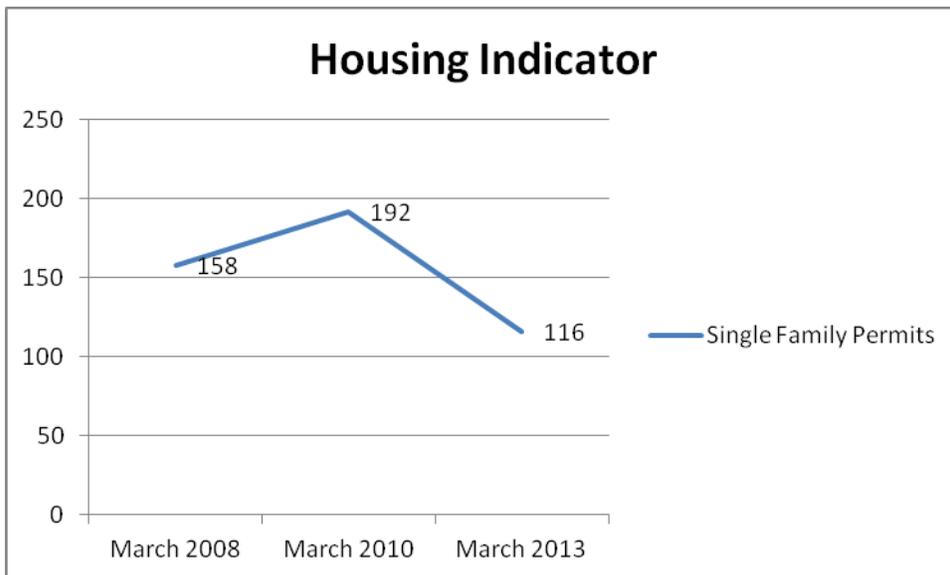


In looking at the job patterns for the region, one can see that there has been more of a shift from the labor intensive jobs to the white collar jobs in the region. Professional Services jobs have seen the largest increase from 1990 to 2010. Manufacturing jobs have continued to diminish in the region. The numbers above show that Knox County tourism trade is alive and well, which reflects on the retail trade in the area. Construction numbers have remained steady during the last census and have shown the potential for growth as the economy begins to improve during the next needs assessment era. The Region of Knox County will continue to experience its largest increase in white collar jobs with the employees having a more environmental awareness. This will shift some of the taxes being spent to more environmental programs that will create more opportunities to divert waste from Class I landfills. The next needs assessment should see a slight increase in waste from residents due to population increases and that should not adversely affect the waste stream or cause a financial burden on the region. The economy has not had a diminish toll on Knox County with jobs seeing an increase from 2000 to 2009 of about 29,074 jobs created.

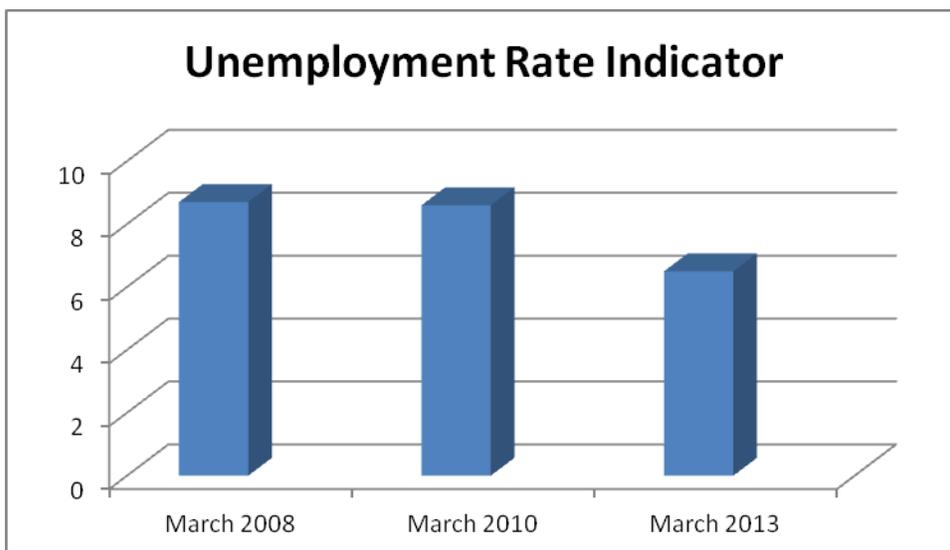
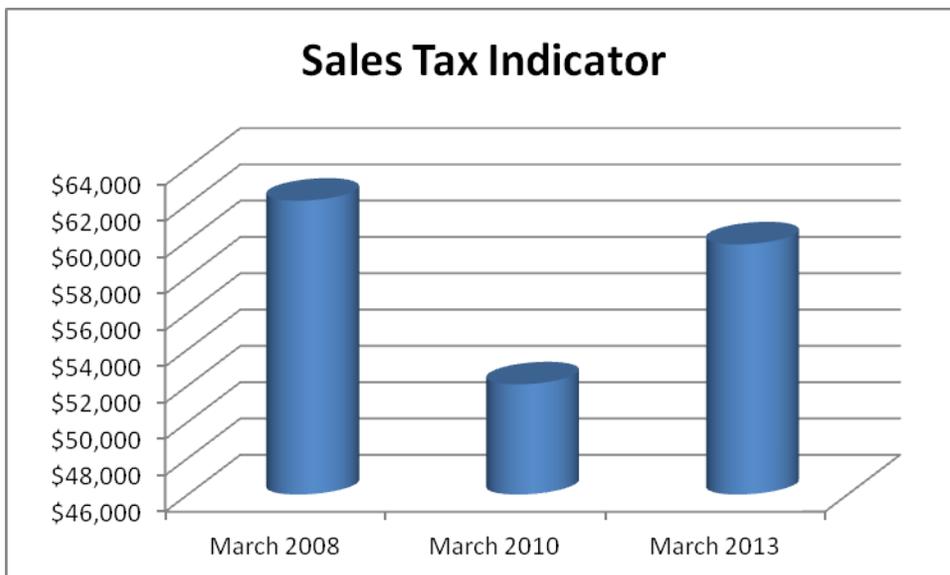
Other economic indicators are shown below in the graphs. The first one is the budget and that shows that the City of Knoxville continues to increase its budget for solid waste, while Knox County has diminished some of their budget on solid waste. The City continues to look for different ways to provide solid waste services for their residents and that has caused an increase in their budget, some of that increase is also due to increase growth boundaries that took some areas away from the county and placed them into the city that would also reflect the decrease in the county budget.



The housing indicator shows that the housing market has seen a drastic decline over the last three years. Professionals are saying that the trend will start to change in a more positive nature in the near future and should show an increase for the 2015 five year update. The housing indicator can show growth in terms of residential that could affect the solid waste generations numbers in the future. However, with the economy the single family permits does not take into affect the amount of citizens that might be renting rather than buying at the present time.



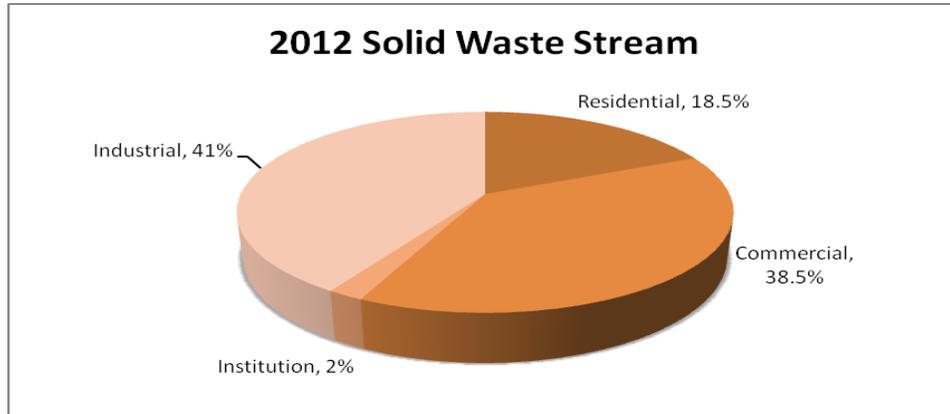
The sales tax indicator is a good way to see how much waste is being generated in the region. As one can see the sales tax has jumped significantly from 2010 to 2013. This jump shows that residents are now buying more and as you buy more, you create more waste that has to be disposed of. Most of this waste is in areas that can be recycled and the both the City and the County have good programs in place to allow for the recycling of materials. The unemployment rate correlates with the sales tax as more people are getting back to work and spending money. The type of waste that will be produced is not waste that will drastically change the makeup of waste that is being disposed of in a Class I landfill. The residents of the Knox Region have consistently been reducing the amount of waste that they generate and more and more people are making recycling a way of life. These indicators will show more waste being generated in the future, but should not affect the waste going to the Class I landfill in terms of space that is needed in the future.



Item # 3 Region Waste Stream

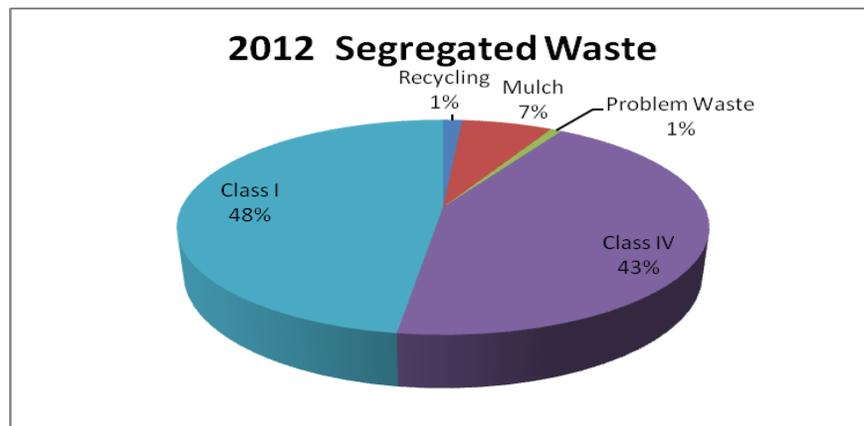
Knox County solid waste stream is shown below.

Residential 18.5%
Commercial 38.5%
Institution 2%
Industrial 41.0%



This can be further broken down into the following: This is county reported waste only not industrial, commercial.

Recycling – 11,229 – 1.4%
Mulch – 50,891 – 6.6%
Problem Waste – 6,086 – .8%
Class IV Waste – 337,509 – 43.5%
Class I Waste – 369,576 – 47.7%
Total = 775,291 – 100.0%



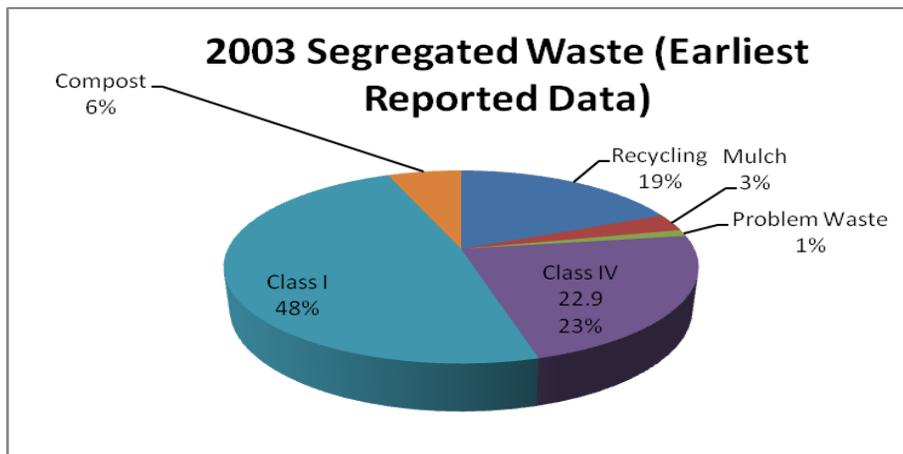
The waste stream during the last needs assessment looked like the following.

Residential 68%
Commercial 20%
Institution 2%
Industrial 10%



This can be further broken down into the following.

Recycling –230,498 – 18.7%
Mulching –36,070 – 2.9%
Compost – 73,567 – 6%
Problem Waste – 13,042 – 1.1%
Class IV Waste – 284,118 – 22.9%
Class I Waste – 598,023 – 48.4%
Total = 1,235,318 – 100.0%



The five year update to the needs assessment data looked like the following.

Residential 35%
Commercial 25%
Institution 10%
Industrial 30%

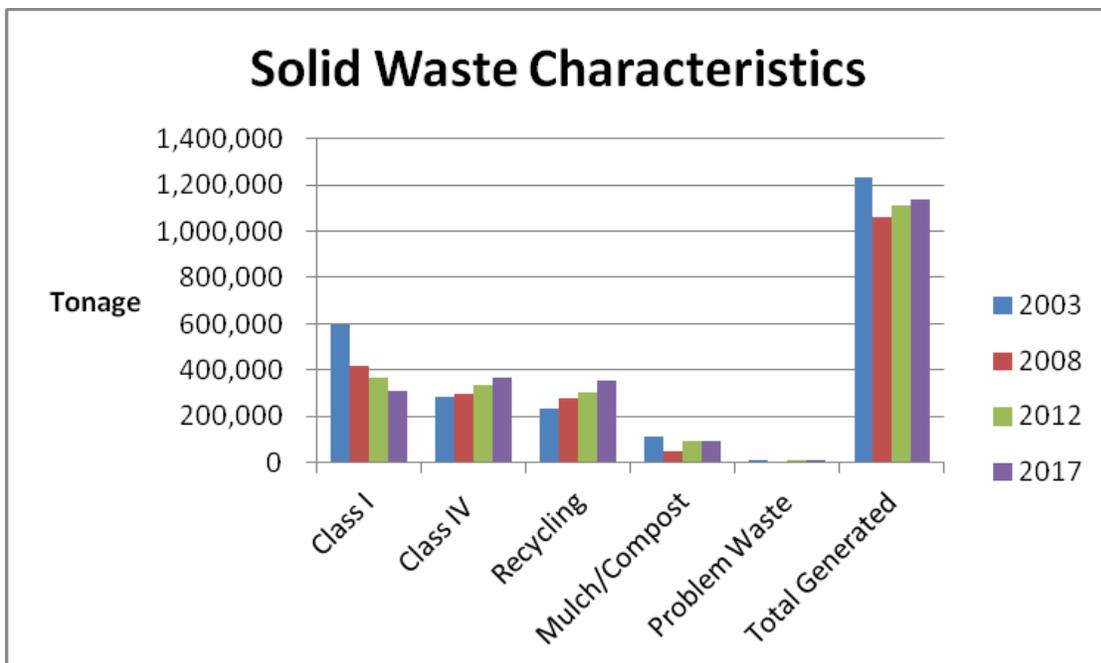


This can be further broken down into the following.

Recycling –280,003 – 26.4%
Mulching –52,112 – 4.9%
Compost – 8,505 – .8%
Problem Waste – 1,103 – .1%
Class IV Waste – 297,846 – 28.1%
Class I Waste – 421,001 – 39.7%
Total = 1,060,570 – 100.0%



The chart below shows the change in the characteristics of solid waste from 2003 to a proposed 2017. Class I Landfill waste that is being disposed of has shown a decrease every five years. This is pretty significant in that the total waste generated with the initial decline in waste being generated in 2003 to 2008 has shown an increase, which is largely due to the increase in residents in the region. Diversion methods were shown at 26.9% in reported 2003, 33.9% in 2008 and are now shown as 50.9 % in 2011. Recycling efforts shown as 18.7% in reported 2003, 26.4% in 2011 and are now shown as 1.4% in 2011. These numbers can be distorted in the collection of data that is not uniform. Until we start just looking at public activities and no longer look at commercial and industrial numbers we will not have a uniform accounting of what is taken place in the region. The only way that this will take place is that the Class I numbers would also need to be just the public and not the industrial and commercial and that distinction will have to come from the State. The chart shows that the generated waste has seen a small increase every five year period after the initial 2003 totals. If we utilize the 2008 to 2017 projected numbers we would see an increase of about 6.7% as compared to the population data that shows an increase of about 6.2%. The main reason for the small increase versus the population increase is that recycling efforts have increased in the region in terms of households doing a better job. The Knox County Region is currently showing a 2.4 per tons per person, but that number is skewed due to the fact that we are counting commercial and industrial waste. The State average is .90 tons per person. This shows that the region has continued to provide alternative recycling opportunities from the traditional cardboard and paper recycling. The most important number in terms of diverting waste from the landfill is that every five year increment shows that the amount of waste going to a class I landfill has been in decline from 48.4% in 2003 to 33.2% projected in 2017.



The components of solid waste are being handled the following way by the entities in the Knox County region. The region has the following facilities that help its constituents to dispose of their waste. The facilities are the following: 1. Convenience Centers that are operated by the county and allow for household waste and recyclables. 2. Household Hazardous Waste facility that is operated by the City of Knoxville that allows for residents to drop off household hazardous waste that includes paint, lawn and garden supplies, automotive products, appliances, mercury and Freon and kitchen, bathroom products, pet and cleaning solvents. 3. Green waste Recycling facility that is operated by the County and allows for small amount of green waste such as brush, yard clippings, small tree branches, etc. 4. Recycling Supercenters which are operated by the City in conjunction with Kroger and Goodwill Industries are open 24 hours a day. The seven supercenters allow for recycling drop-off that includes plastic, aluminum cans, steel cans, mixed paper, books, glass (clear, brown and green) cardboard, newspaper and household batteries. 5. Transfer station that is operated by the City that allows for the disposal of recyclables, tires, building materials, construction/demolition debris, etc.

Class I waste is being handled through a network of convenience centers that are serviced by Waste Connections. A total of eight (8) convenience centers that are manned are scattered throughout the county for Class I waste. The Class I waste from the convenience centers is collected using a roll off system that has a trash compactor in the center of the centers and all the waste is taken to Chestnut Ridge in Anderson County. Knox County does not accept or pick up waste from businesses, commercial or industries. Private haulers handle this collection and take the waste to the landfill that is the most convenient for that hauler. The City of Knoxville collects Class I waste house to house and utilizes Waste Connection for the pickup. The Class I waste that is collected from the residents is taken directly to the landfill. The City of Knoxville does operate a transfer station that allows for citizens to take class I waste and HHW waste. Class I waste door to door for their customers and take the waste to a transfer station and from there transports the waste to the landfill. The City of Farragut utilizes the convenience centers for the collection of their residential Class I waste or individuals' contract with a private hauler.

C&D waste or Class IV waste is collected at all of the convenience center sites by placing a roll-off container at the sites. The waste is then transported to a class IV landfill for disposal. The amount of material that is accepted is limited to (1) 5' x 8' pickup truck per day. All other items must be taken directly to the landfill or the Knoxville Transfer Station. The City of Knoxville does not collect this waste door to door, but provides a transfer station that allows residents to dispose of C&D waste. Items not accepted are loose asbestos, asphalt, commercial hazardous waste, contaminated soil, dead animals, hot ashes, medical waste, sludge, railroad ties, yard waste and large amounts of rock, brick, concrete, or dirt. The transfer station does not accept any waste from the commercial or industrial entities and their waste must be taken directly to the landfill.

The City of Farragut does not provide this service for its residents and they must use the landfill or the Knoxville Transfer Station. A reported 337,509 tons were diverted from the Class I landfill.

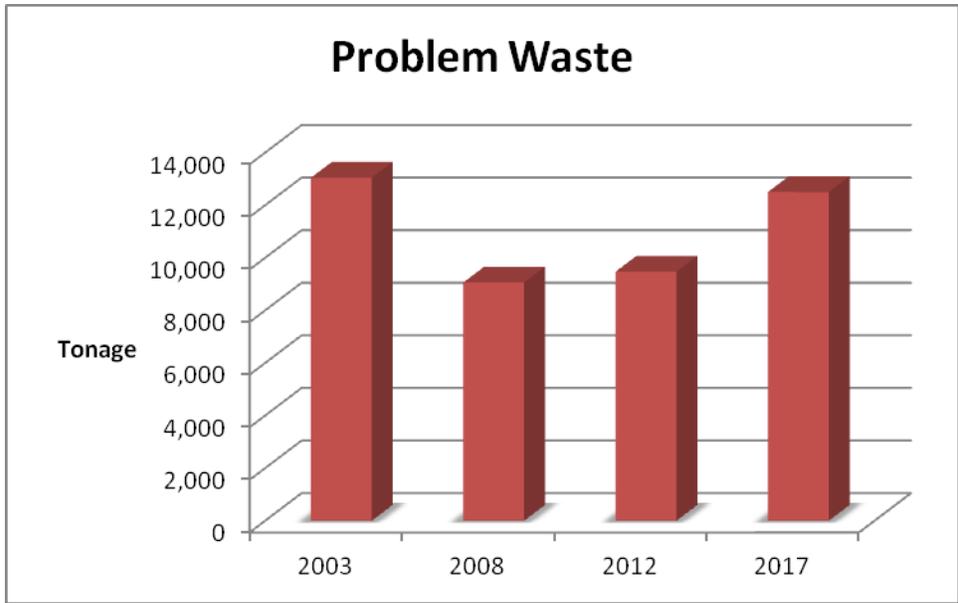
Waste Tires are collected at all of the convenience centers except Carter Center. A total of 4 standard car or light truck tires per person per year are accepted. Larger tires or commercial or industrial entities are not allowed to dispose of tires at the convenience centers. The tires are collected and hauled to Liberty Tires in Knoxville for transport to their corporate office in Nashville. The City of Knoxville does not pick up tires house to house, but allows residents to drop off tires at the Knoxville Transfer Station. Commercial or industrial entities are not allowed to dispose of tires at the transfer station. A total of 5,592 tons of tires were collected and diverted from the Class I landfill.

Used Oil is collected at all eight of the convenience centers and that waste is sold to a private company. All of the sites have a used oil platform that is covered to collect the used oil, oil filters and anti-freeze. The City of Knoxville collects used oil at the transfer station. The City of Farragut uses the convenience centers for collection of used oil. A total of 2,503 tons of used oil was collected.

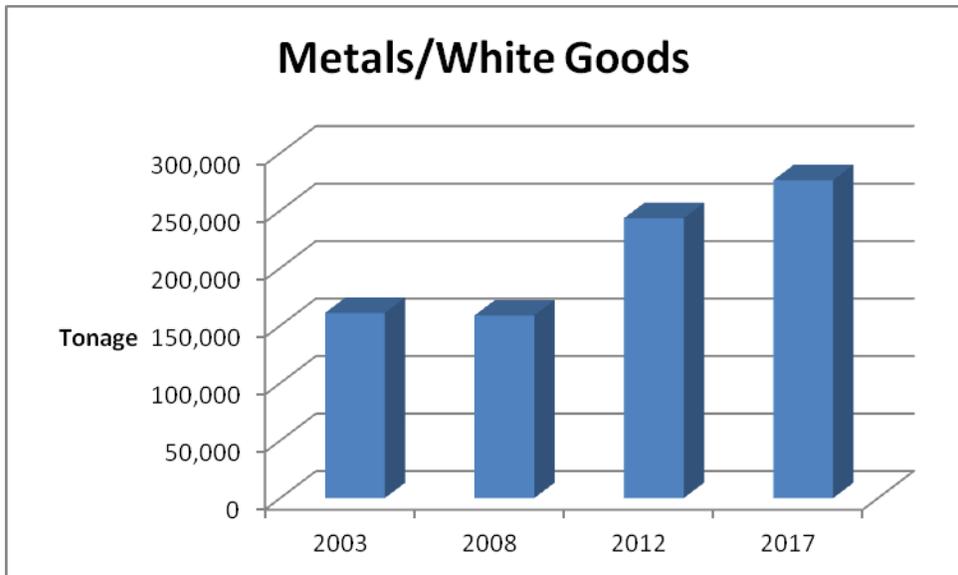
E-Waste is collected at Dutchtown, Halls and John Sevier convenience centers and the waste is collected and taken to the Knoxville Transfer Station. The City of Knoxville allows residents to set out small amounts during their door to door collection and other amounts are collected at the Knoxville Transfer Station. Commercial establishments can also utilize the transfer station for disposal of their electronic goods. The City of Farragut utilizes the convenience centers, transfer station or private subscription for their disposal of e-waste. The region also host a e-waste collection event day each year. A total of 111 tons of electronic waste was collected.

Paint is collected at the Convenience Centers provided that is has be dried and harden. The permanent Household Hazardous Waste Facility will take paint that is not accepted at the convenience centers or by the City of Knoxville. The oil base paint in properly disposed of and the latex paint is dried out and taken to the landfill. None of the cities provide the collection of paint for their residents. A total amount of 100 tons of paint was collected and recycled in the region or taken to a Class IV landfill.

Batteries are collected at all of the Convenience Centers and by the City of Knoxville at the Transfer Station and five of their recycling supercenters. The door to door collections service does not include batteries. The batteries when processed are taken or collected by a local contractor. The contractors pay revenue for the batteries.



White Goods / Metals are collected at all of the convenience centers in the County. The City of Knoxville does provide for the collection of metals as part of their door to door collection, but does not provide for the collection of their super centers. The City of Farragut utilizes the convenience centers for their residents. A roll-off container is set out at each center and then when full collected by a private contractor. Commercial and Industrial entities must provide for their own collection of metals. A total of 243,403 of metal were collected in the region.

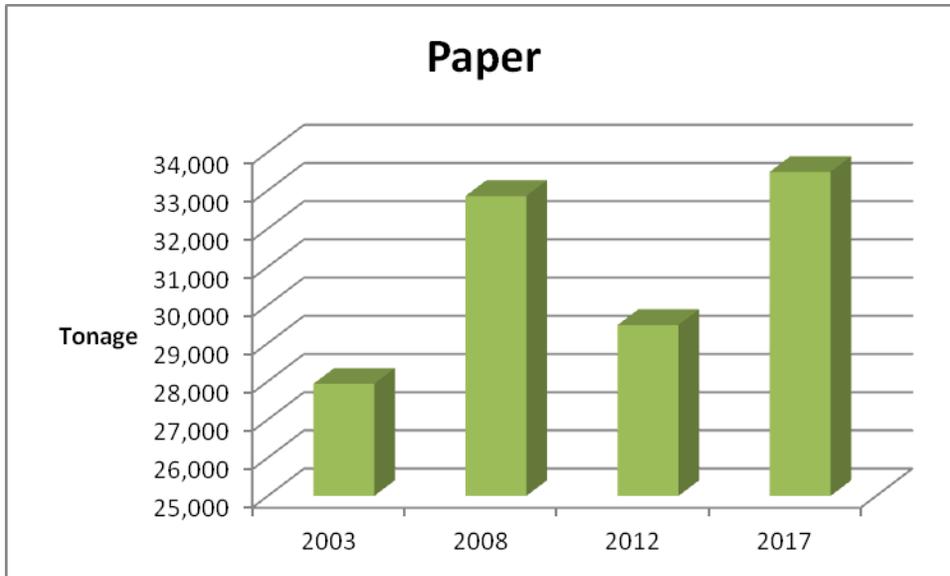


Brush / Compost materials: The County provides for the collection of brush, yard clippings and small tree branches at the Halls Convenience Center. Other local businesses in the area allows for the collection of various amount of green waste. The City of Knoxville does not allow for the collection of brush or compost materials as part of their door to door collection and does not allow the dropping off of such materials at their super centers. The City of Knoxville does provide for brush and leaf collection every other week on pre-set fixed schedules. The City of Knoxville also provides for a Tree-Cycling program once a year for Christmas Trees. The leaf collection season begins November 1 and concludes February 1. Leaves are collected loose, but any leaves that are bagged can be collected as part of the bulky item collection. The City of Farragut residents must utilize the convenience center in Halls or a private company. All materials that are collected are taken to a private company for proper disposal or reuse. A total of ninety one thousand, six hundred fifty one (91,651) tons was collected.

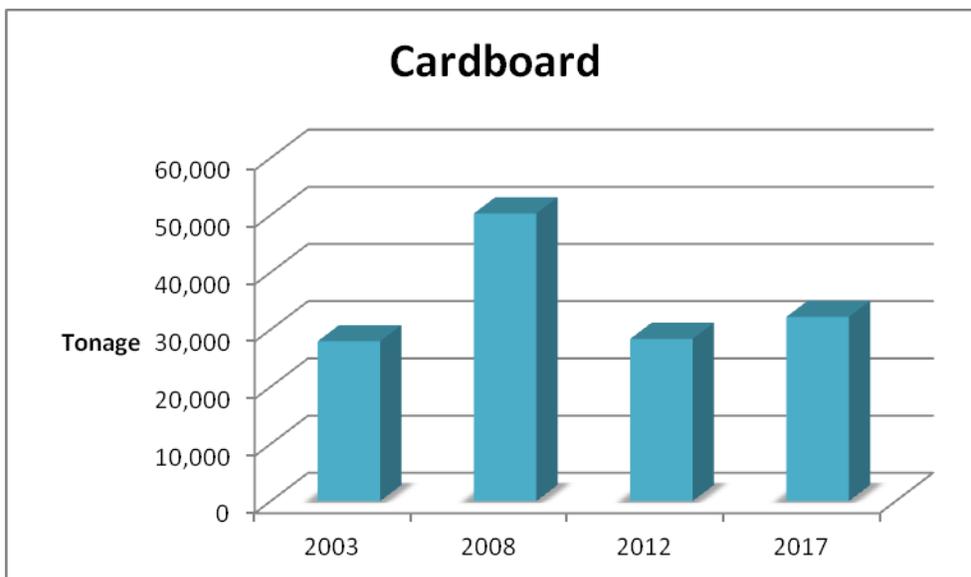
Sewer sludge that is being produced by the local utility KUB in the region allows local farmers to use the treated biosolids from the wastewater treatment plant as a fertilizer and soil conditioner. A total of 26,854 tons was diverted from the Class I landfill. KUB's biosolids management contractor, Synagro, will send a technical field manager to evaluate the suitability of the site. He or she will sample the soil and calculate the amount of biosolids required to meet agronomic needs. The contractor will complete a permit application showing the site, loading rates, application area, crops to be grown, and operators/owners acknowledgement of the application. Synagro submits the application to the Tennessee Department of Environment and Conservation for approval.

Synagro delivers the biosolids to the field and applies them for the farmer using a tractor-pulled side slinger or manure spreader. During the summer season, the contractor usually applies biosolids within a week or two of delivery. The contractor does not apply biosolids during inclement weather.

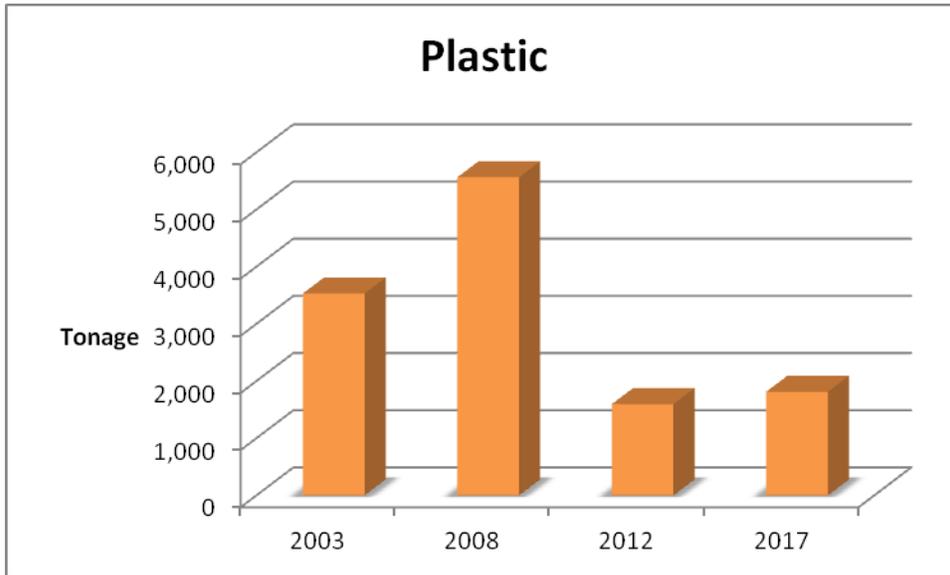
Paper is collected at each convenience center site for Knox County. The City of Knoxville provides for the collection of paper through their door to door collection and the use of the seven supercenters drop off sites. Goodwill Industries assist in the staffing at the supercenters and Rock-Tenn handles the processing of the recyclable materials that are collected at both the drop off sites and the door to door collection. The City of Farragut provides no service outside of the County services and private companies for such collection. A total of 29,474 tons of mixed paper was recycled, with three buy back recycling companies providing over 75% of those numbers.



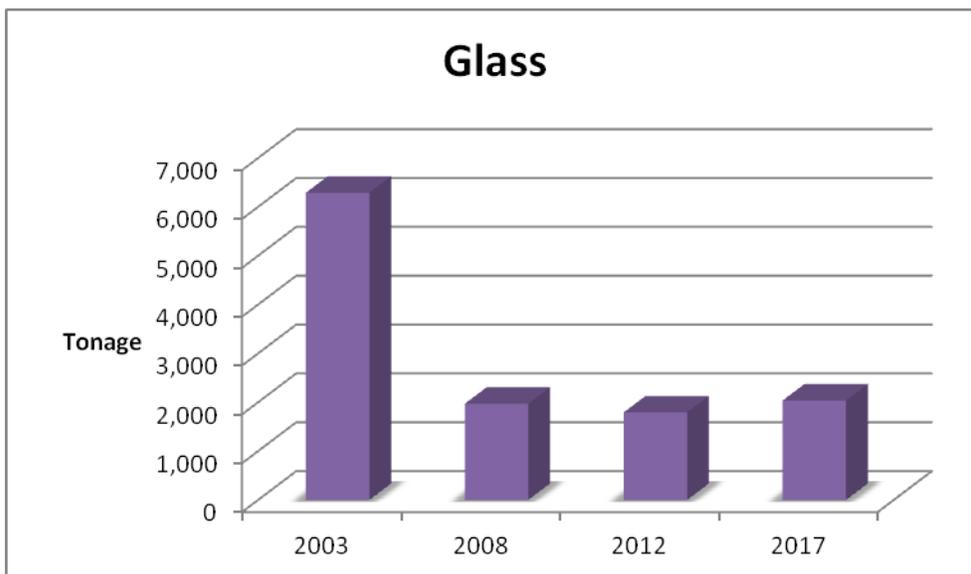
Cardboard is collected at all of the convenience centers except Carter and Karns by placing in roll-off containers and then when full hauled to Rock-Tenn for processing. The City of Knoxville provides the collection of cardboard door to door and at the supercenters. The operation of staffing and handling as paper is done for cardboard. The City of Farragut provides no service outside of the County services and private companies for such collection. The City of Knoxville with the help of the Knoxville Recycling Coalition provides for collection of downtown businesses. A total of 28,354 tons of cardboard was collected and properly recycled with 90% of the cardboard recycled coming from the private buy back companies.



Plastic is collected at all of the convenience centers in Knox County. The City of Knoxville provides for the collection of plastic in their door to door collection and at their seven supercenters. The collection and processing of plastic is handled the same way as paper and cardboard. The City of Farragut provides no service outside of the County services and private companies for such collection. A total of 1,594 tons of plastic was recycled.



Glass is collected at the convenience centers for Knox County. The City of Knoxville collects glass as part of their door to door program and their recycling drop off supercenters. Brown, Clear and Green glass is that only kind of glass that is collected for both Knox County and Knoxville. The City of Farragut provides no service outside of the County services and private companies for such collection. A total of 1,790 tons of glass was collected and processed.



The above information represents a good analogy of the public sector and how it takes care of its waste. Below is a table showing an analysis for three known amount periods and one estimated period that will be the next needs assessment. The numbers below only represent the public entities as much as I can distinguish from the private companies. Keep in mind that some of the buyback companies will also be public numbers, but I have chosen to show those on the table below.

Material	Material – 2003	Material – 2008	Material – 2011	Material – 2017
Metals / White Goods	3,299	2,359	2,442	2,525
Cardboard	1,613	1,373	2,188	3,004
Paper	4,149	6,457	5,071	5,226
Glass	996	1,569	1,331	1,523
Plastic	276	674	1,165	1,655
Problem Waste – tires, batteries, automotive fluid, e-waste, paint.	10,228	1,103	6,127	8,830
Sewer Sludge	0	8,323	26,854	28,196
Mulch/Compost	66,482	36,705	51,682	48,000

The 2017 number is a simple guess and I will explain my methodology. Metals, Cardboard, plastic – one can take the percentage increase from 2008 to 2011. Paper – the numbered was derived from taking a three period average. Part of the 2008 numbers in reporting have been skewed. Problem Waste – 2008 numbers were skewed and I used best judgment. Sewer Sludge – took a 5 % increase in population growth. The mulch/compost numbers until recently have been all over the board for the following reasons. Disaster events can cause number shifts and depending upon the author of the reporting year such as 2008 was not seen as accurate. The above numbers will provide a good analysis on what is currently happening in the region and what can be expected.

The Region does an excellent job in provided recycling opportunities for its citizens with numerous drop off sites and door to door collection. Other activities that are provided by the region that may not have been mentioned above are the following.

Knox County and the City of Knoxville operate a Household Hazardous Waste site that allows for their residents to drop off numerous items such as Paint and paint related materials, lawn and garden insecticides, automotive products, appliances, mercury and Freon liquids, and other kitchen, and cleaning solvents.

Knox County residents can dispose of their CFL bulb and dispose of mercury thermometers at the convenience centers.

Both Knox County and Knoxville provide for the recycling of Christmas trees. In addition to the collection of electronics at various sites, the region also hosts an E-waste Event day for their residents. Both Knox County and the City of Knoxville collect unwanted medication during collection events throughout the year. The region also collects phone books and utilizes the profit from the recyclable materials to the school system.

The City of Knoxville provides bulky waste collection as part of their door to door collection that allows items such as appliances, furniture, tires carpet to be collected at the curb.

Item # 4: Solid Waste Collection System

Class I waste is being handled through a network of convenience centers that are serviced by Waste Connections. A total of eight (8) convenience centers that are manned are scattered throughout the county for Class I waste. The Class I waste from the convenience centers is collected using a roll off system that has a trash compactor in the center of the centers and all the waste is taken to Chestnut Ridge in Anderson County. Knox County does not accept or pick up waste from businesses, commercial or industries. Private haulers handle this collection and take the waste to the landfill that is the most convenient for that hauler. The City of Knoxville collects Class I waste house to house and utilizes Waste Connection for the pickup. The Class I waste that is collected from the residents is taken directly to the landfill. The City of Knoxville does operate a transfer station that allows for citizens to take class I waste and HHW waste. The City of Knoxville also provides class I waste door to door for their customers and take the waste to the transfer station and from their transports the waste to the landfill. The City of Farragut utilizes the convenience centers for the collection of their residential Class I waste or individuals' contract with a private hauler. The commercial and industrial entities must contract out the collection and disposal of their Class I waste. The landfills that reported receiving waste from the Knox Region are BFI Carter Valley, Chestnut Ridge in Anderson County, Matlock Bend Landfill in Loudon County, Meadow Branch Landfill in McMinn County and Volunteer Regional Landfill in Scott County.

C&D waste or Class IV waste is collected at all of the convenience center sites by placing a roll-off container at the sites. The waste is then transported to a class IV landfill for disposal. The amount of material that is accepted is limited to (1) 5' x 8' pickup truck per day. All other items must be taken directly to the landfill or the Knoxville Transfer Station. The City of Knoxville does not collect this waste door to door, but provides a transfer station that allows residents to dispose of C&D waste. Items not accepted are loose asbestos, asphalt, commercial hazardous waste, contaminated soil, dead animals, hot ashes, medical waste, sludge, railroad ties, yard waste and large amounts of rock, brick, concrete, or dirt. The transfer station does not accept any waste from the commercial or industrial entities and their waste must be taken directly to the landfill. The City of Farragut does not provide this service for its residents and they must use the landfill or the Knoxville Transfer Station. The Class IV landfills in the Knox Region that accept waste are Popular View and Riverside that is operated by TN waste and Yarnell Demolition landfill.

Brush / Compost materials: The County provides for the collection of brush, yard clippings and small tree branches at the Halls Convenience Center. Other local businesses in the area allows for the collection of various amount of green waste. The City of Knoxville does not allow for the collection of brush or compost materials as part of their door to door collection and does not allow the dropping off of such materials at their super centers. The City of Knoxville does provide for brush and leaf collection every other week on pre-set fixed schedules. The City of Knoxville also provides for a Tree-Cycling program once a year for Christmas Trees. The leaf collection season begins November 1 and concludes February 1. Leaves are collected loose, but any leaves that are bagged can be collected as part of the bulky item collection. The City of Farragut residents must utilize the convenience center in Halls or a private company. All materials that are collected are taken to a private company for proper disposal or reuse. There are numerous sites that accept green waste in the Knox Region with the largest being Shamrock Organic Products.

Waste Tires are collected at all of the convenience centers except Carter Center. A total of 4 standard car or light truck tires per person per year are accepted. Larger tires or commercial or industrial entities are not allowed to dispose of tires at the convenience centers. The tires are collected and hauled to Liberty Tires in Knoxville for transport to their corporate office in Nashville. The City of Knoxville does not pick up tires house to house, but allows residents to drop off tires and the Knoxville Transfer Station. Commercial or industrial entities are not allowed to dispose of tires at the transfer station.

White Goods / Metals are collected at all of the convenience centers in the County. The City of Knoxville does provide for the collection of metals as part of their door to door collection, but does not provide for the collection of their super centers. The City of Farragut utilizes the convenience centers for their residents. A roll-off container is set out at each center and then when full collected by a private contractor. Commercial and Industrial entities must provide for their own collection of metals.

Below represents a list of locations for metal collection in the Knox Region.

Location	Aluminum Cans	Copper	Scrap Metal	Steel Cans
APR 2742 Hancock St. 865.521.5094	Yes	No	No	Yes
Tennessee Metals 305 W Quincy Ave 865.546.7025	Yes	Yes	Yes	No
Tennessee Metals 2630 Pickel Ln 865.544.3050	Yes	Yes	Yes	No
Spectra Recycling 1627 Robert C Jackson 865.982.2995	Yes	Yes	No	No
PSC/Philips Metals 2826 N Central St 865.524.2791	Yes	Yes	Yes	No
PSC/Philips Metals 822 Richards St 865.637.4353	Yes	Yes	Yes	No
PSC/Philips Metals 1202 Maryville Pike 865.579.9389	Yes	Yes	Yes	No
PSC/Philips Metals 5205 N National Dr 865.637.0911	Yes	Yes	Yes	No
Noble Metals Inc. 401 Belgrade Rd. 865.483.1233	Yes	Yes	Yes	Yes
Cash Metals 7826 Old Rutledge Pike 865.525.1634	Yes	Yes	Yes	No

The handling of the traditional recycling items of cardboard, paper and plastic is taken care of in the following way.

Paper, Cardboard, Glass and Plastic is collected at each convenience center site for Knox County. Cardboard is collected at all of the convenience centers except Carter and Karns. The City of Knoxville provides for the collection of paper through their door to door collection and the use of the seven supercenters drop off sites. Goodwill Industries assist in the staffing at the supercenters and Rock-Tenn handles the processing of the recyclable materials that are collected at both the drop off sites and the door to door collection.

Used Oil is collected at all eight of the convenience centers and that waste is sold to a private company. All of the sites have a used oil platform that is covered to collect the used oil, oil filters and anti-freeze. The City of Knoxville collects used oil at the transfer station. The City of Farragut uses the convenience centers for collection of used oil.

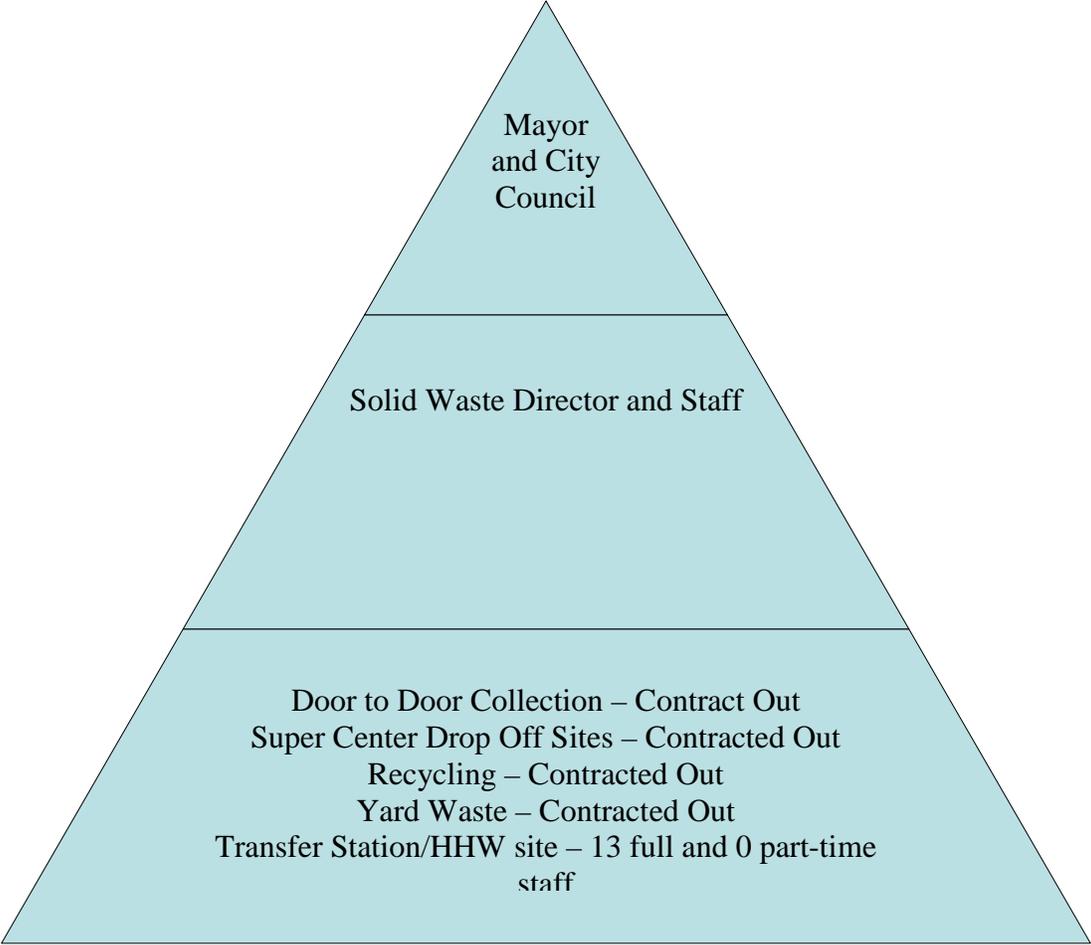
E-Waste is collected at Dutchtown, Halls and John Sevier convenience centers and the waste is collected and taken to the Household Hazardous Waste Facility. The City of Knoxville allows residents to set out small amounts during their door to door collection and other amounts are collected at the Knoxville Transfer Station. Commercial establishments can also utilize the transfer station for disposal of their electronic goods. The City of Farragut utilizes the convenience centers, transfer station or private subscription for their disposal of e-waste. The region also host a e-waste collection event day each year.

The Knox Region has a permanent household hazardous site that allows for the collection of paint, automotive fluids, and other chemicals that cannot be accepted at the convenience centers or collected door to door.

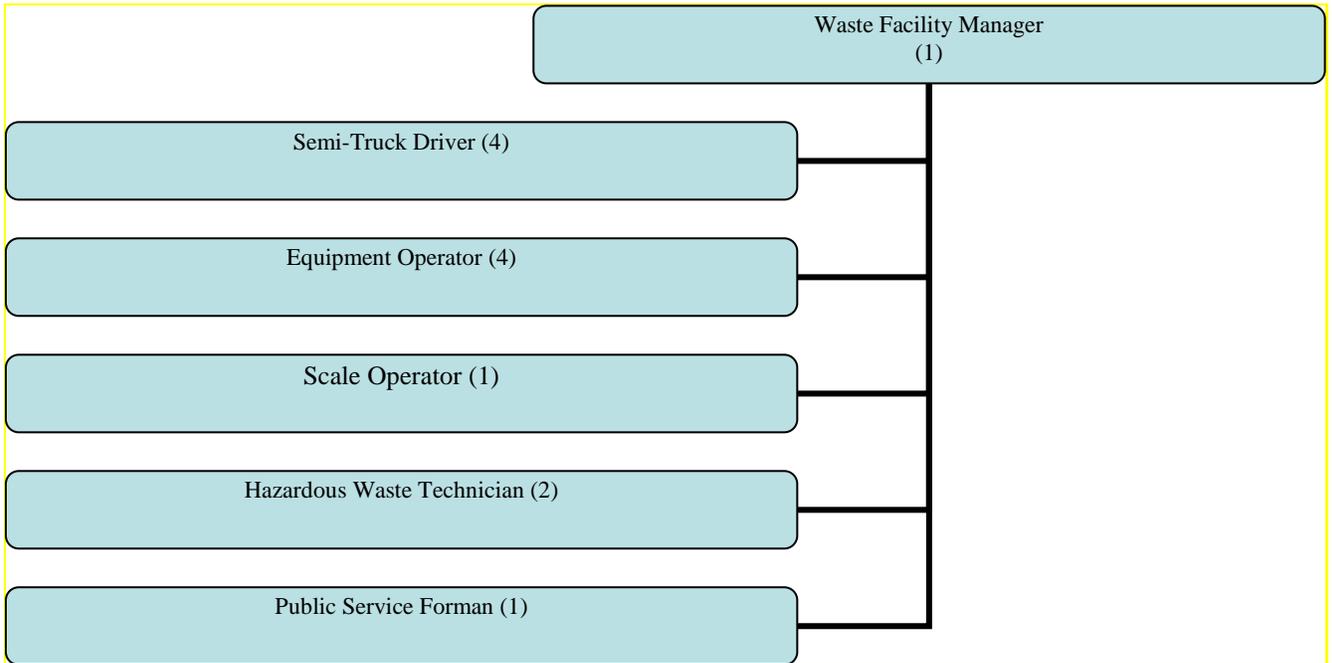
Sewer sludge is being recycled at the utility by drying the sludge then taken it to landfill site for cover application.

Section 5 – Analysis of Existing or Potential Solid Waste Flows within the Region and Between Adjacent Regions.

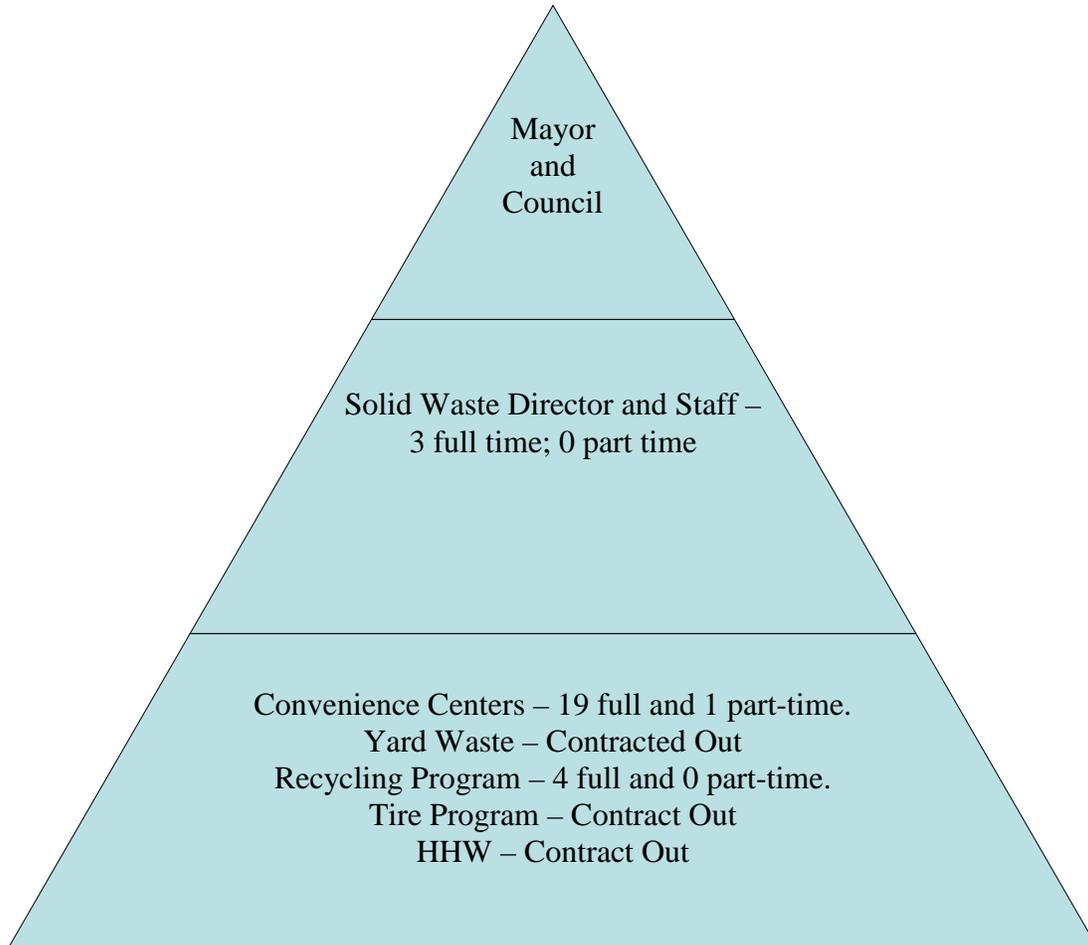
City of Knoxville



Transfer Station



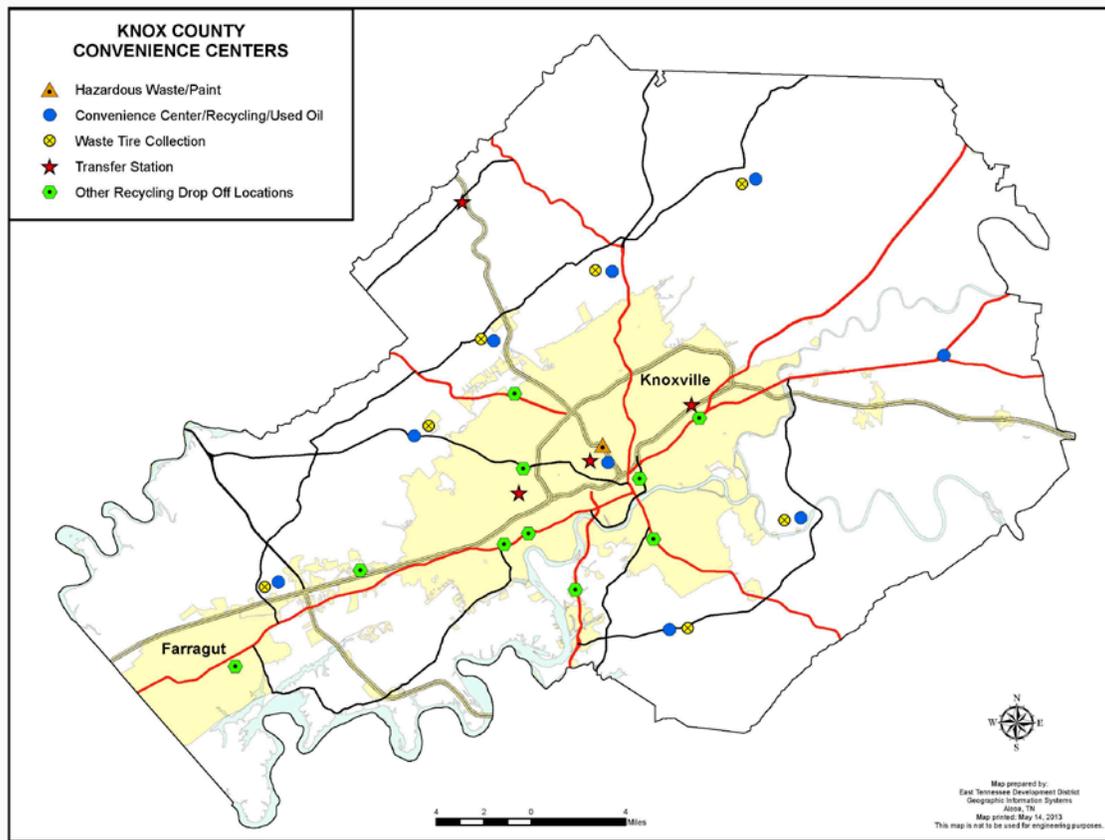
Knox County



Knox County has eight (8) convenience centers that allow the drop off of Class I waste and recycling.

- [Carter](#)
8815 Asheville Hwy
(Just east off of Asheville Highway and the Andrew Johnson Highway Split)
- [Dutchtown](#)
10618 Dutchtown Road
(Easy access from Lovell Rd or Pellissippi Parkway)

- [Forks of the River](#)
3106 Water Plant Road (Take Asbury Road off John Sevier Highway, go left on South National Drive, go left again on Water Plant Road)
- [Halls](#)
3608 Neal Road
(The Halls facility will accept yard waste for a modest fee)
- [John Sevier](#)
1950 W. Governor John Sevier Highway
- [Karns](#)
6818 Oak Ridge Hwy
- [Powell](#)
7311 Morton View Lane
- [Tazewell Pike / Gibbs](#)
7201 Tazewell Pike



At the present time the needs for the region are shown in the table below. No personnel needs were mentioned by either the county or the city.

Equipment	Operational Use	Estimated Cost
Street Sweeper	Transfer Station	\$60,000
Compactors	Transfer Station	\$15,000
Waste Compactors	Convenience Centers	\$40,000
Roll-Off Containers	Recycling at Convenience Centers	\$25,000
Compactor	Recycling	\$40,000
Used Oil Tanks	Convenience Centers	\$16,000

Facility	Operational Use	Estimated Cost
Convenience Center	Carter Site	\$125,000
Convenience Center	Karns Site	\$125,000

Item # 6: Analyze Attitude of Region toward Waste Management in General and Specify Needed Changes and/or Educational Measures

No formalized surveys have been done to measure the public's attitude of Knox County residents concerning support for environmental programs. The mindset of the people is changing as the population gets older as illustrated by the decrease in the tons per person in the region. Most residents that were casually asked about recycling agree that it is a good way to help do their part in saving the environment. However, most are not willing to go out of their way to recycle. The word convenience tends to come in mind towards the reaction towards recycling. Most feel it is the government's job to provide recycling opportunities and that it should be left up to that person to choose to do so. Most feel that stringent regulations should not be passed that force residents to recycle. As the school age children become older and they are used to recycling items at school, a habit of recycling will dictate the increase in public participation in the future. That is why it is important to start a recycling program in the schools. Teaching kids the importance of recycling is futile unless we have means to let them practice what is being taught. The region of Knox County has the resources available to grow with the public in terms of recycling.

The City of Knoxville has 20,000 of its households participating in door to door collection of recyclables. This is 20,000 households for an estimated 88,099 in 2010 census data. This is a 22.7% participation rate. The changes in media habits and budgetary limitation most of the marketing is achieved through social networking. Large events still utilize the paid advertising. In order to get more people to recycle the region will target audiences about the savings to the taxpayer from recycling versus throwing waste into the trash. The county has AmeriCorps volunteers that help at the convenience centers to engage with the public about recycling. The region also relies upon organizations such as the IJAM nature center to help encourage recycling through the saving the environment approach. The Keep Knoxville Beautiful Organizations helps to promote waste reduction, and promote proper waste disposal in the community. The region has a majority of the events in the region and litter free events and they set out recycling containers.

The region has increased their recycling revenue from \$200,000 to \$1,000,000 that shows they are heading in the right direction.

The City has numerous programs that promote recycling such as the following:

1. Battery Recycling Program
2. Recycling Supercenters for drop off of recycling materials.
3. Door to Door Recycling.
4. Computer Recycling Program
5. Brush and Leaf Collection Programs
6. Bulky Waste Collection Program
7. Household Hazardous Waste Site

The City of Knoxville is looking at a pilot program to establish recycling opportunities along their 50 miles of multi-purpose greenways. The collection of the material will be the hardest thing about setting up the program and that are looking at a bicycle trailer system.

Knox County in conjunction with the City of Knoxville has also provides numerous activities that promote recycling.

The Convenience Centers provide an array of recycling opportunities with over 19 items that can be recycled at the centers. The items that are listed are shown below.

- Plastic (all plastics #1-7)
- Mixed paper (EXCEPT Karns)
- Cardboard (EXCEPT Carter and Karns)
- Newspaper
- Aluminum cans
- Steel cans
- Glass (clear, green and brown)
- Scrap metal (appliances, grills, other scrap)
- Car batteries
- Propane cylinders
- Auto Waste (used oil, oil filters and antifreeze)
- Tires ([click here](#)) (NOT accepted at Carter)
- Yardwaste ([click here](#)) (accepted at the Halls Center for a small fee)
- CFL Lightbulbs
- Mercury thermostats
- Mercury thermometers
- Goodwill drop-off locations (Dutchtown, Halls and John Sevier)
- Cooking oil (accepted at Dutchtown, Halls or John Sevier in a NON-GLASS container)
- Electronic waste (accepted at Dutchtown, Halls and John Sevier)

This can be compared to other regions that have four or five recycling opportunities.

In addition to the convenience centers drop off sites the Knox Region also has Electronic Waste Events, Christmas Tree Recycling Event and medical Waste Collection events to further promote recycling.

Item # 7: Evaluation of the Waste Reduction Systems for Counties and Municipalities in Region

Current Year Generation	Current Year Disposal	Base Year Disposal	Current Year Population	% Reduction compared to Base Year	Real Time Comparison
775,291	369,576	464,398	432,226	20.42%	52.4%

The Knox Region has met the 25% waste reduction goal that is set out by the State. The Knox Region has seen a reduction in terms of diverting waste from the landfill is that every five year increment shows that the amount of waste going to a class I landfill has been in decline from 48.4% in 2003 to 33.2% projected in 2017.

The Knox Region has not met the 25% waste reduction goal based on the base year, but a lot of that can be related to the increase in population that has shown a 29% increase over the base year and has shown a 20.42% reduction that shows what the region has been able to accomplish.

Item # 8: Collection/Disposal Capacity and Projected Life of Solid Waste Sites

Site Name	Current Landfill Capacity (daily throughput)	Maximum capacity	Projected Life of Facility
Chestnut Ridge Landfill	321,923 tons	336,000 tons	5,388,115 tons or 16 years
Matlock Bend Landfill	237,702 tons	300,000 tons	2,100,000 tons or 7 years
Meadow Branch Landfill	401,458 tons	500,000 tons	4,500,000 tons or 9 years
Volunteer Region Landfill	314,042 tons	350,000 tons	8,750,000 or 25 years

Public and Private Collection Service in the Knox County Region (class I waste)

Service Provider	Service Area	Population Total Under This Service	Frequency of Service	Estimated average annual tons collected	Type of Service
Knox County	County Wide	432,226	Six days a week	109,267	Convenience Centers
City of Knoxville	City Limits	178,874	Once a Week	45,221	Door to Door Collection

** Estimated tonnage is based on .2528 tons per person time's population of entity.

All commercial and industrial establishments contract out the collection of their waste with private haulers.

Public and Private Collection Service in the Knox County Region (Recycling)

Service Provider	Service Area	Population Total Under This Service	Frequency of Service	Annual Tonnage Capacity	Type of Service
Knox County	County Wide	432,226	Six days a Week	10,837	Convenience Centers
City of Knoxville	City Limits	42,000*	Once a week.	1338	Door to Door
City of Knoxville	City Limits	138,874	Seven days a week.	4,459	Convenience Centers
Knox/Knoxville	Knox Region	631,776	Six Days a week	146	Drop Off

- 20,000 households x 2.1 per household.

Industries and Commercial establishments coordinate their own recycling efforts.

Item # 9: Unmet Financial Needs and Cost Summary

Knox Region: Includes Knox County and City of Knoxville

Expenditures			
Description	Present Need \$/year	Unmet Needs \$/year	Total Needs (Present + Unmet) \$/year
Salary and Benefits	\$4,472,489.00	\$0.00	\$4,472,489.00
Transportation/hauling	\$0	\$0	\$0
Collection and Disposal Systems	\$6,667,855.00	\$0	\$6,667,855.00
Equipment	\$0	\$196,000.00	\$196,000.00
Sites			
Transfer Station	\$499,992.00	\$0	\$499,992.00
Convenience Center	\$3,058,201.00	\$250,000.00	\$3,308,201.00
Recycling Center	\$0	\$0	\$0
MRF	\$0	\$0	\$0
Landfills	\$0	\$0	\$0
Site	\$0	\$0	\$0
Operation	\$0	\$0	\$0
Closure	\$0	\$0	\$0
Post Closure Care	\$0	\$0	\$0
Administration (supplies, communication cost, etc.)			
Education	\$218,671.00	\$0	\$218,671.00
Public			
Continuing Education	\$49,700.00	\$0	\$49,700.00
Capital Projects	\$0	\$0	\$0
Total	\$14,966,908.00	\$446,000.00	\$15,412,908.00
Revenue			
Host agreement fee	\$0	\$0	\$0
Tipping fees	\$0	\$0	\$0
Property taxes	\$12,273,627.00	\$115,000.00	\$12,388,627.00
Sales tax	\$312,375.00	\$0	\$312,375.00
Surcharges	\$0	\$0	\$0
Disposal fees	\$0	\$0	\$0
Collection charges	\$1,112,466.00	\$250,000.00	\$1,362,466.00
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 Recyclables & Commodity Rebates	\$650,000.00	\$65,000.00	\$715,000.00
Other sources: (Grants, bonds, interest, sales, etc.)	\$566,360.00	\$16,000.00	\$582,360.00
Total	\$14,914,828.00	\$446,000.00	\$15,360,828.00

Knox County Region

Equipment	Operational Use	Estimated Cost
Street Sweeper	Transfer Station	\$60,000
Compactors	Transfer Station	\$15,000
Waste Compactors	Convenience Centers	\$40,000
Roll-Off Containers	Recycling at Convenience Centers	\$25,000
Compactor	Recycling	\$40,000
Used Oil Tanks	Convenience Centers	\$16,000

Facility	Operational Use	Estimated Cost
Convenience Center	Carter Site	\$125,000
Convenience Center	Karns Site	\$125,000

The region of Knox County has equipment needs as shown above that will take time to purchase on their own. The region has some areas of collection that can be improved upon, if money was available.

Item # 10: Compare Revenue Sources for the Region's Current Solid Waste Programs with Projected Future Demands, Identify Any Potential Shortfalls in that Capacity

The Revenue sources for the County are the following:

1. County Local Option Tax : \$2,400,000.00

Sales made in the unincorporated areas of Knox County are charged a 2.25% local option sales tax. Of the local option sales tax, 27.778% is allocated to Knox County general government, with the remaining 72.222% allocated to the schools. The majority (58%) of the projected general government revenue is allocated to the General Fund and the **Solid Waste Fund**. The remaining 42% of the projected general government revenue is allocated to the Engineering and Public Works Fund.

Local option sales taxes are projected to increase by approximately \$1 million. This increase is based on the increase in actual sales revenues reported in FY 2012, indicating that economic conditions are beginning to improve. A corresponding increase in related tax collections is budgeted as a result.

Fine, Forfeitures: \$60,000.00

These revenues that are used for solid waste consist of DUI fines that are used to offset litter pickup.

Other Local Revenue: \$715,000.00

Includes the estimated amount that Knox County will receive from the sale of scrap metal, aluminum cans and certain scrap grades of paper. These materials are collected at the recycling drop off locations at the County Convenience Centers.

State Government: \$398,500.00

Consists of an annual grant from the State Department of Transportation to be used for the pickup of roadside litter, funding of the adopt-a road program and education programs conducted by the Greater Knoxville Beautification Board. The funds are generated by the State gasoline tax.

Operating Transfer Payments: \$441,715.00

The City of Knoxville revenue sources are the following:

1. Intergovernmental revenue: \$76,000
State shared tax
2. Charges for service \$795,000
3. Miscellaneous revenue: \$262,000
4. Transfer of funds: 9,722,230

Item # 11: Sustainable Goals Consistent with the State Plan

The Knox County Region's plan for the next five years is to continue to find ways to expand services within their recycling program. As part of the needs assessment, I will take a look at every area of the solid waste stream to give my thoughts on the needs in those areas.

Class I waste is currently being handled in the region by a network of convenience centers and house to house collection. The convenience centers also operate as recycling drop-off sites. A total of eight (8) convenience centers that are manned are scattered throughout the county for Class I waste. The Class I waste from the convenience centers is collected using a roll off system that has a trash compactor in the center of the centers and all the waste is taken to Chestnut Ridge in Anderson County. Knox County does not accept or pick up waste from businesses, commercial or industries. Private haulers handle this collection and take the waste to the landfill that is the most convenient for that hauler. The City of Knoxville collects Class I waste house to house and utilizes Waste Connection for the pickup. The Class I waste that is collected from the residents is taken directly to the landfill. The City of Knoxville does operate a transfer station that allows for citizens to take class I waste and HHW waste. Class I waste door to door for their customers and take the waste to a transfer station and from their transports the waste to the landfill. The City of Farragut utilizes the convenience centers for the collection of their residential Class I waste or individuals' contract with a private hauler. It is the author's belief that the Class I waste is being handled very efficiently for the region of Knox and no immediate changes are needed.

C&D waste or Class IV waste is collected at all of the convenience center sites by placing a roll-off container at the sites. The waste is then transported to a class IV landfill for disposal. The City of Knoxville does not collect this waste door to door, but provides a transfer station that allows residents to dispose of C&D waste. Items not accepted are Loose asbestos, asphalt, commercial hazardous waste, contaminated soil, dead animals, hot ashes, medical waste, sludge, railroad ties, yard waste and large amounts of rock, brick, concrete, or dirt. The transfer station does not accept any waste from the commercial or industrial entities and their waste must be taken directly to the landfill. The City of Farragut does not provide this service for its residents and they must use the landfill or the Knoxville Transfer Station. The Knox region seems to have a good program going for the collection of Class IV waste, especially allowing for that collection at the convenience centers.

Waste Tires are collected at all of the convenience centers except Carter Center. A total of 4 standard car or light truck tires per person per year are accepted. Larger tires or commercial or industrial entities are not allowed to

dispose of tires at the convenience centers. The tires are collected and hauled to Liberty Tires in Knoxville for transport to their corporate office in Nashville. The City of Knoxville does not pick up tires house to house, but allows residents to drop off tires at the Knoxville Transfer Station. The residents of Farragut can utilize the convenience centers or the transfer station for the disposal of their passenger tires. The next five year plan seems to be able to handle the tires in the area. A lot of the tire companies will take the tires and dispose of themselves, which helps the public entities.

Used Oil is collected at all eight of the convenience centers and that waste is sold to a private company. All of the sites have a used oil platform that is covered to collect the used oil, oil filters and anti-freeze. The City of Knoxville collects used oil at the transfer station. The City of Farragut uses the convenience centers for collection of used oil. Private companies will take care of their own used oil and there are less people changing their own used oil that lets the author believe that for the next five years the handling of used oil is efficient.

E-Waste is collected at Dutchtown, Halls and John Sevier convenience centers and the waste is collected and taken to the Knoxville Transfer Station. The City of Knoxville allows residents to set out small amounts during their door to door collection and other amounts are collected at the Knoxville Transfer Station. Commercial establishments can also utilize the transfer station for disposal of their electronic goods. The City of Farragut utilizes the convenience centers, transfer station or private subscription for their disposal of e-waste. The region also host a e-waste collection event day each year. There is a potential for the collection of e-waste at some of the other convenience centers in the future, if such collection is needed. The e-waste collection event days seems to take care of any e-waste that can't be disposed of at the other sites.

White Goods / Metals are collected at all of the convenience centers in the County. The City of Knoxville does provide for the collection of metals as part of their door to door collection, but does not provide for the collection of their super centers. The City of Farragut utilizes the convenience centers for their residents. A roll-off container is set out at each center and then when full collected by a private contractor. Commercial and Industrial entities must provide for their own collection of metals. There seems to be enough local companies in the area that pay for metal that allows the region to take out most of their metals from the Class I waste stream. There is really no reason to change anything over the next five years that could increase the collection of white goods and metals in the region.

Brush / Compost materials: The County provides for the collection of brush, yard clippings and small tree branches at the Halls Convenience Center. Other local businesses in the area allows for the collection of various amount of green waste. The City of Knoxville does not allow for the collection of brush or compost materials as part of their door to door collection and does not allow the dropping off of such materials at their super centers. The City of Knoxville does provide for

brush and leaf collection every other week on pre-set fixed schedules. The City of Knoxville also provides for a Tree-Cycling program once a year for Christmas Trees. The City of Farragut residents must utilize the convenience center in Halls or a private company. All materials that are collected are taken to a private company for proper disposal or reuse.

Paint is collected at the Convenience Centers provided that it has been dried and hardened. The permanent Household Hazardous Waste Facility will take paint that is not accepted at the convenience centers or by the City of Knoxville. The oil base paint is properly disposed of and the latex paint is dried out and taken to the landfill. None of the cities provide the collection of paint for their residents. The only thing that could be improved on in the region is to reuse paint for projects in the area. I'm sure there are small amounts of this going on, but have never noticed a real big push for this to happen in the region.

Paper, Cardboard, Glass and Plastic is collected at each convenience center site for Knox County. Cardboard is collected at all of the convenience centers except Carter and Karns. The City of Knoxville provides for the collection of paper, plastic and glass through their door to door collection and the use of the seven supercenters drop off sites. Goodwill Industries assist in the staffing at the supercenters and Rock-Tenn handles the processing of the recyclable materials that are collected at both the drop off sites and the door to door collection. Knoxville is looking at ways to increase recycling at their greenway sites with bins for walkers and bicyclist. The only other entity in the region that needs to step up is the City of Farragut that is large enough to start a door to door collection of recyclables in their city limits. Unless regulations suggest that the City provides a 25% waste reduction from their residents, then the City will continue to rely upon others to handle their waste and recyclables. The City of Knoxville will need to continue to promote their door to door collection of recyclables in order to increase their participation rate.

In summary, the region has met the 25% waste reduction goal that is mandated by the state. The region could do a better job in getting recycling numbers from area businesses and industries that recycle Class I waste. The numbers are not needed and this maybe the author way to say something negative. The region does an excellent job in the handling and disposal of its waste. The region needs to find better ways to promote the reuse of paint. The region, as illustrated, has made steps to improve the collection of recyclables since the last needs assessment. The economy has dictated more of a cost benefit analysis on future programs during the next needs assessment period. The region has come a long way since the last needs assessment and will continue to reach their goal of having one of the most comprehensive recycling programs in the East Tennessee Region.

Sources:

Knox County Solid Waste Department

Knox County Home Page

U.S. Census Bureau

City of Knoxville

City of Farragut

Tennessee Division of Solid Waste Management

www. City-data.com

www. Headwaterseconomics.org

Tennessee Advisory Committee on Intergovernmental Relations

Center for Business and Economic Research

Attachments

Maps and Photos

CARTER CONVENIENCE CENTER

8815 Asheville Highway



Map prepared by:
East Tennessee Development District
Geographic Information Systems
Alcoa, TN
Map printed: May 7, 2013

190 95 0 190
Feet



96



2013

Solid Waste Knox County

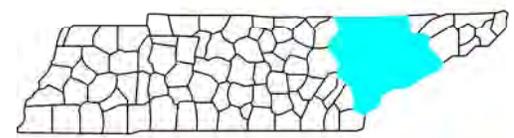
Legend

- Attendent Office
- Recycling Containers
- Fence
- Portable
- Used Oil
- Garbage Recepticals

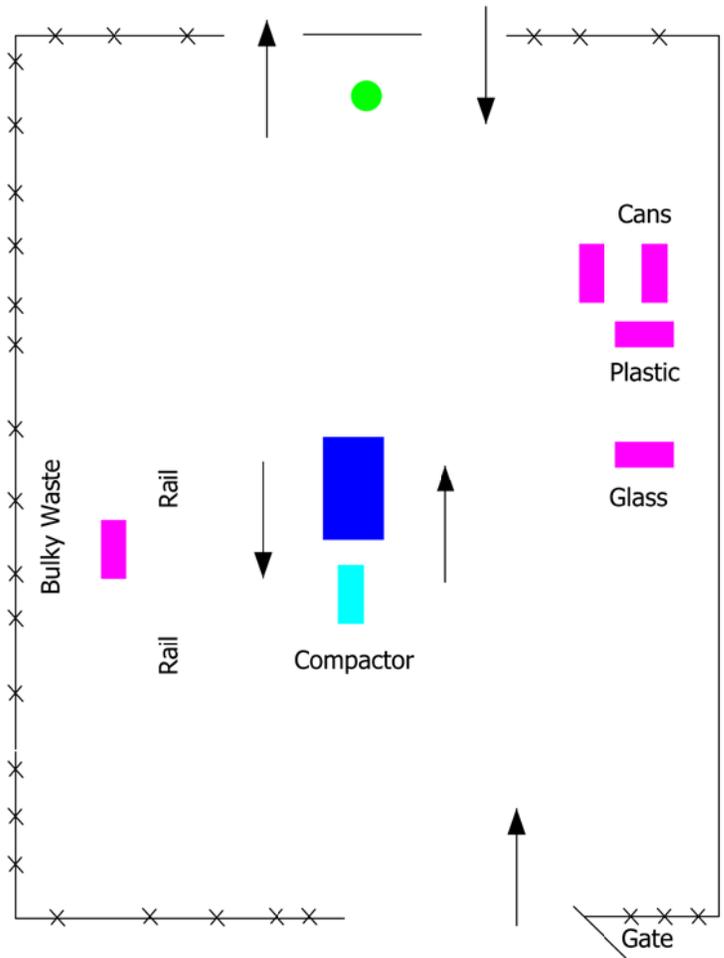
NOT TO SCALE

Prepared By: ETDD

May 20, 2013



Knox County- Carter
8815 Asheville Hwy Knoxville, TN 37924



Asheville Hwy







HALLS CONVENIENCE CENTER

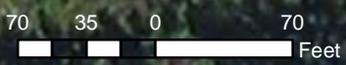
3608 Neal Road

Neal Rd

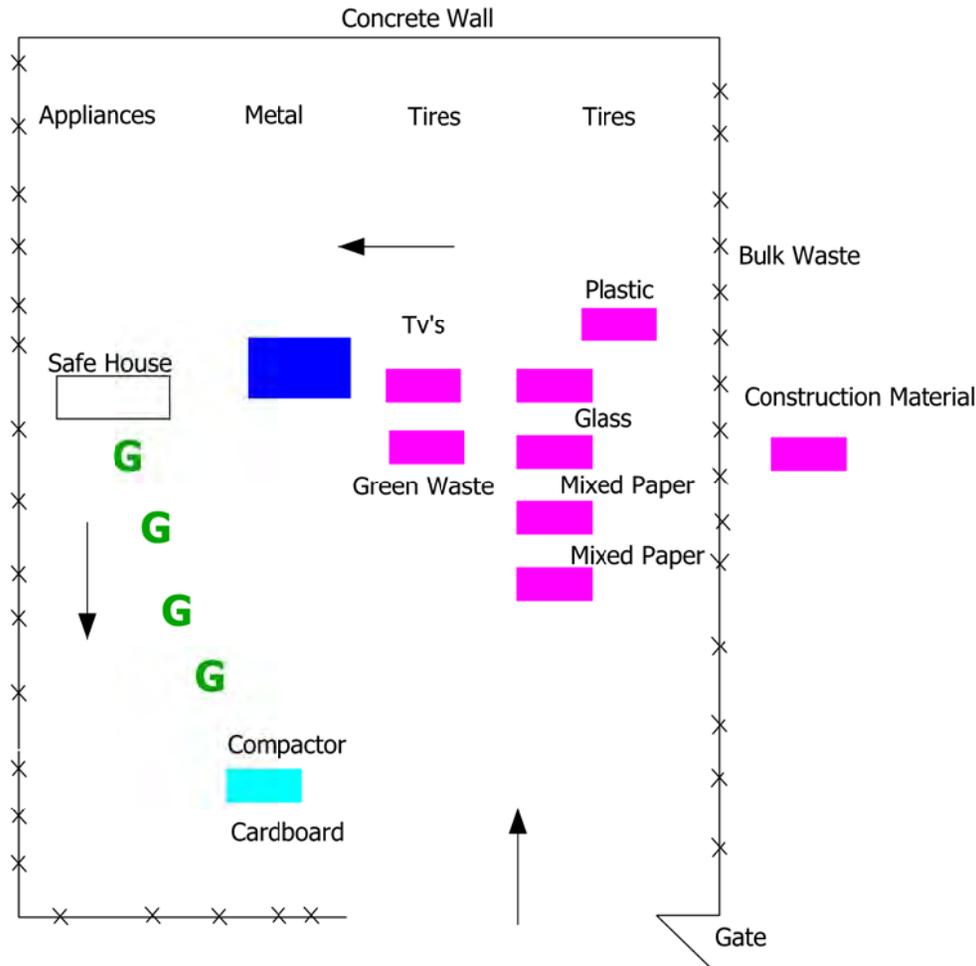
Neal Rd



Map prepared by:
East Tennessee Development District
Geographic Information Systems
Alcoa, TN
Map printed: May 7, 2013



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Neal Drive



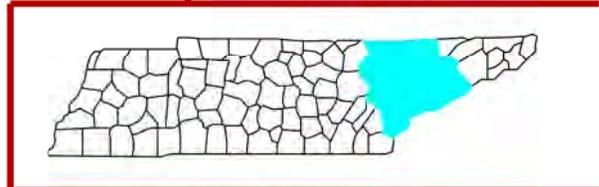
 NORTH

2013
Solid Waste
Knox County

Legend

- Attendent Office
- Recycling Containers
-  Fence
- Portable
- Used Oil
- G Garbage Recepticals

NOT TO SCALE
 Prepared By: ETDD
 May 15, 2013



City of Knoxville - Karns
 3608 Neal Dr. Knoxville, TN 37918

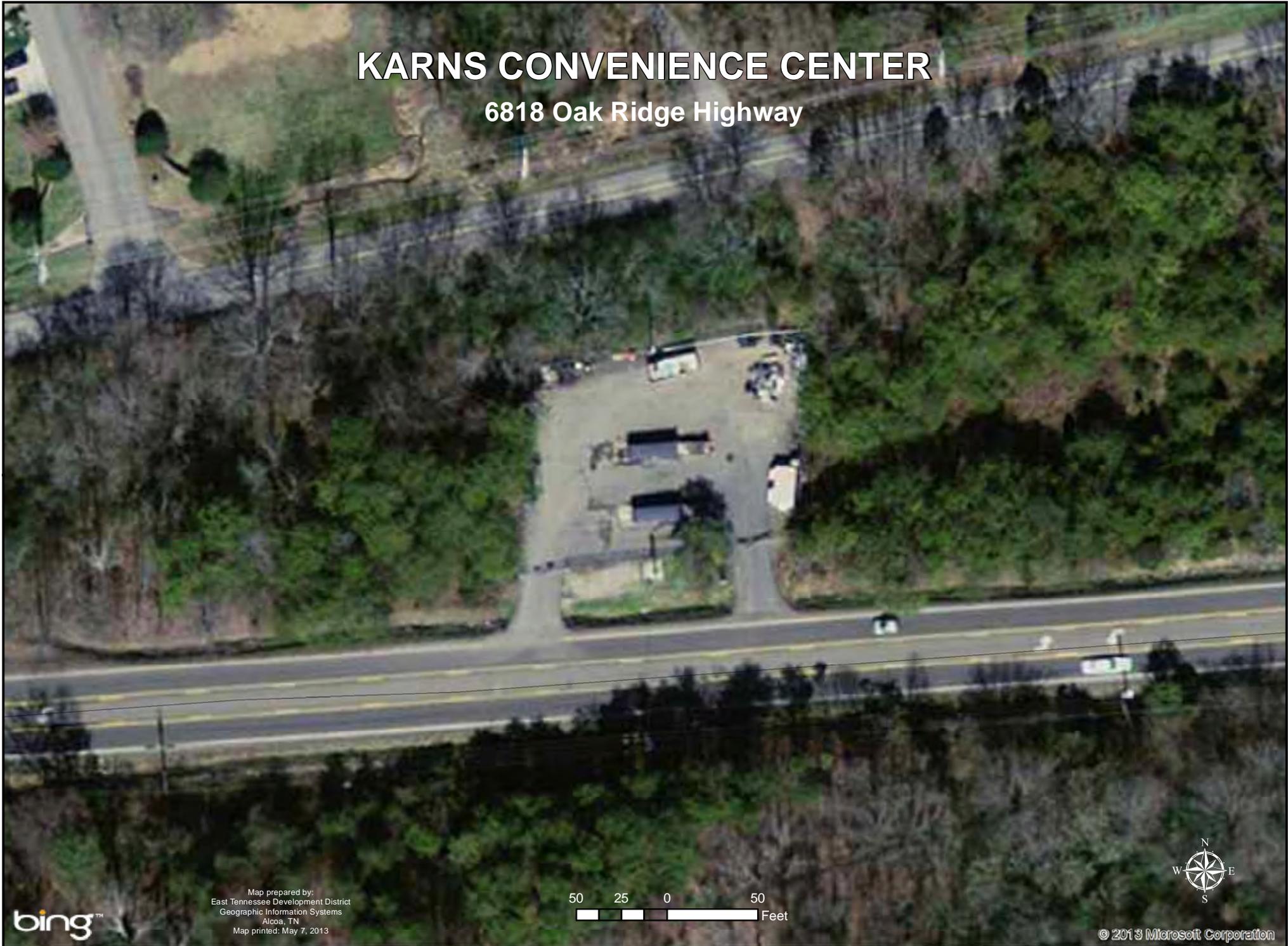






KARNS CONVENIENCE CENTER

6818 Oak Ridge Highway



Map prepared by:
East Tennessee Development District
Geographic Information Systems
Alcoa, TN
Map printed: May 7, 2013

50 25 0 50
Feet



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JOHN SEVIER CONVENIENCE CENTER

1950 W. Governor John Sevier Highway



168

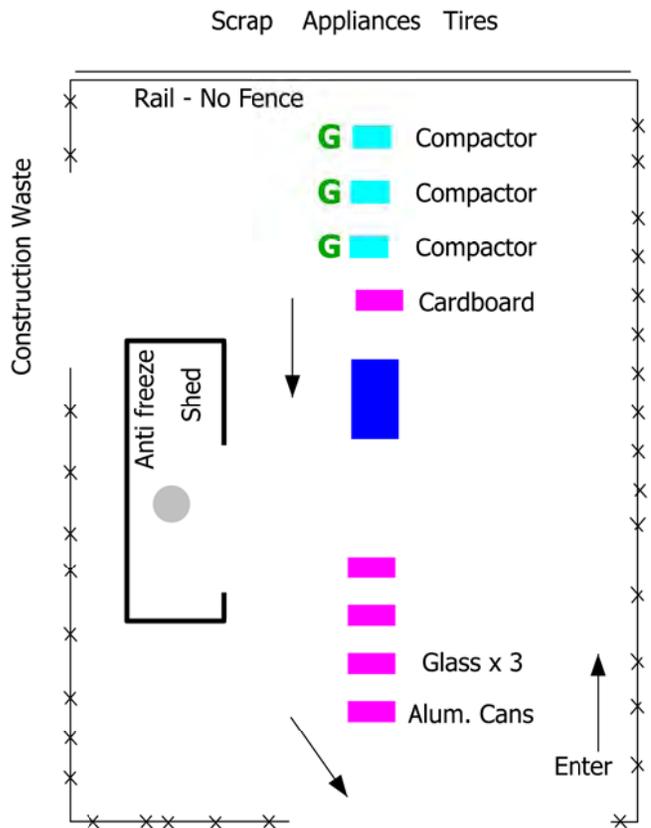
168

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Twin Creek

Map prepared by:
East Tennessee Development District
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Alcoa, TN
Map printed: May 7, 2013







2013

Solid Waste Knox County

Legend

-  Attendent Office
-  Recycling Containers
-  Fence
-  Portable
-  Used Oil
-  Garbage Recepticals

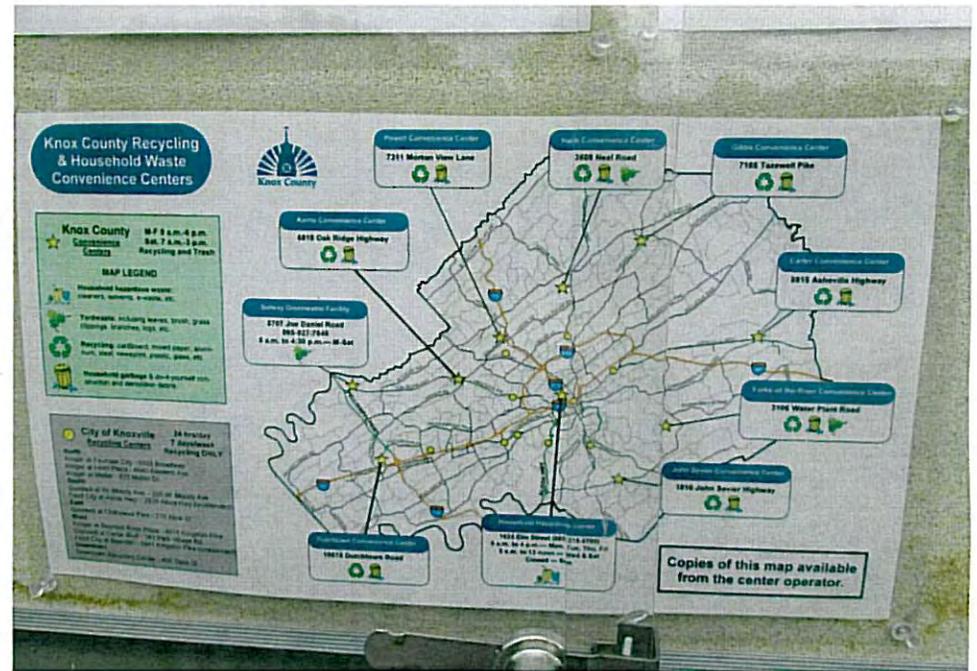
NOT TO SCALE
 Prepared By: ETDD
 May 20, 2013



Knox County- John Sevier
 1950 W. Gov. John Sevier Hwy











POWELL CONVENIENCE CENTER

7311 Morton View Lane

Morton View Ln

Beaver Creek

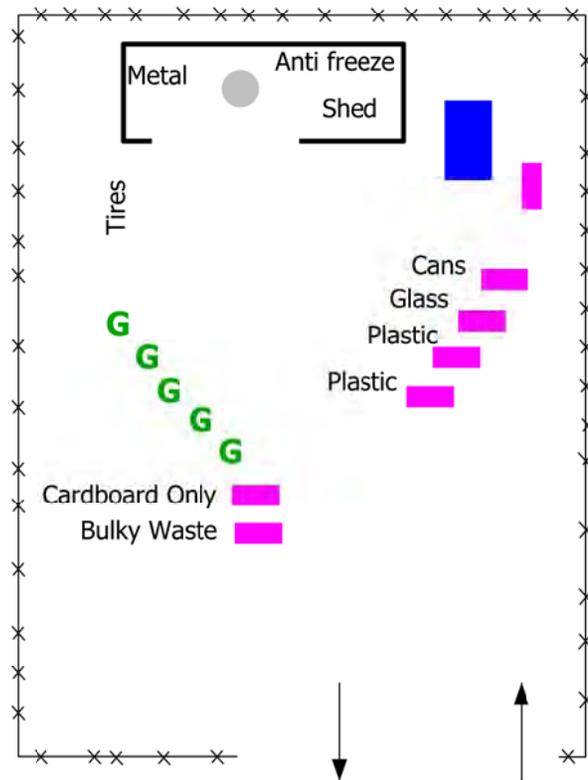


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East Tennessee Development District
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80 40 0 80 Feet

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Morton View Lane

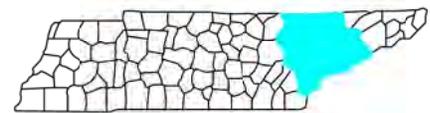


2013
Solid Waste
Knox County



- Legend
- Attendant Office
 - Recycling Containers
 - ⊗ Fence
 - Portable
 - Used Oil
 - G Garbage Recepticals

NOT TO SCALE
 Prepared By: ETDD
 May 20, 2013



Knox County- Powell
 7311 Morton View Lane Powell, TN 37849







FORKS OF THE RIVER CONVENIENCE CENTER

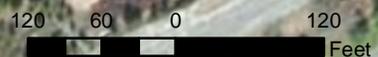
3106 Water Plant Road

S National Dr

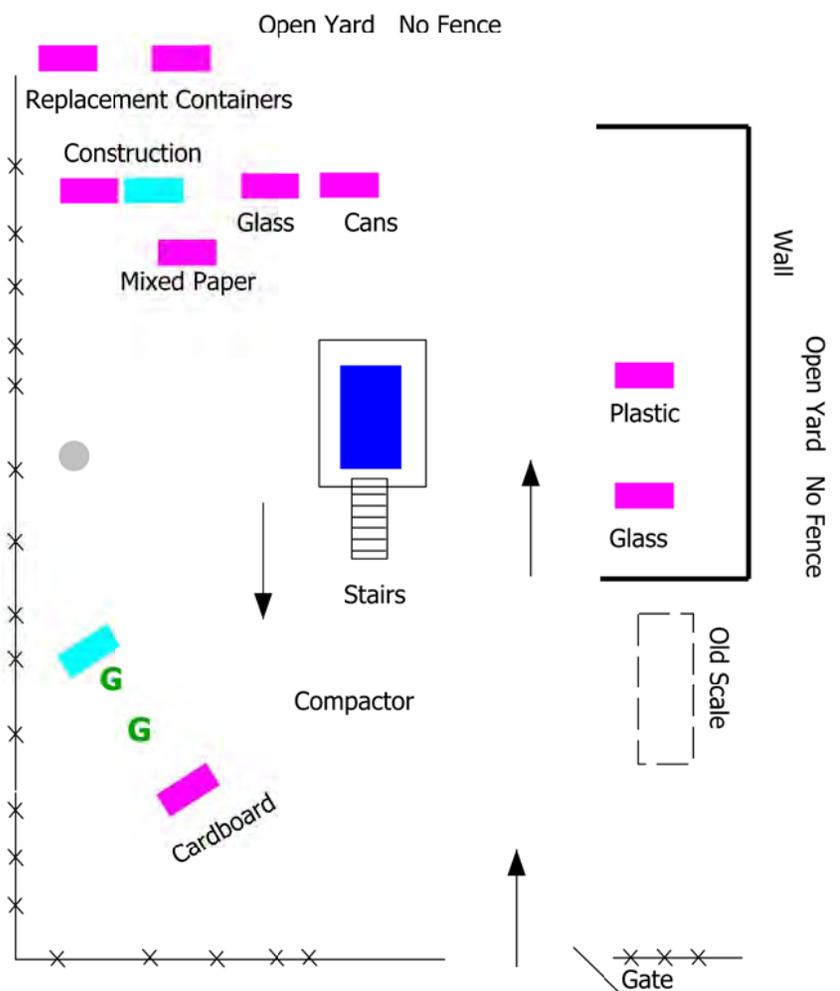
Water Plant Rd

Water Plant Rd

Map prepared by:
East Tennessee Development District
Geographic Information Systems
Alcoa, TN
Map printed: May 7, 2013



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Water Plant Rd.



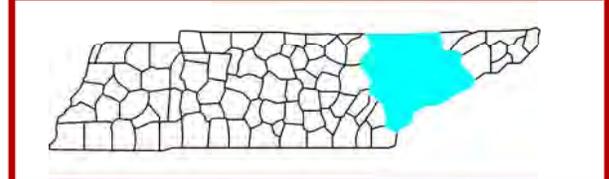
NORTH

2013 Solid Waste Knox County

Legend

- Attendent Office
- Recycling Containers
- Fence
- Portable
- Used Oil
- Garbage Recepticals

NOT TO SCALE
Prepared By: ETDD
May 20, 2013



Knox County- Forks of the River
3106 Water Plant Rd. Knoxville, TN 37914







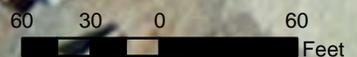
DUTCHTOWN CONVENIENCE CENTER

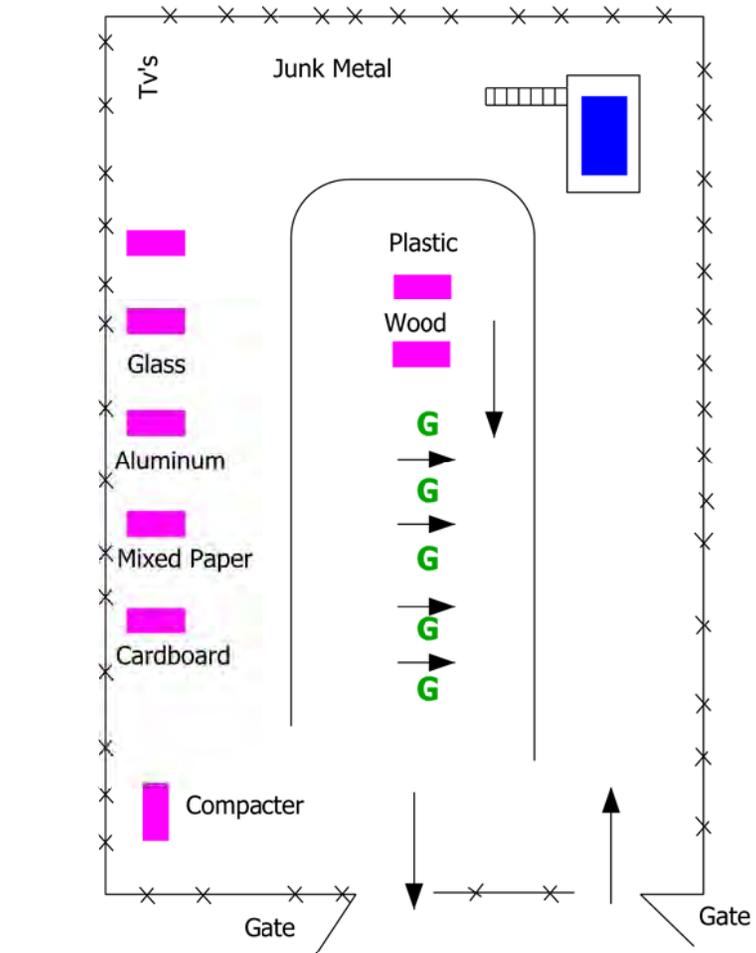
10618 Dutchtown Road

Dutchtown Rd



Map prepared by:
East Tennessee Development District
Geographic Information Systems
Alcoa, TN
Map printed: May 7, 2013





Dutchtown Rd.



2013

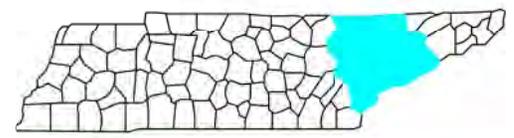


Solid Waste Knox County

Legend

-  Attendant Office
-  Recycling Containers
-  Fence
-  Portable
-  Used Oil
-  Garbage Recepticals

NOT TO SCALE
Prepared By: ETDD
May 15, 2013



Dutchtown
10618 Dutchtown Rd Knoxville, Tn 37932







TAZEWELL PIKE/GIBBS CONVENIENCE CENTER

7201 Tazewell Pike

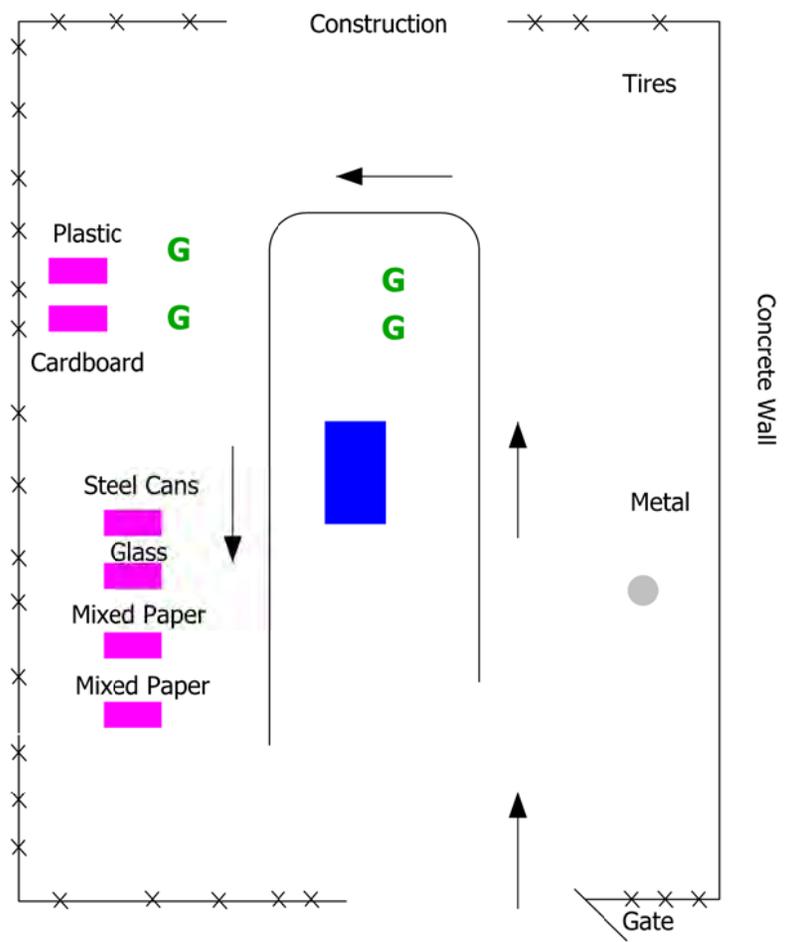


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90 45 0 90 Feet

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Tazewell Pike

 NORTH

2013 Solid Waste Knox County

Legend

-  Attendant Office
-  Recycling Containers
-  Fence
-  Portable
 Garbage Recepticals
-  Used Oil

NOT TO SCALE
Prepared By: ETDD
May 15, 2013



City of Knoxville - Tazewell
7201 Tazewell Pike. Knoxville, TN 37721





KNOXVILLE SOLID WASTE CENTER

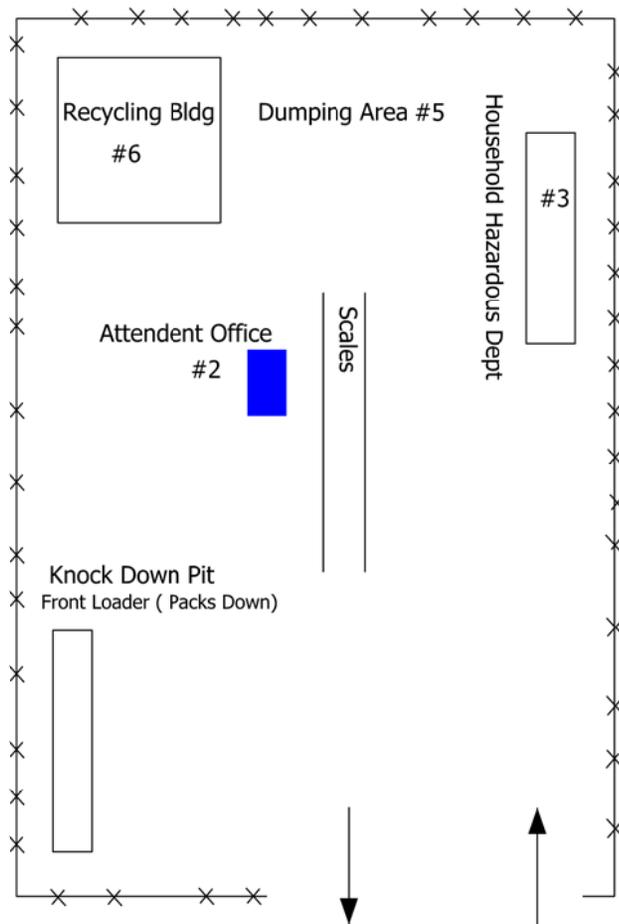
1033 Elm Street



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Elm Street



2013



Solid Waste Knox County

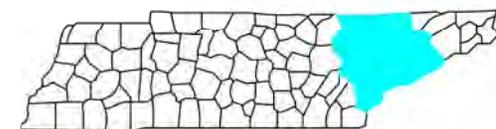
Legend

- Attendent Office
- Recycling Containers
- Fence
- Portable
- Used Oil
- G Garbage Recepticals

NOT TO SCALE

Prepared By: ETDD

May 15, 2013



City of Knoxville- Solid Waste-Transfer Station
1033 Elm Street, Knoxville, TN 37921



