

# DAVIDSON COUNTY SOLID WASTE NEEDS ASSESSMENT

FY 2011



Prepared by:

Tim Roach, Deputy Executive Director of Research, Planning, and Development  
Grant Green, Chief of Research

Greater Nashville Regional Council  
501 Union St., Floor 6  
Nashville, TN 37219-1705

## Demographic Information and Projections

Provide a table and chart showing the region's population for the last ten (10) years with a projection for the next five (5) years. Provide a breakdown by sub-table and sub-chart, or some similar method to detail all county and municipality populations. Discuss projected trends and how it will affect solid waste infrastructure needs over the next (5) years.

*Historic Population* - Davidson County has experienced tremendous population growth in the past decade, with more growth expected in the next ten years. Between 2000 and 2010, Davidson County's total population has grown from 569,891 to 626,681, a 9.97% growth rate. Davidson County was Tennessee's second most populous county in 2010 (see Table 1).

Rank	County	Population
1	Shelby	927,644
2	<b>Davidson</b>	<b>626,681</b>
3	Knox	432,226
4	Hamilton	336,463
5	Rutherford	262,604

Source: U.S. Census Bureau

Davidson County and its municipalities merged to form a metropolitan government in 1963, and six satellite cities still remain, Belle Meade, Berry Hill, Goodlettsville, Forest Hills, Oak Hill, and Ridgetop. See Table 2 and Charts 1 and 2 below for depictions of historic population change in both Davidson County and its satellite cities.

	2010	2009	2008	2007	2006	2005	2004	2003	2002	2001
Belle Meade	2,912	2,916	2,919	2,922	2,925	2,928	2,931	2,934	2,937	2,940
Berry Hill	537	551	565	579	592	606	620	634	647	661
Forest Hills	4,812	4,802	4,792	4,782	4,771	4,761	4,751	4,740	4,730	4,720
Goodlettsville (pt)	10,319	10,665	11,011	11,357	11,704	12,050	12,396	12,742	13,088	13,434
Oak Hill	4,529	4,526	4,523	4,520	4,516	4,512	4,508	4,504	4,500	4,496
Ridgetop (pt)	48	152	256	360	463	566	669	772	876	979
Remaining Metro	603,524	597,390	591,257	585,124	578,994	572,863	566,732	560,602	554,471	548,340
<b>DAVIDSON COUNTY TOTAL</b>	<b>626,681</b>	<b>621,002</b>	<b>615,323</b>	<b>609,644</b>	<b>603,965</b>	<b>598,286</b>	<b>592,607</b>	<b>586,928</b>	<b>581,249</b>	<b>575,570</b>

Source: U.S. Census Bureau-2010 Census, GNRC Linear Trend Analysis 2000-2010

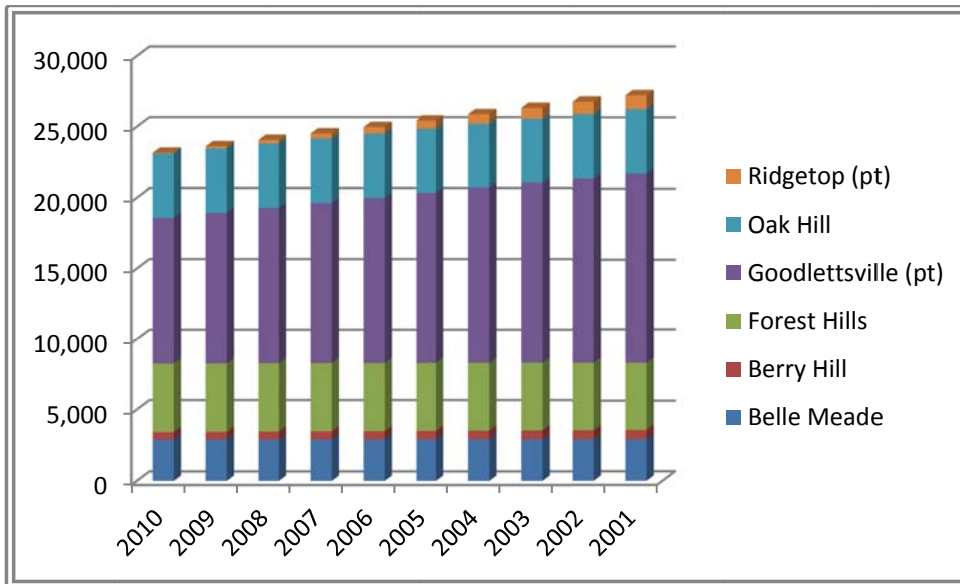


Chart 1-Davidson County Historic Population (Satellite Cities), 2001-2010

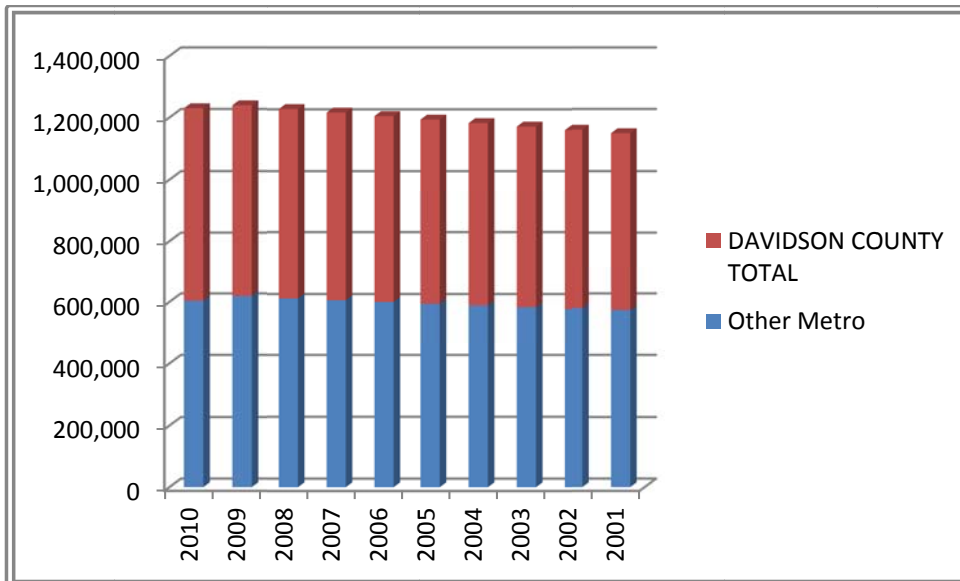


Chart 2-Davidson County Historic Population (County and Remaining Metro), 2001-2010

*Population Projections* - Population projections are estimates based on past trends, and do not always capture short-term influences on growth, such as the recent national economic downturn. Still, projections demonstrate trends, and the trend in Davidson County is for continued growth. To gain a sense of the range of that, growth projections from the University of Tennessee’s Center for Business and Economic Research (CBER) were utilized.

The University of Tennessee projections track slightly ahead of the locally-produced numbers for projected growth in 2015. For purposes of this report, the population projections from the **University of Tennessee** will be used. (see Table 3 and Charts 3 and 4 below).

Table 3: DAVIDSON COUNTY POPULATION PROJECTIONS						
	2011	2012	2013	2014	2015	2016
Belle Meade	2,944	2,976	3,008	3,040	3,072	3,104
Berry Hill	543	549	555	561	567	573

Forest Hills	4,865	4,918	4,971	5,024	5,077	5,130
Goodlettsville (pt)	9,973	9,627	9,281	8,935	8,589	8,243
Oak Hill	4,578	4,628	4,678	4,728	4,778	4,828
Ridgetop (pt)	0	0	0	0	0	0
Remaining Metro	604,066	604,559	605,052	605,545	606,038	606,531
<b>DAVIDSON COUNTY TOTAL</b>	<b>626,969</b>	<b>627,257</b>	<b>627,545</b>	<b>627,833</b>	<b>628,121</b>	<b>628,409</b>

Source: UT-CBER 2011, GNRC Linear Trend Analysis 2010-2016.

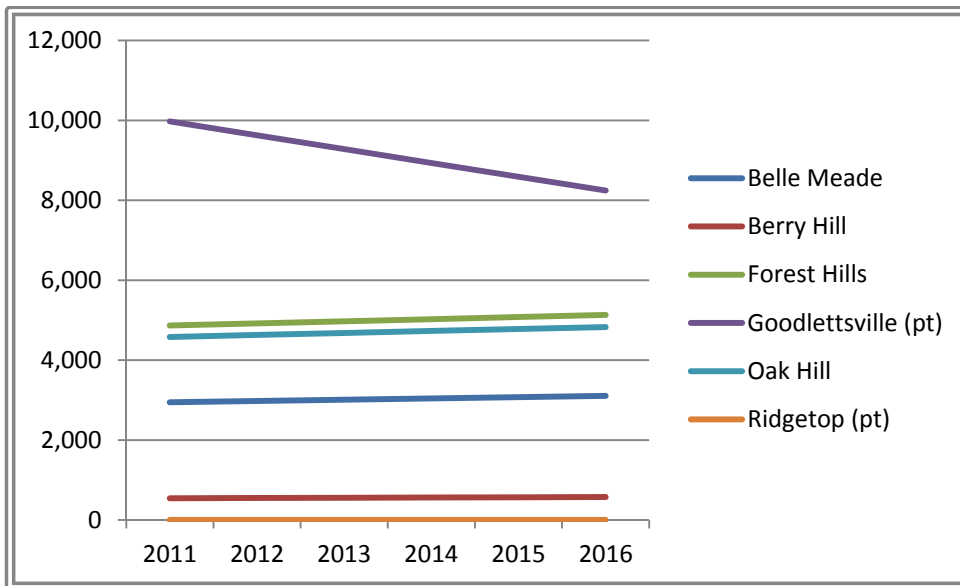


Chart 3-Davidson County Population Projections (Satellite Cities), 2011-2016

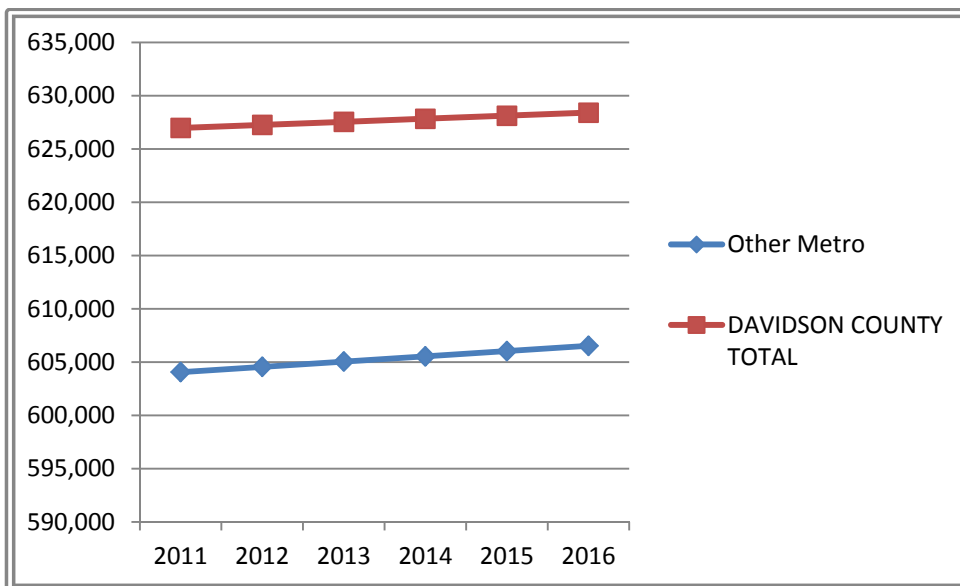


Chart 4-Davidson County Population Projections (County and Remaining Metro), 2011-2016

The best use of these numbers for solid waste planning may be in their ability to project the number of **households** in future years. By dividing the projected population by the average household size (2.34, as of the 2010 Census), we can project the number of new households that could be added and will contribute to the waste stream. The number of potential new households in Davidson County is shown below in Table 4, using the University of Tennessee population projections to examine the most aggressive projections of new residential solid-waste generators.

Table 4

2010 Estimated Davidson County Population (U.S. Census)	2015 Projected Population	Population Increase 2010-2015	Average Household Size	Potential New Davidson County Households, 2015
626,681	628,121	0.2%	2.34	615

However, the recent economic downturn has affected Davidson County, as it has most areas of the country. Recent residential building permit records show that while making long-term projections would be difficult, the short-term effects of the economic recession has dramatically slowed the pace of new residential construction. The number of new residential building permits in all of Davidson County has fluctuated from 2009 to 2011, from 1,068 in 2009, to 1,608 in 2010, then to 1,078 in 2011, which is lower than the 2000-4000 permits issued each year over the previous decade. The slowing pace of building permit applications seems to indicate that the population projections may not materialize at the pace predicted. Even when the economy rebounds, as many believe it will, the resulting credit policies may well impact the rate of new home construction, and could lead to a less-mobile population, thus flattening the population growth trends.

The implications for solid waste planning are to the potential waste stream volume, convenience center numbers and locations, and transportation costs. While Davidson County will no doubt continue to grow, the current rate of growth appears to have dropped further than future projections have indicated.

### Economic Profile

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

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

YEAR	LABOR FORCE	UNEMPLOYMENT	UNEMPLOYMENT RATE	PER CAPITA INCOME	PROPERTY TAX	RETAIL SALES
2001	307,100	11,190	3.6	35,822	\$579,690,850.14	\$9,710,259,181
2002	301,610	13,250	4.4	37,479	\$582,571,528.52	\$9,823,248,466
2003	300,670	13,990	4.7	38,404	\$574,325,559.66	\$9,883,596,288
2004	301,260	13,780	4.6	39,986	\$583,513,861.89	\$11,496,251,466
2005	305,810	13,860	4.5	40,953	\$695,903,224.49	\$11,951,385,571

2006	309,640	13,070	4.2	43,827	\$713,952,639.01	\$13,760,518,530
2007	320,790	12,860	4.0	45,213	\$725,553,421.66	\$13,980,859,837
2008	323,330	17,800	5.5	45,988	\$743,790,276.27	\$13,825,848,072
2009	320,650	28,460	8.9	43,799	\$761,112,044.45	\$11,923,854,661
2010	325,380	28,920	8.9	45,913	\$760,916,346.88	\$12,787,201,287
2011	332,840	27,210	8.2	47,895	\$757,077,154.43	\$12,163,821,376
<b>2012</b>	<b>326,310</b>	<b>21,610</b>	<b>6.6</b>	<b>49,877</b>	<b>\$870,638,727.53</b>	<b>\$12,291,377,231</b>
<b>2013</b>	<b>327,890</b>	<b>19,346</b>	<b>5.9</b>	<b>51,859</b>	<b>\$888,688,142.05</b>	<b>\$12,948,444,798</b>
<b>2014</b>	<b>329,400</b>	<b>18,446</b>	<b>5.6</b>	<b>53,842</b>	<b>\$906,737,556.57</b>	<b>\$12,573,291,169</b>
<b>2015</b>	<b>332,260</b>	<b>17,610</b>	<b>5.3</b>	<b>55,825</b>	<b>\$924,786,971.09</b>	<b>\$12,174,610,508</b>
<b>2016</b>	<b>334,150</b>	<b>16,708</b>	<b>5.0</b>	<b>57,808</b>	<b>\$942,836,385.61</b>	<b>\$13,088,955,630</b>
Sources: TN Dept of Labor & Workforce Dev, Div Emp Sec, R&S; TN Dept of Revenue, Davidson County Trustee, TACIR, Davidson County Economic Development, <a href="#">Woods &amp; Poole 2012 State Profile</a> , <a href="#">GNRC Estimates</a>						

Davidson County has an exceptional labor market, as being a regional hub with a major city in Nashville puts commerce and industry on the stage nationally, including being the base for many corporate operations. Property tax collections have remained strong throughout the economic downturn, and retail sales, which generate sales taxes, have also remained strong, particularly compared to other major markets.

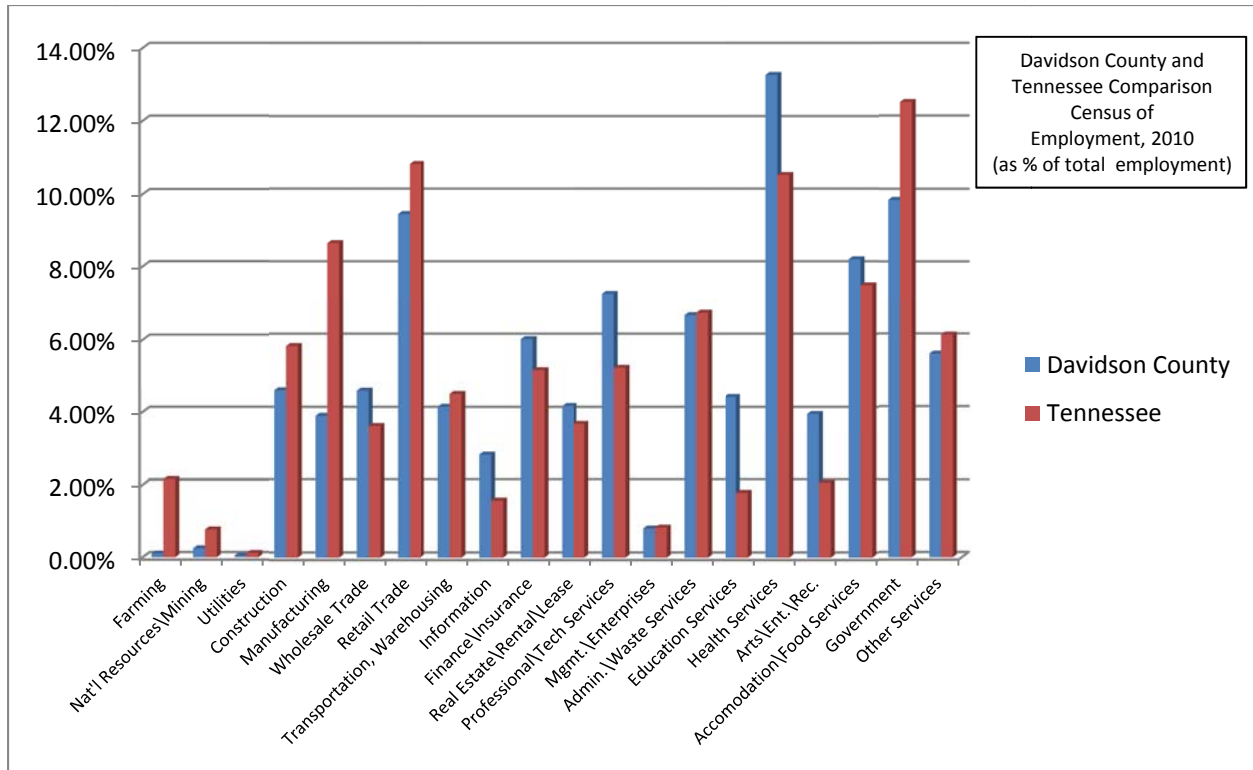


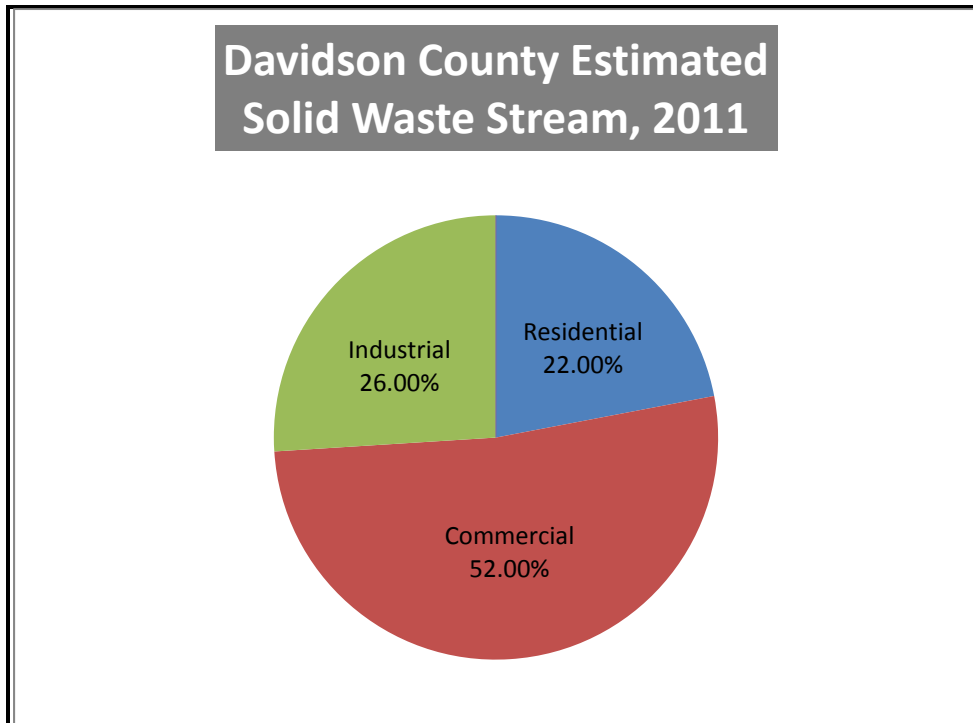
Chart 2 - Census of Employment 2010

Source: Woods & Poole, 2012 TN State Profile

Davidson County’s sector employment does not follow State of Tennessee trends, as shown above from the *Woods & Poole, 2012 TN State Profile*. Davidson County far surpasses the State averages for employment in Health Services, being a leader in this category with both St. Thomas Health Systems and Vanderbilt Medical Center, among others. The Professional and Tech Service and Real Estate and Financial categories also are above state averages. Farming and mining are below state averages, which are to be expected with the urban nature of the county. Surprisingly, though, Retail Trade, Manufacturing, Transportation and Warehousing, and Government are lower than the State as a whole. This is likely due to the spread of other means of employment over several sectors, so while there may be more people with jobs in that field, the percentage of total employment is lower in the more common types of employment found statewide. The State of Tennessee Department of Labor and Workforce Development includes Davidson County in its Labor and Workforce Investment Area (LWIA) #9 (which also includes Rutherford, Trousdale, and Wilson Counties), and in its *Job Forecast News, Hot Jobs to 2018* Report, predicts that the High-Growth industries for this LWIA will be **Educational Services, Food Services and Drinking Places, Ambulatory Health Care Services, Professional, Scientific, and Technical Services, and State Government, Excluding Education and Hospitals.**

## Solid Waste Stream

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

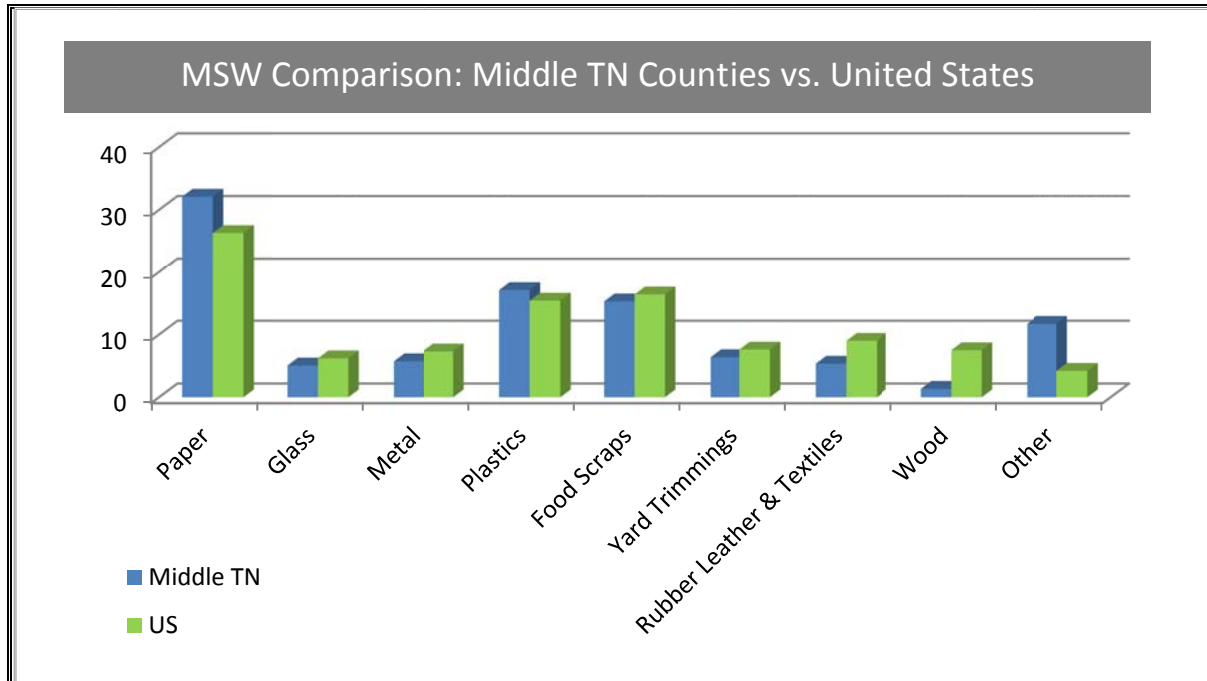


Generally, as of 2011's *Annual Progress Report (APR)*, Davidson County's waste stream is primarily commercial waste (52%), comprising the majority of the total. Industrial waste (26%) and residential waste (22%) share a nearly equal share of the stream. Institutional waste was not reported by Davidson County in their 2011 APR. Normally, residential waste is the primary contributor, particularly in rural counties, however, the large commercial and industrial employment base in the County is reflected in the waste stream numbers, and given the large workforce base and major employers within the County, the waste stream breakdown will likely stay tilted toward non-residential waste.

The specific composition of the waste stream specific to Davidson County has not been measured, however, 1998 estimates provided from the County's 5 year update showed 76.2% was comprised of general waste, such as household garbage, 12.3% was construction/demolition waste, 7.24% was recyclables, 4.0% was yard waste, 0.12% tires, and 0.12% white goods. A report prepared in 2008 by Tennessee State University for the TN Department of Environment and Conservation conducted a municipal solid waste characterization study of waste being handled at two facilities in Tennessee: Cedar Ridge Landfill in Lewisburg (Marshall County), and Bi-County Landfill in Montgomery County. Samples were taken and weighed, and results categorized. The report, **2008 Tennessee Waste Characterization Study**, noted that the 2 Middle Tennessee landfills surveyed had statistically significant differences in waste stream composition than the United States at large. As shown below, the 2 studied landfills had larger percentages of paper and plastics, but smaller percentages of food scraps, rubber, leather, textiles, and wood. All county waste streams will vary dependant on the mix of residential and



commercial contributors, as well as the level of recycling efforts, however, the results of the TDEC/TSU study can be points of comparison for future measurement specific to Davidson County.



Davidson County successfully handles problem wastes, such as auto fluids, oil, batteries, tires, paint, and electronics through its recycling program. Public works held an Earth Machine backyard compost bin sale in the Spring of 2011. In one day, 642 compost bins were sold. Public Works also sells two types of backyard compost bins that are made available at the Omohundro Convenience Center. In 2011, 148 compost bins were sold. Public Works also donated 8 backyard compost bins to schools this past year.

The success of the local recycling program is reflected in the increased amounts of waste diverted from the waste stream comparing the five-year interval of 2007 to 2011 (110,251.23 tons in 2007, 137,794.62 tons in 2011), however, there was an exceptionally higher year within that period (173,508.47 in 2009).

To assist with diversion efforts, and to help reduce the amount of recyclables going to the landfill, Davidson County has several projects, both ongoing and planned:

- Davidson County – School Recycling Program. Metro Public Works, in partnership with Allied Waste and the Metropolitan Public School System, have been promoting school recycling since the spring of 2006. This recycling program places recycling dumpsters for fiber collection at any interested MNPS school. The dumpsters are then serviced through a contract between MNPS and Allied Waste. Public Works has distributed informational material promoting recycling, conducted classroom programs and field trips to educate children on recycling at school and at home. During 2008, Metro Beautification distributed over 1249 desk-side recycling bins to 41 schools to assist them with reducing their waste. Currently, 100% MNPS schools are participating in this program or have Metro Public Works recycling drop offs located on the school property. The year 2009 saw the beginning of a pilot GSD curbside subscription based recycling program in Bellevue. Public Works partnered with EarthSavers to kick off this program.
- Davidson County – Pharmaceutical Collection Program. In April 2011, TDEC and Metro Government partnered to create the first comprehensive county-wide Pharmaceutical Collection Program in

Tennessee. Proper disposal of unused/unwanted prescription and over-the-counter medications helps protect the environment and prevent potential prescription drug abuse. Using shared funding from TDEC, Public Works and Metro Water Services, 10 collection containers were purchased and wrapped with educational messages regarding proper pharmaceutical disposal. Collection containers were placed at Metro Nashville police precincts where residents can drop off unused or unwanted medications. To date, over 2,500 pounds have been collected and diverted from landfills and waterways.

- Davidson County – Ban on Yard Waste. On July 1, 2011, Metro Nashville Public Works instituted a ban placing yard waste in waste containers. In the past, residents had been allowed to place bags of yard waste, leaves and/or grass clippings in trash carts. Metro Code 10.20.095 now mandates the following: "Effective July 1, 2011, yard waste shall not be placed within solid waste containers nor collected and disposed with solid waste."
- Davidson County – Compost Bin Distribution. Metro Beautification has also developed a program to distribute backyard compost bins to schools, community centers and the public. Interested schools and community centers can receive backyard compost containers at no cost, and compost bins are sold to individuals at Public Works' cost. Public Works continues to promote composting and provide access to composting machines at the Omohundro Convenience Center.
- Davidson County – Metro Recycling Mandate for City Employees. Mayor Dean issued a 100% recycling mandate for city government in the spring of 2008 and this program continued at 100% participation in 2009. Public Works partnered with General Services to expand their existing program, which had been cut back in 2005 due to budget constraints. City employees were provided desk-side recycling blue bins and educational material. Metro Beautification continues to provide desk side bins as well as training to requesting agencies to support Metro's in-house recycling program. Public Works also set up a webpage so that employees could learn more about the importance of recycling (<http://www.nashville.gov/Recycle/Recycling/MetroBuilding.htm>) and waste reduction. Collection containers were placed at all city buildings for employee recycling collection. Public Works also placed recycling containers on each floor of the Courthouse for visitors to recycle. Paper, cardboard, plastic bottles/cans, aluminum cans, and metal cans are collected and recycled through this program.

Future efforts planned by Metro include:

- July 1, 2012: Public Works will begin phasing in fees for multiple trash carts at residences and businesses using the brown trash carts for collection. In 2012, customers using more than 2 trash carts will be charged a monthly collection and disposal fee for the additional waste. Additional recycling carts can be requested at no cost.

- July 1, 2013: All Private Haulers will be required to offer recycling to their customers. Also, cardboard will be banned from all waste containers.

- July 1, 2014: Public Works will begin charging a monthly collection and disposal fee for customers using more than one trash cart. Additional recycling carts can be requested at no cost.

- July 1, 2015: Electronic waste will be banned from waste containers.

## Waste Collection System

*Describe in detail the waste collection system of the region and every county and municipality. Provide a narrative of the life cycle of solid waste from the moment it becomes waste (loses value) until it ceases to be a waste by becoming a useful product, residual landfill material, or an emission to air or water. Label all major steps in this cycle noting all locations where wastes are collected, stored, or processed along with the name of operators and transporters for these sites.*

Trash collection service is provided to single-family homes in the Urban Services District of Nashville. Residents may be issued one 96 gallon brown department approved container for refuse disposal. Public Works will provide customers additional recycling carts and monthly collection of recycling at no additional cost. As of July 1<sup>st</sup>, 2011, yard waste must be placed at the curb for brush collection, limited at three pickups per year. Electronic waste must be recycled through at the [Household Hazardous Waste](#) facility. The cities of Belle Meade and Oak Hill also have curbside recycling programs.

Residents of the following cities also have access to service-alternative disposal collection systems: Belle Meade, Berry Hill, Goodlettsville, Oak Hill, Forest Hills, and Nashville's Urban and General Service Districts. These programs are a mix of public, publicly contracted, and privately contracted services.

Nashville and Davidson County residents also have access to recycling and waste disposal, including household hazardous waste, seven days a week at the East Convenience Center. Two other convenience centers, Omohundro Place in East Nashville, and Anderson Lane in Madison, also take most disposal and recycling, except for HHW.

Public Works expanded the HHW program to include 2 mobile collection events held in the spring and fall at several of the recycling drop-off sites. These mobile events allowed residents to drop-off CFL's, batteries, unused medications, mercury thermometers, and other items for proper recycling or disposal.

Thirteen recycling drop-off locations have been identified in the county (Bellevue Park & Ride, Old Ben West Library Building, Bicentennial Mall, Lakewood City Hall, Elysian Fields Kroger, Granberry Elementary School, Hermitage Hobby Lobby, Hillsboro High School, Joelton Middle School, McGavock High School, QRS Recycling, Whites Creek High School, and Youth About Business). QRS Recycling handles much of the recycled goods within the county.

In 2011, a large majority of all waste collected by the county (340,283.90 tons) went to Middle Point Landfill, located in Murfreesboro, TN. Two other major destinations were West Camden Sanitary Landfill (203,189.27 tons), located in Camden, TN, and Southern Services Class III\IV Landfill (193,327.50 tons), located off of Ashland City Highway in west Davidson County. Other destinations include: Waste Management Landfill in Russellville, Kentucky (14,810.93 tons), Bi-County Snl Balefill (10,822.41 tons) in Montgomery County, Central Pike Class IV Landfill (11,898.10 tons) located in Hermitage, which is now being converted into a solar farm, and Meadow Branch Landfill (4.05 tons), located in Athens, TN.

## Waste Reduction

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

### **Base Year Diversion, Davidson County**

Year	Tons Disposed	Population	Tons Per Capita
1995	971,383.00	525,594	1.85
2000	694,979.00	569,891	1.22
2011	774,336.16	626,681	1.24

The per capita diversion rate shows a 32.97% decrease between 1995 and 2011, meeting the goal of 25%. However, in 1995 the volume of waste disposed was potentially inaccurate due to possible overestimation, however, the impact of diversion efforts since should not be discounted. Recent numbers are more reliable, and show that the County has maintained a diversion rate over the last five years that exceeds the 25% reduction goal.

### **Real Time Diversion, Davidson County**

	Tons Disposed	Waste Diverted	Total Waste	% Diverted
2007	865,671.54	421,405.46	1,287,077	48.7
2008	957,837.38	330,736	1,288,573.36	34.5
2009	745,441.63	341,829.84	1,087,271.47	45.9
2010	852,856.36	323,436.47	1,176,292.83	37.9
2011	774,336.16	343,293.48	1,117,629.64	44.3

The county has remained fairly static during this timeframe, and has exceeded 25% reduction each of the last five years.

Collection & Disposal Capacities/Collection Service Providers

- A. Provide a chart indicating current collection and disposal capacity by facility site and the maximum capacity the current infrastructure can handle at maximum through put. Provide this for both Class I and Class III/IV disposal and recycled materials. Identify and discuss any potential shortfalls in materials management capacity whether these are at the collection or processor level.

Site Name(s)	Current Capacity	Maximum Capacity	Project Life of Facility
Middle Point Landfill	4,000	5,500	12
West Camden Sanitary Landfill	2,500	3,500	21
Southern Services Class III\IV Landfill	n/a	n/a	8
Waste Management Landfill	n/a	n/a	n/a
Bi-County Snl Balefill	655	900	98
Central Pike Class IV Landfill	n/a	n/a	Closed-2012
Meadow Branch Landfill	1,600	2,000	7

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

Provider of Service	Service Area	Population Total Under This Service	Frequency of Service (Weekly, Bi-weekly, on call, etc.)	Tonnage Capacity	Type Service (Curbside, Convenience Center, Green Box)
Nashville\Davidson Metro Gov.-Allied Waste	Nashville\Davidson - USD	396,474	Weekly		Curbside
Nashville\Davidson Metro Gov.-Allied Waste	Nashville\Davidson - GSD	96,341	Weekly		Drop-off
Goodlettsville (part)	Goodlettsville (part)	13,780	Weekly		Drop-off
Forest Hills	Forest Hills	4,710	None		Drop-off
Oak Hill	Oak Hill	4,493	Twice Weekly		Curbside
Belle Meade	Belle Meade	2,943	Twice Weekly		Curbside
Berry Hill	Berry Hill	674	Twice Weekly		Drop-off
Ridgetop (part)	Ridgetop (part)	41	Weekly		Drop-off

## Financial Needs

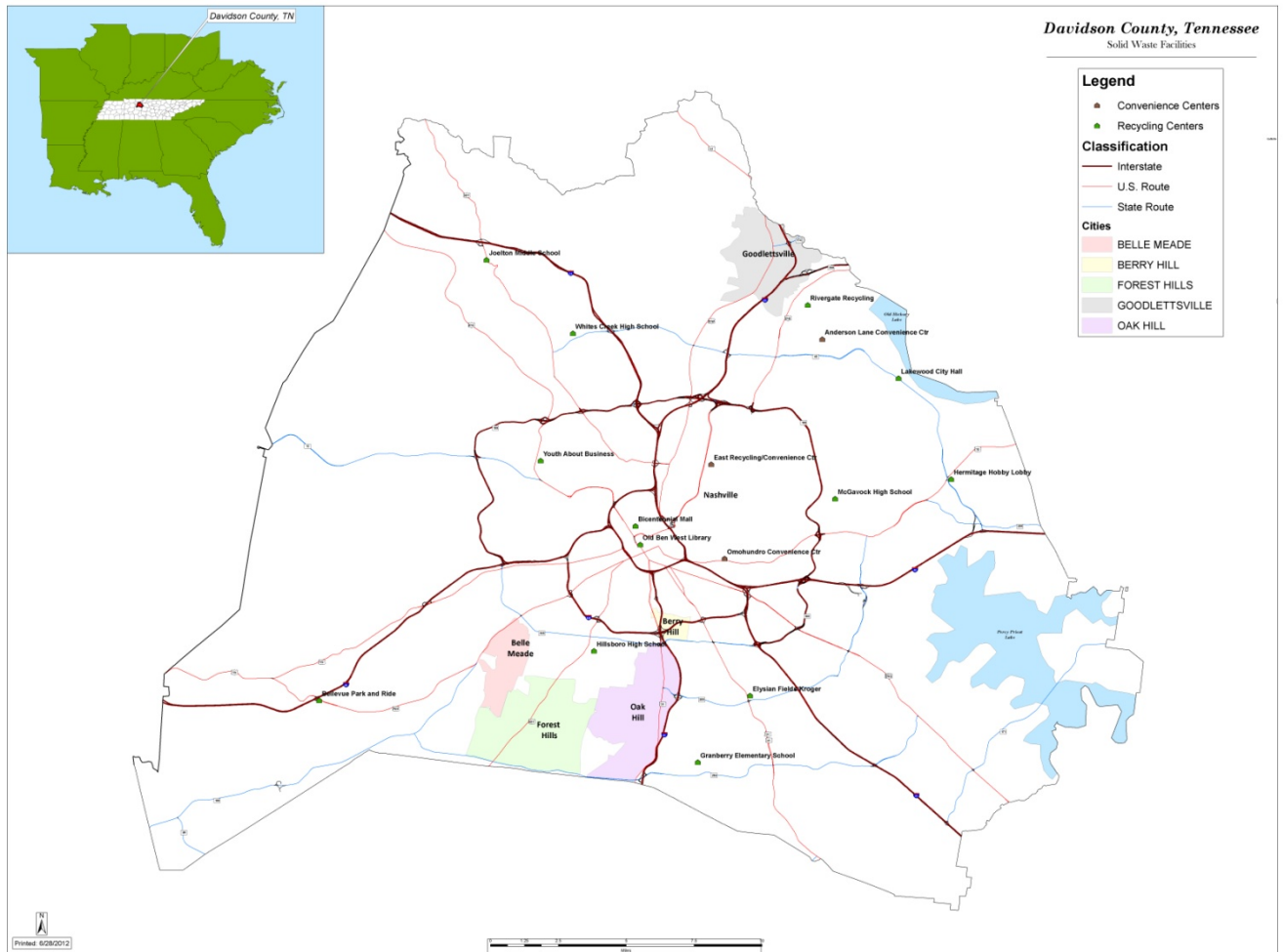
Complete the chart below and discuss unmet financial needs to maintain current level of service. Provide a cost summary for current year expenditures and projected increased costs for unmet needs.

EXPENDITURES			
Description	Present Need \$/year	Unmet Needs \$/year	Total Needs (Present + Unmet) \$/year
Salary and Benefits	3,302,824.04	900,000	4,202,824.04
Waste Pickup	8,985,111.25		8,985,111.25
Collection and Disposal Systems			
Equipment			
Sites			
Convenience Center	711,606.51	711,606.51	2,134,819.53
Transfer Station			
Recycling Center	845,977.50		845,977.50
Problem Waste Ctr.	113,872.20		113,872.20
Compost Center	167,520.85		167,520.85
Other Collection	1,880,619.82		1,880,619.82
Landfills			
Site			
Operation			
Closure			
Post Closure Care	260,977.25		260,977.25
Other Waste Disposal	5,325,062.78		5,325,062.78
Administration (supplies, communication costs, etc.)			
Education	165,703.43		165,703.43
Public			
Continuing Ed.			
Capital Projects		3,000,000	3,000,000
REVENUE			
Host agreement fee			
Tipping fees			
Property taxes			
Sales tax			
Surcharges	2,997,684.32		
Disposal Fees			
Collection charges			
Industrial or commercial charges			
Residential charges			
Convenience Center charges			
Transfer Station charges	608,629.37		
Sale of Methane Gas			
Sale of Recycled Materials	1,082,322.81		
Solid Waste Grants	624,480.97		

Other Governments and Citizens Groups	406,696.61		
Other sources: (Grants, bonds, interest, sales, etc.)			
Transfer from General Fund	18,775,700.00		

**Organization & Facility Locations**

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



### Revenue Sources/Needs

*Identify all current revenue sources by county and municipality that are used for materials and solid waste management. Project future revenue needs from these categories and discuss how this need will be met in the future. Use example in Chart 7 as an example to present data.*

The primary source of revenue was from the General Fund (likely from county property tax), followed by surcharges, sale of recycled materials, and solid waste grants. The solid waste program relies heavily on the General Services District and Urban Services District fund transfers. Metro remains relatively conservative in its approach for funding new items, however, the increase in property taxes may bring about more funding, which could result in higher efficiency for the department, as well as better services for the residents. These items will need to be addressed in the future to make the solid waste program more effective. In the upcoming 2012-2013 FY Budget, \$1,000,000 is allocated for items such as equipment and increases in collection costs. In addition, fuel remains a highly volatile budgetary issue, particularly at the scale it affects Davidson at, given the number of customers.

Davidson County offers many services to its residents, but solid waste service in the General Services District (GSD) could potentially be improved for the citizens. The main item of note involves the convenience centers. The current three convenience centers are only currently located in East Nashville and Madison. It would likely be effective to also locate centers in the communities of Bellevue, Antioch, and Hermitage. However, this could possibly double the costs for convenience center operation, as well as increase annual staffing costs considerably. Estimations for these needs are located in the previous financial needs chart, in the “unmet needs” column.



## Recycling

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

Davidson County has a highly effective recycling program, and continues to take steps forward in reducing recyclable material sent to landfills. Nashville-Davidson's Metropolitan Government has scheduled a series of mandates to increase diversion efforts. This will assist in modifying the public's behavior over time, and eventually attitudes will follow once it becomes the standard.

Many education efforts are conducted with Metro students, which are sponsored by Metro beautification. Recycling, composting, and littering are main topics covered by these numerous programs. In addition, children and adults at times are provided scheduled tours of the facilities in order to see the process of waste disposal.

The overall effects of these programs should be measured over time, as receptiveness to new initiatives is not typically immediate. It is thought that the various methods to educate the public has and will help modify the behavior of the citizens to make more environmentally conscious decisions. More visible options for recycling, as well as changes in policies and mandates, place those opportunities to the forefront.

## Sustainability

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

No major changes are expected in the Region's Five Year Plan. Metro Council reviews needs that are planned, along with other budgetary items. Metro Government will continue its current education programs on appropriate waste reduction, management, and disposal. Education encourages positive waste management habits by the public, and provides them knowledge of the available options.

The efforts put forth by Metro support the Statewide Solid Waste Management Plan. Waste reduction and diversion is a common goal that their Solid Waste program intends to continually improve on. This is dependent on subsidies from the Urban and General Service District funds to carry on existing activities, as well as add new initiatives.