



# DURHAM COUNTY



## 10 YEAR COMPREHENSIVE SOLID WASTE MANAGEMENT PLAN

*JULY 1, 2009 – JUNE 30, 2019*

ORIGINAL June 27, 1997  
REVISED June 26, 2000  
REVISED June 9, 2003  
REVISED June 12, 2006  
REVISED June 8, 2009

## **Executive Summary**

### Introduction

This Solid Waste Management Plan Update (2009 Plan Update) to the initial Ten Year Comprehensive Solid Waste Management Plan (Plan) discusses the current solid waste practices used within Durham County and possible changes that can be made to improve solid waste management and to reduce solid waste generation over the next ten years. Future Plan updates will follow at least every three years to allow for improvements and continuous monitoring of the Plan's implementation. It is the intention of the County to continue to further develop and implement strategies for waste reduction and for future solid waste management alternatives. In light of the current state of the economy, a great deal of emphasis will be placed on providing the maximum benefit and level of service while using the least amount of public funding possible. The County has agreed that using solid waste disposal tax distributions to help maintain existing waste reduction and recycling programs and services would be the best course of action. Recommended enhancements to these existing programs, as outlined in this 2009 Plan Update will be accomplished largely through the use of staff time and expertise and will focus on public outreach, education, partnerships and low cost initiatives.

### Planning Area Goals

The County's long-term goal is to help reduce waste generation within the County. The County will strive to continue to educate the entire community about solid waste and recycling, and to make solid waste disposal and recycling easy and convenient to everyone. The realization of these efforts will prevent improper waste disposal and provide greater protection for the public health and for the environment.

The County's goals are summarized as follows:

- Goal 1 – Develop a Plan that is in conformance with state requirements and with

local objectives.

- Goal 2 – Identify any deficiencies in existing solid waste management programs and systems that must be addressed in order to meet local needs and provide protection for the public health and for the environment.
- Goal 3 – Develop local waste reduction goals and programs for the County.
- Goal 4 – Develop and implement a comprehensive, ongoing public education program and encourage public participation in the long-term planning process.
- Goal 5 – Continue the solid waste management process so that the feasibility of future options can be thoroughly investigated, and recommendations based on those investigations can be presented to the participating jurisdictions for review and adoption.

### Waste Quantities and Composition

As reported by the North Carolina Division of Waste Management (NCDWM) approximately 307,725 tons of waste was disposed of in the County in Fiscal Year (FY) 2007-08. County government's General Services Department (General Services) managed a total of approximately 12,196 tons of waste including recyclables (2,008 tons) and yard waste materials (894 tons). Of the total tons of waste managed for the County, it is estimated that 45% of the waste is residential, 30% is commercial waste and 25% is industrial waste. Construction and demolition (C&D) waste is included in with the commercial waste.

### Waste Reduction Goals

In 2006, Durham County established local waste reduction goals of 10% with a targeted 1.21 tons/year per capita disposal rate to be reached by FY 2010-11 and 15% with a targeted 1.03 tons/year per capita disposal rate to be realized by FY 2015-16. In FY 2007-08, by achieving a 1.15 tons/year per capita disposal rate, the County has realized a 5% reduction in the per capita disposal rate since the 2006 Plan Update. When compared to the per capita disposal rate of the baseline year of 1988-89, the County

has achieved a 12% reduction in the per capita disposal rate. This reduction in solid waste tonnage is due to several factors which include:

- January 2008 State ABC recycling mandates.
- Greater public interest in “green” issues, including waste reduction and recycling.
- Increased availability of recycling opportunities for residents and businesses.
- Expanded public education efforts.

Upon careful consideration of the above items in conjunction with future waste reduction estimates, the updated reduction goals for Durham County are as follows:

- FY 2013-14 is 18%
- FY 2018-19 18%

To achieve the goal of 18 % waste reduction in the per capita disposal rate in FY 2013-14, Durham County must modify its per capita disposal rate to 1.07 tons per person per year. Based on population projections and using the new per capita rate, the County's future landfill disposal should be limited to 10,260 tons for FY 2013-14 and 11,032 tons for FY 2018-19 in order to achieve the 18% reduction in solid waste tonnage.

### Assessments and Programs

Through the following efforts, Durham County will make progress towards meeting the goals established within this 2009 Plan Update.

- Waste Reduction – The County intends to develop policies that will reduce the toxicity of chemicals being used by government agencies and facilities and will encourage deconstruction instead of demolition in redevelopment projects. Current efforts to disseminate information to the public about waste reduction will be expanded to include more web-based content and additional outlets for distribution of the Durham County Solid Waste Handbook.

- **Solid Waste Collection** – Durham County currently does not provide residential roadside solid waste collection. County residents are free to subscribe to roadside solid waste collection through solid waste haulers that service residents of the County. Some program areas under consideration include establishing a solid waste license fee for haulers and requiring garbage collectors to provide recycling collection and yard waste collection as part of their license to operate.
  
- **Recycling and Reuse** – According to TFC Recycling, recycling rates for the County remain steady at approximately 50% participation. In 2008, the state announced a new goal of 2 million tons recycled annually by 2012. In order to reach this goal, the Division of Pollution Prevention and Environmental Assistance (DPPEA) has calculated Durham County must increase its per capita recycling rate of 120.65 pounds per person by 210.15 pounds per person to 330.80 pounds per person. Because of current economic conditions and the reduced County waste reduction and recycling education budgets, the County intends to focus on no to low cost education and outreach efforts to increase the diversion rate, using available staff time to replace dollars when possible. With new landfill bans becoming effective in 2009 and 2011, extensive public education is vital and is beginning now. To achieve a successful implementation of these bans, General Services' staff will work to inform and educate County residents and businesses impacted by the bans through press releases, information posted to the County's web site and the information kiosks at each of the convenience centers. In addition, General Services' staff will continue to work with schools to encourage administrative and classroom recycling and provide assistance when requested in the implementation of a recycling program.
  
- **Composting and Mulching** – The Cooperative Extension Service at the Durham County Agricultural Center promotes residential backyard composting, Vermicomposting, and sponsors residential composting classes and other yard waste reduction, recycling and education programs. As of April 1, 2009, the City

received approval from NCDWM to reopen and operate its yard waste facility.

- Disposal – General Services oversees the operation of the County’s four Solid Waste and Recycling Convenience Centers. The convenience centers consist of multiple 40 and 30 cubic yard roll-off boxes for the collection of solid waste, yard waste, cardboard and other recyclables. Acceptable recyclable materials include mixed papers, newspapers, chipboard, plastic bottles, aluminum cans, glass bottles and jars, lead acid batteries, motor oil, antifreeze, and used cooking oil. Republic Services, Inc. formerly Allied Waste provides container rental, collection, and disposal of solid waste and yard waste at the centers. All household recyclables are collected by TFC Recycling. During FY 2007-08, the four convenience sites served approximately 221,931 visitors annually.

Since the County does not operate a sanitary landfill and has no plans to build one in the near future the County depends on the City of Durham as its primary source of solid waste disposal. The City of Durham operates a solid waste transfer station which transfers the City and the County’s solid waste (delivered to the transfer station by Republic Services, Inc.) to a landfill in Lawrenceville, Virginia called the Brunswick Waste Management Facility. The City is considering other options in managing its waste such as finding a solid waste landfill and a yard waste facility within the boundaries of the State of North Carolina.

During FY 2008-09, the City completed several repairs and renovations to its transfer station. These capital improvements resulted in the diversion of some solid waste that would have normally been disposed at the transfer station being disposed of at other solid waste facilities within Durham County. Incineration as a means of disposal of solid waste is not an intended action at this time.

- Education – Current efforts are being focused on educating the residential, commercial, and industrial sectors about the benefits of recycling. The Cooperative Extension Service provides solid waste reduction educational

opportunities for residents, including grass-cycling and composting classes. Information about solid waste and recycling programs is made available to residents and businesses through collection service providers, in County and municipal offices and facilities and on government and corporate websites. Government-sponsored events highlighting Earth Day and America Recycles day have garnered media attention and assisted in community education efforts. The County intends to continue to provide elementary school recycling programs, to make classroom recycling lessons available to elementary, middle and high school teachers, and to encourage and provide assistance with administrative and classroom recycling programs. In addition, the County will continue to work to expand public awareness of businesses and service providers that incorporate substantial “green” procedures and policies into their operations through the development of a recognition program.

- **Special Waste** – The City of Durham provides a disposal site for residential household hazardous waste (HHW) and electronics, including computer equipment and televisions. Since the last update, the City has increased the operating days and hours of the HHW Facility to make using the site more convenient for City and County residents. The County continues to collect white goods, lead-acid batteries, used motor oil, antifreeze at its four solid waste and recycling convenience centers. During FY 2007-08, the County added the collection of used oil filters in anticipation of NC House Bill 1465 and used liquid cooking oil to its solid waste services offerings. Collection of the liquid cooking oil promotes the creation of biodiesel fuel. Convenience center attendants direct residents wanting to dispose of used tires to the City’s Transfer Station.
  
- **Illegal Disposal/Litter** – In an effort to reduce illegal disposal and littering, the County employs an enforcement and educational person in the form of the Litter Control Investigator that deals directly with littering and illegal dumping. Roadside cleanups are handled by the Solid Waste Division within General

Services. Community service workers are also utilized in cleanup activities. As mentioned in the 2006 Plan Update, the County announced the creation of a joint City-County Keep Durham Beautiful (KDB) initiative to be launched in FY 2005-2006. Funding for KDB is based on City (75%) and County (25%) population numbers. The program is managed by the City of Durham's Department of General Services. Since the 2006 update the joint City-County Keep Durham Beautiful initiative has completed several efforts geared toward educating Durham County residents about the negative impacts of litter that include:

- Performing litter indexes
- Community cleanups within the County
- Plantings of flowers
- Tarp giveaways
- Speaking to school aged children about litter and litter prevention

In addition to the partnership efforts with KDB, the General Services continues to participate in the Fall & Spring Road Litter Sweep campaign sponsored by the North Carolina Department of Transportation (NCDOT). During many of these projects, County staff utilizes community service workers from the court system and local juvenile programs. The County in cooperation with Keep Durham Beautiful sponsor and promote local events in the spring (Great American Clean-up) and spring and fall (NC Big Sweep) that are designed to enlist the community in efforts to clean up neighborhoods and waterways. During this planning period, General Services will continue to partner with KDB on litter prevention events, community cleanups, floral plantings and tarp giveaways.

- Purchasing Recycled Products – The County continues to expand its internal recycling program and reaffirm its Recycling and Waste Reduction policy through all departments. Currently the County's Environmental Sustainability Manager and staff in the Purchasing Department are drafting updated policies on the purchase of recycled products. In the past, the County Purchasing Department has worked with General Services' staff to develop a listing of recycled content



products available for purchase, and to develop a list of qualified vendors of recycled products. In addition, the County will continue to analyze purchasing and bid opportunities based on environmentally preferable purchasing criteria.

- Disaster Response – The County is in the process of identifying suitable sites for the temporary storage of disaster debris that may result from a hurricane, tornado or ice storm. County staff is working with NCDENR waste specialists to evaluate perspective sites and obtain approval for their future use. In addition, the County has developed an animal mortality emergency response plan, which is included in this 2009 Plan Update.
  
- Abatement of Abandoned Mobile Homes – Based on new state legislation, specifically House Bill 1134, the County will work with its County and City of Durham planning partners to evaluate the issue of abandoned mobile homes and develop a plan for abatement using the new state guidelines and statutory requirements.

### Plan Implementation

The following Implementation Schedule provides a chronological listing of the key solid waste management plan components recommended to be adopted by the County of Durham.

**Durham County, North Carolina**  
**IMPLEMENTATION SCHEDULE**

Fiscal Year	Action
2009-2010	<ol style="list-style-type: none"> <li>1. Durham County will develop and implement a public education plan for supporting the disposal bans on rigid plastic bottles, used oil filters, pallets, computer equipment and televisions.</li> <li>2. Durham County will work with local service providers and recycling centers in an effort to ensure that all rigid plastic bottles will be accepted for recycling and not considered as contamination.</li> <li>3. Durham County will implement the state disposal ban on rigid plastic bottles, used oil filters and wooden pallets, which is effective 10/01/09 at each of its four solid waste and recycling convenience centers.</li> <li>4. Durham County will begin the development of an education campaign for contractors and builders to encourage deconstruction, especially redevelopment projects.</li> <li>5. Durham County will work with the City of Durham to establish a City/County-Task Force on solid waste management issues.</li> <li>6. Durham County will continue to partner with the retail, television and radio media, and entertainment sector in an effort to encourage waste reduction and recycling.</li> <li>7. Durham County will work with the NCDENR to identify, evaluate and approve temporary storage sites for disaster debris.</li> <li>8. Durham County will evaluate the issue of abandoned mobile homes as it pertains to HB 1134 and develop an abatement plan that is consistent with state requirements.</li> <li>9. Durham County will expand its solid waste website to include information about illegal dumping, NCDOT's Swat-a-Litterbug program, local composting facilities and their products and the cooperative extension's educational opportunities as it pertains to composting.</li> </ol>

**Durham County, North Carolina**  
**IMPLEMENTATION SCHEDULE**

<b>Fiscal Year</b>	<b>Action</b>
2010-2011	<ol style="list-style-type: none"><li>1. Durham County will work to implement the state disposal ban on computer equipment and televisions.</li><li>2. Durham County will work to develop a policy to reduce the toxicity of chemicals used by government agencies and facilities.</li><li>3. Durham County will expand public awareness of local business and service providers that incorporate green procedures and policies into their operations through a recognition program.</li></ol>
2011-2012	<ol style="list-style-type: none"><li>1. Durham County will work to encourage the adoption of an environmentally preferable purchasing policy.</li><li>2. Durham County will develop and enact a policy requiring county-licensed garbage collectors to provide recycling collection as part of their license to operate.</li><li>3. Update Solid Waste Management Plan.</li></ol>

## 1. **INTRODUCTION**

### **1.1. Background**

This 2009 Plan Update was prepared in accordance with NC General Statute (NCGS) 130A-309.09A (b) for the purpose of meeting local solid waste needs and protecting public health and the environment. It is a three-year update of the original Plan adopted by the Durham County Board of County Commissioners on June of 1997. This 2009 Plan Update reviews the previous actions of the 2006-2016 Plan; measures progress toward the waste reduction goal, makes suggestions for additional solutions, and provides a plan to accommodate projected growth in Durham County for 2009-2019.

The planning area includes only the unincorporated areas of Durham County. A Comprehensive Solid Waste Management Plan for the area within the City limits of Durham will be prepared and filed separately for NCDENR by the City of Durham.

### **1.2. Planning Area Goals**

Durham County's long-range vision is for a comprehensive solid waste management program. The components of the program would provide waste disposal capacity, waste collection services, and waste reduction programs to all members of the community at an equitable price. The vision includes: the elimination of improper disposal of waste and expanded waste reduction opportunities that are convenient for residents; a community that understand the environmental benefits of waste reduction and proper waste disposal; foresees financial expenditures, but intends to keep them at a reasonable level; and is translated into the following long range planning goals:

- To provide everyone in the community with waste disposal capacity, waste collection services, and waste education opportunities.
- To increase the efficiency and cost effectiveness of the solid waste program.

- To meet the established local waste reduction goals.
- To decrease improper waste removal.
- To protect public health and the environment.

### **1.3. COUNTY PROFILE AND GEOGRAPHICAL AREA**

#### County Demographics

According to the results of the 2007 US Census, Durham's population continues to increase and become more diverse. Whites comprise 56% of the population, with Blacks comprising 38%. Hispanics and Asians account for the majority of the remaining 6% of the population of the County. Females comprise approximately 51% of the County while males comprise the remaining 49%. The median age in Durham County is 32 years of age.

#### General Land Use & Economic Base

The land area of Durham County is 299 square miles. The economy is comprised mainly of industry, business, and some agriculture. There is over 30,000 acres of cropland. The Research Triangle Park is located in Durham County offering pharmaceutical, chemical, agricultural, technology, research and production facilities.

#### Geographic Area

Durham County is located in the North Piedmont region of the state. Durham County is contiguous with Person County to the North, Chatham County to the south, Wake and Granville Counties to the east, and Orange County to the west. There are several unincorporated communities within Durham County. Those communities are:

- Bahama
- Bethesda

- Rougemont
- Redwood
- Parkwood

The only incorporated municipality centered in Durham County is the City of Durham. This 2009 Plan Update covers the unincorporated areas of Durham County. As reported by the Durham County/County Planning Department the official population estimates for Durham County, which includes populations of the City of Durham and portions of Chapel Hill and Raleigh as of July, 2008 are as follows:

- Durham County – 262,720
- City of Durham - 222,672
- Unincorporated Areas – 40,048

From July 1, 2006 to July, 2008, the County of Durham experienced an increase in growth totaling 13,066 residents. At this time the City of Durham represents 85% of the total County of Durham's population, with the unincorporated areas representing 15% of the County's population.

Future projections of population values for this 2009 Plan Update are taken from the Projected Annual County Population Totals 2010-2019 listed by the North Carolina Office of State Budget and Management.

## **2. WASTE STREAM EVALUATION**

### **2.1. Introduction**

The purpose of this section is to present the quantities, characteristics, and projections of municipal solid waste streams that will require management in Durham County during the ten-year planning period.

In this plan, residential waste refers to waste generated by households (individual and multi-family dwellings). Commercial waste refers to waste generated by

business; institutions and multifamily dwellings that receive stationary container collection service and waste that is waste generated by industries and large contractors. The term non-residential refers to waste generated by industries and large contractors and brought to the landfill in roll-off containers. Construction and demolition waste is included in both commercial and industrial, but not measured separately.

The NCDWM requires an Annual Facility Report from each sanitary landfill that includes the tons of waste received by that facility by County of origin. During the FY 2007-2008 Durham County was credited with the disposal of 307,725 tons of waste in sanitary landfills within North Carolina. The majority of waste was received by the City of Durham's Transfer Station and disposed of at the Brunswick Landfill in Lawrenceville, Virginia. Additional tons were disposed in Coble's C&D Landfill, Granville County C&D Landfill, Red Rock Disposal, LLC, Upper Piedmont Regional Landfill, WI-Sampson County Disposal, Inc., D.H. Griffin Reclamation Center, PCM Construction Services Transfer Station-Apex Transfer Station, Stone Park Court Transfer Station and Waste Management of Raleigh-Durham Transfer Station. Table 2.1 lists the total tons of solid waste disposed of in Durham County during FYs 2004 to 2008.

<b>Table 2.1</b> <b>Durham County, North Carolina</b> <b>TOTAL TONS SOLID WASTE 2004-2008</b>		
<b>FISCAL YEAR</b>	<b>*LANDFILLED SOLID WASTE TONS</b>	<b>**CALCULATED SOLID WASTE TONS</b>
2004 – 2005	144,526 tons	308,097 tons
2005 – 2006	124,004 tons	292,729 tons
2006 – 2007	134,104 tons	310,443 tons
2007 – 2008	147,992 tons	307,725 tons
<b>*As reported by NC municipal solid waste landfills, construction demolition landfills, recycling facilities and transfer stations.</b>		
<b>**Calculated amount of waste disposed by county = [Municipal solid waste landfills + construction and demolition landfills + nonrecycled + exports + transferred out of county] – [ imports + waste received by transfer stations from other counties + non-recycled waste received from other counties]</b>		

The planning area estimates that 34% of the waste disposed is residential waste, 30% is commercial waste, and 36% is industrial waste. Since the last revision three years ago, there has not been major shift in the percentage breakdown from each sector of waste. The Commercial sector continues to do a better job over the last several years of reducing the amount of waste they generate through “re-use” methods and increasing their recycling efforts.

The City had a waste characterization study completed in 1990 for the waste that was received at the City’s Landfill. This waste characterization was reflective of the waste stream of Durham County, not just the City of Durham. Durham County’s waste composition was very similar to the State study and therefore the “Quick Waste Stream Analysis” for Durham County provided by North Carolina Division of Pollution Prevention and Environmental Assistance is thought to be a helpful tool to determine opportunities for waste recovery (see APPENDIX D).

### **3. LOCAL WASTE REDUCTION GOALS**

#### **3.1 Historical Waste Reduction Efforts**

The State waste reduction goals are measured in a specific uniform manner in order to make fair comparisons. The base year used for waste reduction measurements was FY 1991-92 unless the community requested and could justify an alternative base year. Those communities that began curbside recycling programs, collected yard waste separately, or had in place other waste reduction programs prior to FY 1991-92 could request an earlier base year. The City of Durham requested FY 1988-89 as the base year in order to recognize waste reduction efforts that began in 1988.

The primary measuring unit of disposal is the per capita disposal rate. The rate is in units of tons per person per year. During FY 1988-89, Durham County disposed of 224,196 tons of waste and had a population of 171,483. This



resulted in a baseline per capita disposal rate of 1.31tons/person/year. The County's original waste reduction goal was established to be 25% reduction by 2001 and 40% reduction by 2006. The City and County of Durham made a significant contribution toward the 25% goal in the early 1990's, but that progress was lost in the recent economic growth period.

Versions of the Ten Year Plan	Fiscal Year/Waste Reduction Goal- Short-Term	Fiscal Year/Waste Reduction Goal- Long-Term
1997 Original Plan	FY 2000-01 25%	FY 2005-06 40%
2000 Plan Update	FY 2005-06 5%	FY 2009-10 10%
2003 Plan Update	FY 2007-08 5%	FY 2012-13 10%
2006 Plan Update	FY 2010-11 10%	FY 2015-16 15%
2009 Plan Update	FY 2013-14 18%	FY 2018-19 18%

A good economy results in greater amounts of waste being disposed. Although the City and County provide an extensive community-recycling program, the tons recycled have not kept up with the growth in waste generated. NCGS 130A-309.09A (b) requires the Plan provide local governments flexibility in setting their own per-capita waste reduction goal.

### **3.2 Future Waste Reduction Goals**

In its FY 2007-08 NC Solid Waste Annual Report, the State again reports that its goal of 40 percent waste reduction will not be achieved. Few local governments have been able to establish source reduction programs and expand recycling programs that are sufficient to meet this goal. In the fall of 2008, the state announced a new goal of recycling 2 million tons per year by 2012. Durham County would need to attain a per capita recycling rate of 331 pounds per person by 2012 from a per capita recovery rate of 121 pounds per person from July 2007.

As detailed in the 2006 Update to the Plan, Durham County established local waste reduction goals of 10% to be reached by FY 2010-11 and 15% to be attained by FY 2015-16. As indicated in Table 3.2, the per capita disposal rate over the last four fiscal years has seen a consistent and steady per capita disposal rate averaging at 1.16 tons/year. The most significant drop in the rate occurred between FY 2004-05 and FY 2005-06. The rate dropped 7% from 1.21 tons per year down to 1.12 tons per year. Compared to the baseline year per capita disposal rate of 1.31 ton per year for FY 1988-89 the four year average per capita disposal rate is 11% less.

FISCAL YEAR	DURHAM COUNTY POPULATION	SOLID WASTE (TONS)	PER CAPITA RATE OF DISPOSAL (TONS/YEAR)
2004-2005	38,065	308,097 (46,215)	1.21
2005-2006	39,101	292,729 (43,909)	1.12
2006-2007	39,615	310,443 (46,567)	1.17
2007-2008	40,048	307,725 (46,159)	1.15

Several factors that have contributed to Durham County's reduction in solid waste tonnage are as follows:

- Roadside recycling and drop-off center recycling participation that is consistently above 50%.
- Mixed paper recycling collection at the roadside and drop-off centers.
- City of Durham residents can recycle at no cost at County Convenience Centers.
- Expanded recycling information on the County's web page.
- A reduction in waste disposal in Durham County based on the current economic downturn.
- Greater public awareness of solid waste and environmental sustainability issues in Durham County.

- Increased availability of recycling opportunities for residents and businesses.
- Expanded public education efforts at outdoor events and in the schools .

Upon careful consideration of the above items in conjunction with future waste reduction estimates, waste reduction goals have been updated using the method outlined by the NC Solid Waste Section. The new goals are as follows:

- FY 2013-14                    18%
- FY 2018-19                    18%

### 3.3 Targeted Waste Tonnage Reductions

By examining population estimates and past disposal figures, the waste reduction goals can be converted from percents to tons diverted from landfills. To achieve the goal of 15% per capita waste reduction in FY 2013-14, Durham County must reduce its per capita disposal rate from 1.31 tons/year (baseline year) to 1.07 tons/person/year. With this new per capita disposal rate, the County's future disposal tonnage will be 45,740 tons for FY 2013-14 with 10,260 tons to be reduced from the projected tonnage calculated at the baseline disposal rate and the estimated population.

<b>Table 3.3</b> <b>Durham County, North Carolina</b> <b>TARGETED WASTE REDUCTION – FY 2013-14 and FY 2018-19</b>		
Calculations	FY 2013-14	FY 2018-19
Baseline year per capita disposal rate (FY 1991-92 unless alternate approved by Section)	1.31	1.31
Percent waste reduction goal	18%	18%
Targeted per capita disposal rate (Subtract line 2 from 1.0 and multiply result by line 1)	1.07	1.07
Estimated population for FY 2013-14 and FY 2018-19.	42,748	45,964
Projected tonnage for disposal at baseline disposal rate (Multiply line 1 by line 4)	56,000	60,213
Targeted annual tonnage for disposal (Multiply line 3 by line 4)	45,740	49,181
Targeted annual tonnage to reduce (Subtract line 6 from line 5)	10,260	11,032

### 3.4. Meeting the Waste Reduction Goals

This 2009 Plan Update is designed to reduce Durham County's waste by 10,260 tons in FY 2013-14 and 11,032 tons in FY 2018-19. To do this, Durham County will target the three sectors of waste generated that are reflected in Table 5. In the unincorporated areas of the County the waste sector breakdown is 45% residential, 30% commercial, and 25% industrial. How this waste may be reduced is addressed below.

<b>WASTE TYPE</b>	<b>TARGETED TONS to REDUCE in FY 2013-14</b>	<b>TARGETED TONS to REDUCE in FY 2018-19</b>
Residential (45%)	<b>4,617</b>	<b>4,964</b>
Commercial (30%)	<b>3,078</b>	<b>3,310</b>
Industrial (25%)	<b>2,565</b>	<b>2,758</b>
<b>GOAL</b>	<b>10,260</b>	<b>11,032</b>

#### **Reduction Methods**

Using "Current Recovery" rate information for specific commodities from a North Carolina Department of Pollution Prevention and Environmental Assistance "Quick Waste Stream Analysis" (Appendix D), estimates for recycling opportunities can be developed. Reduction methods include source, recycling, reuse, composting, and special waste programs. Source reduction is defined as: any action that avoids creation of waste by reducing volume or toxicity of waste at the source, including redesigning of products or packaging to increase durability or reusability of materials recovered from the waste stream that can be converted into raw materials for the manufacture of new products. Reuse is defined as further or repeated use. Composting is defined as a method of biologically decomposing organic matter in an environment conducive to the growth of microorganisms under aerobic conditions. Special waste programs include such materials as tires, lead-acid batteries, and white goods.

## **Residential Waste**

This 2009 Plan Update targets 4,617 tons in FY 2012-13 and 4,964 tons in FY 2018-19 for reduction in the residential waste sector. Durham County currently contracts with TFC Recycling and is experiencing a nearly 50% participation rate in drop-off center recycling and roadside recycling. Waste reduction, recycling and backyard composting information will continue to be distributed annually along with the mailing of the County's Solid Waste Permit to all residents. This information will contain details about the current and pending disposal bans of fuel filters, pallets, oyster shells, rigid plastics, and televisions in addition to disposal alternatives for these items.

Since the 2005 yard waste fire at the City of Durham's Yard Waste Facility much of the County's yard waste has been commingled with the solid waste collected and disposed of in the County. This has resulted in higher tonnages of disposed solid waste on behalf of the County being reported. As of April 2009, the City received NC DENR permit approval to begin operating the yard waste facility and creating mulch and compost. According to City of Durham officials the facility may begin operating in 2010.

## **Commercial Waste**

The goal for reducing commercial waste is approximately 3,078 tons in FY 2012-13 and 3,310 tons in FY 2018-19. During the next ten years the County will develop a solid waste directory of solid waste haulers and recyclers that do business in the County. Each business will receive detailed information specifically about the need to reduce waste in the Durham County and any current or upcoming disposal bans.

Different sectors of the commercial population such as multi-family units, multi-tenant office buildings or complexes will be advised of the waste reduction goals

within the County and current and pending disposal bans. In addition each will be encouraged to establish recycling programs and request County-performed waste audits of their properties.

### **Industrial Waste**

It is estimated that industrial waste can be reduced by at least 2,565 tons in FY 2012-13 and 2,758 tons in FY 2018-19. As more and more companies strive to operate “Green” or in an environmentally sustainable manner the County in partnership with the Durham County Sustainability Manager will provide them with waste reduction and recycling information specifically details about the current and pending disposal bans of fuel filters, pallets, oyster shells, rigid plastics, and televisions in addition to disposal alternatives for these items and encourage them to establish a recycling program.

## **4. THE PLANNING PROCESS AND PUBLIC PARTICIPATION**

The Durham County Department of General Services with information provided by the Durham City/County Planning Department and the City of Durham Solid Waste Management Department updated the Durham County Solid Waste Management Plan. The updated plan was adopted by the Durham County Board of County Commissioners (BOCC) on June 8, 2009.

In order to obtain feedback regarding the 2009 Plan Update two community meetings were scheduled. The details were as follows:

- April 16, 2009-North Regional Library - 6:30 pm to 8:30 pm
- April 29, 2009-East Regional Library - 6:30 pm to 8:30 pm

The community meetings were advertised via the following media outlets:

- Durham Herald Sun at [www.heraldsun.com](http://www.heraldsun.com)

- Durham County Web Site at [www.durhamcountync.gov](http://www.durhamcountync.gov)
- Durham County Twitter Page at [www.twitter.com/durhamcounty/](http://www.twitter.com/durhamcounty/)

Copies of the plan were made available at the office of the Department of General Services and online at the County's web page specifically <http://recycle.durhamcountync.gov> for review by the public. Once all comments and feedback were reviewed and considered, a resolution approving the 2009 Plan Update needs to be adopted and included in (Appendix A) of the final plan that is submitted to the NCDWM. For public notification, the announcement of the public hearing was advertised in the Durham Herald Sun.

## **5. ASSESSMENT OF PROGRAMS AND SERVICES**

### **5.1. Introduction**

Each solid waste management method is described below as required by North Carolina General Statute 130A-309.09A(b). Each section includes a description of the current program and identifies potential changes.

### **5.2. Source Reduction/Waste Reduction**

The County intends to continue to develop policies and initiatives that will further reduce the toxicity of chemicals it uses and encourage deconstruction instead of demolition in redevelopment projects. Since the 2006 Plan Update, General Services has expanded the amount of waste reduction information available on the County's web page.

The County's source reduction program consists of the following offerings:

- Annual informational brochure sent to 13,494 households distributed with Solid Waste Permit mailing.
- An updated and comprehensive Solid Waste Handbook made available to the public at each of the convenience sites and some County offices.

- Expanded web page information about our waste reduction and recycling programs
- Junk Mail Terminator postcards- available upon request
- County of Durham Litter Control Office 560-0430.
- Household Hazardous Waste (HHW) (919)560-4186.
- In-school presentations upon request.
- Environmental Field Days.
- Vermi-composting in schools upon request.
  
- Provide presentations to clubs, conferences, businesses, associations upon request
- Participation in IBM Earth Day & Northgate Mall Community Day
- Participation in statewide “Recycle Guys” Campaign through DPPEA

**Intended Actions:**

- Continue successful current programs
- Coordinate waste reduction efforts with the City of Durham, Keep Durham Beautiful, Duke University, the Wright School
- Enforce the Durham County Solid Waste Management Ordinance
- Encourage compliance with the County Waste Reduction Policy
- Apply for grants in coordination with other local governments
- Coordinate with NCDENR, DPPEA, and the City of Durham to obtain data for source reduction

**5.3. Collection of Solid Waste**

Residential

The County does not collect residential solid waste at the roadside, instead it offers its residents solid waste and recycling convenience centers for solid waste



drop-off. County residents wanting roadside solid waste collection are free to contract with a solid waste collection vendor. Three vendors actively collect and transport waste in the unincorporated areas of the County (Appendix M).

General Services oversees the collection of solid waste at four residential convenience centers located in the Parkwood, Bahama, Rougemont, and Redwood communities within the County. The General Service's staffed centers operate from 7 a.m. to 7 p.m., Monday through Saturday and are closed on Sundays. All County residents pay a Solid Waste Permit Fee to use the centers. There are separate solid waste permit fee rates for City residents and Out-of-County residents (Appendix L).

The County supports the City's disposal ban of targeted recyclable items such as glass bottles and jars, newspapers, aluminum and steel cans, and corrugated cardboard. Residential solid waste is accepted at each center in (2) 40 cubic yard open-top containers and (1) 40 cubic yard receiver/compactor (APPENDIX H). The County contracts with Republic Services, Inc., formerly Allied Waste to collect and transport the solid waste material to the City's transfer station.

### Yard Waste

Residential yard waste is collected at three of the County's four convenience centers located in the Parkwood, Bahama, and Redwood communities. In FY 2007-08 894 tons of yard waste was collected from all of the centers.

Prior to the 2005 yard waste fire at the City of Durham's Yard Waste Facility, all yard waste collected at the County's centers was delivered to the facility and processed into mulch or compost. As of the completion of this 2009 Plan Update yard waste collected at the County's centers is collected separately from other solid waste but is commingled with solid waste at the City's transfer station prior to shipment to the Brunswick Landfill in Virginia.

### Corrugated Cardboard

TFC Recycling collects corrugated cardboard in special cardboard containers at all four of the County's convenience centers and at the roadside as part of the County's roadside recycling collection program. During FY 2007-08 General Services oversaw the collection of 506 tons of corrugated cardboard. The majority of the cardboard was collected as part of the roadside recycling collection program 328 tons while 178 tons of cardboard were collected from the convenience centers.

### Office Paper Collections

General Services provides the collection of office recyclables from all Durham County government buildings and facilities including Durham Technical Community College. In addition, recycling collection service takes place at State offices such as the Division of Motor Vehicles and the Department of Transportation. Recyclable materials collected at the buildings include office papers, shredded paper, magazines, cardboard and empty beverage containers. All recyclable materials collected as part of the recycling program are recycled at local recycling processors. During FY 2007-08 75 tons of office paper was recycled as part of the County's government building recycling program.

### Specialty Waste

Materials that fall under the category of specialty wastes include lead-acid batteries, used motor oil and filters, antifreeze, tires and household hazardous waste (HHW). The County continues to provide disposal services for lead-acid batteries, used motor oil, and used antifreeze. In addition, the County began collection and disposal of used oil filters in anticipation of the State's upcoming disposal ban on the item. Residents having materials such as HHW and used

tires that the County does not accept for disposal are directed to the City for disposal services by County provided information or Solid Waste Attendant.

### Miscellaneous Collections

White goods are collected and delivered to the City Transfer Station. During FY 1998-1999, a state-funded grant allowed the county to install a Swap Shop at the Redwood convenience center. The swapping of good, used, and unwanted items eliminates the material from entering the County's waste stream.

Intended Actions:

- Consider adopting a policy limiting the number of visits Solid Waste Permit holders may make to the convenience sites
- Consider adopting a policy limiting the number of bulky items Solid Waste Permit holders may dispose of during a week at the convenience sites
- Consider adopting a policy to require garbage haulers within the County to provide recycling collection

## 5.4. Recycling and Reuse

### Recycling

#### Roadside Recycling Collection and Convenience Site Drop Off Services

Durham County contracts with TFC Recycling Services to provide bi-weekly roadside recycling collection services to residents (APPENDIX G) and convenience center drop-off collection services at the County's four centers.

As a way of accommodating the needs of the elderly or physically challenged residents TFC Recycling continues to provide Exempt service to citizens who are at least 65 years of age or who are physically unable to bring recycling materials

to the roadside. This “Front Porch” Pickup service was initiated during FY 1999-00.

Durham County has been working since 1989 to maintain a successful comprehensive recycling program. Under the management of General Services during FY 2007-08 2,008 tons of recyclable materials were kept out of the landfill. Table 5.4 details the breakdown of recycling tonnages for FY 2007-08.

As of FY 2007-08, the County recycled approximately 22% of its residential waste based on FY 2007-08 figures (9,294 tons of solid waste divided by 2,008 tons recycled) of the total tons of residential waste from the convenience centers. Seven materials are collected: newspaper, cardboard, aluminum cans, steel cans, clear, brown, and green glass, plastic milk and soda bottles, and white office paper. The Site Attendants inform residents of proper sorting and material preparation, and are available to answer questions. Copies of the County’s Solid Waste Handbook with recyclable material listings, phone numbers, and other information are available at each site.

Revenue from the sale of recyclable materials collected at the roadside and collection centers under the contractual agreement belong to TFC Recycling.

<b>Table</b> <b>Durham County, North Carolina</b> <b>TOTAL TONS RECYCLED –DURHAM COUNTY GOVERNMENT</b> <b>FY 2007-08</b>	
<b>PROGRAM</b>	<b>TONS</b>
TFC Recycling (Roadside Collection)	1,296.52
TFC Recycling (Convenience Center Collection)	710.41
Corrugated Cardboard (Drop-off & Roadside)	505.86
White Goods (Appliances)	NA
Office Paper Recycled	74.90
<b>TOTAL</b>	<b>2,587.69</b>

Small businesses may also use the collection centers to drop off recyclable material. Large companies and industries are encouraged to contract out for recycling services.

### Office Paper Recycling

As reported above 75 tons of office paper was recycled during FY 2007-08. In addition, Durham County contracts with a local vendor for the collection and shredding of confidential records and paper.

### Specialty Recycling

Collect waste pesticide containers from the framing and agricultural community for recycling. The Pesticide Container Recycling Program is funded by grants from NC-Dept. of Agriculture and began implementation during FY 1999-00. In addition, surplus waste paint is donated to Habitat for Humanity.

A HHW material that the County does accept are empty plastic pesticide containers from the farming and commercial applicators for recycling. The Pesticide Container Recycling Program was funded by a grant from the NC Dept. of Agriculture and began implementation during FY 1999-2000. An additional grant was awarded during FY 2001-02 to establish an additional collection site

### **Intended Actions:**

- Continue successful current programs
- Meet public demand for reuse information
- Prepare English and Spanish reuse information for annual mailings

### **Reuse**

#### Swap Shop

During FY 1998-99 a state-funded grant allowed the County to install a Swap Shop at the Redwood convenience center. The swapping of good, used and unwanted items eliminates the material from entering the County's waste stream. In addition, the County has for several years continued to fill a large area for the

expansion of parking at the stadium parking and increases the usability of the stadium facility for special events. Materials currently being used are brick, demolition, and road asphalt, broken concrete and concrete block.

#### Used Clothing Drop-Off Bins

##### **Intended Actions:**

- Continue successful current programs
- Meet public demand for reuse information
- Prepare English and Spanish reuse information for annual mailings

#### 5.5. Composting and Mulching

##### **Composting**

#### Yard Waste:

Since the last update to this plan, yard waste is no longer processed at the City of Durham's Yard Waste Facility to a compost fire and subsequent inability to meet NCDWM requirements for operation. As a result all yard waste that is collected in the City and at County convenience sites is disposed of at the City's transfer station with all other solid waste and ultimately shipped to a landfill located in Lawrenceville, Virginia. As of April 1, 2009, the City received approval from NCDWM to reopen and operate its yard waste facility. In the coming months, the City will solicit bids for a composting and mulch contractor to operate the facility prior to scheduling its reopening.

##### **Intended Actions:**

- Continue successful current programs
- Meet public demand for reuse information

- Prepare English and Spanish reuse information for annual mailings
- Investigate “environmentally friendly” options for the disposal of the County’s yard waste collected at the convenience sites
- Continue to encourage grass cycling and backyard composting as ways to divert yard waste from landfills
- Continue to work with the County’s Cooperative Extension Section to educate citizens and businesses within the County about composting as a means of reducing waste

## **Mulching**

### Yard Waste

This material is accepted at three of the four Durham County Solid Waste & Recycling Convenience centers located in the Parkwood, Bahama, and Redwood communities. During FY 2007-08, 894 tons of yard waste was collected and transported to the City’s transfer station for disposal with solid waste.

### **Intended Actions:**

- Continue successful current programs
- Meet public demand for reuse information
- Prepare English and Spanish reuse information for annual mailings
- Investigate “environmentally friendly” options for the disposal of the County’s yard waste collected at the convenience sites
- Continue to encourage grass cycling and backyard composting as ways to divert yard waste from landfills
- Continue to work with the County’s Cooperative Extension Section to educate citizens and businesses within the County about composting and mulching as a means of reducing waste

## **5.6. Incineration with and without Energy Recovery**

Incineration with or without energy recovery is not a viable option for disposal due to the high costs of implementation and air quality concerns. It is not part of the County's current solid waste management program. The City of Durham handles the disposal of Durham County's solid waste via their transfer station.

## **5.7. Transfer of Solid Waste Outside Geographic Area**

The City of Durham manages a transfer station that receives the majority of solid waste collected at the County's four solid waste and recycling convenience centers. This waste material is then transferred or trucked to the Brunswick Waste Management Facility in Lawrenceville, Virginia for landfill disposal. The Brunswick Landfill is an approved Subtitle D sanitary landfill located ninety miles from the City of Durham and is owned by Republic Services, Inc. formerly Allied Waste, Inc. During FY 2007-08, 182,106 tons of solid waste was received at the Brunswick Landfill from Durham's transfer station. The 182,106 tons are approximately 59% of the waste produced in the County and reported to the NCDWM. The City's transfer station is expected to continue to receive the majority of the County's solid waste unless contractual changes on behalf of the City or County warrant it.

- None at this time.
- The City of Durham intends to continue the current contract with Allied Waste subsidiaries for transfer and disposal services. Plans are currently being made to upgrade the City Transfer Station to allow for expected growth during the next ten years. The customer convenience center (Phase I) of the transfer station improvements were completed in August 2001.



## 5.8. Disposal of Solid Waste

The Durham County landfill closed on December 1984. The facility has been converted to the Durham County Sheriff's Office obstacle course and firing range. Private contractors collect and haul residential waste generated in Durham County to the Durham City Transfer Station on East Club Boulevard. Under a contract with Republic Services, Inc. formerly Allied Waste, all convenience center waste is transported to the City of Durham's transfer station.

### Land Clearing and Inert Debris (LCID)

LCID waste generated in Durham County, in the past, would have typically been taken to the City LCID Landfill (Permit #32B) located at 1833 Camden Avenue. However, the site was closed to businesses and local governments on January 31, 2006. The City is working with two engineering teams to permanently close the site per NCDENR regulations. As of May, 2009 the City of Durham's LCID site is in the final NCDENR approval process to be closed. The point of contact with the City is Josephine Valencia (919)560-4186. Other facilities are available. The following LCID contacts have been established:

- Currin Landfill (Permit #32D) at Coley Road, Durham NC contact: Allan or Glenn Currin (919) 876-1138
- B & B Topsoil (Permit #3205-Y) at 1800 Hamlin Road, Durham NC contact: Michelle Hunt (919)477-6328
- Waste Industries, Inc. (Permit #32J) at 148 Stone Park Court, Durham NC contact: Tarry Gautney at (919) 596-1363

### Construction and Demolition (C&D)

C&D waste generated in Durham County will typically be handled at the City Waste Disposal and Recycling Center (Permit #3204-Y) at 2115 East Club Blvd.

The point of contact is Josephine Valencia (919)560-4186. However, if extraordinary circumstances dictate a need to utilize other facilities, the following contacts have been established:

- Granville County & C&D Landfill (Permit #3902) at 6584 Landfill Road, Oxford NC contact: Jason Falls (919) 603-1354
- Republic Services, Inc., formerly Allied Waste C&D Landfill (Permit #9214) at State Road 1153, Holly Springs NC contact: Don Plessinger (919) 557-0519
- Material Reclamation, LLC (Permit #9224) at 421 Raleigh View Road, Raleigh NC contact: Chris Roof (919) 835-3655 ext. 121

#### **Intended Actions**

- Durham County's plan is to continue handling the disposal and transfer aspects of the solid waste program in the current manner. Construction and demolition waste will continue to be managed at the City and other state permitted construction and demolition landfills.

### **5.9. Community and School Education**

#### **Community Education**

The Department of General Services conducts an annual mailing of solid waste information with the distribution of solid waste permits. The level of participation of residential curbside recycling participation has decreased during the past three years. Each time a recycling bin is delivered, staff takes the opportunity to answer any questions from citizens. Additionally, recycling promotional information is included in the bin upon delivery. The Waste Reduction Manager appeared on the Durham County TV show in April of 2005 to encourage citizens to recycle and not litter the environment.

Intended Actions:

- Continue successful current programs.

### **School Education**

The Durham Public Schools (DPS) System currently has an on-going recycling program in all 43 schools. The DPS has a Recycling Coordinator who is responsible for managing the on-site recycling efforts at each school. Each school has an on-site recycling coordinator to ensure compliance with DPS countywide efforts. They are currently recycling paper, aluminum and steel cans, brown and clear glass, magazines, newspapers, and all cardboard. TFC recovers and recycles the materials. All cardboard materials are recovered by the City of Durham at no cost to the DPS and recycled. The DPS currently spends approximately **\$30,000** annually in support of the overall recycling effort.

#### **Intended Actions:**

- Continue successful current programs
- The DPS has set an overall aggressive goal for the reduction of solid waste from the waste stream. These efforts include reducing by 65% the total amount of trash generated, encouraging all schools to avoid where possible the use of Styrofoam materials and to recycle 100% of all cardboard materials. (Source: John Langsdorf, DPS at 919-560-3827, March 1, 2009).

## **5.11. Special Waste Management**

### **Tires**

Tires are collected only at the City Waste Disposal and Recycling Center. The City has a contract with Central Carolina Tire to leave empty trailers at the facility, to provide an employee to assure that the tires are loaded in an efficient manner, and to haul the full trailers to their processing facility. Portions of the tires are recycled and the rest are disposed in a tire mono-fill.

Money from the statewide tire tax pays for the tire-recycling program. The County has a contract with the City of Durham to provide this service.

**Intended Actions:**

- Continue successful current programs
- Continue instructing county residents to take tires to the City Waste Disposal and Recycling Center for disposal. Continue contracting with the City for management and disposal. Include educational information in solid waste brochures to be distributed at all convenience centers and county buildings.

**White Goods**

White Goods are collected at County convenience centers and transported to the City Waste Disposal and Recycling Center. Old appliances (white goods) have been separated from the rest of the waste stream and recycled for many years. Motors and capacitors are removed from all appliances and CFC gases ozone depleting gases such as Freon are recaptured by City technicians from refrigerators and air conditioners. The white goods are taken to Atlantic Scrap and Processing for processing into scrap metal. Money from the statewide white goods tax pays for the white goods recycling program. The County has a contract with the City of Durham to provide this service.

**Intended Actions:**

- Continue successful current programs
- Continue instructing county residents to take tires to the City Waste Disposal and Recycling Center for disposal. Continue contracting with the City for management and disposal. Include educational information in solid waste brochures to be distributed at all convenience centers and county buildings.

## **Lead-Acid Batteries**

Durham County began a battery-recycling program on January 1, 1996. Lead-acid batteries are collected at all county convenience centers. Batteries are then transported to a battery-recycling center on a weekly basis or as needed for disposal. Informational brochures on battery recycling are distributed at the convenience centers.

### **Intended Actions:**

- Continue successful current programs
- Battery collection locations will remain the same.

## **Used Motor Oil and Filters and Antifreeze**

Durham County began a waste oil collection and recycling program on January 1, 1996. Waste oil and antifreeze is collected at all convenience centers and picked up by a waste oil recycler. Collection of waste oil and antifreeze is provided at no additional cost to all county residents. During FY 2007-08, the County began working with a new used oil and antifreeze collection vendor that also collected used oil filters.

### **Intended Actions:**

- Continue successful current programs
- Educate and inform the public regarding the disposal ban on used oil filters that begins on October 1, 2009
- Continue providing educational information in annual solid waste brochures to be distributed at all convenience centers and county buildings.

## **Household Hazardous Waste (HHW)**

Since the last update to the Plan the contractual agreement with the City of Durham, Durham County, other regional counties in the Triangle area and the Triangle J Council of Governments to administer a regional effort for the disposal of HHW in Durham County ended. The County does not have the financial resources to establish a permanent facility for the management and proper disposal of HHW. A regional program is the most cost-effective method for disposing of HHW for the county. HHW is collected at 1900 East Club Boulevard on the Tuesdays and Wednesdays from 12 pm to 6 pm, Thursdays and Fridays from 9:30 am to 3:00 pm, and Saturdays 7:30 am to 3:00 pm.

**Intended Actions:**

- Continue successful current programs

**5.11. Prevention of Illegal Disposal and Management of Litter**

Illegal disposal and dumping are a concern to the community. There is a cost associated with the proper disposal of waste. Therefore, there exists an incentive to illegally dispose of waste for those individuals who seek to increase their profit margin. Durham County's Waste Reduction Specialist and Litter Control Investigator are directly responsible for the enforcement of the Solid Waste Ordinance and the Abandoned/Junked Motor Vehicle Ordinance. In FY 2007-08, the Solid Waste Division investigated approximately 100 illegal dump site cases and 70 abandoned/junked motor vehicle cases. All 170 cases were disposed of through the administrative process. The District Attorney's office does have an Environmental Court in place for any cases that are unable to be disposed of through the administrative process. All health related violations are referred to the Durham County Health Department for investigation.

During FY2007-08 General Services' staff covered approximately 9 miles per month to well-known dumping areas and County roads to clean up litter. Community Service Workers and Juvenile Offenders assigned by the North

Carolina Court System are used to clean up litter especially along dirty stretches of County roadways.

During FY 2005-06 Durham County partnered with the City of Durham to form a Keep Durham Beautiful (KDB) organization. KDB strives to conserve and enhance the appearance and environment of Durham through cleanup events, beautification projects, and educational activities. Opportunities include neighborhood volunteer litter cleanups, community plantings, and educational activities in schools and civic organizations.

**Intended Actions:**

- Continue successful current programs
- Enforce the amended County Solid Waste Management Plan for the enforcement of illegal dumping.
- Provide Customer Service Training to site attendants. Include educational information in solid waste handbooks to be distributed at all convenience centers and county buildings.

**5.12. Purchasing Recycled Products**

The County of Durham encourages the reuse of products within the County that would otherwise be surplus. In addition, the County buys the following recycled products:

- Ruled pads
- Notebooks
- Message pads
- Notepads
- Binders
- Calendars
- Bathroom tissue
- Paper towels
- Remanufactured laser toner cartridges

- Solid Waste or curbside recycling containers
- Park benches
- Parking lot bumper blocks

### **Intended Actions**

- Continue successful current programs
- The County intends to continue to explore purchasing recycled products that can be used within County Government. Expanding the list of materials purchased helps improve markets. Market improvement is always beneficial to recycling programs and they're cost effectiveness.
- Encourage compliance with the County Waste Reduction Policy

### **5.13. Disaster Response**

The City and County of Durham have a joint Emergency Operations Plan that addresses debris removal and disposal during an emergency or disaster. City and County Solid Waste staff is on twenty-four hours stand-by for debris removal and disposal. Tipping fees for the appropriate waste are waived during the response/recovery phases of the emergency or disaster. In addition, City Solid Waste forces are prepared to receive contaminated petroleum soil and clay from city or county property at the City Landfill and maintain the soil for remediation.

The following sites have been identified as emergency staging areas and will be coordinated with Jeff Batten, Durham City/County Emergency Management Director 919-560-0660, pager 919-506-6460, cellular 919-632-1597 for the processing and management of disaster-related waste:

- The "Landfill Borrow Area" within the closed municipal landfill at 1833 Camden Avenue, Durham NC contact: Josephine Valencia 919-560-4186
- Hansen Aggregate at 1423 Bacon Road, Durham NC contact: Thomas Smith 919-479-0500



- Army Corp of Engineers at Falls Lake Dam, Raleigh NC contact: Thomas Freeman 919-846-9332

The availability of these sites is contingent on any current projects that may have begun between the time of identification and term of disaster needed.

In the case of a disaster, General Services will utilize a private contractor for tub-grinding services related to brush, clearing debris and clean construction waste. All vegetative debris will be shredded into chips which are valuable as a fuel source and as a landscape cover. The Department has identified the following contractor as a likely resource for these services:

- Charles Blythe Equipment Co. Box 69, Trenton NC Contact: Terry Blythe 800-635-0907

## **6. SOLID WASTE COSTS AND FINANCING METHODS**

### **6.1. Introduction**

The purpose of this Section is to provide information on the costs associated with the collection, processing, and disposal of waste managed by Durham County's General Services. As prescribed by North Carolina General Statutes 130A-309.09A (b)(7), a description and assessment of the full cost of solid waste management, including the costs of collection, disposal, waste reduction, and other programs and methods of financing are presented.

### **6.2. Description of Program Costs**

The integral components of the County's solid waste program are the four Solid Waste and Recycling Convenience Centers, the roadside recycling collection program, the government office recycling program, solid waste ordinance and litter control enforcement, roadside litter (trash) removal, and management of the solid waste container rental program for all County facilities. Contract costs

associated with performing solid waste collection and disposal, yard waste collection and disposal, and recycling collection and processing for the period FY 2004-05 to FY 2007-08 are shown below in Table 6.1.

FISCAL YEAR	SOLID WASTE COLLECTION	SOLID WASTE DISPOSAL	RECYCLING COLLECTION	YARD WASTE COLLECTION & OTHER PROGRAMS	TOTAL PROGRAM COSTS
2004-2005	\$159,466	\$319,296	\$342,698	\$24,336	\$845,796
2005-2006	\$188,230	\$340,786	\$361,653	\$26,500	\$917,169
2006-2007	\$198,981	\$351,911	\$372,822	\$23,830	\$947,544
2007-2008	\$227,733	\$309,652	\$387,548	\$21,476	\$946,409

*#Residents may contract individually with private solid waste collectors for roadside trash collection.  
\*Other programs include white goods processing.*

	Collection#	Disposal#	Reduction, Reuse & Recycling	Mulching, Composting & Other Programs*	Total Program Costs
Durham County	\$227,733	\$309,652	\$387,548	\$21,476	\$946,409

*#Residents may contract individually with private solid waste collectors for roadside trash collection.  
\*Other programs include white goods processing.*

The total budget for the County's Division of Solid Waste for FY 2007-08 was \$1,855,769. As shown in Table 6.2 the fiscal year cost to the County for the collection of solid waste at the four convenience centers was \$227,733. This includes the residential convenience centers, dumpster's pickup for County facilities, hauling cost, roadside litter pickup, litter control, and miscellaneous support. The FY 2007-08 costs for waste reduction were \$387,548. These costs include the roadside recycling contract with TFC Recycling, HHW services, and three 30 cubic yard roll-off boxes for the collection of cardboard at the convenience centers, office paper recycling, litter control education, and

miscellaneous support. The FY 2007-08 costs for disposal were \$309,652. These costs include the cost for disposal (tipping fees) at the City of Durham's Waste Disposal and Recycling Facility.

### **6.3. Financing Methods**

The solid waste services/programs managed by Durham County are funded through the County's General Fund, the payment of solid waste permit fees, revenue generated from the sale of items such as household recyclables, lead-acid batteries, used motor oil, and used oil filters. The tire program is paid for through the tire tax levied by the state. The white goods tax distribution fully supports the white goods and metals recycling program.

#### **Description of Finance Methods**

##### **Durham County General Fund**

For FY 2007-08, the BOCC approved a budget of \$3,413,785 for the Environmental Protection Functional Area which the Solid Waste Division for Durham County falls under. Of that amount \$1,855,769 or 54% of the Environmental Protection's budget was approved for the Solid Waste Division's budget for that fiscal year. The Environmental Protection Functional Area received 1% of the County's overall approved general fund budget of \$641,243,022 for FY 2007-08.

##### **Solid Waste Management Permit Fee**

The County's current fees consist of only the Solid Waste Permit fees, which are \$90.00 per household for the unincorporated areas of the County. As the demand for solid waste services in the County grow based on population growth additional financing methods will be necessary to maintain and expand the current level of solid waste services.

All Durham County residents living in the unincorporated areas of Durham County are currently charged a \$90.00 fee for FY 2008-09 for the use of County convenience centers. Even though some residents contract with private haulers for roadside garbage collection, services such as recycling collection, disposal of yard waste, appliance disposal, bulky items, waste oil/antifreeze and batteries are not provided by contracted haulers. The \$90.00 household fee contributes approximately 95% of the total revenue that supports the solid waste program.

### **Sales of Recyclables**

The Solid Waste Division receives revenue from three sources of its operations. Revenue is generated from the sale of office papers collected from government offices, the sale of lead-acid batteries and used motor oil and oil filters collected at the convenience centers. All revenue generated from the sale of the recyclables collected as part of the County's roadside recycling program and convenience center recycling drop off program are kept by TFC Recycling.

### **Grants**

The County did not apply for any solid waste or recycling related grants during FY 2004-05. During FY 2005-06, General Services' focus was on finalizing the requirements for the plastic pesticide container recycling grant awarded in FY 2002-03. General Services applied to DEPPA for a Swap Shop grant to be implemented in FY 2006-07.

In FY 2007-08, General Services applied for and was awarded the 2007 Coca-Cola Recycling Bin Grant. Ultimately the recycling bins will support a beverage container recycling collection program within the Durham Public School System.

### **Tax Reimbursements**

Durham County has been tremendously affected by the lack of state tax reimbursements in recent history. A number of very successful and citizen friendly programs such as the Neighborhood Community Clean-Up Program and the Electronic Recycling Program (example: computers) have been put on hold until the state budget woes improve.

### **Franchise Fees**

Currently the County does not have any franchise agreements in place that impact its solid waste management programs. Franchise agreements with private industry solid waste haulers are considered an additional source of funding for covering the expenses associated with solid waste management. In the past, the County has discussed adopting a franchise fee to finance a diversion credit program for private haulers. Although haulers would have to pay an upfront annual cost to the county, they could receive some of that money back in the form of diversion credits if they implemented a collection recycling program.

## **7. PLAN IMPLEMENTATION**

### **7.1. Introduction**

This Section presents the plan of action for solid waste system components, which will supplement existing solid waste programs and best serve the future solid waste management needs of the citizens of Durham County. The integration of these system components will enhance the capabilities of the local governments of the County to develop environmentally sound and economical solid waste management systems which meet local waste reduction, recycling, and composting goals, and which utilize, for those wastes which cannot be recovered, public or private landfills that meet all regulatory requirements. These planning actions have been summarized on the planning elements sheets as required by the state and included as Appendix F.

## **7.2. Recommended Actions**

### **7.2.1 Reduction**

- Durham County will continue producing and distributing informational literature encouraging waste reduction, including the Durham County Solid Waste Management Handbook and the annual roadside recycling guide and schedule.
- Work with the County's Environmental Sustainability Manager on developing County policies and procedures encouraging deconstruction, especially on redevelopment projects.
- Continue to encourage Durham County Government, business and other institutions to use chemicals with reduced human health and environmental toxicity impacts.

### **7.2.2. Collection**

- Consider developing and instituting a policy requiring garbage collectors to provide recycling collection, with minimum standards, and yard waste collection as part of their operations in Durham County.
- General Services will evaluate bulk item collection to determine if a scheduled collection procedure would be more efficient and cost effective than a regular collection route.

### **7.2.3. Recycling and Reuse**

- Develop a public education program for landfill bans on rigid plastic bottles, wooden pallets, used oil filters, computer equipment and televisions that becomes effective October, 2009.
- Develop a public education program for landfill bans on computer equipment and televisions that becomes effective January 1, 2011.
- Work with local recycling centers and processors in an effort to ensure that all rigid plastic bottles will be accepted for recycling and not considered contamination.
- Continue and expand work with schools to promote and institute administrative and classroom recycling.
- Continue to work with private companies and local recycling centers to develop drop-off centers for residential recycling throughout the County.

### **7.2.4. Composting and Mulching**

- Promote current educational programs on backyard composting and vermicomposting through County and municipal websites.
- List on the County's web page the locations of private facilities where compost and mulch are available to the public in order to encourage the demand for recycled material.
- Consider developing and instituting a policy requiring solid waste haulers and collectors to provide yard waste collection as part of their operations in

Durham County as long as the collected material is processed into mulch or compost.

- Consider hosting a County Christmas tree recycling program where the trees are shredded and the resulting mulch is used by the citizens of Durham County.

#### **7.2.5. Incineration Element**

- Re-evaluate incineration as a means of disposal during FY 2011-12 or sooner if a change in technology occurs.

#### **7.2.6. Transfer Outside Geographical Area**

- The City of Durham's transfer station and the Waste Industries transfer station will continue operations. The County will continue to monitor any changes regarding service, tipping fees or restrictions associated with the transfer stations and alert users within the County.

#### **7.2.7. Disposal**

- The County will continue to operate its four solid waste and recycling convenience centers within the County and enforce the current and upcoming disposal bans through education of alternative forms of disposal.

#### **7.2.8. Education**

- Develop a comprehensive public awareness program for the upcoming landfill bans on rigid plastic bottles, used oil filters, wooden pallets, computer equipment and televisions.
- Continue to provide a County-sponsored recycling presentation for elementary schools throughout the County.



- Continue to provide educational programs on backyard composting and other environmental issues through the Durham County Cooperative Extension.
- Seek grant funding to expand existing education programs.
- Increase public awareness of businesses and service providers that incorporate “green” procedures and policies into their operations through the use of a recognition program using the County’s “Measure Up” campaign, media and web site outlets.
- Work with civic organizations to provide recycling education to their membership and integrate recycling education into their public events when possible and appropriate.

#### **7.2.9. Special Waste**

- Continue to collect the items considered special wastes such as lead acid batteries, used motor oil and antifreeze, used oil/fuel filters, and used liquid cooking oil.
- Continue to direct users wanting to dispose of used tires, household hazardous wastes, fluorescent bulbs, computers and other electronics to the City of Durham’s HHW Facility located at 1900 East Club Boulevard
- Continue to support the Durham County Cooperative Extensions Pesticide Disposal Collection Day where farmers, homeowners, and customers of pesticide dealers may dispose of their pesticides properly and safely.

#### **7.2.10. Illegal Disposal/Litter**

- Work with small towns to use surveillance program at identified illegal dumping sites.
- Expand county solid waste website to include a page devoted to illegal dumping, solid waste enforcement and anti-litter education.
- Support, promote and expand NCDOT's Adopt-a-Highway program in Durham County.
- Promote the NCDOT Swat-a-Litterbug program through community outreach efforts and on local and municipal government websites.
- Continue to work with KDB to promote anti-litter education and outreach.

#### **7.2.11. Purchasing Recycled Products**

- Continue to work with DPPEA to develop a training program about recycled products and related economic and environmental issues.
- Continue to expand the opportunity for the County to purchase recycled products.
- Work with the BOCC to encourage the adoption of Purchasing Recycled Products policies.

#### **7.2.12. Disaster Response**

- The County will work with NCDENR staff to identify, evaluate and approve disaster debris storage sites for future use.

- County solid waste staff will continue to work with and update County Emergency Management and Public Health staff concerning disaster response planning as it relates to solid waste.

#### **7.2.13. Abatement of Abandoned Mobile Homes**

- General Services will continue to evaluate the issue of abandoned mobile homes in Durham County and develop a plan for the abatement of abandoned mobile homes in Durham County, based on the results of this evaluation and in conformance with state statutory requirements.

### **7.3. Implementation Schedule**

The Implementation Schedule presented below provides a three-year chronological listing of the key solid waste system components recommended to be adopted as the BOCC as part of this 2009 Plan Update.

**Durham County, North Carolina**  
**IMPLEMENTATION SCHEDULE**

Fiscal Year	Action
2009-2010	<ol style="list-style-type: none"> <li>1. Durham County will develop and implement a public education plan for supporting the disposal bans on rigid plastic bottles, used oil filters, pallets, computer equipment and televisions.</li> <li>2. Durham County will work with local service providers and recycling centers in an effort to ensure that all rigid plastic bottles will be accepted for recycling and not considered as contamination.</li> <li>3. Durham County will implement the state disposal ban on rigid plastic bottles, used oil filters and wooden pallets, which is effective 10/01/09 at each of its four solid waste and recycling convenience centers.</li> <li>4. Durham County will begin the development of an education campaign for contractors and builders to encourage deconstruction, especially redevelopment projects.</li> <li>5. Durham County will work with the City of Durham to establish a City/County-Task Force on solid waste management issues.</li> <li>6. Durham County will continue to partner with the retail, television and radio media, and entertainment sector in an effort to encourage waste reduction and recycling.</li> <li>7. Durham County will work with the NCDENR to identify, evaluate and approve temporary storage sites for disaster debris.</li> <li>8. Durham County will evaluate the issue of abandoned mobile homes as it pertains to HB 1134 and develop an abatement plan that is consistent with state requirements.</li> <li>9. Durham County will expand its solid waste website to include information about illegal dumping, NCDOT's Swat-a-Litterbug program, local composting facilities and their products and the cooperative extension's educational opportunities as it pertains to composting.</li> </ol>

**Durham County, North Carolina**  
**IMPLEMENTATION SCHEDULE**

Fiscal Year	Action
2010-2011	<ul style="list-style-type: none"> <li>4. Durham County will work to implement the state disposal ban on computer equipment and televisions.</li> <li>5. Durham County will work to develop a policy to reduce the toxicity of chemicals used by government agencies and facilities.</li> <li>6. Durham County will expand public awareness of local business and service providers that incorporate green procedures and policies into their operations through a recognition program.</li> </ul>
2011-2012	<ul style="list-style-type: none"> <li>4. Durham County will work to encourage the adoption of an environmentally preferable purchasing policy.</li> <li>5. Durham County will develop and enact a policy requiring county-licensed garbage collectors to provide recycling collection as part of their license to operate.</li> <li>6. Update Solid Waste Management Plan.</li> </ul>