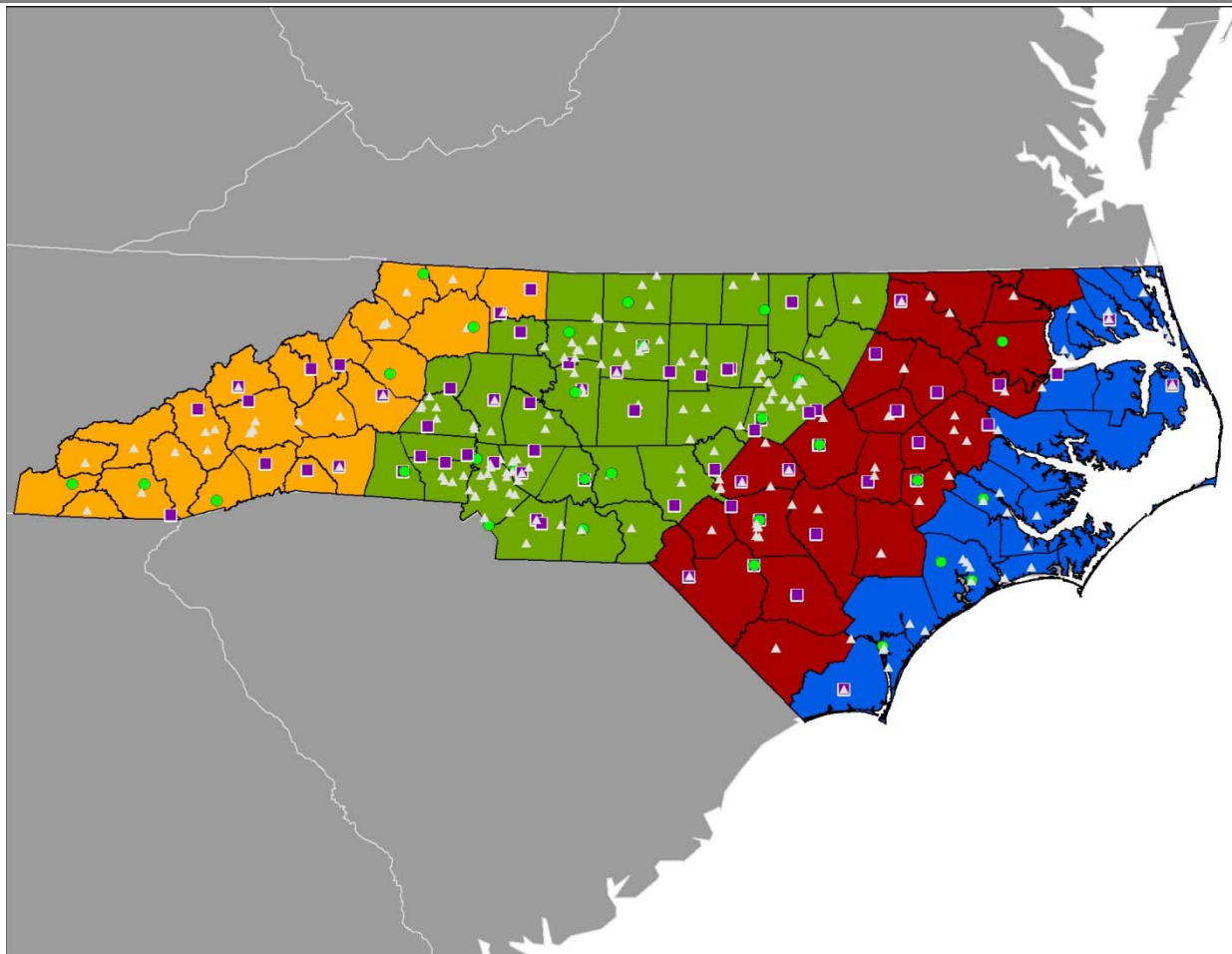


# North Carolina Solid Waste Management Annual Report

# FY 2008- 2009



A comprehensive report outlining the state's effort regarding solid waste management, recycling and the status of waste management facilities with additional report contributions from the state departments of Administration and Transportation.



**NORTH CAROLINA SOLID WASTE MANAGEMENT**  
**ANNUAL REPORT FY 2008-2009**

State of North Carolina  
Beverly Eaves Perdue, Governor

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N.C. Division of Waste Management – Dexter Matthews, Director  
N.C. Division of Pollution Prevention and Environmental Assistance – Gary Hunt, Director

**N.C. Department of Administration – Britt Cobb, Secretary**  
**N.C. Department of Transportation – Eugene Conti, Secretary**

**ACKNOWLEDGMENTS**

The North Carolina Department of Environment and Natural Resources' (NCDENR) Divisions of Waste Management (DWM) and Pollution Prevention and Environmental Assistance (DPPEA) would like to thank the county managers, solid waste directors and recycling coordinators who provided much of this information.

DPPEA would also like to thank the North Carolina state agencies that diligently submit their reports to their office each year. Their hard work and dedication is much appreciated.

Special thanks to the following staff of DENR, the Department of Administration (DOA) and the Department of Transportation (DOT) for providing data and information for this annual report.

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*On the Cover:* N.C. Municipal Solid Waste (●), Construction & Demolition (■), Landfills and Other Solid Waste facilities (△) in relation to the four regions of North Carolina. Map created by Darren M. Johnson, NCSU student and Environmental Technician.

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N.C. Solid Waste Management Annual Report Fiscal Year 2008-2009

# Chapter 1

Solid Waste Management

North Carolina Department of Environment and Natural Resources, Division of  
Waste Management

## CHAPTER 1 – Solid Waste Management

This consolidated annual report is required by the North Carolina General Assembly.<sup>1</sup> The information presented is from annual reporting from 655 local governments (100 county and 555 municipal), 371 (including 15 out-of-state) solid waste management facilities and 152 state agencies, institutions and schools. These reports represent activities related to the management of solid waste for the period July 1, 2008 through June 30, 2009.

This report combines several annual reports that were once issued separately by the N.C. Department of Environment and Natural Resources. The reports were the Comprehensive Solid Waste Management Report, the Scrap Tire Disposal Account Report, the White Goods Management Report and the Solid Waste Management Trust Fund Report. This report also includes information from the N.C. Department of Transportation regarding its use of recycled materials in contracts and data from the N.C. Department of Administration on bid procedures and purchases.

Analysis of the reduction in solid waste disposal by North Carolina counties indicates the reduction to be a direct result of the recent recession that began in the fall of 2008, especially waste previously created by the housing market. This past fiscal year was also the first full year in which a tax was imposed on the disposal of waste going into landfills and transfer stations exporting waste out of state. This tax is considered to be an incentive to change behavior by the public who must pay higher disposal rates and the solid waste facility operators who have to pay the tax to the N.C. Department of Revenue.

### Key Findings

- The state in fiscal 2008-09 had a decrease of solid waste disposal to a historic low. The combination of a national recession with significant decline in construction waste, and increased costs of disposal led to this decrease in the state's solid waste disposal.
- The state per capita disposal rate is 1.07 tons per person per year, which is the same as fiscal 1991-92. This represents a per capita reduction of 14 percent from the previous year and 21 percent from the highest per capita rate of disposal during fiscal 2005-06.
- North Carolina communities disposed of 9,910,031 tons of waste in North Carolina and out-of-state facilities. This represents a decrease of 1,374,681 tons from the previous fiscal year.
- The N.C. Department of Revenue reported Solid Waste Tax collection of \$19,567,831.27 which would equate to 9,783,915.64 tons of taxable waste going into North Carolina landfills and exported out of state through North Carolina transfer stations.
- North Carolina-permitted solid waste management landfills and the New Hanover County Municipal Solid Waste incinerator received a total of 9,182,790 tons of solid waste for fiscal 2008-09. Almost 140,000 tons of this waste originated from other states, a decrease of 5,825 import tons over the previous period. South Carolina and Virginia accounted for all imported waste.
- North Carolina exported 863,604 tons for fiscal 2008-09, a decrease of 19 percent from the previous year and a 35 percent decrease from fiscal 2006-07 when North Carolina exports were at peak levels. Exported waste was sent to South Carolina, Virginia, Tennessee and Georgia.
- Recovery of glass, plastics, aluminum and steel containers grew dramatically during fiscal 2008-09 surpassing 110,000 tons for the first time.
- A sharp increase in container recovery can be directly attributed to the Alcoholic Beverage Commission permit holder recycling law, which took effect on January 1, 2008. Container commodities - glass and plastic bottles, aluminum and steel cans - experienced an increase in recovery, with glass leading the recovery.
- Curbside recycling programs contributed more to recycling in North Carolina than did recycling at drop off centers, for the first time since local governments began reporting in the early 1990s.

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<sup>1</sup> N.C.G.S. 130A-309.06, as amended in 2001

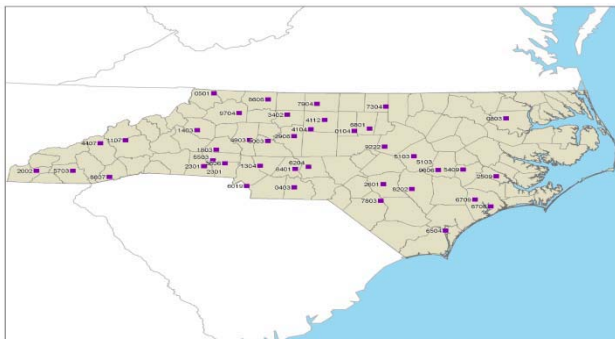
## Recommendations

1. The state should review the process and procedures at disposal facilities and transfer stations, to prevent the disposal of banned materials.
2. The state should review requirements of notified sites and Land Clearing and Inert Debris Landfills (LCID) as more than 50 percent of the notified sites and many LCIDs have been found to be out of compliance.
3. The state should study coal combustion byproduct structural fills and ensure protection of the environment from groundwater contamination.
4. The state should continue to promote and invest resources for gas collection equipment at landfills and white goods collection facilities in order to reduce the amount of air quality degradation in the state. Reporting of this activity should be required for the Solid Waste Annual Report.
5. The state should consider establishment and enforcement of minimal performance standards for local recycling and household hazardous waste collection programs.
6. The state should consider and/or provide incentives or mandates to private waste haulers to offer recycling services to all of their customers.
7. The state should institute incentives to encourage the diversion of identified large waste streams, such as food and wood wastes, from large generators of these wastes.
8. The state should seek new opportunities to increase recycling if the state is going to meet a goal to recover 2 million tons by 2012.
9. The state should implement means to reduce the flow of mercury containing waste into unlined landfills.

## Solid Waste Disposal in North Carolina

### Current year disposal

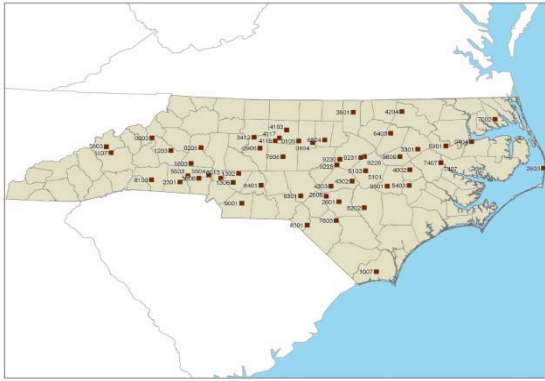
North Carolina communities disposed of a total of 9,910,031 tons of municipal and construction and demolition waste in facilities located within North Carolina and out-of-state. The majority of this waste went into the 40 municipal solid waste [MSW] landfills which were active in North Carolina during fiscal 2008-09.



North Carolina saw a 14 percent per capita decrease in waste disposal by North Carolina counties from fiscal 2007-08. Many counties have reported that most of this decrease is due to the recession. This is not only the second decrease North Carolina has seen in waste disposal after many years of continual increases but also the first year that North Carolina waste disposal has decreased to the historic low of base year per capita disposal of 1.07 tons per person observed for fiscal 1991-92.

The state measures changes in waste disposal rates by comparing the current year's per capita waste disposal rate to the base year per capita rate for fiscal 1991-92. **(Formula: Total Tons Disposed divided by Population = Per Capita Disposal Rate).**

Disposal of municipal solid waste by North Carolina counties totaled 8,477,465 tons for fiscal 2008-09, down 9 percent or 839,189 tons from fiscal 2007-08. This decrease was caused by the national recession and increased costs of disposal.

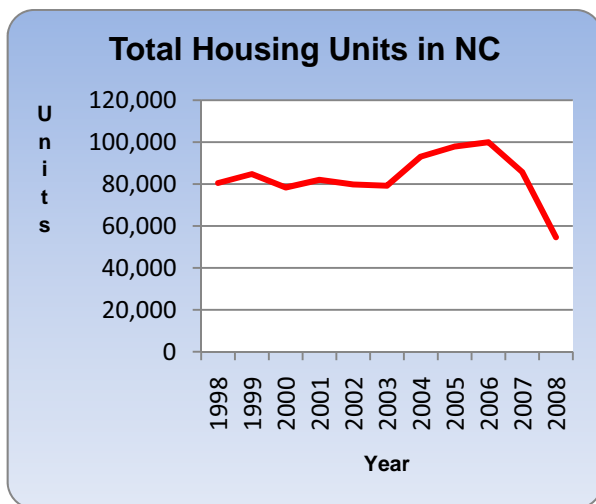
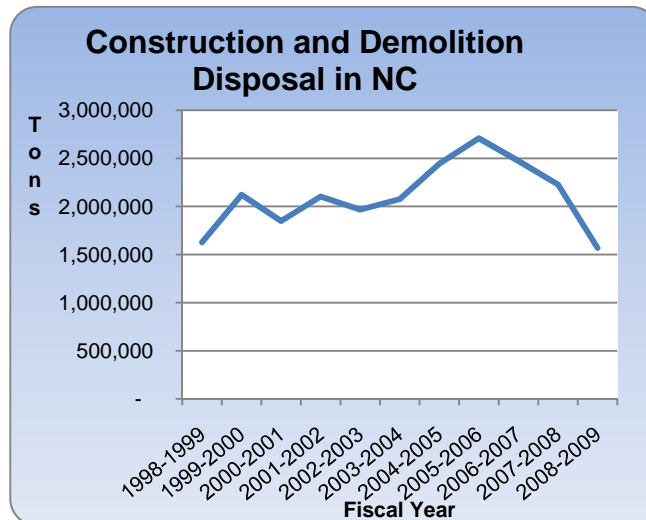


Disposal of construction and demolition waste in North Carolina landfills for fiscal 2008-09 totaled 1,568,929 tons, resulting in a decrease of approximately 658,323 tons or 30 percent from the previous fiscal year and a 37 percent decrease since fiscal 2006-07. This decrease is a result of the recession and corresponding decrease in the construction that we have observed statewide during 2008 and 2009. Of the 64 construction and demolition, or C&D, landfills that were in operation during fiscal 2007-08, 13 of those landfills were closed as of July 1, 2008. The closure of these facilities was a result of the change in closure requirements which became effective July 1, 2008.

It should be noted that estimates indicate that up to 1 million tons of North Carolina's C&D waste could be going into municipal solid waste landfills along with the municipal solid waste, or MSW. Therefore, the apparent reduction in MSW waste is masking a larger reduction in construction and demolition waste than indicated by disposal totals. Total disposal for the 13 C&D landfills that closed July 1, 2008 was 171,051 tons for fiscal 2007-08. It is assumed that the majority of this C&D waste was diverted to MSW landfills for fiscal 2008-09. There are also large areas of the state where there are no C&D landfills and some waste hauling companies simply use the closest or most convenient MSW landfill for C&D waste.

An analysis of waste disposal totals and home building permits, as an indicator of the economic trends, showed a strong correlation between waste and the economy. As the economy suffered in the last few years, building permits plummeted, and the amount of waste likewise declined significantly.

This correlation also explains why waste at C&D landfills last year decreased by 30 percent, the construction component of the waste going into these landfills was not being produced the past several years.



Data for graph of housing units above provided by U.S. Census Bureau

According to U.S. Census Bureau data, total privately owned housing unit construction decreased approximately 45 percent and single family housing unit construction decreased 53 percent from 2006 to 2009 in North Carolina. This past year alone showed a decrease of 36 percent in total housing unit construction.

A decrease in construction is a result of the recent recession. The amount of waste going into construction and demolition landfills, as well as into municipal solid waste landfills, is directly proportional to the housing market.

### Rate of Per Capita Waste Disposal Changes

Fiscal Year	Tons of waste disposed	NC population	Tons of waste per person per year	Per capita waste change from Base Year 91-92	Per capita waste increase or decrease from previous year
2008-2009	9,910,031	9,227,016	1.07	0.0% ↑	-13.7% ↓
2007-2008	11,284,712	9,069,398	1.24	15.9% ↑	-7.5% ↓
2006-2007	11,837,104	8,860,341	1.34	25.2% ↑	-1.5% ↓
2005-2006	11,765,183	8,682,066	1.36	27.1% ↑	5.4% ↑
2004-2005	11,029,485	8,541,263	1.29	20.6% ↑	1.6% ↑
2003-2004	10,713,444	8,418,090	1.27	18.7% ↑	3.3% ↑
2002-2003	10,236,960	8,323,375	1.23	15.0% ↑	0.8% ↑
2001-2002	9,999,284	8,188,008	1.22	14.0% ↑	0.8% ↑
2000-2001	9,752,510	8,049,313	1.21	13.1% ↑	-6.2% ↓
1999-2000	10,267,137	7,938,062	1.29	20.6% ↑	9.3% ↑
1998-1999	9,214,323	7,797,501	1.18	10.3% ↑	4.4% ↑
1997-1998	8,607,578	7,645,512	1.13	5.6% ↑	-3.4% ↓
1996-1997	8,741,727	7,490,812	1.17	9.3% ↑	11.4% ↑
1995-1996	7,722,795	7,336,228	1.05	-1.9% ↓	-0.9% ↓
1994-1995	7,624,144	7,180,525	1.06	-0.9% ↓	6.0% ↑
1993-1994	7,038,505	7,036,927	1	-6.5% ↓	0.0% ↓
1992-1993	6,890,818	6,892,673	1	-6.5% ↓	-6.5% ↓
Baseline year 1991-1992	7,257,428	6,781,321	1.07		
1990-1991	7,161,455	6,632,448	1.08		

↑ Designates an increase in waste per person  
 ↓ Designates a decrease in waste per person

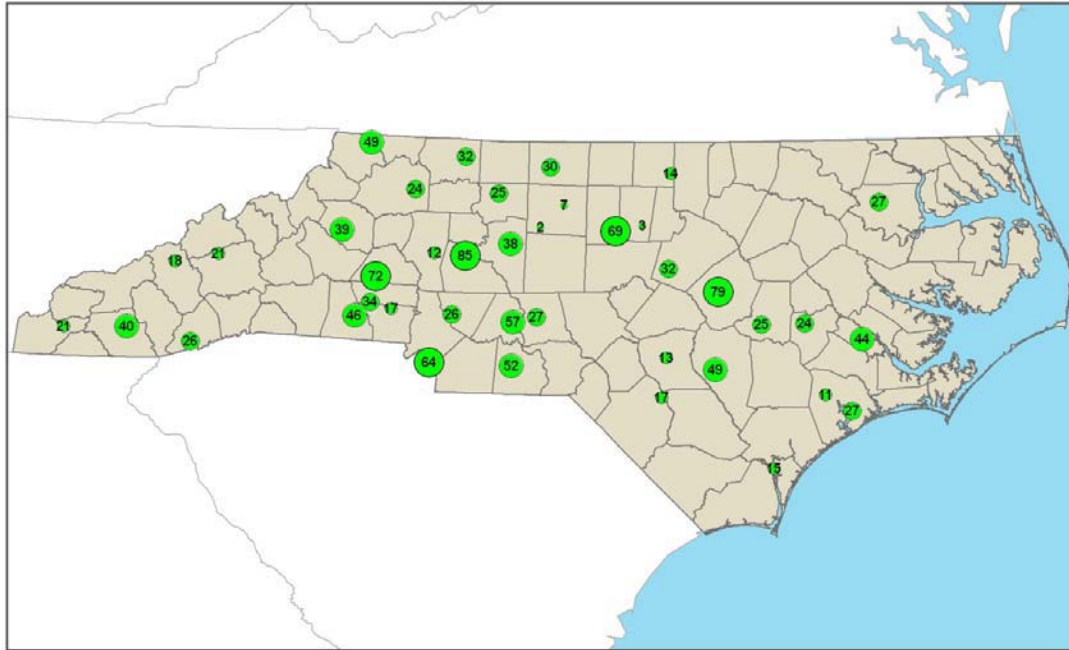
### Landfill Capacity

#### Current Status

North Carolina has 40 operational municipal solid waste landfills and one municipal solid waste incinerator. The total remaining capacity of all North Carolina MSW landfills measures approximately 355 million cubic yards or 213 million tons of MSW waste. The estimate was obtained using the state's average utilization factor (average rate of tons of waste per cubic yard) of 0.60 tons of waste per cubic yard of air space and does not include waste exported to out-of-state landfills.



If North Carolina's rate of landfill use remains steady at approximately 7.3 million tons annually, the state would have 29 years of landfill capacity remaining. The map below shows the years of capacity which remain at the MSW landfills in North Carolina.



Capacity at MSW landfills measured in years.

### Projections

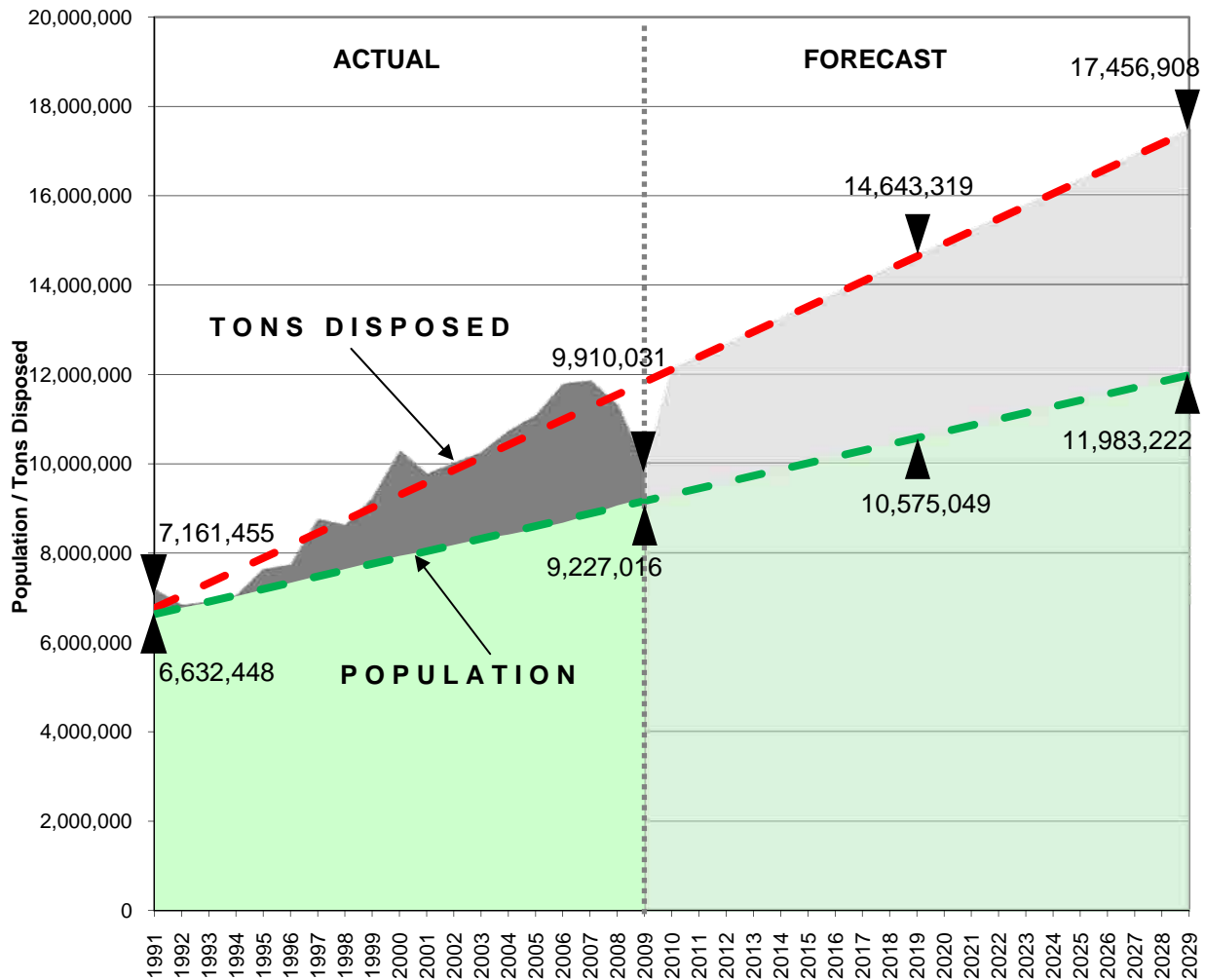
The concept of statewide capacity does not translate into statewide access. Regions of the state have limited capacity. The loss of available capacity at out-of-state facilities while waste being disposed at North Carolina landfills remains at a high rate, further shrinks this capacity number. At present, statewide capacity does not appear to be a problem. However, regions may experience disruptions and additional costs as facilities close, open, change jurisdictions or alter the average distance waste is transferred.

Much of the state's capacity is not widely available due to permit conditions, franchise arrangements, service areas and distance. The primary limiting factor regarding access to capacity in North Carolina is distance. The distance that large quantities of waste travel is normally less than 100 miles one-way.

Many landfills' franchise agreements only allow them to accept waste from a particular distance around the landfill. Examples of limiting factors affecting capacity are illustrated in that the Camp Lejeune landfill is for the Marine Corps base use only; the Alamance County landfill is permitted to accept only Alamance County waste; and the Upper Piedmont landfill is permitted for a maximum of 600 tons per day.

Some landfill owners/operators choose not to accept waste from other jurisdictions, although their permit and franchise allow it. Additionally, landfill owner/operators may elect not to construct or use all of the permitted space. This remaining capacity also assumes a current level of imported and exported waste. Increases in the importing of waste into North Carolina could decrease capacity even further.

## North Carolina Solid Waste Disposal 20-Year Forecast



### Household Hazardous Wastes

Household hazardous wastes (HHW) are household substances which are poisonous, toxic, ignitable, corrosive, or reactive with other chemicals and therefore meet the definition of hazardous waste. HHW can include common items such as pharmaceuticals, household cleaners, pesticides, herbicides, fertilizers, pool chemicals, paints, automotive fluids and batteries.

These substances are dangerous to human health and the environment. The N.C. Division of Waste Management recommends that HHW be properly disposed of by residents by being taken to a HHW collection site. County HHW collections sites may be a temporary one day event or a permanent ongoing collections site. The collection sites are usually run by the county or city government, but industries in several cities have also stepped up to collect this waste as a community service.

To date, out of the 100 counties in North Carolina, only 13 counties have 17 permanent household hazardous wastes collections sites. In fiscal 2008-09, 28 counties in North Carolina held 37 one-day collection events. In fiscal 2007-08, 26 counties held 30 one-day collection events. These one-day events cost an average of \$23,950 per event with an average resident participation rate of 719 residents representing about 528 households.

Among reporting counties, these events totaled 333 tons and 5800 gallons of hazardous wastes that, had these counties not collected, may have ended up being disposed of in North Carolina's landfills or waterways.

This is an area of solid waste management that is of growing concern to residents who increasingly insist that local governments provide collection and disposal services for these types of wastes. The newly imposed Solid Waste tax may in the future provide some funding for new and expanded HHW collection sites and events. HHW collection events increased 23 percent in the past year. Indications are that awareness of the HHW problem and the availability of small amounts of revenue to be used solely for waste management may spur future growth in the collection and proper treatment of household hazardous waste.

### **Solid Waste Management Account**

The Solid Waste Management Account was established by the N.C. General Assembly's Solid Waste Management Act. Effective July 1, 2007, all applications for a solid waste management facility permit were assessed a fee. The fee is to be used to support the solid waste management program especially for permitting and compliance of solid waste facilities.

In the first year, fees were collected on all permit applications which were "pending" as specified by the statute. This included numerous applications for permits which were being worked on as of that date, or were in the queue. A number of these applications were for new landfills and because of a moratorium of new landfills between Aug. 1, 2006 and Aug. 1, 2007 these applications were by law not processed. The amount of funding, due to permit applications, therefore for fiscal 2007-08 is greater than is expected for future years.

The number of permits issued does not necessarily coincide with the number of permit fees paid. The permit fee is normally paid at the time that the application is received, not when it is issued. The fee usually pay for more than one permit decision, permit to construct as well as a permit to operate. The permit decisions may not always be made within the same fiscal year as the year the fee is paid. The permits issued primarily include permits to continue to operate existing facilities.

#### **PERMITS ISSUED AND PERMIT FEES PAID**

<b>Facility Type</b>	<b>Permits Issued 05-06</b>	<b>Permits Issued 06-07</b>	<b>Permits Issued 07-08</b>	<b>Permit Fees Paid 07-08</b>	<b>Fees Paid 07-08</b>	<b>Permits Issued 08-09</b>	<b>Permit Fees Paid 08-09</b>	<b>Fees Paid 08-09</b>
CONSTRUCTION AND DEMOLITION LANDFILL	27	22	14	\$214,500	21	13	\$240,000	49
COMPOST FACILITY				\$1,250	1	1	\$1,000	2
HOUSEHOLD HAZARDOUS WASTE INCINERATORS	13	2	20					
INDUSTRIAL LANDFILL	0	1	0	\$1,750	2		\$1,500	1
LAND CLEARING AND INERT DEBRIS	9	5	12	\$118,500	10	1	\$8,750	5
MEDICAL MIXED WASTE PROCESSING	4	4	2	\$2,500	5	6	\$76,000	12
MUNICIPAL SOLID WASTE LANDFILL	3	2	0					
STRUCTURAL FILL	1	0	0	\$1,750	1	1		
TIRE RECOVERY AND PROCESSING	25	17	34	\$569,000	33	19	\$92,250	17
TIRE LANDFILL RECOVERY	1	0	0					
PROCESSING AND STORAGE FACILITY	0	0	0	\$1,750	1			
TRANSFER STATIONS	2	4	2	\$2,500	2	4	\$10,750	5
<b>Totals</b>	<b>96</b>	<b>79</b>	<b>102</b>	<b>*\$970,000</b>	<b>94</b>	<b>68</b>	<b>\$593,750</b>	<b>126</b>

\*Includes backlog of permits at the passage of Senate Bill 1492

The fees made possible the expansion of the permitting and compliance program within the section. Deadlines, 90-day completion review and one-year final permit action, are a requirement of the new law. Due to the number of permit actions, the addition of permitting staff was essential. The number of permitted facilities has grown significantly in recent years. The compliance staff, in order to respond to complaints and to inspect all facilities as often as is deemed appropriate, also needed additional staff.

The first collection of annual permit fees was due Aug. 1, 2008. Fees were collected for 464 facilities. Fees are used for the management of solid waste, including permitting costs, compliance and inspection costs, financial assurance investigations, and collection of fees.

**Annual Permit Fee Collections for Fiscal 2008-2009**

<b>TYPE FACILITIES</b>	<b>Number of DEPOSITS</b>	<b>FEE AMT</b>	<b>TOTAL</b>
LARGE COMPOST	18	\$500.00	\$9,000.00
INDUSTRIAL LANDFILLS	17	\$2,750.00	\$42,250.00
INCINERATORS	4	\$500.00	\$2,000.00
LCID	71	\$500.00	\$35,500.00
MSWLF	43	\$3,500.00	\$150,500.00
MIXED WASTE PROCESSOR	10	\$500.00	\$5,500.00
TIRE LANDFILL	2	\$500.00	\$1,000.00
RECOVERY PROCESSING AND STORAGE	19	\$500.00	\$9,500.00
TIRE RECOVERY AND PRECESSING	3	\$500.00	\$1,500.00
TRANSFER STATIONS	85	\$750.00	\$63,750.00
TRANS/MWP	1	\$750.00	\$750.00
CDLF	58	\$2,750.00	\$159,500.00
POST CLOSURE INDUSTRIAL LANDFILL	13	\$500.00	\$6,500.00
POST CLOSURE MSWLF	116	\$1,000.00	\$116,000.00
POST CLOSURE CDLF	4	\$500.00	\$2,000.00
<b>TOTAL COLLECTED</b>	<b>464</b>		<b>\$605,250.00</b>

As of the publication of this report, invoices for annual fees attributable to fiscal 2009-10, which were due Aug. 1, 2009, amounted to \$587,250, a decrease from last year.

All facilities in North Carolina are not assessed a fee which goes to the Solid Waste Management Account. To the right are the 1307 active facilities. 464 of these facilities are charged annual fees which go into the fund.

A forecast of permitting fees determined that we anticipate approximately \$400,000 during fiscal 2009-10. The Solid Waste Management Account will, if these forecasts hold true, collect less than \$1,000,000 in fiscal 2009-10. The funds going into the account are less than anticipated and will not sustain the solid waste program's future needs.

<b>WASTE FACILITIES OPERATING DURING FISCAL 2008-09</b>	<b>NUMBER IN NC</b>
Municipal Solid Waste Landfills	40
Municipal Solid Waste – Waste to energy	1
Construction and Demolition Landfills	46
Construction and Demolition Landfill over Municipal Solid Waste	18
Household Hazardous Waste Collection	15
Industrial Landfills	14
Land Clearing and Inert Debris Landfills	64
Land Clearing and Inert Debris Notification Site	626
Material Recovery Facilities	11
Transfer Stations	82
Tire Monofills	2
Tire Treatment and Processing	3
Incinerator Industrial	2
Incinerator Medical	2
Solid Waste Compost Facilities	42
Compost and Yard Waste Notification	171
Treatment and Processing- Medical	5
Septage Land Application Sites	7
Closed Landfills which require Inspection	155

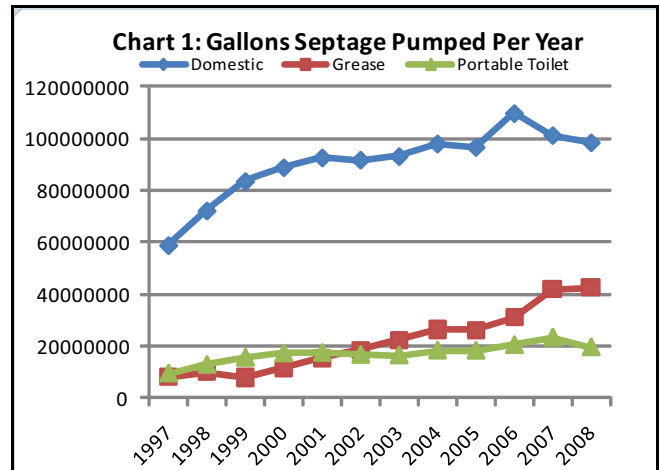
## Solid Waste Section – Composting and Land Application Branch

The Composting and Land Application Branch is responsible for assuring that solid wastes are managed in a responsible, consistent manner that will protect public health and the environment across the state. The major areas of emphasis in the program are: permitting; septage management program compliance and training; development and maintenance of applicable laws and rules for septage management, composting, and treatment and processing; and providing technical/problem solving assistance to permittees, permit applicants, local governments and the general public. Permitting includes septage land application sites, septage detention and treatment facilities, septage management firms, solid waste compost facilities and treatment and processing facilities. The branch is also responsible for determining wastes and by-products that can be land-applied for beneficial uses and the best management practices to be followed for each by-product to assure protection of public health and the environment.

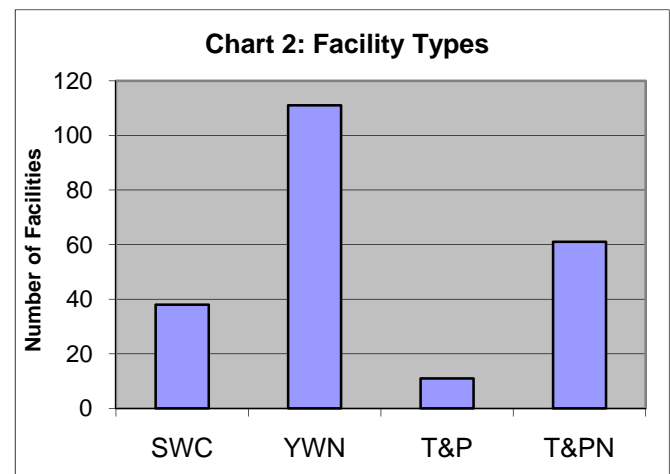
The Environmental Senior Specialists and Soil Scientists within the Composting and Land Application Branch have a broad range of duties. The primary responsibilities of the Environmental Senior Specialists include inspections of septage management firms, septage land application sites, and septage detention or treatment facilities. The specialists also handle complaint investigations and all compliance cases with septage management facilities. The soil scientists within the branch share inspection and compliance responsibilities for the previously mentioned facility types in addition to permitting the land application and detention or treatment facilities for septage. All branch staff play an integral role in providing technical assistance and annual training to septage firms throughout the state.



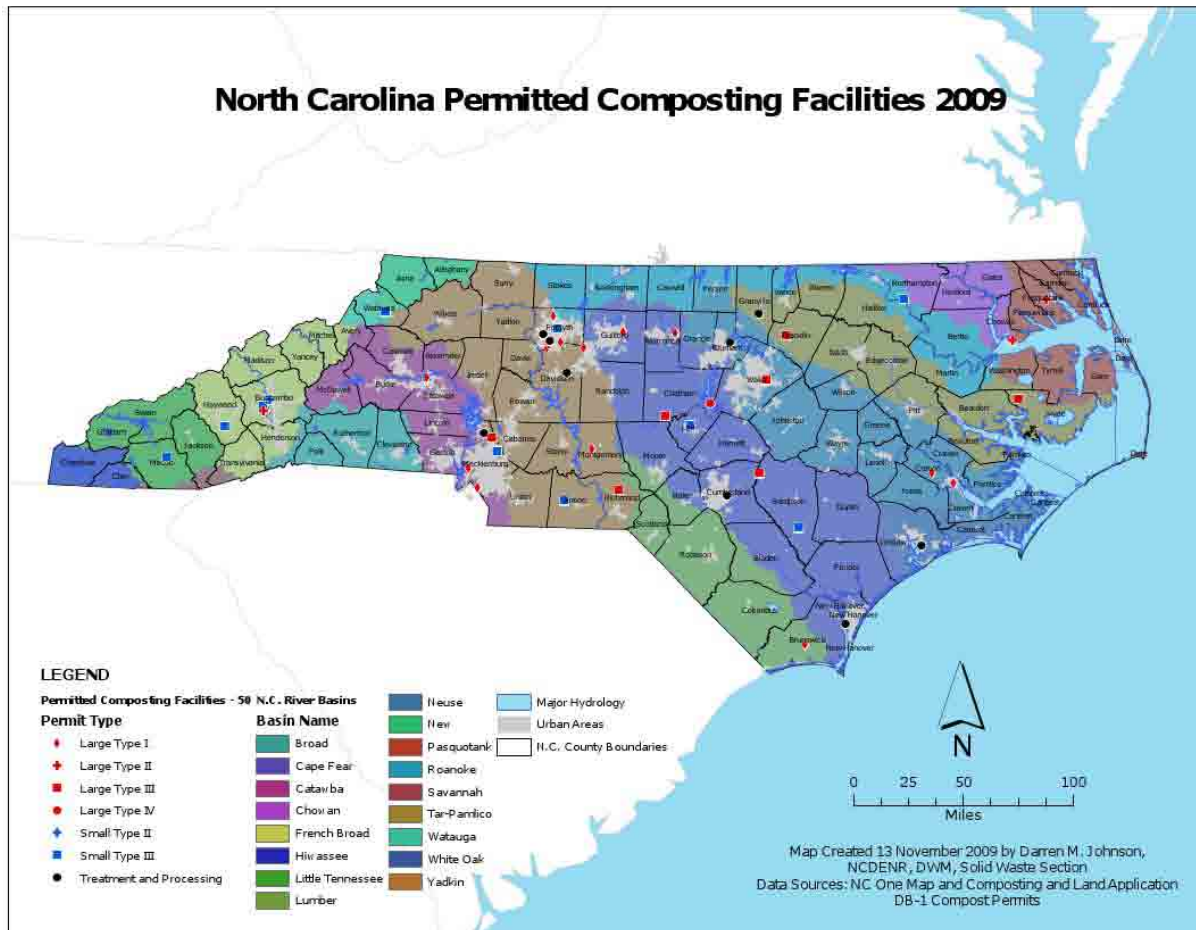
Septage Land Application Site



Compost Facility



The facility acronyms used in Chart 2 are defined as follows: SWC- Solid Waste Compost Facilities, YWN- Yard Waste Notifications (small type I compost facilities), T&P- Treatment & Processing Facilities, T&PN- Treatment & Processing Notifications (small T&P facilities)



Map of North Carolina's permitted composting facilities as of 2009 (these are permitted standalone facilities that are not associated with any other N.C. Division of Waste Management permits).

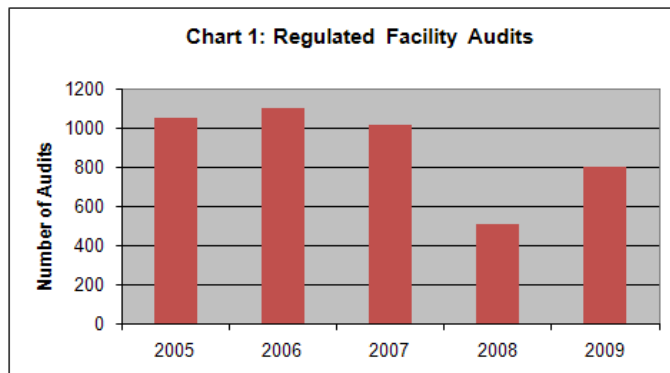
### Solid Waste Section - Field Operations Branch

The state Solid Waste Section's Field Operations Branch staff has varying job responsibilities and performs a wide range of duties. Their jobs include providing technical assistance to the regulated community to enforcement action on a large number of solid waste management-related issues. At the 26 different types of regulated facilities, these responsibilities include: inspecting explosive gas monitoring systems, inspecting leachate collection systems, investigating leachate releases, overseeing construction and closure of landfills and ensuring that proper engineering measures are employed at landfills. At an active facility, a routine audit may take as little time as half a day at a transfer facility to multiple days for a full inspection of a Subtitle D landfill and other solid waste units within the facility. Field staff is also responsible for dealing with complaints involving illegal dumps because of the public health and environmental threat these sites can pose for many years into the future.



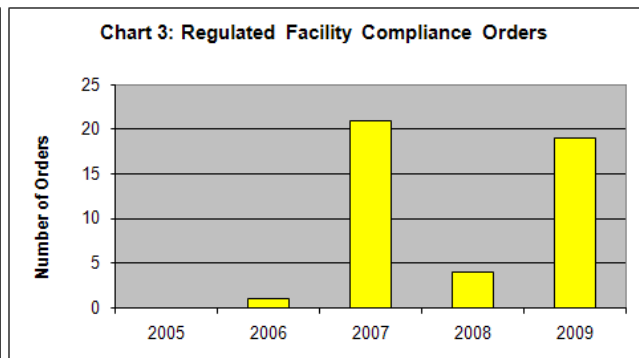
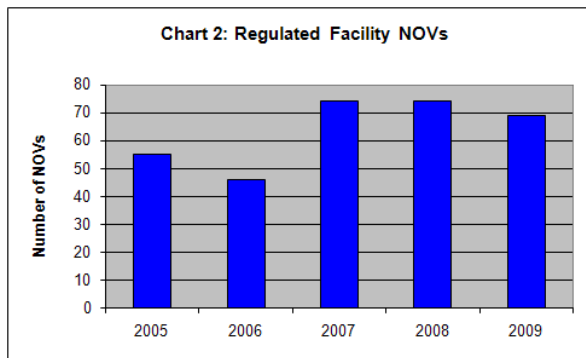
Regulated Facilities

Although the largest amount of staff time was spent conducting audits and providing technical assistance at regulated facilities during 2009, the actual number of facility audits showed a downward trend between 2005 and 2008 (see Chart 1). Several factors played into the downward trend, including, 1) a high turnover of field staff during 2007 and 2008, contributing to the unusually low number of audits performed during 2008, 2) the increase in the amount of time that is required to conduct audits at ever more complex facilities and 3) the ever growing number of other solid waste program responsibilities and special projects. However, the number of audits increased in 2009 and it is believed the increase is due in part to the addition of staff.



Since 2007, there has been an increased effort to inspect types of solid waste facilities that had been lightly regulated in previous years. For example, an increased focus on Land Clearing and Inert Debris (LCID) “Notified” sites has contributed to an increase in the notice of violations (NOVs) issued to these facilities in the past three years (see Chart 2). Based on two independent surveys of this universe of sites, approximately 65 percent of the LCID Notified facilities are in violation of the rules. A significant amount of time has also been used to provide educational and technical assistance to the owners and operators of these sites. Therefore, the branch has developed a strategy to increase the regulatory oversight of notified sites, including proposing rule revisions.

During 2007 and 2009, there was an increase in the number of compliance orders (COs) issued to regulated facilities, mainly for mismanagement of leachate, receiving waste the facility was not permitted to receive, and failure to follow approved disposal processes (see chart 3). There were a lower number of compliance orders issued in 2008 to regulated facilities. During the same year, compliance actions were initiated against an increased number of illegal sites (see chart 5). The increased time that was required to deal with compliance action at illegal sites is a possible explanation for the reduction in the number of audits performed at regulated facilities.



### Illegal Dumping



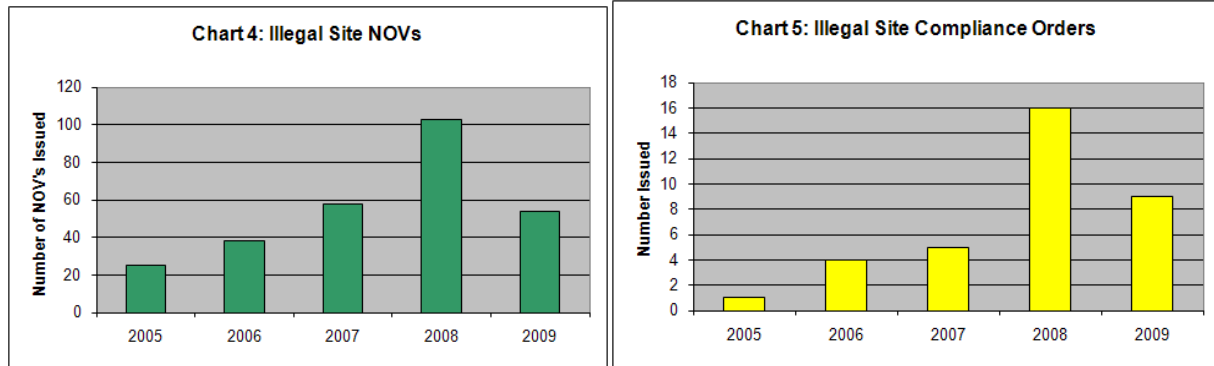
Illegal dumps are an important compliance issue because these sites have the potential to pose a significant threat to surface and groundwater, cause health-related impacts to drinking water, generate explosive gases and pose fire hazards. Enforcement action against an illegal dumper is designed to deter illegal dumping, achieve complete removal of illegally dumped waste and restore the dump area to its original condition.

Some dumpsites contain physical and chemical hazards, such as batteries, resins, epoxies, waterproofing agents, asbestos and oil. Because asbestos is used in more than 4,000 building products, including cementitious roofing shingles, ceiling tile, insulation, and vinyl floor coverings, asbestos is frequently found in illegal dumps. The illegal disposal of gypsum drywall can produce hydrogen sulfide gas, which is offensive in odor, toxic and explosive in high concentrations. Lead based paint (LBP) is yet another area of concern for illegal dumpsites. Illegal dumps can create other human health risks by providing breeding places for insects, rodents and other vectors and pests. In addition, illegal disposal of



waste results in numerous financial losses. The cost imposed by illegal dumping extends to the lost profits of permitted solid waste disposal facilities and lost county tax revenues, as well as a decline in surrounding property values.

For more information about the Field Operations illegal dumping prevention initiative see: [www.wastenotnc.org/SWHOME/IllegalDumpingInNC.htm](http://www.wastenotnc.org/SWHOME/IllegalDumpingInNC.htm)



The Field Operations Branch typically approaches illegal dumping compliance actions by issuing the violator a notice of violation requiring cleanup of an illegal dump. If the violator responds and complies with the NOV, further enforcement proceedings can be avoided. Most NOV's are resolved and therefore do not result in the issuance of a CO. The decline in NOV's and CO's issued to illegal sites in 2009 can be explained, in part, as a result of the increased focus on illegal sites enforcement action by compliance staff in recent years (Charts 4 and 5). For similar reasons, there has been a steady decrease in illegal site complaints received by the Field Operations Branch during the past five years (Chart 6).



### Coal Ash Combustion By-product Structural Fills

During 2009, branch staff redoubled efforts to verify compliance for new and existing coal combustion by-products structural fills. Structural fills are defined by 15A N.C. Administrative Code 13B .1701 as “an engineered fill with a projected beneficial end use constructed using coal combustion by-products (CCB) properly placed and compacted.” There are more than 75 properties throughout North Carolina with CCB structural fills. Compliance for CCB structural fills is important because improperly constructed or maintained structural fills have the potential to contaminate groundwater and surface water. A recent compliance survey of a few of these sites found that 20 CCB structural fills are in violation of the rules. The branch is planning a more extensive evaluation and possible options for improving the compliance status of these sites.

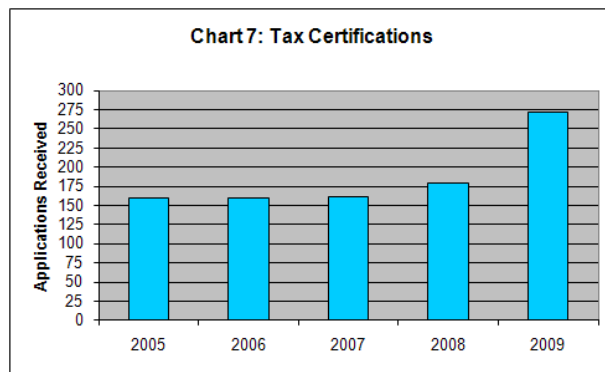


### Educational and Training Assistance

Educational and training assistance conducted by branch staff is provided to the general public, businesses, consultants, solid waste facility staff, attorneys, the media, and inquiries from other local, state, and federal agencies. A few examples of educational and training assistance provided by staff in 2009 include working with local governments to develop and enhance their environmental enforcement programs, recycling landfill banned wastes, management of solid waste relating to management of unique waste, waste stream, disaster debris management training, and solid waste management facility operator training.

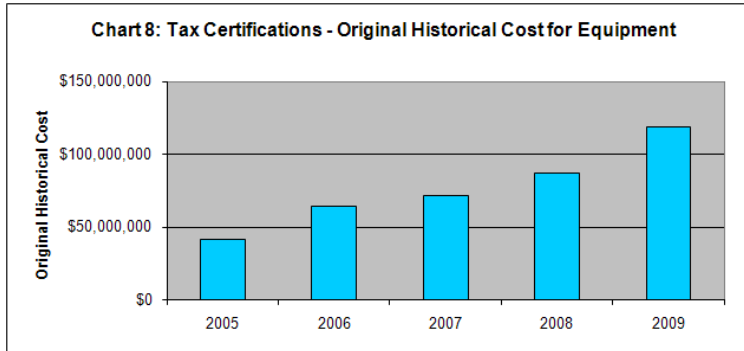
### Tax Certification Program

The purpose of the tax certification program is to encourage resource recovery and recycling by making reuse of waste materials more economically desirable for businesses. Equipment and facilities may be approved for an exemption from ad valorem taxes if they are used entirely for recycling purposes. More information about the Tax Certification Program can be found on our Web page, <http://wastenotnc.org/swhome/taxcert.asp>.



Field Operations Branch field staff received 272 applications in 2009, which reflects an upward trend in the number of applications received (see Chart 7). Nearly all applications require site inspections/audits, which frequently include facilities with complex industrial processes including: steel production, craft paper production, glass products production, or meat rendering facilities. Field Operations Branch staff must acquire a basic understanding of a wide array of complicated industrial processes before approval of facilities and equipment is granted.

Consistent with the increase in the number of applications received, there has been an increase in the original historical cost of the equipment for which certification is being request. During the past five years, the reported value of certified equipment has nearly tripled (See Chart 8).



### Disaster Response and Emergency Site Selection Evaluations

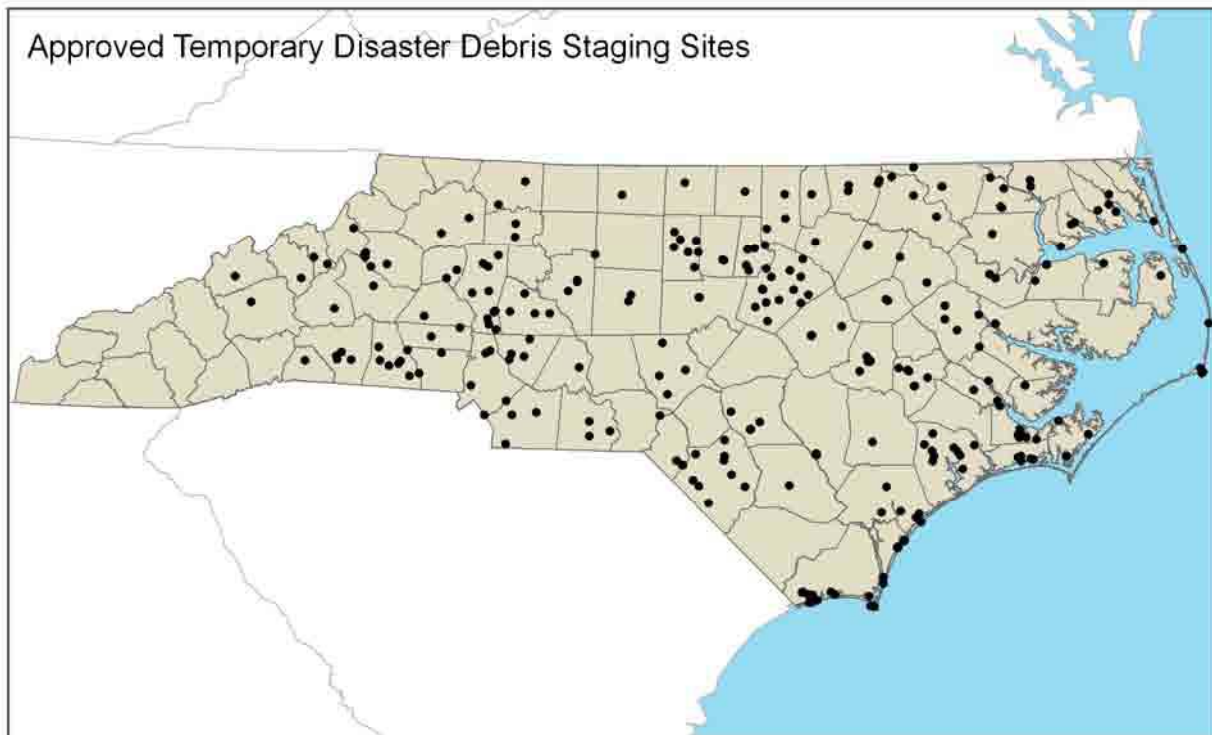
Field Operations Branch staff is tasked to respond and assist local governments in the planning and response to natural and man-made disasters such as tornados, hurricanes, ice storms, floods, landfill fires, etc. All branch staff members are required to have taken the (Federal Emergency Management Agency (FEMA) National Incident Management System (NIMS) training. Branch staff serves in the N.C. Emergency Management Emergency Operations Center during and after disasters. For emergency response situations, branch staff is on call 24 hours a day.



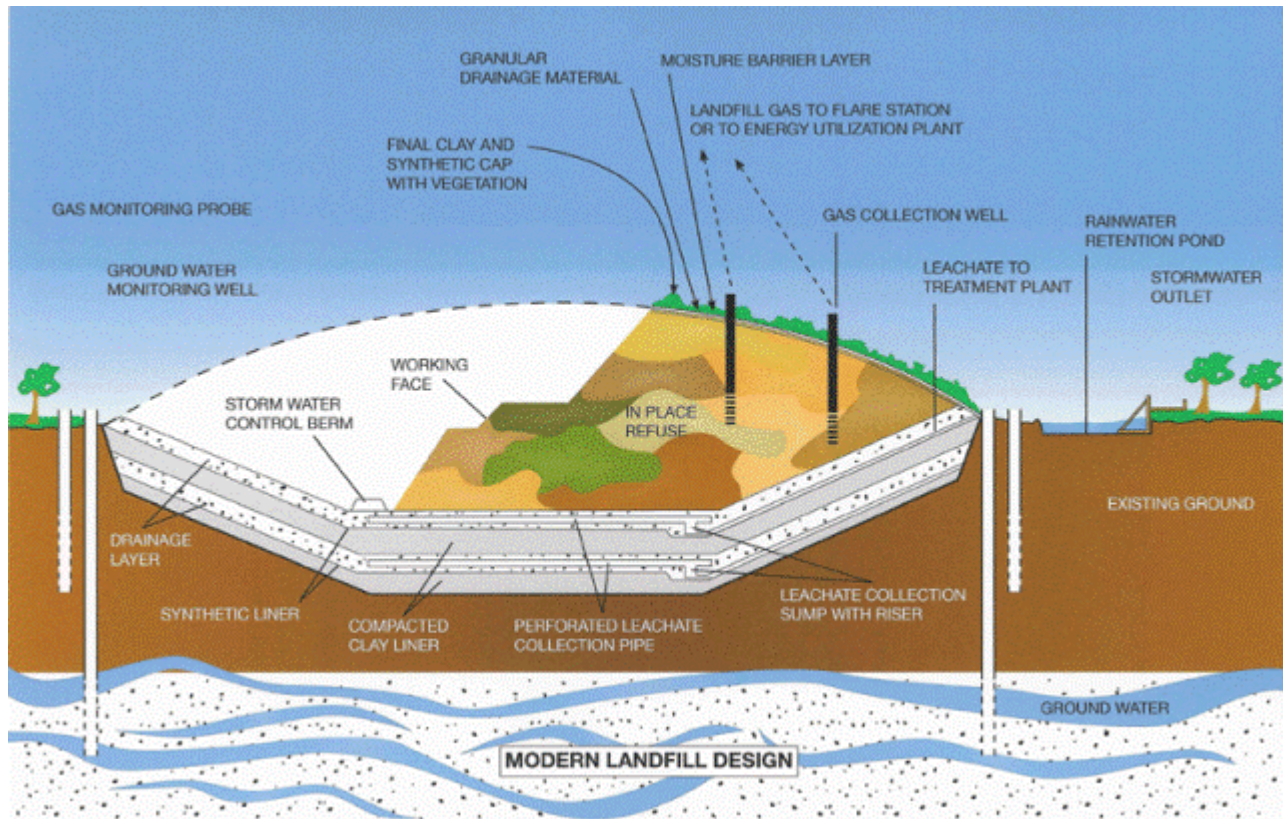
Field Operations Branch staff members assist in the evaluation of staging sites used for disaster debris. These sites must meet requirements depending on the types of waste to be staged, including appropriate distance from residences, wells, surface water, businesses and roadways. The sites must also be evaluated for safety issues (power lines, traffic, etc.) as well as access and potential need for flood or erosion control.



Seventy-one sites were evaluated during 2009, bringing the total of approved disaster debris staging sites to 283 (see map below). After a disaster debris site has been approved, counties or communities can request a six-month activation of the site to aid in the cleanup after the occurrence of a natural disaster. The approval process is required for FEMA reimbursement eligibility.

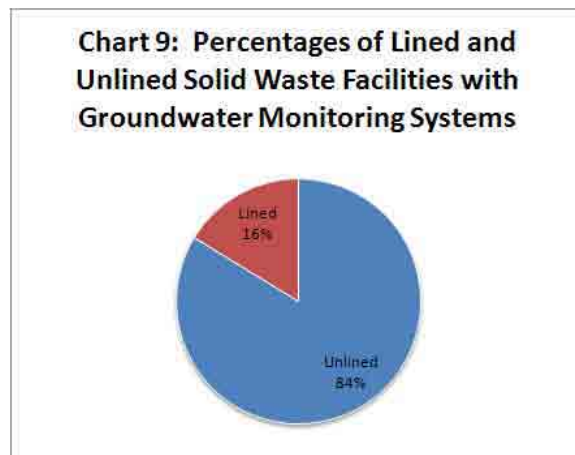


## Groundwater Monitoring



Landfills contain numerous substances which, if released, could pose a significant threat to human health and the environment. These substances leaking from landfills can migrate, presenting a threat to the environment and to the public. Primary threats are the collection of explosive gases in surrounding buildings and exposure to contaminants via groundwater (e.g. potable wells).

Modern landfill designs include liners and leachate collection systems to contain waste and prevent the release of these dangerous substances. Unfortunately, almost all landfills that opened in North Carolina prior to 1993 were not constructed with liners and leachate collection systems so groundwater contamination and landfill gas is being detected at a growing number of closed, unlined landfill sites.



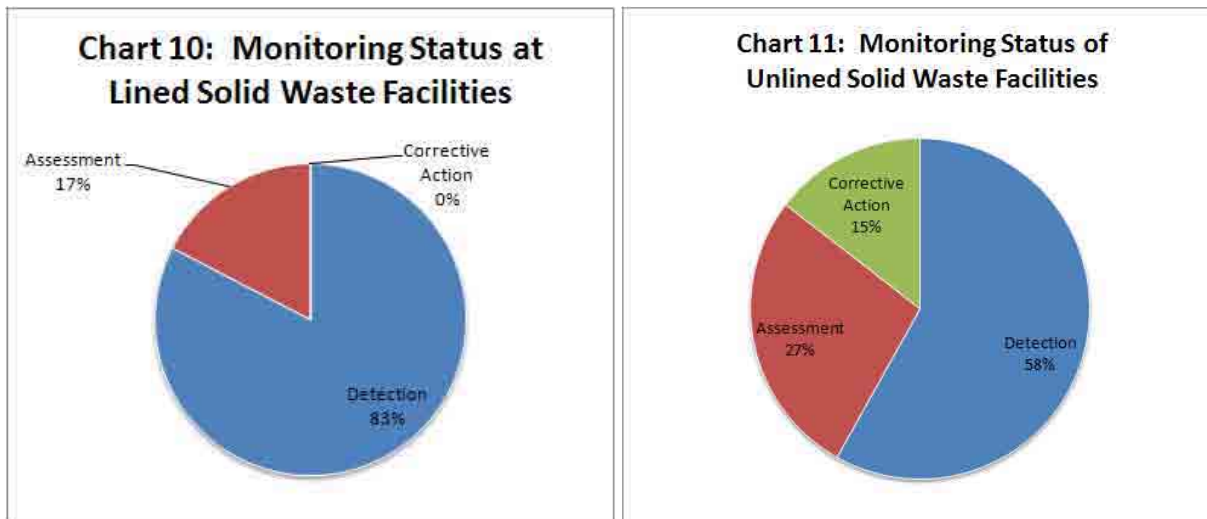
Environmental monitoring is being conducted at 273 solid waste management facilities. The Field Operations and Compliance Branch databases have been developed to enable staff to store, retrieve and analyze a massive amount of environmental data and provide public access to more data via the Internet.

To make this possible, the Field Operations Branch is requiring facility owners/operators to submit environmental data reports in electronic format.

Presently, the environmental database has data from approximately 85 percent of the landfills that perform environmental monitoring in North Carolina. Some of the benefits of creating, populating and maintaining the database are 1) the ability to more quickly analyze and respond to contaminant releases, 2) paper and space reductions in report preparation, mailing and filing, 3) increased efficiency in the data submission process, 4) improved long-term data formatting organization and management, and 5) less time and financial expenditures involved in data reporting.

The two Solid Waste Section, Field Operation Branch hydrogeologists assigned to address environmental compliance issues at solid waste management facilities across the state oversee the environmental monitoring, and if required, assessment and remediation of nearly 300 permitted facilities and numerous large illegal dumps each year.

Groundwater monitoring is conducted in three phases at solid waste facilities: detection monitoring, assessment monitoring and corrective action. Detection monitoring is the initial phase of monitoring, where groundwater is analyzed for a list of contaminants commonly associated with solid waste. Assessment monitoring occurs when groundwater contamination is discovered during detection monitoring, and the nature and extent of contamination is determined in addition to analyzing groundwater for an expanded list of contaminants that are associated with solid waste. Once the nature and extent of contamination has been defined, corrective action is implemented to remedy the contamination, and groundwater is continually monitored the track the progress of the corrective action. The following charts (10 and 11) illustrate the percentages of solid waste facilities implementing each monitoring phase.



Based on groundwater monitoring data in the Solid Waste Section’s database, 208 out of 237 solid waste facilities have reported volatile organic and/or inorganic compound in violation of the North Carolina groundwater standard (15A NCAC 02L). In addition, seven lined solid waste management facilities and/or transfer stations had leachate releases where untreated leachate was discharged. Leachate shall be contained on-site or properly treated prior to discharge. All facilities either are assessing the leachate release or have completed assessing the leachate release.

Field operations hydrogeologists are also responsible for protecting human health. This year, there were six confirmed residential water supply wells that were impacted by contaminated groundwater that migrated beyond a solid waste management’s facility’s compliance boundary. In each of these cases, an alternate source of water has been supplied by the county or the responsible party to the affected residences.

Finally, groundwater corrective action has been initiated at 23 solid waste management facilities this year. This larger number of solid waste management facilities also includes the existing construction and demolition landfills located on top of unlined municipal solid waste landfills that were required to initiate groundwater corrective action pursuant to new construction and demolition rules effective Jan. 1, 2007.

N.C. Solid Waste Management Annual Report Fiscal Year 2008-2009

# Chapter 2

Government Waste Reduction Activities

North Carolina Department of Environment and Natural Resources, Division of  
Pollution Prevention and Environmental Assistance

## CHAPTER 2 GOVERNMENT WASTE REDUCTION ACTIVITIES

Annual reports received from local governments provide data on source reduction, reuse, recycling and composting activities statewide as well as other aspects of solid waste management. Data from these reports develop a picture of waste reduction efforts in North Carolina and the relative effectiveness of these programs and trends in program implementation.

### **Source Reduction and Reuse Programs**

The number of local governments with source reduction and/or reuse programs remained relatively unchanged during FY 08-09. Additionally, changes in each of the reuse and source reduction program types in place were minor. Source reduction and reuse programs remain underutilized in North Carolina. These programs often have minimal expense and are popular with citizens.

Local governments have shown an ongoing interest in swap shop programs which allow for very cost-effective reuse. During FY 08-09, the 81 swap shops in place likely resulted in the reuse of more than 2,000 tons of useable items.

### **Local Reduction/Reuse Programs**

<b>Program Type</b>	<b>FY 02-03</b>	<b>FY 03-04</b>	<b>FY 04-05</b>	<b>FY 05-06</b>	<b>FY 06-07</b>	<b>FY 07-08</b>	<b>FY 08-09</b>
<b>Source Reduction Programs</b>							
Backyard Composting	69	68	59	55	53	48	53
Grass Cycling	38	38	33	33	32	34	33
Xeriscaping	11	14	13	14	12	15	19
Junk Mail Reduction	65	63	59	59	55	59	57
Enviroshopping	32	31	29	25	26	21	23
Promotion of Non-toxics	27	28	30	23	22	17	18
Other	2	1	2	1	3	1	9
<b>Reuse Programs</b>							
Swap Shops	33	31	33	37	32	31	32
Paint Exchange	19	18	18	18	19	18	18
Waste Exchange	4	6	8	3	3	2	2
Pallet Exchange	5	9	9	4	5	3	6
Other	11	7	11	5	4	8	8
<b>Local Governments with Programs</b>	<b>112</b>	<b>109</b>	<b>104</b>	<b>102</b>	<b>95</b>	<b>97</b>	<b>96</b>

### **Local Government Recovery**

Local government recovery grew by nearly 40,000 tons during FY 08-09. Every category tracked grew with the exceptions of metals and construction and demolition wastes. Both of these categories likely shrank due to economic conditions experienced throughout the state. The biggest contributor to the decrease in metal recovery was the decrease in white goods (appliances) recycled. The two most likely reasons for the decrease are that high metal prices from previous years likely reduced any stockpiles that existed and decreased new purchases of replacement appliances. The latter is supported by decreased revenues from the state's white goods fee during the fiscal year.



One notable change in commodity recovery was 22 percent increase in glass recovered from local governments. FY 08-09 represents the first full year of data since the implementation of a law in 2008 requiring holders of certain ABC permits to recycle beverage containers. Although most of this recycling occurs solely in the private sector and is not captured in the local government reporting process, the marked increase provides a strong indication that the ABC recycling law is having a substantial impact on the recovery of recyclable containers in the state.

### Local Government Recovery (Tons) and Performance Measures

Material	FY 99-00	FY 00-01	FY 01-02	FY 02-03	FY 03-04
Total Paper	241,859	263,365	267,840	275,538	267,371
Total Glass	41,826	46,936	49,891	51,433	52,117
Total Plastics	14,474	15,062	17,269	16,807	18,679
Total Metal*	86,480	92,634	114,786	109,723	114,097
Total Organics**	638,757	540,582	468,901	689,027	589,124
Special Wastes***	4,907	4,947	5,426	5,926	6,271
Construction and Demolition Debris	59,598	15,406	17,648	20,002	24,084
Tires	N/A	N/A	N/A	N/A	N/A
Other	5,329	6,120	5,896	4,626	4,773
<b>Totals</b>	<b>1,093,032</b>	<b>985,052</b>	<b>947,657</b>	<b>1,173,082</b>	<b>1,076,516</b>
<b>Per Capita Recovery (lbs.)</b>	<b>285.61</b>	<b>243.66</b>	<b>231.47</b>	<b>281.88</b>	<b>255.76</b>
<b>Recovery Ratio (Recycling:Disposal)</b>	<b>0.11</b>	<b>0.10</b>	<b>0.10</b>	<b>0.11</b>	<b>0.10</b>

Material	FY 04-05	FY 05-06	FY 06-07	FY 07-08	FY 08-09
Total Paper	303,514	292,641	305,615	321,019	342,008
Total Glass	44,003	45,421	51,883	56,837	69,446
Total Plastics	18,320	18,177	19,373	22,298	23,947
Total Metal*	109,612	108,488	96,884	84,740	69,242
Total Organics**	583,101	619,494	631,393	554,576	593,323
Special Wastes***	6,690	6,955	8,304	7,195	8,433
Construction and Demolition Debris	20,292	24,001	40,352	59,501	33,209
Tires	113,670	146,177	187,273	142,160	147,055
Other	5,677	7,743	5,558	6,753	8,474
<b>Totals</b>	<b>1,204,879</b>	<b>1,269,097</b>	<b>1,346,635</b>	<b>1,255,079</b>	<b>1,295,173</b>
<b>Per Capita Recovery (lbs.)</b>	<b>282.13</b>	<b>292.35</b>	<b>303.97</b>	<b>276.77</b>	<b>280.73</b>
<b>Recovery Ratio (Recycling:Disposal)</b>	<b>0.11</b>	<b>0.11</b>	<b>0.11</b>	<b>0.11</b>	<b>0.13</b>

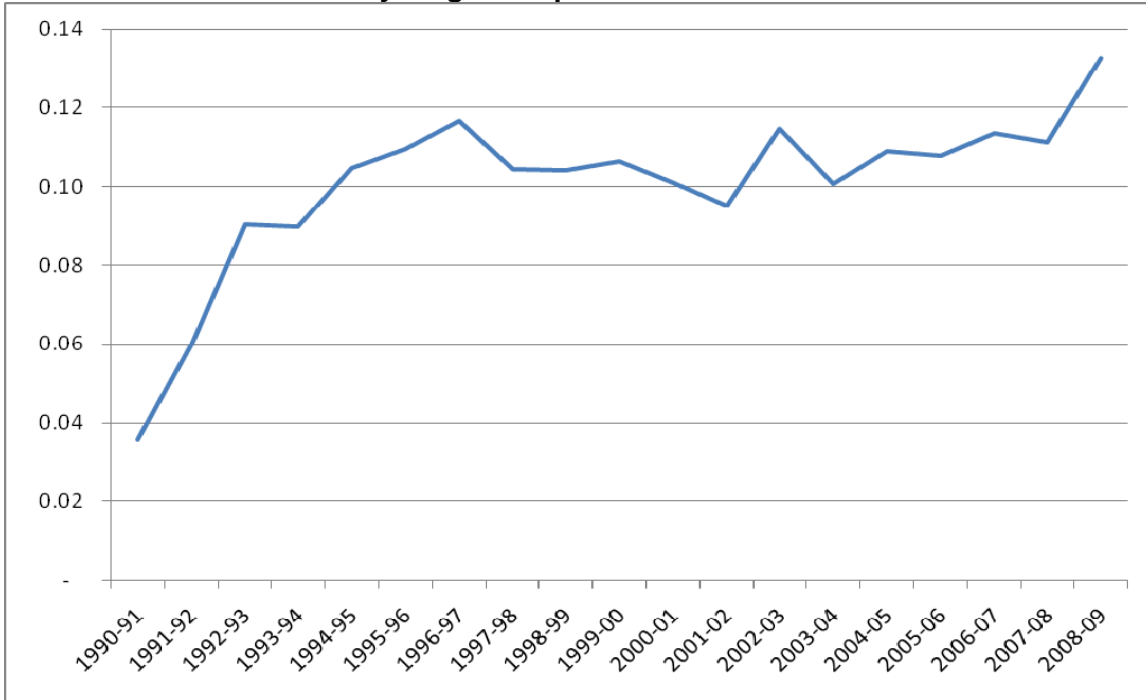
\* Includes white goods, aluminum cans, steel cans and other metals.

\*\* Includes yard waste, pallets and wood waste.

\*\*\* Includes electronics, used oil, oil filters, antifreeze and batteries.

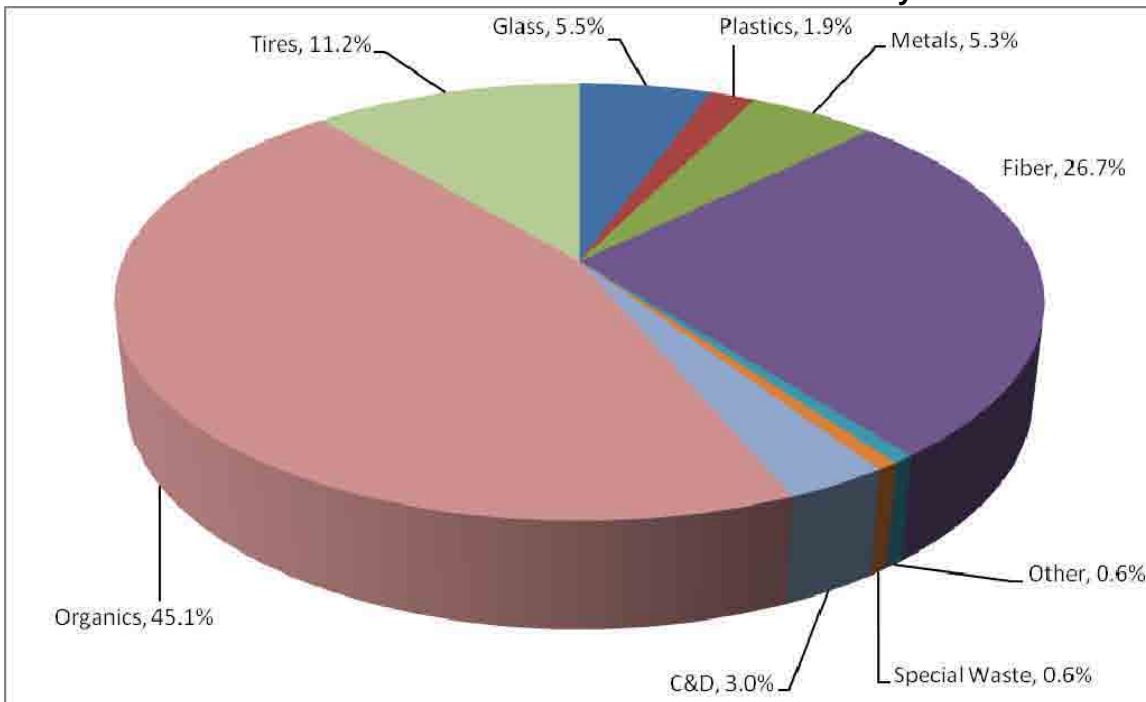
The ratio of recycling to disposal jumped to an all-time high of 0.13 during FY 08-09. The ratio is used to compare changes in disposal from year to year as they relate to changes in recycling from year to year. Since recycling increased and disposal decreased during FY 08-09, the slope shows a sharply positive trend.

### Ratio of Recycling to Disposal – FY 90-91 to FY 08-09



Although highly erratic due to annual weather conditions, the recovery of organic materials, primarily through mulching and composting, remains the single largest component of local government recycling programs. During FY 08-09 the recovery of organics constituted 45 percent of total local government recovery. Fiber and tires were the next two largest categories contributing 27 percent and 11 percent respectively.

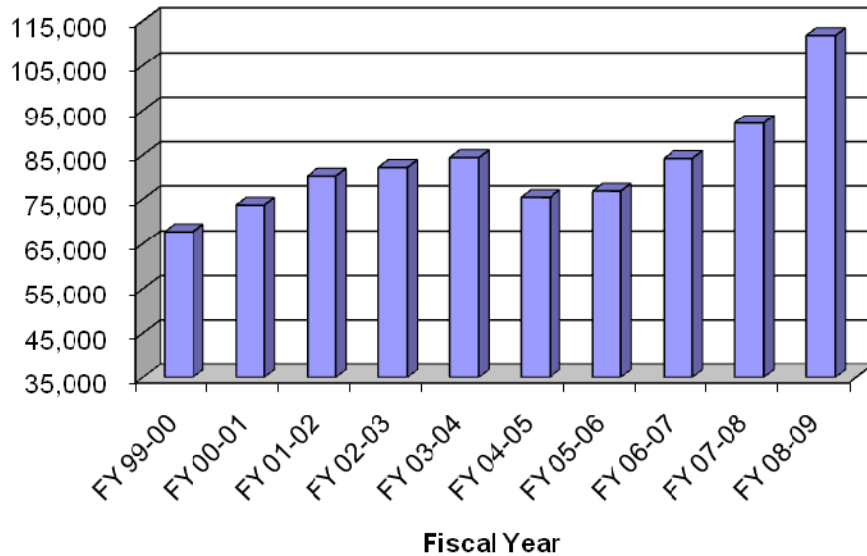
### Characterization of Local Government Recovery



### **Recovery of Traditional Materials**

Recovery of glass, PET, HDPE, aluminum and steel containers grew dramatically during FY 08-09. In total 108,319 tons of these traditional materials were recovered, up more than 15,000 tons from FY 07-08. Every one of the container commodities experienced an increase in recovery, although none of the scale of the increase experienced with glass recovery. The sharp increase in container recovery can be directly attributed to the ABC permit holder recycling law, which took effect on Jan. 1, 2008.

**Container Recovery in Tons FY 99-00 to FY 08-09**

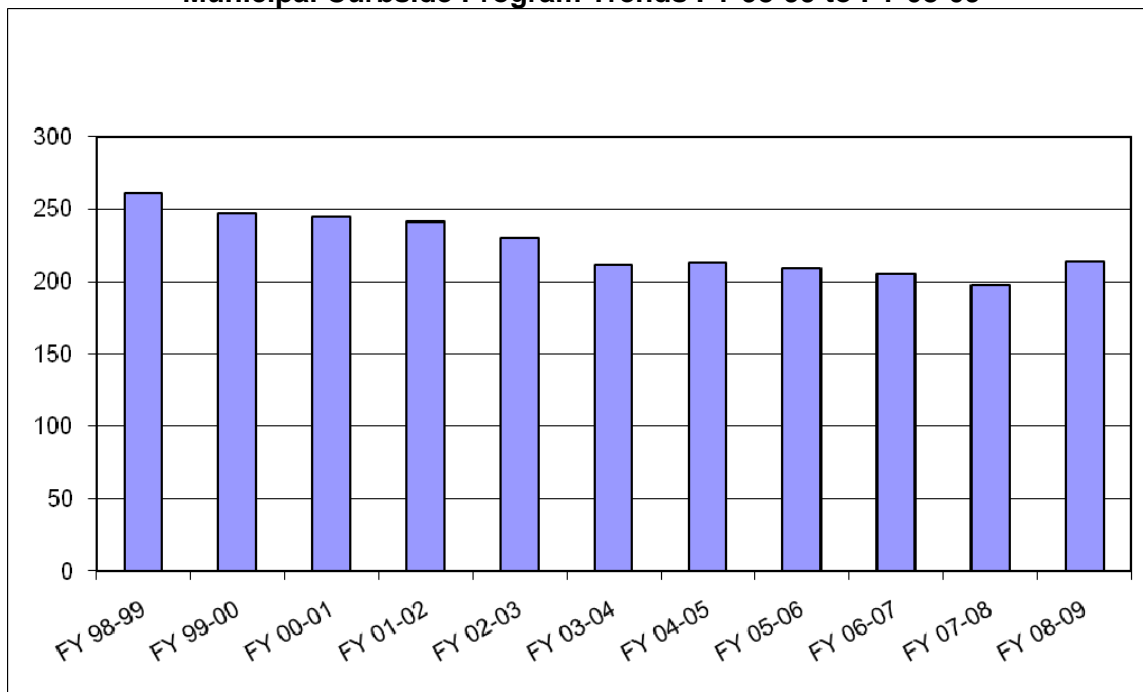


### **Local Government Recycling Program Management**

Municipal curbside programs experienced a major rebound during the fiscal year climbing to 214 from 198 the previous year. This reverses a decreasing trend that has existed since 1999. Given new public awareness of environmental issues and a series of new disposal bans in the state, this trend is expected to continue in the future.

The number of households served by curbside recycling grew to 1.52 million up from 1.48 million during FY 07-08. Although a few notable new curbside programs contributed to this growth, most of the growth is still occurring due to annexations and growth in communities with existing curbside recycling programs. The continued growth in the number of households served has been an ongoing trend; even during years when the state has experienced a decrease in curbside recycling programs.

## Municipal Curbside Program Trends FY 98-99 to FY 08-09



Curbside programs contributed more to recycling in North Carolina for the first time since local governments began reporting in the early 1990s. While drop-off programs will always remain a critical component of waste reduction in the state, the steady expansion of households with curbside recycling services has resulted in a slightly decreased reliance on drop-off programs for recycling traditional materials. During FY 08-09 approximately 43 percent of all material recovered by local governments was collected through curbside programs. This compares to 33 percent from drop-off programs, 23 percent from “other programs,” such as school recycling programs, and one percent from mixed waste processing programs.

### Local Government Recovery by Program Type

Program Type	Percent of Total Recovery
Curbside	43 %
Drop-off	33 %
Mixed Waste Processing	1 %
Other Programs	23 %

### Special Waste Management

Local government collection of special wastes saw a small decline in FY 09 from the previous year for most kinds of automotive product discards such as oil, antifreeze and lead acid batteries. The exception was oil filters. In anticipation of the disposal ban effective in October 2009, local governments stepped up to almost double the number of filter collection programs and to increase the tonnage collected by 48 percent. Further increases in this category can be expected for FY2010.

The number of household hazardous waste programs across the state experienced some growth in FY09, with a healthy rise in collected tonnage from FY 08. Twenty-one communities now report the operation of a permanent household hazardous waste collection facility. Although not reported on the table below, 75 communities also reported participating in the N.C. Department of Agriculture’s pesticide collection program while 18 local governments cited the specific efforts of

paint exchanges. "Paint swap" programs in 11 jurisdictions diverted a total of 27,859 gallons of leftover paint for reuse. Although these efforts fall short of a full-fledged HHW collection service, they do provide citizens with options for some of their household hazardous materials.

### Local Government Special Waste Management, FY04 to FY09

	FY05	FY06	FY07	FY08	FY09
<b>Used Motor Oil</b>					
Number of programs	119	122	126	124	125
Gallons collected	987,057	933,618	872,399	901,565	813,126
<b>Oil Filters</b>					
Number of programs	17	20	32	32	62
Tons collected	20.40	28.21	35.84	37.94	56.29
<b>Antifreeze</b>					
Number of programs	55	58	61	62	68
Gallons collected	41,050	32,415	35,492	33,393	26,482
<b>Lead Acid Batteries</b>					
Number of programs	89	95	93	90	91
Number collected	97,290	91,947	83,853	67,662	66,880
<b>Household Haz. Waste</b>					
Number of programs	34	34	40	34	40
Number of permanent sites	17	16	17	20	21
HHW tons collected	1,940.57	2,066.91	2,227.24	2,281.75	2,733.68
Total cost reported	\$4,417,657 \$2,276/ton	\$2,718,980 \$1,315/ton	\$2,729,511 \$1,226/ton	\$2,849,781 \$1,249/ton	\$3,123,480 \$1,143/ton

Conversions: Oil, 1 gal = 7.4 lbs; Antifreeze, 1 gal = 8.42 lbs; Lead Acid Battery, 1 battery = 35.9 lbs

### Yard Waste Management

As to be expected after a severe drought the previous year, total yard waste tonnages increased seven percent from FY 08 to FY 09. The table below details the data for the last two fiscal years, while the chart shows the 13-year trend-line for yard waste diversion by North Carolina municipalities and counties. The steady performance speaks to the effectiveness of the state's yard waste disposal ban in diverting materials, keeping an estimated 7.7 million tons out of landfills over the past 14 years.

As a side note, to stay consistent in counting yard waste over the years, organic materials going to the destination "Private Facility" are not included in the disposal diversion total. However, a good deal of this material is indeed composted at commercial composting facilities, including yard waste managed by Cary, Apex and Asheville. The totals from these three municipalities alone amounts to another 31,000 tons of successfully disposal-diverted yard waste in FY 09.

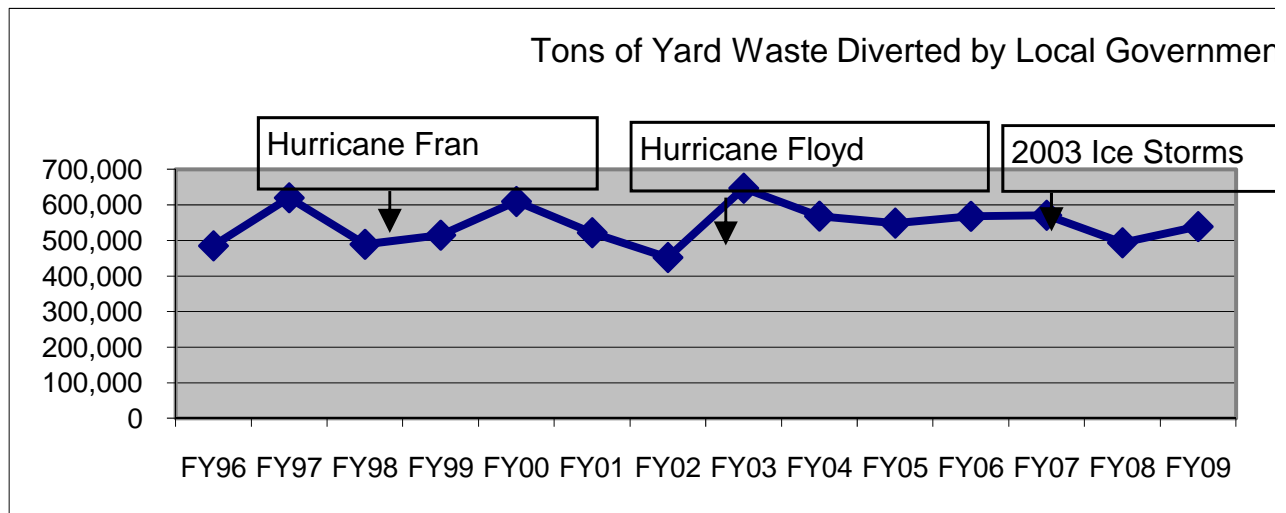
## Local Government Yard Waste Management FY08 and FY09

Destination of Materials	FY 08 Tons Managed	FY 09 Tons Managed	Percentage Change
End Users (direct delivery)	44,759	61,423	+37.2%
Local Mulch/Compost Facility	448,878	478,339	+6.6%
<b>TOTAL DISPOSAL DIVERSION*</b>	<b>493,637</b>	<b>539,762</b>	<b>+9.3%</b>
Other Public Facility**	152,021	136,225	-10.3%
Private Facility	67,494	88,466	+31%
LCID Landfill	114,020	94,367	-17.2%
<b>YARD WASTE TOTALS</b>	<b>675,151</b>	<b>722,596</b>	<b>+7%</b>

\* Tonnes under the row for "Total Disposal Diversion" are not included in diversion because of data redundancy, uncertainty about actual disposition of the waste, and actual disposal of noted tonnages.

\*\* Yard Waste Totals exclude tons for "other public facilities" - it is assumed these tons were captured under other categories.

## Yard Waste Diverted From Disposal by Local Governments, FY96 – FY09



### Recycling Markets and Prices

Recycling prices were strongly affected by the fate of the global economy in FY08-09. After experiencing very high pricing across the board in the summer of 2008, a host of factors led to a precipitous drop in material values in late 2008. The combination of the credit crisis and subsequent collapse in retail consumption and manufacturing worldwide dramatically reduced the demand for all commodities, including recycled materials. A drastic cutback in Chinese manufacturing production and serious downturns in both the housing and automotive sectors, which are big users of recycled-content materials and products, compounded the difficulties for recyclables. Recycled plastics took a double hit as petroleum prices fell and reduced the cost for competing virgin resins.

However, in parallel with the recovery of the general economy, recycling prices gradually but steadily climbed upward over the course of rest of the fiscal year. The close tracking of recycling prices with global economic conditions testifies to the increasing importance of recovered materials as manufacturing feedstock worldwide. Like any commodity, such as petroleum, the demand for recycled materials is driven by the manufacturing and consumption cycle and is increasingly tied to the effects of economic activity in the Far East and other export markets.

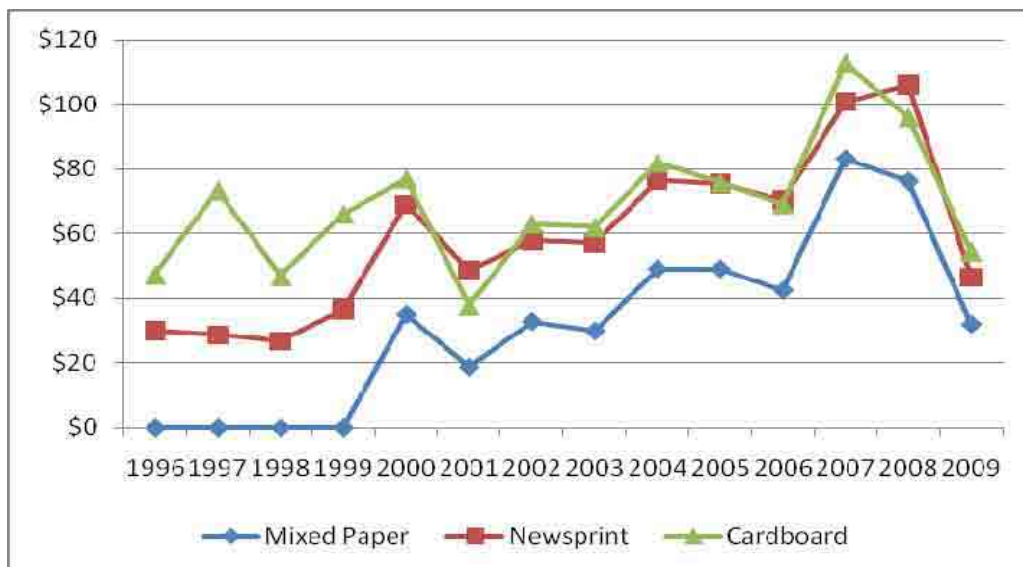
The table below shows composite pricing received by material recovery facilities in North Carolina, reflecting the freefall in prices through the end of 2008 followed by the steady rise in commodity revenues through the first half of 2009.

### Recycling Market Prices Received by Major N.C. Processors, FY 09

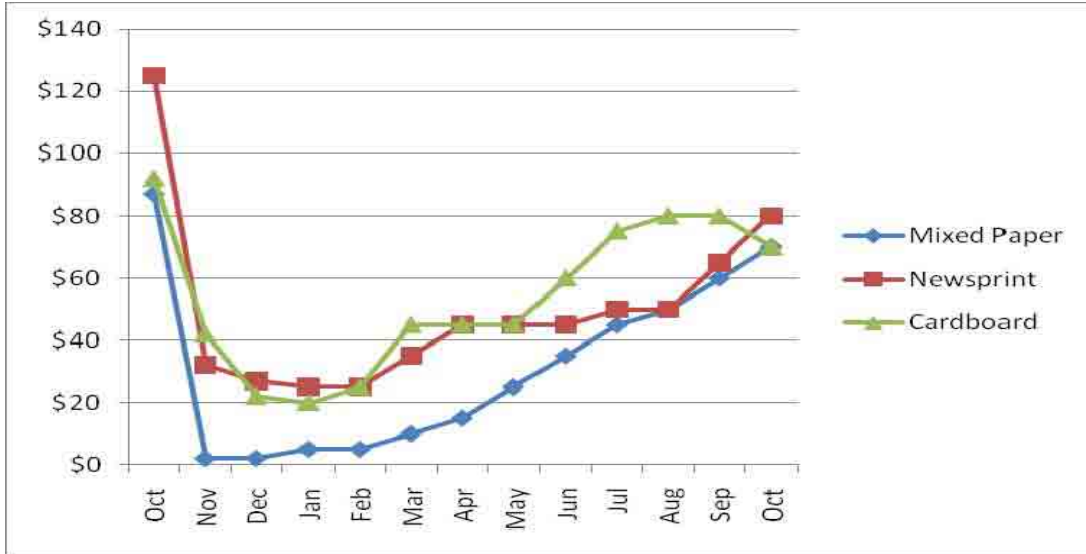
Material	Summer 2008	Fall 2008	Winter 2008/09	Spring 2009	Summer 2009
Aluminum Cans, lbs., loose	\$1.01	\$.75	\$.48	\$.44	\$.57
Steel Cans, gross tons, baled	\$369	\$70	\$13	\$21	\$79
PETE, lbs. baled	\$.19	\$.18	\$.05	\$.10	\$.11
HDPE, lbs., baled	\$.38	\$.37	\$.13	\$.16	\$.22
Newsprint, ton, baled	\$146	\$136	\$25	\$50	\$58
Corrugated, ton, baled	\$117	\$102	\$22	\$52	\$82
Office paper, ton, baled	\$240	\$240	\$123	\$125	\$141
Mixed paper, ton, baled	\$100	\$93	\$5	\$21	\$54
Clear glass, ton	\$25	\$18	\$25	\$25	\$25
Brown glass, ton	\$18	\$18	\$18	\$18	\$18
Green glass, ton	-\$1	-\$1	-\$1	-\$1	-\$1

The figure below presents data on paper mill pricing for the southeastern U.S. as reported in the Official Board Markets Yellow Sheet, a major paper industry trade publication. It shows the dramatic decline in fiber prices at the end of 2008. As Chinese mills resumed production and consumer spending inched back up, increased demand for paper packaging helped push prices upward back into the range of historic norms. The second figure further demonstrates the rebound in pricing with the beginning of 2009.

### Prices Reported for the Southeast for Mixed Paper, Cardboard and Newspaper, 1996 - 2009

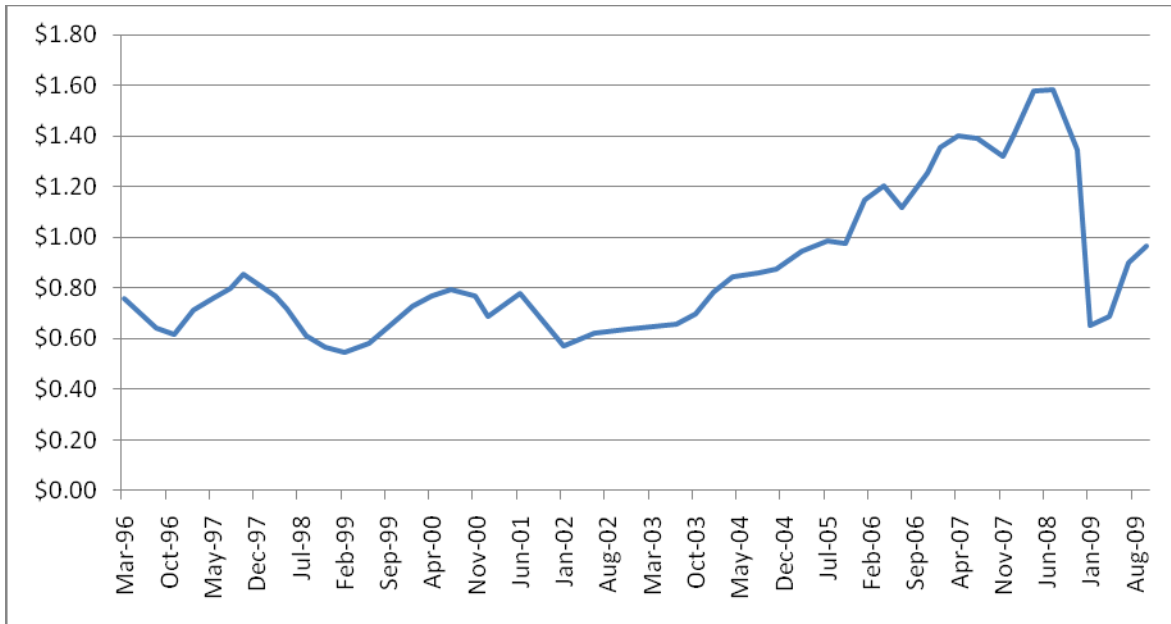


**Prices for the Southeast for  
Mixed Paper, Cardboard and Newspaper, Oct 2008 – Oct 2009**



The figure below shows composite price per pound received by material recovery facilities in North Carolina for container materials since 1996. As with the various fiber grades, PET, HDPE and aluminum prices moved gradually higher to a peak in 2008, followed by a steep fall and then a return to more recent historical levels by the middle of 2009.

**Prices Paid to N.C. MRFs for Container Materials, 1996 - 2009**



**Recycling Market Developments in FY 09**

The market situation took its toll on recyclers in North Carolina and the U.S. as a whole in FY 09. A number of processors found it difficult to move commodities at the end of the year and some were forced to stockpile and warehouse materials while waiting for demand and prices to rebound. One casualty of the collapse was a material recovery facility operated by Pratt



Industries in Charlotte. Open less than a year and at the time the only “single stream” MRF in the area, the facility experienced a combination of operational problems and a drastic drop in revenues that forced its closing in November 2008, leaving a number of communities and other customers struggling to access processing capacity. However, Pratt was able to sustain operations at its MRF in Fayetteville, which continued to handle the city’s curbside program.

The down market required many MRFs in North Carolina to start charging processing fees to their customers by the winter of 2008-09. This unfortunate but necessary step put pressure on community recycling programs just as local governments started to feel the overall negative effects of the recession. The rapid swing from being paid for materials in the middle of 2008 to experiencing processing charges just six months later was a rude reminder that recycling is a commodity enterprise and subject to swings in the manufacturing and consumer economy (in addition to export markets) that municipalities and counties do not control. As a way to hedge against future extremes in the marketplace, one medium-sized city in eastern North Carolina entered into a “floor-ceiling” contract with a MRF in which it would never pay more than \$25/ton in processing fees but never get paid more than \$25/ton in revenues.

As the state’s processing infrastructure weathered the market problems of late 2008, there was brighter news on the horizon as a number of key facilities took steps to convert to single stream capacity. By going single stream, MRFs allow their customers and surrounding communities to transition to cart-based collection systems that improve household recycling storage capacity and collection efficiency. MRFs either upgrading or announcing plans to upgrade to single stream in FY09 included the Sonoco facility serving the Triangle area, Uwharrie Environmental in Montgomery County, and Mecklenburg County’s MRF in Charlotte, operated by FCR.

In addition to these positive developments, North Carolina also received reports of new plants and expansions for a number of recycling end-use and processing companies. Chief among these were plans announced by Clear Path Recycling to build a 280 million pound PET processing plant for Fayetteville to convert soda and water bottles into polyester and recycled bottle resins. When fully built, Clear Path will be the largest PET recycling facility in the world.

Other new recycling capacity in North Carolina included two electronics processing expansions with Creative Recycling Services opening a new facility in Morrisville and Synergy Recycling investing \$15 million in a larger processing center in Rockingham County. Stonewall Packaging in Sylva announced a \$16 million investment in plant to make recycled cardboard, and Sustainable Textile Group announced plans for a \$11 million facility to recycle pre-consumer textiles in China Grove. North Carolina also continued to see the development of numerous small collection companies providing residential and commercial recycling services. New construction and demolition recycling companies also began operations in various parts of the state in FY 09. Despite the serious effects of the recession on recyclable commodities in the middle of the fiscal year and difficult times overall for the state economy, recycling continued to be a source of entrepreneurial activity and job creation in North Carolina in FY 09.

N.C. Solid Waste Management Annual Report Fiscal Year 2008-2009

# Chapter 3

Scrap Tire Management

North Carolina Department of Environment and Natural Resources, Division of  
Waste Management

## CHAPTER 3 – Scrap Tire Management

### Scrap Tire Disposal Account

The Scrap Tire Disposal Account (STDA) was created in 1993 by the General Assembly. For fiscal 2008-09, it received 22 percent of the revenues from the Scrap Tire Disposal Tax.

Starting with the August 1997 distribution, 50 percent of the fund is allocated for cost overrun reimbursements to counties, 10 percent for clean-up of nuisance tire sites and 40 percent for processed tire material market development grants.



### Fiscal 2008-09 Balances

Balance of Funds as of July 1, 2008	\$7,776,789.26
Deposits Received Fiscal 2007-2008	\$3,079,767.13
Total Funds in Account	\$10,856,556.39
Grants to County Scrap Tire Programs	\$1,697,746.95
Nuisance Tire Site Cleanup Program	\$209,911.13
Processed Tire Material Grants	\$143,883.02
Diverted to General Fund	\$6,453,981.00
Balance of Funds as of June 30, 2009	\$2,351,034.29
Obligated funds as of June 30, 2009*	\$1,825,300.00
Net Balance of Funds as of June 30, 2009	\$525,734.29

\* \$1,825,300 obligated: \$815,300 for tire cleanup and \$1,010,000 for grants to counties

### Tire Tax Distribution

#### TIRE TAX DISTRIBUTION Fiscal 2008 – 09

Total Collections	\$14,245,460.13
Dept. of Revenue Cost of Collecting	\$292,474.39
Scrap Tire Disposal Account	\$3,069,656.86
Solid Waste Management Trust Fund	\$1,116,238.86
Distributed to Counties	\$9,767,090.02

Of the state's tire disposal tax revenue, 70 percent is distributed to counties on a per capita basis. In the past year, the total amount distributed was \$9,767,090.02. This subsidized tire disposal costs for the counties, but did not cover the expenses of some counties. The total distributed to the counties represented 89 percent of the total reported disposal costs of \$10,919,679.60.

Counties whose scrap tire disposal costs exceed the amount they receive in their allocation of the tire tax can apply for a grant from the scrap tire disposal account to cover the deficit. Historically, the amount of grant funds requested by counties has surpassed availability. Scrap tire legislation requires the division to consider county efforts to avoid free disposal of out-of-state tires and other ineligible tires and county program efficiency in using their allocated funds when making decisions about grant awards. For the first grant cycle of this fiscal year, 54 counties requested \$1,014,906 and were awarded \$759,188. In the second grant cycle, 55 counties requested \$1,197,679 and were awarded \$938,558.

**Processed Tire Material Market Development Grants**

The goal of the division's processed tire material market development grant program is to make scrap tire recycling sustainable in North Carolina. Since receiving its first allocation of funds in August 1997, the program has spent \$4,475,883 on nine projects that created new or expanded existing markets for processed tire material. These have included modifications to a boiler system to facilitate the use of tire derived fuel, expansion of manufacturing capacity of solid rubber wheels, testing for regulatory approval of using tire chips in bed system drain fields, research to increase amount of recycled rubber in manufacture of new tires, expansion of tire derived fuel production to meet market demand, and assistance in the construction of the first ground rubber production facility in the state.

The division continues to look at opportunities that promote sustainable scrap tire recycling. Due to the state budget shortfall, the balance in the processed tire material market development fund was diverted to the state general fund. As the grant program receives future distributions from the scrap tire tax, new projects will be considered.

**Tire Cleanup Program**

Improper management of scrap tires can result in illegal dump sites. These sites can breed mosquitoes and other vectors which pose a public health threat and are a fire hazard. A tire fire can result in damage to air quality, surface water and ground water.



A total of 388 nuisance tire sites have been identified in North Carolina: 360 have been cleaned and 26 sites have cleanups underway. The remaining two sites are under investigation. Counties are encouraged to locate and help facilitate the cleanup of small tire sites through countywide cleanup activities.

Status	Number of Sites	Total Known Tires	Total Tires	Cleared Tires
Cleaned Up	360	8,830,866	94.7%	8,830,866
Under Clean Up	26	486,280	5.2%	112,332
Remaining Sites	2	11,000	0.1%	0
<b>TOTAL</b>	<b>388</b>	<b>9,328,146</b>	<b>100%</b>	<b>8,943,198</b>

The law requires the division to first address nuisance tire sites that pose the greatest threat to public health and the environment. For this reason, the largest identified sites have been cleaned up. The section has established and implemented a specific cleanup plan for each known nuisance tire site. As new sites are discovered, prompt investigation leads to a cleanup plan for each site within 30 days. The plan is implemented as soon as possible to minimize potential threats to human health and the environment. The section is committed to the N.C. Big Sweep program and other countywide cleanup efforts, with reimbursements going to counties that request funds to dispose of scrap tires collected by these events.

To date, 185 nuisance tire sites were cleaned using Scrap Tire Disposal Account funds. Cost recovery enforcement efforts collected \$456,373.30 from responsible parties in 16 of these sites. As a cost-saving measure, minimum-security inmates have been used to help remove tires from

numerous nuisance tire sites in 28 counties. A total of 175 nuisance sites have been cleaned up by the responsible person(s) and/or landowner.

### Scrap Tire Generation

The Environmental Protection Agency's standard to estimate scrap tire generation is one tire per person, per year.<sup>1</sup> The 2008 North Carolina population was about 9.2 million. So it is estimated an equal number of tires were generated. This includes passenger, truck and tires for special uses such as off-road equipment and tractors. Counties report tires collected in either tons (most counties report tons collected) or the number of tires. Tons can be converted to number of tires to be compared to the population to determine the state's scrap tire generation rate. Several methods of converting tons to number of tires have been used over the years in an attempt to be most accurate. An EPA workgroup consisting of state scrap tire regulators, including North Carolina, has developed a conversion method for all states to use that will provide consistency in reporting. This is beneficial by providing greater accuracy in compiling national reports that track trends in scrap tire management and recycling.



During fiscal 2008-09, North Carolina counties reported having disposed of 7,705,569 tires (calculated using the EPA workgroup method). Comparing scrap tire generation to population results in 0.84 scrap tire per person. This is a marked decrease from last year, representing about 571,000 less scrap tires collected by the counties. This is likely due to the slow economy, with residents replacing tires less often and more tires being removed from the waste stream to be sold as used tires.

### Scrap Tire Collection

All counties are required to provide a facility for scrap tire collection and to report on their management programs. In fiscal 2008-09, North Carolina businesses and individuals disposed of approximately 153,366 tons of tires. These tires were managed by county collection facilities and private processing/disposal facilities as follows:

138,714 tons	Managed by counties and shipped to two N.C. processing firms
237 tons	Managed by counties and shipped to out-of-state processors
<u>14,415 tons</u>	Tires taken directly to processing firms (not managed by counties)

**153,366 tons Total**

Counties reported receiving approximately 138,950 tons from N.C. scrap tire generators. The counties shipped about 138,714 tons to two private North Carolina recycling facilities; the remaining tons were shipped to out-of-state processors.

Two private N.C. tire processing firms received 138,714 tons from county tire programs and an additional 14,415 tons directly from disposers not participating in county tire programs. These may be individuals involved in privately-funded cleanups or tire dealers not participating in a county program. In addition, the two N.C. processors received 36,273 tons of tires from other states.

The tire program's success is proven by the number of tires properly disposed at permitted facilities. When free disposal was implemented in 1994 for scrap tires generated in the normal

<sup>1</sup>"Markets for Scrap Tires," 1991. U.S. EPA, Office of Solid Waste. EPA/530-SW-90-074A. Washington, DC

course of business in North Carolina, a potential problem emerged of illegal free disposal of out-of-state tires at county collection sites. Counties should be diligent in screening scrap tires brought for disposal to identify out-of-state tires and other tires not eligible for free disposal. Those that do not are likely spending a portion of their tire tax revenues for disposal of out-of-state tires.

The section assists counties in how to avoid fraudulent disposal of out-of-state tires. County efforts to deter disposal of out-of-state tires is an eligibility factor when awarding grants from the Scrap Tire Disposal Account to cover cost over-runs.

### **County Tire Disposal**

There are 98 county programs, including one regional program [Carteret, Craven and Pamlico (CRSWMA)]. Counties reported spending a total of \$10,919,676.60 for scrap tire disposal. The reported costs for scrap tire disposal varied greatly. Some counties only report disposal costs while other counties include associated costs, such as personnel or equipment. Counties with unusually low costs may stockpile tires during the year rather than sending them for processing. Some of the fluctuation is probably due to recordkeeping errors or county reporting errors. Also, some counties manage scrap tires inefficiently. For example, counties that allow residents to dispose tires at multiple recycling facilities or provide curbside pickup incur increased labor costs to recover and load tires into trailers.

Tire disposal costs charged by processors are competitive in North Carolina. North Carolina processors report that county contracts typically charge \$70-\$85 per ton, including transportation and trailer rental costs. Counties at a distance from processing facilities may pay as much as \$85-\$100 per ton.

#### **COUNTY REPORTS OF SCRAP TIRE DISPOSAL**

<b>County</b>	<b>Tons Collected</b>	<b>Tax Revenue</b>	<b>Total Costs</b>	<b>Contract Cost</b>
Alamance	2741	\$154,146.32	\$215,812.79	\$76.56
Alexander	397.08	39,619.98	35,420.49	79.00
Alleghany	219.35	11,994.35	20,183.00	60.00
Anson	298.1	27,465.83	23,549.90	79.00
Ashe	513.24	28,113.42	43,231.50	60.00
Avery	223.74	19,789.39	23,036.00	102.96
Beaufort	1104.55	50,011.61	DNR	DNR
Bertie	207.97	21,461.08	17,885.42	86.00
Bladen	506	35,332.68	43,623.95	71.30
Brunswick	1189.83	106,440.88	127,952.82	76.24
Buncombe	2232.35	243,235.51	225,470.00	77.70
Burke	1222.26	95,914.71	100,229.13	70.00
Cabarrus	1995.55	176,014.84	90,778.15	65.00
Caldwell	1292.44	86,002.72	84,035.98	804.00
Camden	51.43	10,246.65	12,229.95	1,144.00
Caswell	128.6	25,481.88	10,463.62	51.77
Catawba	3115.05	165,579.48	247,385.13	74.00
Chatham	697.65	63,690.83	53,318.46	69.24
Cherokee	322.03	29,227.77	44,108.95	1,040.00
Chowan	504.15	15,889.36	45,232.30	51.92
Clay	160	11,137.01	18,925.45	1,300.00
Cleveland	1298.79	105,154.67	133,887.14	63.00
Columbus	1354.65	59,080.74	109,217.17	76.42
CRSWMA	2658.89	186,981.90	239,808.15	53.89
Cumberland	4610.31	337,788.88	281,228.91	61.00
Currituck	236.26	25,655.82	37,323.81	104.83
Dare	415.51	37,262.64	50,594.10	N/A

Davidson	2178.23	169,190.16	163,006.91	71.00
Davie	521.78	43,653.99	42,626.18	79.00
Duplin	818.70	57,458.64	84,895.64	877.41
Durham	2999.66	273,729.34	272,969.06	90.57
Edgecombe	1024.04	56,400.65	69,422.61	1,039.00
Forsyth	5743.70	365,026.16	476,044.44	80.90
Franklin	693.47	60,846.69	52,703.72	76.00
Gaston	2899	216,697.60	227,987.65	81.25
Gates	128.68	12,744.69	11,001.71	51.92
Graham	112.65	8815.89	9960.00	830.00
Granville	612.27	59,787.78	49,485.55	80.82
Greene	220.92	22,796.23	24,013.56	79.26
Guilford	6274.40	495,905.87	456,776.55	72.80
Halifax	837.43	60,064.69	84,172.70	921.08
Harnett	1235.37	114,599.20	77,592.97	47.00
Haywood	832.12	61,699.24	108,407.72	144.75
Henderson	1397.08	110,094.51	138,700.04	78.00
Hertford	433.93	25,762.01	34,527.50	1,013.40
Hoke	472.30	46,311.81	37,203.76	75.71
Hyde	62.27	5,922.34	9,326.88	92.19
Iredell	3016.71	161,481.66	245,988.60	77.00
Jackson	514.10	39,749.80	59,180.71	102.80
Johnston	2373.64	168,778.12	187,870.75	63.68
Jones	187.95	11,180.06	19,071.27	75.71
Lee	873.85	60,773.97	45,827.10	51.00
Lenoir	1410.97	62,628.55	123,590.77	84.12
Lincoln	1108.50	78,435.00	92,895.14	107.00
Macon	750.17	39,416.09	82,951.79	85.00
Madison	179.41	25,950.11	21,618.50	1,354.00
Martin	382.89	24,883.11	31,306.52	78.55
McDowell	867.50	41,911.78	80,477.44	83.00
Mecklenburg	16,234.69	924,687.07	1,191,965.74	74.00
Mitchell	350	17,273.17	40,225.20	1,056.00
Montgomery	421.67	29,874.88	29,150.22	69.13
Moore	949	90,476.30	45,501.37	47.94
Nash	1220.40	100,492.64	105,623.73	83.50
New Hanover	3213.56	204,109.21	265,767.02	83.00
Northampton	429.53	23,099.86	31,920.00	74.31
Onslow	2458.10	181,081.91	195,320.63	79.46
Orange	1403.65	136,949.41	104,775.69	80.86
Pasquotank	847.19	44,030.27	75,840.43	57.46
Pender	788	54,147.99	72,145.00	61.00
Perquimans	293.11	13,704.61	24,959.00	51.92
Person	387.93	40,736.32	38,259.20	845.00
Pitt	2701.65	163,047.53	212,389.35	74.36
Polk	143.18	20,647.00	17,985.00	125.61
Randolph	2153.61	150,853.97	151,708.50	66.15
Richmond	863.67	50,590.37	49,577.36	52.02
Robeson	1386.64	140,155.82	101,627.00	73.29
Rockingham	1306.40	99,378.50	89,945.00	65.30
Rowan	2123.22	147,342.20	183,881.65	1.13
Rutherford	1292.62	68,272.62	102,185.95	0.95
Sampson	1597.31	69,789.30	142,412.00	89.22

Scotland	578.97	39,964.24	37,407.79	73.24
Stanly	812.05	64,105.17	64,125.41	73.00
Stokes	536.73	50,155.46	50,180.79	79.25
Surry	1848.26	79,230.76	137,502.05	74.40
Swain	212.63	15,067.14	19,044.00	1,025.00
Transylvania	344.95	33,216.57	36,463.66	92.00
Tyrell	52.33	4,634.54	4,866.50	93.00
Union	1974.86	194,572.67	134,290.48	68.00
Vance	783.93	47,334.39	DNR	DNR
Wake	11,781.09	889,689.53	737,399.00	45.00
Warren	239.22	21,602.61	23,898.12	81.00
Washington	371.11	14,364.42	36,019.28	85.00
Watauga	663	48,058.40	41,235.00	60.00
Wayne	2084.23	124,790.55	182,865.00	815.00
Wilkes	893.99	72,733.95	118,140.96	63.00
Wilson	3155.94	84,352.93	193,065.44	60.00
Yadkin	386.23	41,009.08	39,361.86	69.25
Yancey	305.65	20,049.98	34,113.21	0.97
<b>TOTAL</b>	<b>138,950.25</b>	<b>\$9,767,090.03</b>	<b>\$10,919,676.60</b>	

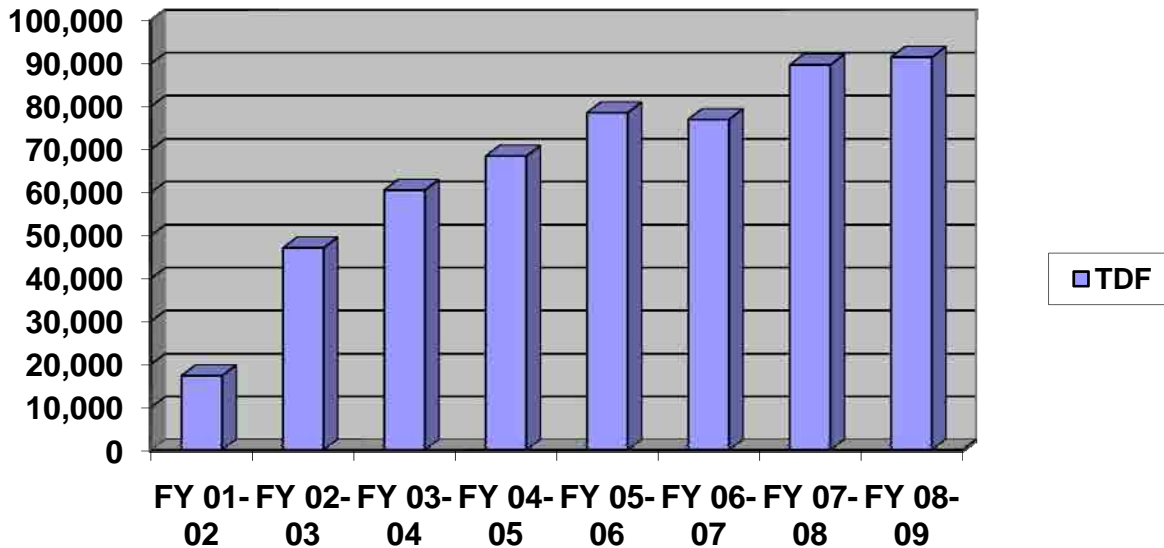
DNR=Did Not Report

The information in this table was taken from the Dept. of Revenue reports of tire tax distribution and from the Scrap Tire Management Annual Reports submitted by the counties. The contract cost is either per ton, per load or per tire.



## Tire Recycling

In fiscal 2007-08, 78 percent of tires received by the two North Carolina processing facilities were recycled. In order of weight recycled, the categories are tire-derived fuel, crumb/ground rubber, other rubber products, civil engineering (including drain field material), and recap/resale. Ground rubber moved to second on the list this year, up from fourth last year. The remaining tires go to the two permitted tire monofills in the state. The market for tire-derived fuel (TDF) has seen strong growth in the last few years. In fiscal 2008-09, 91,392 tons of TDF were produced, up from 89,616 tons in fiscal 2007-08. One North Carolina processor, Central Carolina Tire Disposal, added an additional TDF production line last year to meet increased demand, which resulted in the increase in TDF production. This processor also added new equipment last year for the production of crumb/ground rubber. The combination of the additional TDF production capacity and the new ground rubber production line increased tire recycling at this facility to 98.9 percent this year. The section is actively pursuing new opportunities for sustainable scrap tire recycling.



N.C. Solid Waste Management Annual Report Fiscal Year 2008-2009

# Chapter 4

White Goods Management

North Carolina Department of Environment and Natural Resources, Division of  
Waste Management

## CHAPTER 4 - White Goods Management

"White goods" are defined in General Statute as, "refrigerators, ranges, water heaters, freezers, unit air conditioners, washing machines, dishwashers, clothes dryers and other similar domestic and commercial large appliances." In 1993, the North Carolina General Assembly passed the statute because white goods were difficult to dispose of and contained chlorofluorocarbons refrigerants (CFCs). Counties were mandated to manage them by providing at least one disposal site, at no cost to citizens, and to arrange for the removal of CFCs. To fund this statute, the General Assembly imposed a \$3 tax (Advanced Disposal Fee or ADF) on new white goods purchased.

### White Goods Management by County Governments

The banning of white goods from landfills in 1989 has encouraged recycling and better management. Comprehensive white goods management laws enacted in 1993 included an ADF. In 1998, Senate Bill 124 extended the fee for three years, but reduced it from \$10 to \$3. In 2000, the sunset on the fee was removed.

The major accomplishment of the program is a drastic reduction in illegal dumping of white goods. The critical factor was requiring local governments to provide collection sites at no cost to residents. Grant and ADF funding make it possible to cleanup illegal dumpsites. Previously, many counties gave white goods a low priority and under-funded their management. The white goods account makes it possible for counties to obtain the specialized equipment or develop collection and loading areas needed to improve white goods management.

In fiscal 2008-09, 40 counties reported that they collected 18,445 tons of white goods. In comparison, in fiscal 1991-92, all 100 counties collected 25,749 tons of white goods. Without the program, large numbers of appliances would have likely been dumped or stockpiled.

### CFC Collection

All counties should continue to implement proper management practices to capture and recycle CFCs. This practice avoids the illegal venting of CFCs into the atmosphere and creates a potential revenue source for counties from the sale of CFCs.

The accidental and intentional venting of CFCs due to poor management practices may be more widespread than previously thought. Even though gas venting is unlawful and markets exist for reclaimed CFCs, reports from sources in the field indicate that some counties and metal recyclers contracted by counties, accidentally and intentionally vent CFCs into the atmosphere on a routine basis. Proper extraction of CFCs from appliances is considered to be time-consuming, requires trained personnel, specialized equipment and may be given low priority among solid waste programs.

The white goods program is actively promoting counties to reclaim more refrigerant gasses from appliances. In doing so, state officials are emphasizing that the program can provide funding for the purchase of equipment, the training of personnel and supplying information for private sector sources to help counties find markets for reclaimed CFCs. State officials hope that the net result will be a decrease in the amounts of ozone-depleting CFCs released into the environment, while at the same time providing a new revenue source for counties through the sale of reclaimed CFCs.



CFC Collection In this photo, CFC bearing appliances are lined up and prepared for extraction of their gases.

Appliances use an average of one-half pound of refrigerant per unit. These are pollutants that, without county efforts at recycling, would have been released into the atmosphere causing damage to the earth's ozone layer. Since 2007, with less than half of counties reporting annually, counties stated they had reclaimed 545 pounds of refrigerant R-12, 1066 pounds of refrigerant R-22, 211 pounds of refrigerant R-134 and 2093 pounds of non-specific refrigerants.

### Current Trends in White Goods Management

- Scrap metal prices have fallen somewhat during fiscal 2008-09 in concurrence with the general economy. However, even though general economic conditions in the United States have not greatly improved, the demand for scrap metal has not followed the domestic demand. It would appear that scrap metal prices have decoupled to a great extent from domestic demand and are now more dependent on overseas demand. As a result, many counties enjoy good returns on their recycled appliances and other scrap metal sold.
- Due to sparse populations and small tax bases, a few rural counties will continue to require support of their white goods programs with grants from the program.
- Some counties do not use the white goods tax money for its intended purpose and the money is then deposited into the county's general fund.

### White Goods Management Costs

Counties can use the white goods ADF proceeds disbursed quarterly by the N.C. Department of Revenue for daily expenses incurred to recycle white goods. Expenses for these programs include fuel, labor and the cost of associated items.

Funds can also be used for one-time expenses, such as purchasing specialized equipment and making site improvements for better management. Low or high program costs are not necessarily good indicators of program efficiency. This means that counties with minimal costs are not necessarily more efficient than counties with high costs. Some counties with low program costs are marginally in compliance with the law's intent.



- Daily Operations
- Capital Improvements
- Clean Up Illegal Disposal Sites

County reporting indicates that 80 percent of the counties' budgets is spent on daily operations, 15 percent is for capital improvements, and 5 percent is spent to cleanup illegal disposal sites.

County costs for white goods programs can vary and are dependent on the extent of intra-county collections, the degree of recordkeeping, whether a county has a cost allocation plan, and the availability of a local market.

Due to the value of scrap metal, many counties have metals recyclers willing to provide free pickup from county collection sites and/or provide CFC recovery in exchange for access to the scrap metal. Despite scrap metal having value, a small number of counties continue to pay private contractors to collect and haul scrap metal with little or no remuneration to the county.

White Goods Management Account

The White Goods Management Account was established to help counties whose costs exceed their share of Advanced Disposal Fee (ADF) revenue. Although 72 percent of the net disposal fee collections was allotted for distribution, ineligible counties forfeited some of that money. The white goods management account receives 20 percent of net collections as well as these forfeited funds.

Net white goods ADF collections in fiscal 2008-09 totaled \$4,258,053.67. Funds were disbursed from the N.C. Department of Revenue as follows:

- \$2,851,137.46 Allocated for direct distribution to counties  
(\$2,364,362.35 distributed to counties plus \$486,775.11 forfeited by ineligible counties)
- \$791,981.88 Allocated for the white goods management account
- \$316,793.05 Solid Waste Management Trust Fund
- \$298,140.54 N. C. Revenue Department cost of collections

In early 2009, \$1 million was transferred from the white goods account to the state General Fund to aid with the state budget shortfall.

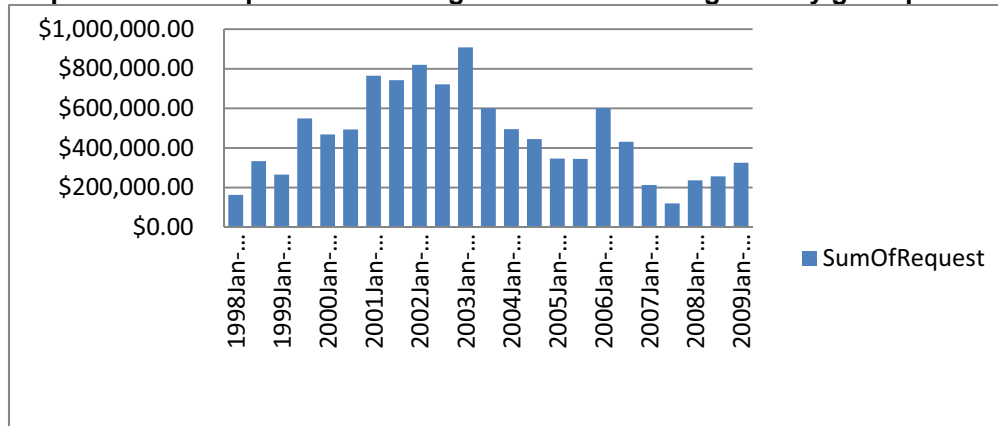
**WHITE GOODS MANAGEMENT ACCOUNT BALANCE FY 08-09**

Beginning Balance (July 1, 2008)	\$ 1,777,998.72
Funds Received during FY 08-09 *	\$ 1,278,757.73
Capital Improvement and Cost Overrun Grants	\$ (664,742.03)
NC Budget Shortfall Transfer to General Fund	\$ (1,000,000.00)
Moneys Needed for Future Grant Awards **	\$ (1,000,000.00)
Subtotal (June 30, 2009)	\$ 421,191.18
Encumbered Grant Awards as of June 30, 2009	\$ (92,938.12)
Ending Balance	\$ 328,235.06

\* \$791,981.88 allocated to White Goods Mgmt Acct plus \$486,775.11 forfeited by ineligible counties)

\*\* \$500,000 reserved for capital improvement grants and \$500,000 reserved for overrun grants.

**Graph 1 Sum of requests for white goods cost overrun grants by grant period**



The above graph shows that the amounts requested by counties in the last fiscal year have increased slightly. This is to be expected since county costs for managing white goods is closely tied to the price paid for scrap metal. As the price of scrap metal rises, counties use the added revenue to pay for operational expenditures. When scrap metal prices fall, counties require cost overrun grants to meet expenditures. The rise in the amounts counties are requesting is due to the fall in prices paid for scrap metal since the previous fiscal year.

A recession in the early part of the decade saw counties applying for cost overrun grants to meet expenditures due to the low value of scrap metal. Efforts to improve efficiency by providing money for counties to invest in infrastructure somewhat offset falling scrap metal prices.

[Funds to Expand Programs](#)

Counties who are or will be experiencing moderate-to-high growth rates in the coming years would benefit greatly from upgrades in their facilities in anticipation of the growth in their populations. Improved infrastructure for white goods means that it costs less for counties to manage their white goods, decreases the environmental impact of white goods, and improves the returns the counties receive for the value of their white goods as scrap metal. This has the effect of easing constraints on limited local funding.

[Utilization of Funds](#)

Though the white goods program has had many accomplishments, some problems remain. Some counties ignore the white goods law by not allocating white goods tax distributions to their white goods programs. This means that some county white goods programs are underfunded.

Many local governments are privatizing their white goods management. Privatization does not necessarily mean that programs are more efficient. In many instances, privatized white goods management is incorporated into a more comprehensive solid waste contract between a local government and a private firm, making it more difficult to measure program efficiency.

As shown in Tables 1 and 2 below two separate rounds of grants were approved during fiscal 2008-09 which totaled \$364,927.15. Grant period 1 - \$127,488.12 to 21 counties and grant period 2 - \$241,709.14 to 21 counties.

**Table 1** Grant requests and awards from the White Goods Disposal Account for losses incurred July-December 2008

County	ADF	Amount Requested	Amount Awarded
Camden	\$1,677.00	\$4,963.00	\$4,963.00
Chatham	\$10,423.41	\$26,305.69	\$2,630.57
Chowan	\$2,582.59	\$5,084.75	\$5,084.75
Columbus	\$9,594.02	\$32,833.22	\$16,416.61
Currituck	\$4,180.60	\$284.64	\$284.64
Edgecombe	\$9,127.71	\$4,734.62	\$4,734.62
Gates	\$2,082.00	\$6,439.24	\$4,829.43
Haywood	\$10,046.94	\$5,496.07	\$5,496.07
Hyde	\$959.58	\$4,660.42	\$4,660.42
Lenoir	\$10,154.58	\$18,996.22	\$9,498.11
McDowell	\$7,762.59	\$9,287.41	\$6,965.56
Mitchell	\$2,809.85	\$25,157.52	\$12,578.76
Nash	\$6,605.42	\$32,335.85	\$24,251.89
Northampton	\$3,740.89	\$6,059.41	\$605.94
Orange	\$46,622.00	\$30,446.00	\$3,044.60
Perquimans	\$2,241.19	\$6,071.36	\$6,071.36
Rutherford	\$11,085.44	\$22,242.46	\$2,224.25
Tyrrell	\$755.75	\$4,671.73	\$4,671.73
Warren	\$3,509.06	\$610.23	\$610.23
Washington	\$2,327.87	\$7,590.03	\$5,692.52
Watauga	\$7,873.93	\$2,173.07	\$2,173.07
<b>TOTAL</b>			<b>\$127,488.13</b>

**Table 2** Disposal grant requests and awards from the White Goods Account for losses incurred January- June 2009.

County	ADF	Amount Requested	Amount Awarded
Brunswick	\$13,742.87	\$22,023.97	\$22,023.97
Camden	\$1,316.00	\$7,240.00	\$7,240.00
Chatham	\$8,177.17	\$35,936.70	\$17,968.35
Chowan	\$2,026.06	\$11,417.12	\$11,417.12
Cleveland	\$13,425.57	\$9,655.92	\$9,655.92
Columbus	\$7,526.52	\$11,630.36	\$11,630.36
Edgecombe	\$7,160.69	\$20,790.73	\$20,790.73
Gates	\$1,633.42	\$12,080.71	\$9,060.53
Haywood	\$7,881.84	\$36,928.42	\$18,464.21
Hyde	\$752.79	\$4,781.21	\$4,781.21
McDowell	\$6,089.76	\$11,550.24	\$11,550.24
Nash	\$12,841.10	\$46,993.29	\$23,496.65
Northampton	\$2,934.73	\$3,502.77	\$3,502.77
Orange	\$17,599.39	\$50,071.41	\$12,517.85
Perquimans	\$1,758.21	\$11,832.83	\$11,832.83
Rutherford	\$8,696.54	\$29,467.38	\$29,467.38
Stokes	\$6,392.84	\$9,556.16	\$4,778.08
Transylvania	\$4,250.84	\$5,431.84	\$2,715.92
Tyrrell	\$592.89	\$6,769.17	\$1,692.29
Warren	\$2,752.86	\$2,852.61	\$2,852.61
<b>TOTAL</b>			<b>\$237,439.02</b>

Capital improvement grants totaling \$392,793.00 were awarded to five counties as shown in Table 3.

**Table 3 Capital Improvement Grants Paid to Counties for Fiscal Year 08-09**

County	Amount	Purpose
Currituck	\$91,680.69	white goods pad
Washington	\$126,337.00	white goods pad, push wall, skid steer
Stanley	\$31,594.62	baler and band saw for white goods recycling
Edgecombe	\$103,180.69	knuckleboom loader and CFC equipment
Washington	\$40,000.00	skid steer

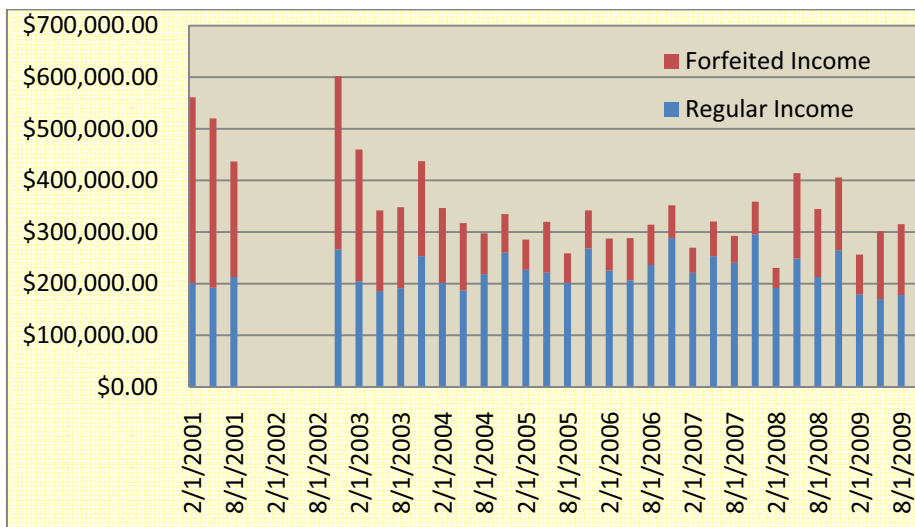


The haphazard manner with which some appliances are managed, which is shown in the picture to the left and the use of a poor white goods management site, indicates that this program continues to need improvement.

The use of capital improvement grants continues to bring necessary upgrades to the county programs. This will help them save money, air quality and the aesthetic value of state roads and natural settings.

As graph 1 demonstrates, the total of the amounts requested has decreased gradually and steadily during the decade. As graph 2 below depicts, the amount of available funds has also fallen since the early part of the decade.

**Graph 2 White Goods Revenues by Fiscal Quarters**

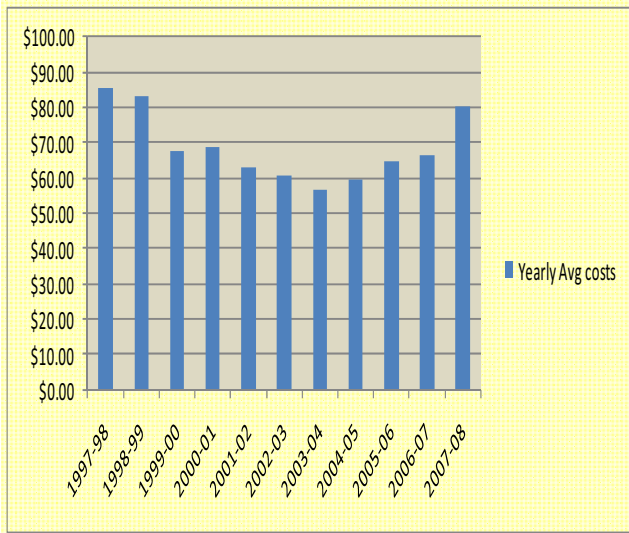


*Note: blank areas indicate no revenues received*

The blue bars indicate the amount of funds the white goods program receives as its share of the advance disposal fee and is a measure of the amount of sales of new white goods in North Carolina. The red bars indicate the revenues the program receives from counties that forfeit their share of the advance disposal fee due to their ineligible status. Counties become ineligible when they fail to submit their AFIRs to the Local Government Commission by March 1 or by exceeding the threshold amount in their AFIRs. Forfeited income remains the secondary source of the white goods program's revenues. Funds are received into the white goods account from the N.C. Department of Revenue 45 days from the end of the fiscal quarter.



**Graph 3 Yearly averages per ton costs**



Graph 3 shows the amount paid by counties on a yearly average per ton cost in dollars to manage white goods. Costs for managing white goods include, but are not limited to, fuel and labor for hauling, loading, and CFC reclamation.

Economic conditions affect costs related to white goods. When economic conditions are poor, such as in fiscal 2008-09, county solid waste departments collect less white goods and average per ton costs increase because citizens have less to spend and may put off making new white goods purchases. These costs are tied to the general price paid for scrap metals and to the overall amounts of white goods collected. When economic conditions improve more money becomes available and residents look to replace appliances.

**Forfeited Funds**

Determination of forfeited funds is based on information supplied by counties' annual financial information reports (AFIRs). AFIRs are submitted to the Office of the State Treasurer. AFIRs are due by Nov. 1. Counties that did not submit their AFIR last year became ineligible to receive tax proceeds in March 2009. The forfeited funds were submitted to the White Goods Management Account. (Based on FY 07-08 AFIR Reports)

Alexander	Burke	Greene	Madison	Randolph	Yadkin
Anson	Cherokee	Harnett	Montgomery	Richmond	Yancey
Ashe	Chowan	Henderson	Nash	Robeson	
Avery	Craven	Hoke	Northampton	Sampson	
Beaufort	Forsyth	Iredell	Onslow	Scotland	
Bertie	Gates	Jones	Pamlico	Union	
Bladen	Graham	Lincoln	Pender	Wilson	

Counties that will not receive ADF distributions in March 2010 because undesignated balances exceed their threshold amounts are as follows. (Based on fiscal 2008-09 AFIR Reports)

Alexander	Avery	Forsyth	Gaston
Iredell	Martin	Montgomery	Randolph
Montgomery	Randolph		

At the time this report was prepared 40 counties had submitted their AFIRs. Counties that did not report as of Dec. 17, 2009:

Alamance	Anson	Ashe	Beaufort	Bertie	Burke
Caldwell	Camden	Caswell	Cherokee	Columbus	Craven
Currituck	Dare	Davidson	Davie	Edgecombe	Gates
Graham	Granville	Greene	Halifax	Harnett	Haywood
Henderson	Hertford	Hoke	Hyde	Jackson	Johnston
Jones	Lincoln	Macon	Madison	Moore	Nash
New Hanover	Northampton	Orange	Pamlico	Pender	Perquimans
Pitt	Polk	Richmond	Robeson	Rowan	Sampson
Scotland	Stanly	Transylvania	Tyrrell	Union	Wake
Warren	Watauga	Wayne	Wilkes	Yadkin	Yancey

N.C. Solid Waste Management Annual Report Fiscal Year 2008-2009

# Chapter 5

Solid Waste Management Trust Fund

North Carolina Department of Environment and Natural Resources, Division of  
Pollution Prevention and Environmental Assistance

## **CHAPTER 5**

### **FISCAL 2008-09 SOLID WASTE MANAGEMENT TRUST FUND**

This report details the activities and expenditures of the Solid Waste Management Trust Fund for fiscal 2009 (July 1, 2008 - June 30, 2009). The trust fund is administered by the N.C. Division of Pollution Prevention and Environmental Assistance in the N.C. Department of Environment and Natural Resources. The trust fund was created by the Solid Waste Management Act of 1989 (SB 111). It is funded primarily by a portion of the revenues from advanced disposal fees on the sale of new tires and white goods (appliances), the new tax on solid waste disposal and a tax on virgin newsprint. Additional revenues can come from appropriations and contributions. The purpose of the trust fund is to support a range of solid waste management activities including: technical assistance to local governments, businesses, and other entities on solid waste issues; public educational programs; research and demonstration projects; and recycling market development (G.S. 130A- 309.12).

As noted in the table below, the Solid Waste Management Trust Fund received \$2,455,632 in revenues in fiscal 2009. When added to the beginning balance on July 1, 2008 of \$1,421,749, a total of \$3,877,381 was managed in the trust fund for fiscal 2009. Actual expenditures were \$1,427,084, leaving a fund balance at the end of fiscal 2009 of \$2,453,297. However, a total of \$1,243,253 of that balance was encumbered for existing grant contracts that had been awarded and for which funding had not been fully disbursed (grant contracts are paid on a reimbursement basis). The unencumbered balance at the end of fiscal 2009 was \$1,210,044. An additional set of grant contracts were in the process of being encumbered at the end of the fiscal year, which further reduced the available balance entering fiscal 2009.

#### **FY 09 Trust Fund Expenditures and Revenues**

	Total FY 09
Beginning Balance	\$ 1,421,749
+ Revenue	\$ 2,455,632
- Expenditures	\$ 1,427,084
Ending Balance	\$ 2,453,297
Encumbrances	\$ 1,243,253
Unencumbered funds on 6/30/09	\$ 1,210,044

#### **Breakdown of FY 09 Revenue Sources**

Revenue Source	Total FY 09
Tire Tax	\$ 1,116,239
White Goods ADF	\$ 330,747
Newsprint Tax	\$ 35
Solid Waste Disposal Tax	\$ 972,303
Appropriations	\$ 0
Contributions and Misc.	\$ 36,308
Total Revenues	\$ 2,455,632

#### **TRUST FUND REVENUE SOURCES - FISCAL 2009**

As noted in the table above, trust fund revenues in fiscal 2009 came from five of the six possible sources identified in the general statutes. Activity from each revenue source is described below and additional details on the funding sources are available in Attachment A.

**2 percent Tire Tax** – Trust Fund revenues from the tax on the sale of new tires accounted for \$1,116,239 in fiscal 2009, an increase of 10 percent from FY 08. Tire revenue accounted for close to 46 percent of total trust fund revenues for fiscal 2009.

**White Goods Tax** – Proceeds from the advanced disposal fee on white goods accounted for \$330,747 or just below 14 percent of total revenues for fiscal 2009. White goods proceeds continued a two-year downward trend, falling 15 percent from fiscal 2008, which reflects the downturn in the economy.

**Virgin Newsprint Tax** – North Carolina newspaper publishers who fail to meet state-required purchasing goals for recycled content newsprint must pay a \$15-per-ton tax on the virgin newsprint they consume. The law allows wide exemptions for companies who are unable to purchase recycled content newsprint due to availability or pricing constraints, or who are actively involved in the recovery of newspaper for recycling. During fiscal 2009, \$35 was received from the virgin newsprint tax. Compliance with the law has been consistent - in 13 years, the annual revenue from the newsprint tax has never been higher than \$3,000.

**Solid Waste Disposal Tax** – A tax on the disposal of solid waste was imposed for the first time in fiscal 2009, with 12.5 percent of disposal tax revenues distributed to the Solid Waste Trust Fund for grants to local government recycling programs, state agency recycling programs and cleanup of abandoned manufactured homes. The trust fund received \$972,303 in funding from the disposal tax in fiscal 2009, which represents about 40 percent of all trust fund revenues.

**General Appropriations** - When the trust fund was established in 1989, a one-time appropriation of \$300,000 was allocated to provide an initial fund balance. Since then, there have been no further appropriations to the trust fund.

**Contributions to the Trust Fund and Miscellaneous Revenues** – In fiscal 2009, the N.C. Division of Pollution Prevention and Environmental Assistance continued its cost-sharing partnership with local governments and the private sector on recycling education and promotion. Local governments, private sector and institutional sources donated \$36,308 toward outreach campaigns in fiscal 2009. The list of outreach program partners is provided in Attachment A to this report. More information on the recycling education campaigns is provided below.

### **TRUST FUND EXPENDITURES - FISCAL 2009**

The majority of trust fund expenditures in fiscal 2009 went to grants and to the state's recycling outreach efforts. Trust fund resources were also used to continue delivery of technical assistance to North Carolina communities, recycling businesses and waste generators. These activities are among the explicit purposes noted for the trust fund in G.S. 130A- 309.12, and are described in more detail below.

### **FY 09 Community Waste Reduction and Recycling Grants**

DPPEA offers local governments and non-profit agencies an annual general grant cycle to fund recycling initiatives and program expansions. The Community Waste Reduction and Recycling Grants for fiscal 2009 were initiated by a Request for Proposals released in November 2008 with a due date for proposals in February of 2009.

DPPEA received and evaluated 54 proposals requesting \$1,267,199 in funding, and selected 50 for a total of \$751,372 in grant awards. Two of the grantees were added after initially selected projects were unable to proceed because of local issues. Details on the grantees and their projects are provided under Attachment B to this report.

### **Fiscal 2008 Business Recycling Grants**

DPPEA conducts an annual grant cycle open to for-profit and non-profit recycling businesses to help expand the state's available collection, processing and end-use capacity. The Business Recycling Grant cycle for fiscal 2009 was initiated by the November 2008 release of a request for proposal, with proposals due by February 2009. The grant cycle attracted 56 proposals requesting a total of \$1,940,464. Twenty-nine of these proposals were awarded grants for \$600,000 in overall funding. Details on the grantees and their projects are described in Attachment C to this report.

### **Recycling Guys and RE3 Outreach Campaigns**



DPPEA continued to provide recycling education and outreach resources statewide during fiscal 2009. DPPEA used the Recycle Guys and RE3.org campaigns to help boost public recycling participation around the state by educating a wide variety of audiences, including Wal-Mart employees, State Fair-goers, school teachers and the public.

In fiscal 2009, DPPEA's outreach efforts included:

- Continuation of the contract with Time Warner Cable to broadcast RE3.org and Recycle Guys television commercials. Time Warner's system covers the most populous areas of the state and using cable allows demographic targeting through specific channels. DPPEA also contracted with Charter Cable to advertise in the western part of the state.
- Creation of new commercials for RE3.org via a high school commercial contest, as well as with Time Warner Cable for the 35-55-year-old demographic with messages about recycling job creation.
- Usage of new media outlets such as Blogspot, Facebook, Twitter, Flickr and LinkedIn for the RE3.org campaign.
- Production and distribution of 200,000 supplemental materials that helped expand the presence and reach of the campaigns. Materials included pencils, tattoos, posters, stickers, activity books and bottle openers that communities and recycling educators use to promote recycling behavior.
- Partnerships with local recycling programs and three minor league baseball teams to hold a "recycling night" at each ballpark and to motivate citizen participation through ticket giveaways.
- Continued evaluation of the campaigns to make sure media efforts are targeted at the correct demographics to increase recycling participation. DPPEA also partnered with UNC-Charlotte to track recycling behavior change in one dorm after implementing a new media intervention.

- Updating of the RE3.org Web site to incorporate Web 2.0 components for a more interactive site.
- Workshops for teachers on how to create a school recycling program at the Pisgah Forest Institute, OEE Water Resources Curriculum Workshop, the National Science Teachers Association Conference and the Project Learning Tree MSW and Recycling Workshop.
- Coordination of an operational and educational recycling program for the N.C. State Fair.

#### Technical Assistance Activities

The general statutes direct DPPEA to use the trust fund to promote waste reduction and recycling generally, and specifically to provide technical assistance to local governments and to build recycling markets. The following section lists a number of activities that DPPEA pursued in fiscal 2009 to accomplish these requirements.

#### ***Waste Reduction Partners Program***

The Waste Reduction Partners, or WRP, is a highly successful program using retired engineers and business professionals to provide environmental technical assistance to companies and local governments in western North Carolina. DPPEA continued its annual funding of WRP with a three-year grant of \$65,000 to support industrial solid waste audits and other recycling activities. In addition, DPPEA provided a two year grant of \$40,000 to do similar work at a newly created WRP branch housed at the Triangle J Council of Governments. With this funding and other matching money, WRP helped North Carolina businesses and other entities reduce or recycle 20,690 tons of solid waste from landfills in fiscal 2009, a diverted cost of a little more than \$2 per ton (by comparison, the most efficient curbside programs cost around \$100 - \$120/ton). The solid waste reduction savings for clients served by Waste Reduction Partners in fiscal 2009 helped increase the profitability and business efficiency of those operations.

#### ***Staff Support***

To accomplish the technical assistance, public education and recycling market development requirements in the general statutes, the trust fund was used in fiscal 2009 to support staff positions in the N.C. Division of Pollution Prevention and Environmental Assistance. A total of \$463,576 was expended to pay for salaries, benefits and some limited operational support. These positions are described below:

Recycling Market Development Specialist - This position provides marketing assistance to local governments and others involved in recyclable materials collection. As a part of DPPEA's Recycling Business Assistance Center, this person is responsible for strengthening recycling capacity for secondary materials collected throughout the state. Among other duties, it manages the recycling markets directory required by state statute.

Recycling Market Development Specialist - This position is shared part-time with the N.C. Department of Commerce and is responsible for working with local and state economic developers to recruit recycling businesses to North Carolina.

Recycling Market Development Specialist - This position focuses on building the recycling infrastructure for the diversion of construction and demolition debris and wood waste, which together constitute one-third of the state's entire waste stream. In addition to managing grants and conducting other technical assistance, this position also produces the *Recycling Works* newsletter, which keeps recycling companies and community recycling programs abreast of market developments, material prices and news about grants and available assistance.

Environmental Specialist - In addition to working with local recycling coordinators, this position is responsible for developing educational materials and programs on solid waste issues for audiences ranging from school children to adult populations. In particular, this position implements the multi-media statewide Recycle Guys and RE3 campaigns designed to boost recycling participation rates in North Carolina and to make community recycling efforts more efficient.

Environmental Specialist - This position is responsible for providing technical assistance to local governments on their waste reduction programs, including solid waste planning and full cost accounting (both statutory requirements for local governments). The position also manages recycling program data from state-mandated local waste reduction reports, which in turn allows completion of the State Solid Waste Management Annual Report.

Environmental Specialist – This position manages the WasteTrader and BiomassTrader waste exchange services, provides direct assistance to commercial and industrial waste generators, helps to manage

grants and the local reporting process, and is responsible for many training and outreach activities to local recycling programs.

Organics Recycling Specialist -This position provides technical assistance to local governments, recycling businesses, waste generators and the general public on the reduction and composting of organic waste streams, including yard wastes, which are banned from disposal by state statute.

#### Graduate Interns

To encourage professional development and to complete technical assistance projects, DPPEA hires student interns. Student projects in fiscal 2009 focused on continuing the development of the RE3 and Recycle Guys outreach campaigns, producing a statutory study on plastics recycling, producing a state fluorescent light recycling contract and providing technical assistance to local government recycling programs, in particular focused on modernizing municipal curbside recycling services.

#### ***Product Stewardship Initiatives***

“Product Stewardship” is a growing movement by state and local governments to increase manufacturer and retailer responsibility for the environmental impacts of their products, including the diversion of those products from disposal. Expanding responsibility for end-of-life products is expected to reduce cost and tax burdens on state and local governments. In fiscal 2009, North Carolina participated in product stewardship initiatives by supporting the activities of the Product Stewardship Institute, including the development of a national agreement with the paint industry on paint disposal and an ongoing PSI project addressing excess phone books. DPPEA also continued its participation with the Carpet America Recovery Effort, a national product stewardship program for the carpet industry.

#### ***Workshops and Training***

To encourage the professional development of local recycling coordinators and solid waste staff, DPPEA used trust fund resources to support county and municipal scholarships to two major recycling and solid waste conferences in 2009: the Carolina Recycling Association conference in March 2009 and the Solid Waste Association of North America – North Carolina Chapter conference in April 2009

#### ***Temporary Assistance***

As in past years, DPPEA used temporary labor to help enter data from more than 600 local government solid waste management annual reports. These reports are required by North Carolina statutes, and they provide information necessary to complete the State Annual Solid Waste Report.

#### **PLANNED EXPENDITURES AND CHANGES TO TRUST FUND REVENUES FOR FISCAL 2010**

In fiscal 2010, the Solid Waste Management Trust Fund will focus grant attention in five main areas: 1) general support for expansion of local recycling programs, 2) cart grants to encourage modernization of curbside recycling programs, 3) local cleanup programs for abandoned manufactured homes, and 4) recycling business grants to grow private sector collection, processing and end-use capacity statewide.

In addition, DPPEA will continue to promote widespread public participation in recycling through the Recycle Guys and RE3 campaigns. The trust fund will also be used to support the Waste Reduction Partners program and to support general recycling technical assistance efforts. Also, North Carolina will continue to participate in national coalitions seeking to promote product stewardship and work to expand training opportunities for local solid waste and recycling staff. Finally, as part of the fiscal 2009 budget process, the trust fund will be used to pay for additional staff salaries that were previously under appropriations and also provide for all the operating expenses of the Division of Pollution Prevention and Environmental Assistance; the statute for the trust fund was changed to reflect this allowed use.

Questions regarding the North Carolina Solid Waste Management Trust Fund may be directed to Scott Mouw, chief of the Community and Business Assistance Section in the N.C. Division of Pollution Prevention and Environmental Assistance, at (919)715-6512.

## ATTACHMENT A: TRUST FUND REVENUE SOURCES

The North Carolina Solid Waste Trust Fund receives the bulk of its revenues from four main sources. Details on these sources are provided below.

**Scrap Tire Tax** – a 2 percent fee is levied on the purchase of new tires in North Carolina, with revenues distributed for three main purposes. The tire tax allocation is as follows:

- 72 percent of revenues are distributed to the counties on a per capita basis to pay for the proper management of discarded tires.
- 20 percent of revenues are credited to the Scrap Tire Disposal Account (administered by the Solid Waste Section) for local government grants and nuisance tire site cleanup.
- 8 percent of revenues are credited to the Solid Waste Management Trust Fund.

**White Goods Tax** - a \$3 fee is levied on the purchase of major appliances in North Carolina, with revenues distributed for three main purposes. The white goods tax allocation is as follows:

- 72 percent of revenues are distributed to the counties on a per capita basis to pay for the proper management of discarded white goods.
- 20 percent of revenues are credited to the White Goods Management Account (administered by the Solid Waste Section) for grants to local governments for managing discarded white goods.
- 8 percent of revenues are credited to the Solid Waste Management Trust Fund.

**Solid Waste Disposal Tax** - a \$2 per ton fee is levied on disposed solid waste at North Carolina landfills and at transfer stations that send solid waste out-of-state for disposal. The disposal tax revenues are distributed for three main purposes:

- 50 percent is distributed to the Inactive Hazardous Waste Sites clean-up program.
- 37.5 percent is distributed directly to municipalities and counties for operation of solid waste and recycling programs.
- 12.5 percent is distributed to the Solid Waste Trust Fund for local government recycling grants.

**Contributions from Funding Partners for the State Recycling Outreach Campaigns** – Local governments and private sector partners contribute and share some of the costs of the Recycle Guys and RE3 educational campaigns, as detailed below.

Partner Name	Amount Given
Brunswick County	\$1,850
Catawba County	\$1,110.40
Chatham County	\$1,000
Conover	\$142.52
ECVC	\$140
FCR	\$2,500
Greensboro	\$675
Iredell County	\$710.40
Johnston County	\$5,000
Mecklenburg County	\$240
North Carolina Beverage Association	\$15,000
Orange County	\$1,000
Raleigh	\$5,000
Sonoco	\$1,500
UNC Greensboro	\$70
UNC Charlotte	\$60
Waste Industries	\$60
Wayne County	\$250
<b>TOTAL</b>	<b>\$36,308.32</b>

**ATTACHMENT B: 2009 COMMUNITY WASTE REDUCTION AND RECYCLING GRANTS**

<b>GRANTEE</b>	<b>AMOUNT</b>	<b>GRANT DESCRIPTION</b>
Bladen County	\$35,000	Bladen County will purchase and station 17 recycling trailers for its recycling centers and publish and distribute educational brochures to every household.
Boiling Spring Lakes	\$10,000	The city will implement a drop-off recycling program.
Brunswick County	\$21,000	Brunswick County will expand and enclose its existing electronics collection building and promote electronics recycling.
Centralina COG	\$8,000	Centralina COG will conduct a project to encourage greater elected official awareness and commitment to recycling program support.
Chatham County	\$10,000	Chatham County will purchase a forklift to use for the county's plastic baling operation.
Cherokee County	\$24,000	Cherokee County will purchase and put into operation a recycling trailer and three, 20-cubic yard roll-off containers to help recover more plastic containers.
City of Albemarle	\$30,000	The city of Albemarle will install storage structures, pads and a baler to begin recycling of paint, oil filters, pallets and cardboard.
City of Asheville	\$5,000	City of Asheville will purchase compost bins and educational materials to conduct a backyard composting program for residents.
City of Concord	\$6,000	The city of Concord will design, print and distribute a new comprehensive recycling brochure.
City of Durham	\$10,000	The city of Durham will purchase and put into use a collection drum for oil filter collection and an AlleyCat trailer for special event recycling collection.
City of Greensboro	\$18,917	The city of Greensboro will purchase roll-carts for recycling at multifamily facilities and signage for commercial recycling dumpsters.
City of Greenville	\$11,605	The city of Greenville will purchase 28 roll-out carts, concrete pads, fencing and signage for seven multi-family recycling centers. It will also establish two drop off sites, print recycling fliers and purchase 90 classroom recycling bins.
City of Henderson	\$4,500	The city of Henderson will design and print a new recycling brochure.
City of Hickory	\$20,000	The city of Hickory will purchase a hook lift mechanism for a truck, a self contained leaf machine and hook lift pallet containers to further develop the city's pallet and leaf recycling program.
City of Raleigh	\$10,000	The city of Raleigh will implement a curbside recycling incentive program for its households.
Currituck County	\$20,000	Currituck County will purchase and install a small building to begin an electronics collection program.
Dare County	\$8,917	Dare County will purchasing recycling bins and roll carts to implement a recycling program throughout its school system.
Edgecombe County	\$10,000	Edgecombe County will install a concrete pad to separate, store and recycle wooden pallets.
Gaston County	\$15,858	Gaston County will purchase materials, including two 40-yard containers, concrete barriers, gravel, signage and educational resources, to establish a construction and demolition recycling site at the landfill.
Gates County	\$17,500	Gates County Schools will purchase a compactor for recycling operations.
Guilford County	\$5,000	Guilford County will purchase a Recycle Guys costume to use at special events and in the schools.
Haywood County	\$15,000	Haywood County will purchase and distribute 148 Clear Stream containers, 16 recycling racks and 885 recycling bins to expand existing recycling outreach.
Henderson County	\$20,000	Henderson County will purchase and construct a storage building to be used as a permanent Household Hazardous Waste storage and collection site. The site will also be used for recovering electronics and oil filters.



GRANTEE	AMOUNT	GRANT DESCRIPTION
Jackson County	\$11,845	Jackson County will purchase and install two 20-yard recycling containers to pilot a school recycling program at one of its elementary schools.
Land of Sky	\$10,000	Land of Sky Regional Council will provide recycling technical assistance to generators of pallets, oil filters and plastic bottles which are banned from landfills.
Lee County	\$9,000	Lee County will purchase recycling bins and education materials to implement an away-from-home recycling program at parks and special events.
Madison County	\$22,200	Madison County will purchase and put into service 75, 95-gallon containers and five trailers to provide collection capacity for local business and county office recycling.
Mecklenburg County	\$15,000	Mecklenburg County will purchase school recycling containers.
Montgomery County	\$20,000	Montgomery County will purchase rolloff containers to convert its convenience centers to single stream recycling collection.
Nash County	\$15,000	Nash County will purchase a compactor and a receiver container to enhance and expand its public recycling collection program at its convenience centers.
Onslow County	\$1,735	The county will purchase compost bins and pails and conduct education for community members on how to compost at home and at school.
Orange County	\$15,000	Orange County will purchase rolloff containers to start a mixed rigid plastics recycling program.
Pender County	\$12,000	Pender County will purchase recycling bins and roll carts to implement a school recycling program.
Perquimans County	\$6,200	Perquimans County will purchase a compactor to increase recycling efficiency at its drop-off locations.
Person County	\$20,000	Person County will purchase an electric forklift for use in the county's material recovery facility.
Pitt County	\$40,000	Pitt County will purchase a used front-end loader to manage its shingle recycling program.
Polk County	\$15,000	Polk County will build customized trailers to start a rotating recycling drop-off program.
Randolph County	\$5,000	Randolph County will implement an extensive recycling education and outreach program.
Richmond County	\$20,000	Richmond County will purchase rolloff containers to convert its convenience centers to single stream recycling collection.
Rocky Mount	\$15,000	The city will purchase a new recycling collection vehicle.
Rutherford County	\$12,500	Rutherford County will purchase recycling containers and educational materials to implement a mobile recycling program for schools and special events.
Town of Gatesville	\$11,500	The town of Gatesville will implement a curbside recycling program using 65-gallon roll out carts.
Town of Edenton	\$20,115	The town of Edenton will purchase roll-out carts for curbside recycling and the county will purchase recycling bins for residents using county drop-off sites.
Town of Middlesex	\$25,000	The town of Middlesex will implement a curbside recycling program.
Town of North Wilkesboro	\$40,000.	The town of North Wilkesboro will purchase roll-out carts and implement a curbside recycling program.
Town of Oriental	\$20,000	The town of Oriental will purchase roll-out carts for curbside recycling.
Union County	\$10,000	Union County will purchase storage sheds to implement an electronics collection program at six different centers.
Village of Pinehurst	\$5,000	The Village of Pinehurst will purchase a Recycle Guys costume to use at special events and in the schools.

GRANTEE	AMOUNT	GRANT DESCRIPTION
Watauga County	\$11,120	Watauga County will construct glass collection bunkers for the collection and transfer of recyclable glass containers.
Wilkes County	\$6,860	Wilkes County will purchase three roll-off containers to collect and recycle glass.

**ATTACHMENT C: 2009 RECYCLING BUSINESS GRANT PROJECTS**

<b>GRANTEE</b>	<b>AMOUNT</b>	<b>GRANT DESCRIPTION</b>
Abatement Restoration	\$40,000	Abatement Restoration will purchase an automated sorting and baling system to expand its processing capacity.
Asheboro Recycling Center	\$15,000	Asheboro Recycling will construct a container glass containment area to increase glass recycling.
Blue Ridge Recycling, Inc.	\$10,000	Blue Ridge Recycling will purchase a horizontal baler to increase recycling efficiencies of post-consumer carpet.
C&D Management Company, LLC	\$25,000	C&D Management Company will purchase a truck/tractor to increase its ability to collect additional tonnages of recovered gypsum wallboard and deliver products to markets.
C. Todd's Recycling, LLC	\$8,000	C. Todd's Recycling will purchase and utilize equipment to expand the collection and processing of ABC materials from local permit holders.
Carolina Waste Disposal, Inc.	\$15,000	Carolina Waste Disposal will purchase a dump trailer with roll off capability, and five 15-yard steel roll-off containers.
Curbside Management, Inc.	\$40,000	Curbside Management will purchase a "hook truck and hook container" to update existing equipment and expand collection capacity for recyclable materials.
Danny's Dumpster	\$4,000	Danny's Dumpster will purchase a glass pulverizer to improve the efficiency of its glass recycling program.
DC Foam Recycle Center	\$40,000	DC Foam will purchase a metal detector, spectrophotometer testing device, testing laboratory and baler to improve its recycling process for post-consumer carpet to produce a pure Nylon 6,6 fiber.
French Broad Organics Recycling	\$23,000	French Broad Organics Recycling will install an in-vessel composting system to start up its organics recycling operations.
GEEP, Inc.	\$20,000	GEEP Inc. will purchase and put to use a "Two-Ram Series Horizontal Baler" or comparable high-capacity baler to increase the density and through-put of recycled materials
Green Pieces Recycling	\$20,000	Green Pieces Recycling will purchase a recycling collection truck to increase collection routes and add new curbside customers.
Greenville Paving & Contracting, Inc.	\$15,000	Greenville Paving will purchase collection containers to increase asphalt shingle recycling.
Hatteras Recycle, LLC	\$25,000	Hatteras Recycle will purchase an additional truck and additional roll carts to expand its collection services.
Leisure Time Amusements, Inc.	\$18,000	Leisure Time Triad Solutions [what is co. name?] will purchase a vehicle to expand collection and a sorting line to manage the additional material.
Mantangira Curbside Recycling	\$10,000	Matangira [Name doesn't match] Curbside Recycling Company will purchase a recycling truck to offer collection and aggregation services for recyclable material in Rowan County and surrounding areas.
Orange Recycling Services, Inc.	\$20,000	Orange Recycling Services will make facility upgrades, including electrical and wiring upgrades and concrete floor modifications, to allow for the installation of an internal baling operation.
Pickett Up Recycling, LLC	\$25,000	Pickett Up Recycling will purchase a recycling collection truck to add new clients and expand collection coverage of recyclable materials.
Planet Recycling, Inc.	\$20,000	Planet Recycling will purchase a recycling collection truck and front end loader to increase collection and processing efficiencies at its processing facility and in its collection routes.
Recycling Resources of N.C.	\$20,000	Recycling Resources of N.C. will purchase two trailers with tipping devices and 266 collection carts in order to provide recycling services to non-residential customers in Beaufort County.
Reflective BevCon	\$15,000	Reflective BevCon will purchase collection carts and a logistics management system to increase and optimize post-consumer beverage container recycling.
Reflective Recycling, Inc.	\$25,000	Reflective Recycling Inc. will purchase a vacuum system to increase glass recycling processing capacity and efficiency.

GRANTEE	AMOUNT	GRANT DESCRIPTION
Simply Green Recycling Service	\$25,000	This grant project will include the purchase of recycling bins and an enclosed box truck to be used for the collection of recyclable materials.
Stoney Creek Lumber	\$40,000	Stoney Creek Lumber will purchase and install a metal building to house its new pallet recycling operation.
Synergy Recycling, LLC	\$16,000	Synergy Recycling will purchase a skid steer loader to manage electronic materials at its expanded recycling plant.
The Recycling Group, LLC	\$10,000	The Recycling Group will install a sorting line consisting of an inclined feed conveyor, sorting conveyor, catwalk and collection bins.
Think Green Recycle Service	\$25,000	Think Green Recycling will purchase a recycling collection truck to add new clients and expand its collection coverage area.
Wayne Opportunity Center	\$11,000	Wayne Opportunity Center will install a concrete pad and four bunkers to better manage its glass recycling.
Wesbell Technologies	\$20,000	Wesbell Technologies will purchase and install an in-feed conveyor to increase efficiency and reduce worker fatigue in the processing of scrap electronic materials.

N.C. Solid Waste Management Annual Report Fiscal Year 2008-2009

# Chapter 6

Environmentally Preferred Purchasing

North Carolina Department of Administration

## DEPARTMENT OF ADMINISTRATION Environmentally Preferred Purchasing

The Department of Administration continues to promote the purchase and use of sustainable and efficient supplies and products. As the Department progresses with this effort, more of these products are being added to statewide term contracts, agency specific term contracts, as well as awarded through open market bids. For more information visit the Purchase and Contract Web site: <http://www.ncpandc.gov/>

### **Solicitations advertised by the Division to Comply with the Session Laws 1993 {G.S. 130A - 309.14(a)}**

Presently, the bids advertised in the Division of Purchase and Contract contain a Recycling and Source Reduction paragraph in item #10 of Instructions to Bidders. When developing bid invitation language, requirements and specifications, purchasers are continuing to look at alternative methods and products that result in waste reduction if their procurement is both practicable and cost-effective.

Recycling and Source Reduction information provided by the contractors on bids received during the 2008 to 2009 fiscal year indicate the sustainable features or criteria of those products. Table 1 lists the purchase awards by the type of bid for those commodities.

**Table 1**

<b>Commodity Purchase Awards by Bid Type</b>	<b>Number Requisitions Awarded by Bid Type</b>	<b>Amount Awards by Bid Type</b>	<b>Percentage Awards by Bid Type</b>
Agency RFP	179	\$139,955,746.18	13.89%
Contractual Services	23	\$58,273,539.03	1.78%
Convenience Contracts	223	\$339,951,816.48	17.30%
Open Market	495	\$77,953,911.73	38.40%
Quotes	121	\$11,983,719.37	9.39%
Term Contracts	49	\$217,248,878.78	3.80%
Waivers	199	\$35,577,464.66	15.44%
<b>Total</b>	<b>1289</b>	<b>\$880,945,076.23</b>	<b>100.00%</b>

### **NC E-Procurement @ Your Service**

NC E-Procurement @ Your Service, now in its eighth year of operation, continues to support the goal of "One North Carolina". As of October 31<sup>st</sup>, 2009, the enterprise-wide system has over 65,000 registered vendors, and over 15,000 users representing 234 entities across the State. This includes state agencies, hospitals and institutions, community colleges, K-12 public schools, universities and local governments. NC E-Procurement @ Your Service continues to contribute to a sustainable environment through significant reductions in hard copy document reproduction (paper, printers and supplies) through the use of electronic business transactions and electronic documents. NC E-Procurement also continues to support State priorities for environmentally preferable products with over 17,000 catalog items clearly marked as "Recycled."

### **Purchasing Compliance Reviews**

North Carolina Administrative Code (01 NCAC 05B .1605) mandates that the Division of Purchase and Contract to conduct compliance reviews on purchasing practices of all the state agencies (state agencies, institutions, hospitals, institutions, community colleges, and universities. All compliance reviews, except universities, are conducted utilizing data from NC E-Procurement @ Your Service. Electronic data reduces the necessity of conducting most phases of the analysis on-site; thereby increasing efficiency, as well as reducing travel costs, fuel emissions, and operating expenses.

## **IPS (Interactive Purchasing System) & Vendor Link NC**

The Division of Purchase and Contract continues to promote opportunities for vendors to do business with the state through electronic advertisement of goods, services and design/construction in IPS. The entities using this system consist of state agencies, institutions, universities, community colleges, K-12 public schools, and local governments.

Vendor Link allows vendors to register to receive electronic notification of solicitations. Vendor Link had 23,054 registered vendors as of June 30, 2009. The system continues to grow with the addition of users increasing to 224 agencies, schools and institutions with 618 purchasers using the database as of June 30, 2009. This is an increased user base of 5.8% for the entities and users serviced, who posted 4782 solicitations.

## **EXAMPLE OPEN MARKET AWARDS**

- **Reduced Flow Plumbing Fixtures** – 124 toilet systems with reduced flow rates of 1.28 gallon per flush and 55 ultra low consumption urinal systems requiring only 1/8 gallon per flush were purchased for Guilford Technical Community College to conserve potable water.
- **CNC Control Simulator** – Educational equipment to teach computer numerical control (CNC) equipment programming and operations was purchased for Haywood Community College. Control unit allows programming and execution of individual tool path movements and operations for training. Unit also includes simulated dry run graphics to reduce errors in programming and reduce materials consumed while teaching manufacturing tooling technology.
- **Used Electric Utility Cargo Van** - 3 fully enclosed integral weather proof cargo vans capable of a maximum speed 25 MPH with a 4-speed manual transmission were purchased for Fayetteville Technical Community College. Electrical powered vehicles may reduce reliance on hydrocarbon fuels and produce zero direct emissions. Used vehicles offered additional cost savings.
- **2008 and 2009 Pre-Owned Vehicles** - 20 total used cars and pickups with extended power train warranties were purchased for the Department of Crime Control and Public Safety. Used vehicles replace higher millage vehicles in excess of 100, 000 miles in the fleet. Vehicles may be used in situations to conduct surveillance and undercover operations.
- **Reconditioned Laboratory Equipment** - 1 reconditioned 20" x 20" x 38" vertical sliding door steam sterilizer was purchased for Guilford Technical Community College. Reconditioned equipment offered cost savings and reuse compared to the purchase of new equipment.
- **Concrete Masonry Block** – 59,000 units of lightweight structural block compliant to the ASTM C90 specification and is certified as a LEEDS Approved Green Product were purchased for the Scotland Correctional Institution. Block contains 50% recycled content consisting of bottom ash from coal fire combustion plants as a recycled aggregate replacement. The Leadership in Energy and Environmental Design (LEED®) Green Building Rating System™ is the nationally accepted benchmark for the design, construction, and operation of high performance green buildings.
- **Composition Tile** – Linoleum type composition tile was purchased for Craven Community College. Tile made from renewable materials contains 45% pre-consumer (post industrial) recycled content and is provided with a prefinished surface that allows reduced chemical based finish applications and removals inside the building environment.

## **NEW OR SIGNIFICANTLY IMPROVED STATEWIDE TERM CONTRACTS**

The Division of Purchase and Contract has established new or significantly improved statewide term contracts for the following commodities.

- **Golf Cars, 070P – New term contract** for golf cars. Fully electric models available for all categories. Models made with components of 85-90% recycled steel, plastic and aluminum.

- **Traffic Cones and Drums, 550F – New term contract** includes products with 40% reclaimed materials.
- **Aerial Device, Truck Mounted, 765A – New term contract** requires trucks be provided with a standard compression ignition diesel type, designed for operation on commercial diesel fuel and B20 or greater bio-diesel. The diesel engine provided is also compliant with the current EPA Tier requirements for emissions control. The bio-diesel fuel may be derived from plant matter.
- **2009 Model Year Trucks, Vans, Utility Vehicles, Crossovers-Conventional Fuels and AFVs, TC # 070G** – All diesel fueled trucks and vehicles are required to additionally operate using B20 bio-diesel fuel. Gasoline fueled vehicles were also bid with flex fuel as an alternative category. Awarded flex fuel vehicles comply with the intent of Senate Bill 2051. Vehicles noted as Flex Fuel or E85 can use both pure gasoline and E85 fuel. A hybrid “carry all” SUV was a new model type awarded for the new contract. Lightweight crossovers (4 and 6 cylinder) and manual transmission compact pickups were also awarded to potentially achieve greater fuel efficiency.
- **B-20 Tankwagon, 405V – New term contract** of B20 blended fuel contains 80% diesel fuel and 20% virgin soy or reprocessed vegetable oil. Tankwagon loads are less than 6,000 gallons down to a minimum of 500 gallons. This means that of 4,542 gallons of the blended B20 fuel purchased, 908 gallons were derived from plant matter which reduces crude oil consumption.
- **E-10 Tankwagon, 405S - New term contract** of E-10 blended fuel contains 90% unleaded gasoline and 10% ethanol. Tankwagon loads are less than 6,000 gallons down to a minimum of 500 gallons. This means that of approximately 183,735 gallons of the blended E10 fuel purchased, 18,373 gallons were derived from ethanol which reduces crude oil consumption.
- **Skid Steer Loaders, 760A – New term contract includes** models with 24% recycled content.
- **Recycling Services for Fluorescent Lamps, Ballasts & Other Mercury Containing Devices, TC# 926B – New term contract** assists agencies and local governments with contracted disposal of discarded electronic products that are diverted from landfill disposal.
- **All Trucks and Off-Road Equipment purchased for the Department of Transportation, Individual Agency Specific Contracts** – All equipment offered is required to employ engines meeting the current North Carolina and Federal EPA and regulations indicated by the EPA Clean Air Act for reduced emissions at the time of delivery.

### **STATEWIDE TERM CONTRACTS**

As existing term contracts are re-bid and new term contracts are developed, the Division of Purchase and Contract continues to improve the contracts by offering a wide range of sustainable or environmentally friendly products. Examples of the sustainable features of these term contracts are listed below.

- **Agricultural Tractors, 020A** - Tractors are provided with a standard compression ignition diesel type, liquid cooled engine designed for operation on commercial diesel fuel and B20 or greater bio-diesel. The bio-diesel may be derived from plant matter.
- **Air Conditioners, Room, 031A** - Items available through this contract were awarded based on the lowest energy efficiency cost, meeting specifications. The majority of the items awarded are Energy Star Compliant, containing recycled materials and packaging.
- **Automotive, Industrial Parts and Supplies, 060A** - Some products have recycled materials with 10%-20% post consumer content.
- **Batteries, Storage, 060B** - Battery casings are made from recycled material (96%). Batteries are exchanged as a core and picked up by the vendor. In addition the contractor will pick up and properly dispose of junk batteries on quantities less than 20. Core (junk) batteries are considered to be an environmental hazard and are otherwise expensive to properly remove.
- **Tire, Automotive, Recapping and Repairing, 060E** – Retread tires extend the life of the original product. The purchase of retreads saves resources used in the production of new tires. The use of retread tires reduces tire disposal. Retread tires cost 30% to 50% less than new tires.



- **Passenger Cars, 070A; Law Enforcement Vehicles, 070B** - Passenger car awards included several alternate fuel vehicles (AFV) and two models of gasoline /electric hybrid vehicles. One four cylinder model, four door subcompact was also awarded with a bi-fuel capability consisting of compressed natural gas (CNG) and gasoline. Limited availability restricted award of all the AFVs requested for the passenger cars, especially the law enforcement vehicles. According to the Steel Recycling Institute, 67.7% of a vehicle is steel or iron. Of that steel or iron, 26.6% is post consumer material. Therefore, 18% of a vehicle is made from post consumer recycled material.
- **Conventional School and Activity Buses, 070C; Conventional Activity Buses, 070D** – Vehicles typically contain approximately 20% post consumer recycled material by weight and 80% of the vehicle by weight is recovered for reuse. Used school buses are usually sold or are used for spare parts.
- **Neighborhood Electric Vehicles, 070N** - Neighborhood Electric Vehicles (NEV) are battery operated vehicles that are "street legal" for use on roads with a posted speed limit of 35 MPH or less. There are 6 different NEV models available from this contract from two suppliers offering GEM and E-Ride vehicles. The contract vehicles are offered with a price range of \$10,887 to \$18,713 and include an extended warranty. Because these vehicles do not consume hydrocarbon fuel they produce zero direct emissions. It is estimated that NEVs cost 3 to 5 cents per mile to operate. These vehicles are considered good additions to agency fleets to help meet petroleum reduction goals
- **Remanufactured Toner Cartridges, 207A** - Currently common use Hewlett Packard and Lexmark cartridges are remanufactured to equivalency with the original OEM performance. Fewer cartridges are added to the waste stream. Product specifications are being transitioned from mandated construction requirements to product and vendor performance requirements. This is expected to allow a wider variety of brands and models to be covered as requested by the contract users.
- **Ballasts, 285B** - Electronic ballasts are more energy efficient, support variable illumination on demand and reduce electro magnetic radiation. A link is provided to Federal Energy Management Program (FEMP) that illustrates a return on investment for retrofitting with more energy efficient lamps and ballasts. Ballasts contain no PCB's and can be disposed of in the trash. Reduced product shape and size also minimizes packaging and metal enclosure requirements.
- **Carpet, 360A** - Recycled content required is either (1) minimum 5% postconsumer content except that vinyl-backed and other similar hardbacked products contain 20% by weight of postconsumer recycled content, (2) minimum 15% by weight of recovered materials (both preconsumer and postconsumer), or (3) minimum of 25% by weight of recyclable content.
- **Paper, Computer and Labels, 395B** - Computer paper contains 50% recycled with 30% post consumer content.
- **Oils, Lubricants, Greases, and Antifreeze, 405H** – The following synthetic, bio-degradable, and recycled lubricants were supplied under this contract: Synthetic Motor Oil (1,948 Gallons), Synthetic/Biodegradable Hydraulic Oil (1,810 Gallons), Synthetic Gear Oil (20,120 Pounds), and Recycled Antifreeze 50/50 (9,948 Gallons.) Additional synthetic type oils and transmission fluids have been added to the contract to allow increased service life to reduce consumption and decrease maintenance cycles. The State Surplus Property disposes of waste oil and antifreeze under contract.
- **B-20 Transport, 405L** - B20 blended fuel contains 80% diesel fuel and 20% virgin soy or reprocessed vegetable oil. This means that of the 11,321,000 gallons of B20 blended fuel purchased, 2,264,389 gallons were produced from plant mater. This results in a reduction of crude oil consumption.
- **E-10 Transport, 405M** - E-10 blended fuel contains 90% unleaded gasoline and 10% ethanol. This means that of the 1,064,800 gallons of E10 blended fuel purchased, 106,481 gallons were derived from ethanol. This results in a reduction of crude oil consumption.

- **Pipeline Natural Gas, 405N** - More than \$7.9 million dollars worth was purchased last year of this clean burning fuel.
- **Ultra-Low Sulfur Diesel Transport, 405P** - 405P offers 15 ppm of sulfur content compared to 500 ppm sulfur content on the previous low sulfur diesel contract. Transport loads are over 6,000 gallons per delivery, and are typically used heavily by DPI and DOT. Approximately 26,185,990 gallons were purchased. This will help to provide compliance with clean air mandates.
- **Ultra-Low #2 Sulfur Diesel Tankwagon, 405Q** - Identical to the 405P contract except in form of delivery, this offers 15 ppm sulfur content compared to 500 ppm sulfur content on the previous contract. Tankwagon loads are less than 6,000 gallons down to a minimum of 500 gallons. Approximately 521,823 gallons were purchased. This will help to provide compliance with clean air mandates.
- **E-85 Flex Fuel, 405R** - E-85 blended fuel contains 15% unleaded gasoline and 85% ethanol derived from corn production. This alternative fuel is provided in transport quantities of 6000 gallons or more. This means that of the approximately 267,600 gallons purchased, 227,460 gallons were produced from ethanol instead of crude oil.
- **Ultra-Low Sulfur Diesel #2 Emergency Transport, 405T - New term contract** offers 15 ppm of sulfur content compared to 500 ppm sulfur. This contract is used in emergency cases when there is a pipeline interruption.
- **B-20 Tankwagon, 405V** – B20 blended fuel contains 80% diesel fuel and 20% virgin soy or reprocessed vegetable oil. Tankwagon loads are less than 6,000 gallons down to a minimum of 500 gallons. This means that of 4,542 gallons purchased, 908 gallons are derived from plant matter. This results in a reduction of crude oil consumption.
- **Furniture, Metal, Folding Chairs, Tables, Storage Units, Wood Library Furniture, 420 - Furniture, Desks (Wood), Credenzas, Conference Tables, Etc. & Bookcases, Furniture, 425B & C** - Contractors support sustainability through different practices. Mechanical parts can be recycled or replaced, thereby extending service of item. Packaging is recyclable. Products may be ground up into particleboard. Packaging may contain up to 40% post consumer waste and is reusable. Wood, plastic and metal contain recycled post consumer content and are recyclable.
- **Bedding Mattress Term Contract, 420E** - Mattresses comprised of innersprings (similar to the type used primarily in the residential and hospitality bedding industries) now require successful evaluation to the 16 CFR Part 1633, the Consumer Product Safety Commission's new mattress flammability testing standard, "Standard for the Flammability (Open Flame) of Mattress Sets". Successful evaluation of products offered continue to require the 16 CFR Part 1632, Standard for the Flammability of Mattresses and Mattress Pads (directed toward cigarette ignition of mattresses). The revised specifications promote increased safety and durability to extend product life.
- **Furniture, Chairs, Ergonomic, 425E** – Fabric and chair cushions may contain up to 100% post consumer recycled content. Packaging contains post consumer waste, is reusable and recyclable after use.
- **Lateral and Vertical Filing Cabinets, 425F & 425G** - Cabinets contain from 10% to 30% recycled content. Corrugated boxes have a minimum of 50% post consumer waste and are recyclable. Contractor will purchase back files at end of their use.
- **Storage, Combination Storage/Wardrobe and Wardrobe Cabinets, 425H** - Cabinets have a minimum of 10% recycled metals. Packaging contains post consumer waste, is reusable and recyclable after use.
- **Industrial, Medical and Specialty Gases, 430A** - Are delivered statewide in reusable cylinders and are exchanged when replacement cylinders are needed.

- **Disinfectants, Janitorial Cleaners, Environmental Cleaners, and Odor Counteractants, 435A** – The additions of three common use janitorial products which are certified to the GS-37 (Green Seal), Certified Environmental Standard were awarded to products that have limited toxicity. Premoistened towelettes are available to provide an alternative for chemicals from being aerosoled or dispensed in the indoor air. Disinfectants included contain various active ingredients and end use concentrations to allow proper selection for limiting contact and exposure to amounts required to be efficacious for specific pathogens targeted. All disinfectants are EPA registered for efficacy of pathogens identified by the NC Statewide Program for Infection Control and Epidemiology within health care related facilities. Chemical dilution control equipment for designated products is supported to improve sanitation quality, deliver accurate recommended product dilution and control costs. Contractors are required to provide the product use training and MSDS sheets.
- **Maintenance, Repair & Operation Supplies, 445B** – Items which were offered under the following contracts are now covered under this contract: Lamps, Large & Specialty (285A), Material Handling Carts/Trucks (560A), Low-Flow Plumbing Fixtures (670A), and Safety Equipment, Eye/Face Protectors (345A). Lamps may contain up to 65% recycled content including glass and mercury delivered in packaging that may contain 73% recycled content. Some of the lamps are low mercury (TCLP compliant), non-hazardous. Low-flow plumbing fixtures are offered to reduce consumption.
- **External Defibrillators, 465B** - Defibrillators can be refurbished and packaging materials can be recycled.
- **Incontinent Care Products, Disposable, 475C** - Disposable washcloths (wipes) contain a minimum 50% of fully biodegradable paper (cellulose fibers).
- **Indoor And Outdoor Waste Receptacles, Food Prep Containers, Pails, and Related Items, 485F** - Most plastic products contain 15% post consumer recycled content. Packaging contains 10% post consumer recycled content. Some containers are sold to customers to assist with sustainability management. For example, the aluminum can recycle bins support recycling procedures recommended to users. Metal parts contain recycled content.
- **Brooms, Mops, Brushes, and Other Cleaning Implements, 485G** - Products may contain up to 60% post consumer recycled content. Packaging may contain up to 40% post consumer recycled waste. All cotton mops are made of cotton waste. Shipping boxes are recyclable. Broom handles can be used as wooden dowels for multiple purposes, such as garden stakes, hanging banners in classroom, etc. Forty-five percent of broom material is biodegradable.
- **LED Vehicle Traffic Signal Modules, 550A** - Traffic signals employing the high efficiency light emitting diode (LED) technology consume 90% less energy than conventional signals, while providing greater reliability, longer life, and low-maintenance performance. Signals are certified for ENERGY STAR for reduced energy consumption.
- **Musical Instruments and Accessories, 580B** - New designs use recyclable plastics. Band instruments may be traded in to be reconditioned and re-sold. Donations of trade-in instruments to the Links Program for the needy promote music education. Plastic and brass parts may be recycled for future part replacement. Cardboard and pallets are recyclable.
- **Calculators, 600A** - Packaging material may be recycled.
- **Dictation/Transcription Equipment, 600C** - New digital recorders employ internal electronic storage media for constant reuse without cassette tapes. Voice recordings may be easily downloaded for dictation transcription, copied to disc (CD or DVD) and transmitted to distant or remote locations. Only proofed or edited recordings are archived to (CD or DVD). Archived recordings enhance offline lectures and training events. Electronic storage media has a long lifetime before replacement. Contract also offers voice to text digital transcription software that serves the traditional state users or nonprofits for the physically impaired.

- **Office Supplies, 615A** - Contractors are required to the extent feasible and practical, to offer recycled products, including packaging, especially those having post-consumer waste content. Wherever possible and practical, such products should be identified as such.
- **Napkins, Bathroom Tissue, and Paper Towels, 640A** – Napkins are biodegradable, with either 95% recycled with 5% post consumer elemental chlorine-free or 100% recycled and chlorine-free. Bathroom Tissue is biodegradable, 100% recycled with 20% post consumer and chlorine-free. Paper Towels are biodegradable, 95% recycled with 40% post consumer content and elemental chlorine-free.
- **Office Paper, 645A** - Various products contain both 100% and 50% post consumer and chlorine free copy paper. Other recycled and virgin paper products including envelopes are supported.
- **Cameras, Digital & Film, 655A** - The metal camera bodies, plastic parts and packaging materials can be recycled. Contract also includes the digital cameras and electronic storage media that promote reduction, reuse, and recycling and reduced environmental impact. Soft copy images can be easily transmitted to distant locations. Chemicals used in manufacturing and processing of the film are eliminated. Typically only proofed images are printed. Electronic storage media has a long lifetime before replacement. Even when the images are printed, the user can decide if high cost paper and toner are required. Disposal of the images on paper has less environmental impact than the toxic metals contained in film.
- **Bags, Plastic, Trash, 665B** - Liners contain a minimum of 10% post-consumer or 10% pre-consumer reprocessed copolymer. All the liners awarded were thoroughly evaluated for strength and performance.
- **Laminators & Laminating Film, 665A** - Some of the film contains 5% post consumer content. Packaging contains 25%-80% post consumer content.
- **Ammunition, 680A** - Brass shell casings can be saved and recycled and others can be reloaded.
- **Ice Machines and Dispensers, 740A** - Products are evaluated based upon initial bid, cost of energy and cost of water to provide the required ice harvest rate per day. Packaging, refrigerant and metal components may contain recycled content and are recyclable.
- **Vending Machines And Money Changers, 740B** - Packaging, refrigerant and metal components may contain recycled content and are recyclable.
- **Excavators-20 Metric Ton-143HP, 760C** – The engine must meet the current North Carolina and Federal EPA and regulations indicated by the EPA Clean Air Act for reduced emissions.
- **Markerboards, Tackboards and Accessories, 785A** - Metal and wood components contain recycled materials.
- **Paper, Drawing and Construction, Newsprint, 785B** - Various products as indicated typically contain 25% to 100% recycled paper fiber.
- **Television/Video Equipment, 840A** - Most video products are certified “Energy Star” to denote efficient energy use.
- **Tires and Tubes, 863A** - Tires depending on manufacturer may contain from 1.55% to 2.5% of recycled materials based on the product attributes, speed rating and performance criteria.
- **Teaching Equipment, Electricity/Electronics Courses, 924A** - Office paper, cardboard and metal enclosures have recycled content. Documentation provided in soft copy instead of hard copy printed materials.
- **Electronic Equipment Recycling Services, 926B** - Assists agencies and local governments with contracted disposal of CRTs. Contract diverts discarded electronic products from landfill disposal.

**Items Aiding Waste Reduction Purchased By State Agencies Through Term Contracts and Open Market Purchases**

The following items purchased by State agencies meet the criteria for aiding waste reduction by being reusable, refillable, repairable, more durable, and/or less toxic than their traditional counterparts:

**Reusable**

Digital Cameras (reduces need for film and chemicals)  
Refrigerant Recovery System (filters reusable refrigerant)  
Musical Instruments  
Rechargeable Dry Cell Batteries  
Recycled Carpet  
Recycled Paper  
Recycled Content Furniture (not traditional wood)  
Printers  
Solvent Degreaser (reuses solvent)  
Tire Recapping & Repairing Service  
Uniforms, Vacuum Bags, Wiping Cloths

**More Durable**

Above-Ground Vaulted Fuel Storage Tanks  
Classroom Furniture, Electronic Lamps & Ballasts  
Vacuum Cleaners, Floor Polish, Grader Blades  
Grader Slope Attachment, Kindergarten Furniture  
Paint Brushes, Plastic Lumber, Mattresses  
Plastic Tableware, Staplers  
Vertical File Cabinets, Wood Case goods  
Wood library furniture

**Energy Star – Reduced Energy Consumption**

Audio Visual System,  
Changeable Message Signs – Solar Powered  
Domestic Appliances  
Lighting Fixtures,  
Room Air Conditioners,  
Sonography Equipment  
Television & Video Equipment, Lamps  
Traffic Signals – LED,  
Ultrasound Scanner  
Ultrasound Training Simulator Equipment  
Warning Lights - Vehicles Safety  
Water Coolers

**Flow Plumbing Fixtures for Reduced Water Consumption** – 0.5 GPM lavatory facet nozzles and 1.5 GPM showerheads support the Governor's water conservation initiative during severe water restrictions throughout the state.

**Used** - Automobiles and trucks

**Refillable**

Ammunition - Cartridge Refills  
Batteries - Vehicle & Storage  
Drums – Steel, Fire Extinguishers  
Cylinders for Welding, Medical & Specialty Gases  
Fuel Tanks,  
Self-Contained Breathing Apparatus

**Repairable**

Defibrillators, Musical Instruments  
Tire Recapping & Repairing Service

**Refurbished/Rebuilt**

Aircraft Engines, Ferry Engine Repair Parts  
Medical Diagnostic Equipment & Instrumentation  
Remanufactured Toner Cartridges for Laser  
Scientific Equipment, Sewing Machines

**Less Toxic**

Alternative Fuel Vehicles, Correction Fluid  
Dry Cell Batteries, Electronic Lamps & Ballasts,  
Fertilizers/Farm Chemicals, Inks for printing (using non-petroleum based inks) Instructional Art Materials, Markerboard Markers, Mattresses, Scientific Products (eliminating Freon), Refrigeration and A/C Equipment

**Longer Lasting**

Floor Maintenance Machine Batteries, Library Furniture, Aluminum Nuts and Bolts – non-rusting alloys, Fluorescent electronic ballasts permit longer lamp life

**Recyclable**

Commodity Packaging, Commodity Metal enclosures & parts, Plastics, Steel & Reinforced Concrete Pipe, Chain Link Fencing, Electrical Wire, Treated Lumber, Motor Oil – refined, HVAC & Refrigeration Equipment - Refrigerants

**Washable** - HVAC Filters Wiping Cloths

N.C. Solid Waste Management Annual Report Fiscal Year 2008-2009

# Chapter 7

State Agency Purchases of Recycled Products and Source Reduction,  
Recycling, and Composting Efforts

North Carolina Department of Environment and Natural Resources, Division of  
Pollution Prevention and Environmental Assistance

# NORTH CAROLINA

## **State Agency Purchases of Recycled Products and Source Reduction, Recycling, and Composting Efforts**

July 1, 2008 – June 30, 2009

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Fifteenth Annual Report

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## ACKNOWLEDGMENTS

Published by the N.C. Division of Pollution Prevention and Environmental Assistance

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Rachel Eckert, Recycling and Environmental Purchasing Coordinator

DPPEA would like to thank the agencies that diligently submit their reports to our office each year. Your hard work and dedication is very appreciated.



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The Division of Pollution Prevention and Environmental Assistance provides free, non-regulatory technical assistance and training on methods to eliminate, reduce or recycle wastes before they become pollutants or require disposal. Contact DPPEA for more information about this document or waste reduction.

0 copies of this public document were printed in an effort to conserve resources. The report can be viewed online at <http://www.p2pays.org/epp/stagencies.asp>. Hard copies are available upon request.

January 2010



**Introduction**

State agencies are directed to use products containing recycled materials by state law - N.C. General Statute 143-58.2(a), and by Executive Order. Executive Order 156 was signed in 1999 in support of N.C. Project Green, the state environmental sustainability initiative, and was an updating and strengthening of the original Executive Order, signed in 1993.<sup>1</sup> Purchasing recycled content and other environmentally preferable products improves recycling markets, reduces environmental impacts from waste, and saves energy and natural resources.

Many state agencies and local school districts help achieve these goals through thoughtful purchasing decisions and the use of recycled content products. These efforts are particularly critical right now, for economic as well as environmental reasons. Over 14,000 people are employed in the recycling industry in the state and this part of our economy can grow if more materials are recycled and more products with recycled content are purchased. The recent economic crisis was also a reminder that the recycling industry can be negatively affected by downfalls in material demand. Although the price of recycled commodities has recovered to more historical levels, purchasing products made out of these materials has the potential to boost the value of recycled materials and help our recycling economy continue to succeed.

NC state government has continued to make progress toward environmental sustainability by offering recycled content and environmentally preferable products at affordable prices on state contract. Currently, over 25 products are available on term contract that exhibit some sort of environmentally preferable attribute, including recycled content, reduced packaging, and energy efficiency. A couple recent additions include green cleaners and more hybrid car options. State agencies and other entities that can buy from state term contracts (such as local governments) have an array of high quality, cost-effective recycled products available on term contract for purchase. The list of products can be seen at [www.doa.state.nc.us/PandC/recycled.htm](http://www.doa.state.nc.us/PandC/recycled.htm).

This document summarizes the efforts of state agencies to purchase recycled products. It fulfills the reporting mandate of N.C. General Statute 143-58.2(f) for fiscal year 2009. This year 11 additional agencies reported when compared to last year's tally, which had some effect on increasing overall spending reported. All reporting was conducted online, saving paper and postage.

Departments	22
UNC Institutions	13
Community Colleges	48
Local Public School Units	69
<b>Total (220)</b>	<b>152</b>
<b>Percent Reporting</b>	<b>69%</b>

Fluctuations in data have stabilized somewhat, with small variations annually. This year, 10 agencies reported over \$1 million in paper expenditures and 4 agencies reported over \$1 million in recycled content non-paper expenditures. Therefore, while in the past two years Department of Corrections data was covered separately in the report due to skewing data numbers, this year we were able to incorporate the Department's data with the rest. DOC also only reported a fraction of the spending they have in the past two years, with the exception of building materials, which made up 90 percent of all reported building material expenditures. Comparisons varied relatively predictably, showing a rise in spending overall, which may be a sign of the state beginning to recover from very strict spending constrictions.

**Purchases of Recycled Products**

**Paper and Paper Products.** FY 09 is the eighth year in which agencies failed to meet the goal set forth by Executive Order 156: that, as of FY 2000-01, 100 percent of the total dollar value of expenditures for paper and paper products be toward purchases of paper and paper products with recycled content. However, there has been continued improvement overall in agency efforts and additional agencies have adopted recycled content purchasing goals annually.

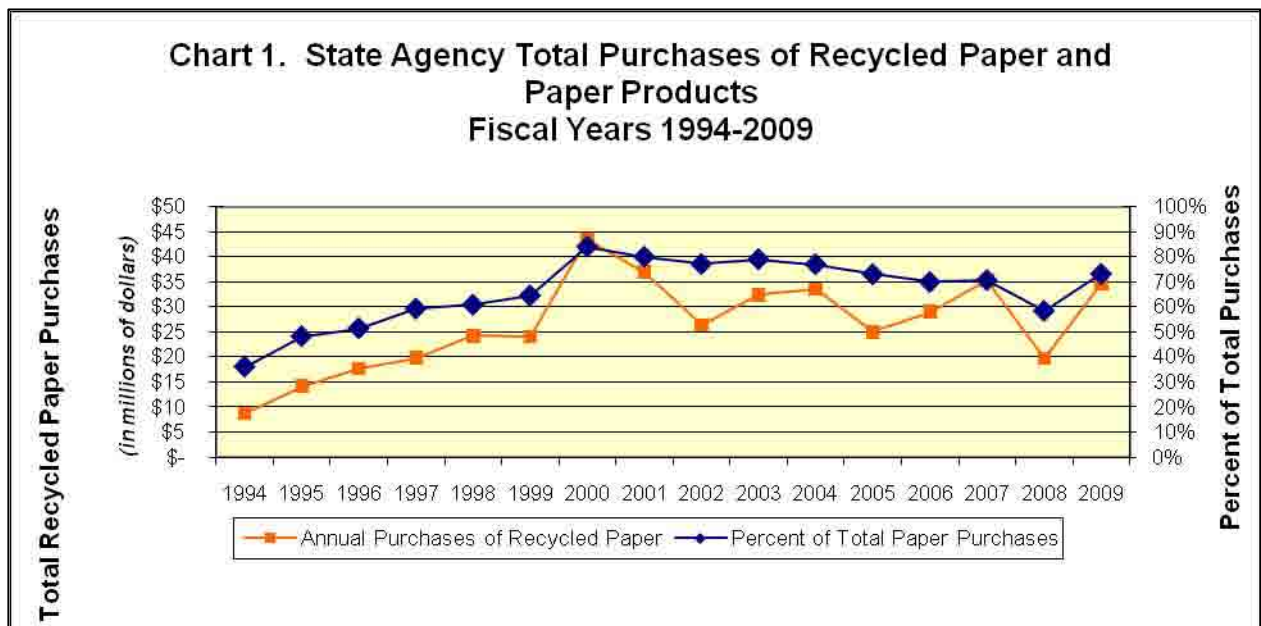
The percentage of recycled content paper purchases reached an all-time high of 84 percent in 2000, and has since fluctuated in the 70s percentage range. **This year, agencies achieved a 73 percent rate for recycled content paper purchases; a good level of success despite ongoing budget challenges.**

<sup>1</sup> Full text of No. 156 is available online at [www.p2pays.org/epp/reports.asp](http://www.p2pays.org/epp/reports.asp).

Virgin paper is still available on state contract at a lower price, which is a notable obstacle in reaching statewide goals, particularly with continued concern for frugal fiscal spending. Seeking more vendors of recycled content paper and implementing waste reduction techniques, such as double-sided printing and reusing one-sided pages, can help neutralize the cost differential.

Below, **Chart 1** illustrates the trend in overall dollar amounts and percentages of recycled paper purchases over the past 16 fiscal years, including this year's 75 percent increase in overall paper expenditures<sup>2</sup>. Recycled content paper purchases totaled \$34.5 million, which represents 73 percent of all paper purchases, a 15 percent increase from last year.

- Half of all paper purchases were spent on office paper, achieving a 71% rate for recycled content office paper.
- 21 agencies reached 100% goal for all paper purchases, which has been relatively consistent over the past 11 years.
- More than 1/3 of the agencies achieved a stellar 90% or higher rate of recycled content purchases for paper.
- Only 19% of reporting agencies purchased all office paper with recycled content.
- Over half of the agencies purchased all recycled content towel and tissue products, achieving an overall recycled content purchase rate of 87%.
- \$9.8 million was spent on outside print orders, decreasing somewhat from last year, the majority of which was recycled content.

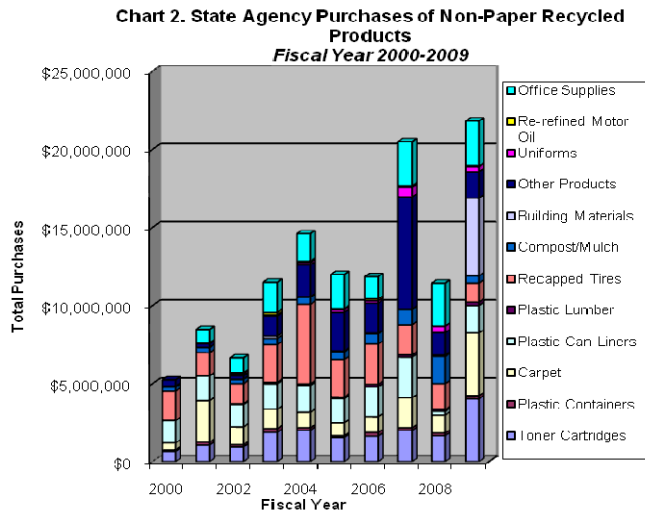


**Policy and Administrative Support.** While agencies are not required to develop an internal policy by the General Statutes or Executive Order, it could be the first step to improving our state's effectiveness in recycled content product purchases. A mere 46 percent report having a buy recycled policy or goal in place, which is consistent with the last five years. Agencies are specifically charged with the responsibility of purchasing recycled content products, as well as designating a lead coordinator, which less than half have reported accomplishing. Of agencies reporting this year, only half noted that administrators are communicating the importance of green purchasing. These are key components to a

<sup>2</sup> As previously stated, this year we included Department of Corrections data with all the other agencies. For FY 09, DOC only represented 10% of all paper purchases, compared to FY 08, where it made up 95% of all paper purchases.

successful recycled content procurement program, and should be examined as a way to considerably increase participation.

**Non-Paper Products.** Agencies reported spending \$21.8 million on non-paper recycled content products in fiscal year 2009, nearly doubling last year's expenditures. Non-paper recycled product spending is expected to increase continually as purchasers become further educated about the products they buy, and as the array of recycled products become more readily available.



Total expenditures of the recycled non-paper products reflect a significant increase FY 08's figure, as illustrated in **Chart 2**. This can most likely be attributed to the fact that some of the strict spending constrictions in state government have been alleviated, which particularly affected building projects and building and equipment maintenance. The size of the colored categories represent the total dollars of purchases in that category and the height in that fiscal year represents total purchases of non-paper recycled products. Reports revealed some fluctuations, most considerably in the categories of toner cartridges, carpet, office supplies, plastic lumber, and building materials. Recycled content building materials reached a \$5 million all-time high, 98 percent of which was spent by

Department of Corrections on materials such as concrete, steel, and wood for prison facilities. The "other" category includes furniture, electronic equipment, food service products, and custodial products such as mops, rags and even some cleaning solvents. Biodiesel and electronic equipment were also listed in the other category, and represent green purchases beyond recycled content, including other environmentally preferable attributes such as renewability and Energy Star compliance.

**Other Environmental Purchasing Efforts.** Some state agencies have excelled beyond buying recycled, and have begun to tackle more sustainable purchasing issues like environmentally preferable purchasing. Environmentally preferable purchasing, or green purchasing, includes a host of attributes that can be considered to decrease the impact of products on the environment. Ashe County Schools' bus fleet participated in a fuel efficiency pilot project, where preliminary findings suggest that it improved fuel efficiency up to 10 percent. The entire fleet will begin being treated with the enhancer in the 09/10 school year. Montgomery County Schools implemented the use of more energy efficient lighting and thermostats in their buildings in FY 08-09. They also required all buildings to operate within a more conservative heating and cooling climate. Craven County Schools began a similar program piloted in the Board of Education building, and will compare energy bills to identify any cost savings. Wilson Community College completed construction and received LEED Gold Rating on their Student Center Building. They also designed a "Growing Green" website to raise awareness on campus (<http://www.wilsoncc.edu/climate.cfm>).

**Conclusion**

The purchase of recycled content products is a well-established practice in state government, supported by statutory and executive order requirements, as well as the possibility of using government purchasing power to establish state term contracts that offer high quality, affordable recycled content choices for purchasers. Still, progress must be made to bring agencies to full compliance with the 100 percent recycled content paper goal.

Several key agencies could, with a few significant purchasing decisions, substantially increase the overall performance of state government in recycled paper purchasing. Converting the current \$12.7 million in virgin paper purchases to recycled paper will allow North Carolina state government to contribute largely

to the strength of recycling markets. As a major player in the collection of paper for recycling, state government stands to benefit directly from improved markets. The use of recycled products will also help North Carolina achieve its environmental goals by reducing natural resource, energy and water usage, and preventing air and water pollution.

The following recommendations may help state government meet goals set forth both in EO 156 and General Statutes, and increase overall recycled content purchases. Executive Order 156 directs state agencies to conduct a wide range of environmental initiatives and practices, including recycling, purchasing environmentally preferable products, and energy efficiency. In regards to previous recommendations, through NC Project Green the DPPEA, in partnership with other state agencies and local governments, succeeded in providing education this past year on efficient transportation technologies, sustainability policies and programs, water reuse, and environmental management systems. In the coming year, NCPG will conduct further meetings on green cleaners, green building, and establishing formal sustainability programs.

### **Recommendations**

- I. Due to legislative changes in 2009, the statutory reporting requirement for recycled content purchasing was rescinded.** This is a positive change, as agency performance in reporting has been very consistent in the last 10 years and the alternative possible use of staff resources to conduct active environmentally preferable purchasing technical assistance could lead to more productive change. As discussed in the introduction of this report, continued goals for purchasing recycled content and other environmentally preferable products is important to our local economy and the success of our recycling businesses. Unfortunately, reporting on this data is very difficult because these products do not have special commodity codes identifying that they are 'green' products. DOA's Purchase and Contracts Division has the best access to what agencies are buying on state contract, and it reports that data each year to be included in this **State Solid Waste Management Annual Report**. That continued effort will help the state keep a handle on recycled content purchases, while DPPEA maintains outreach and education efforts and assists DOA with populating state contracts with more environmentally preferable products.
  
- II. NC Procurement Professionals should communicate their interest in procuring green products to DOA's Purchase and Contracts Division.** Educational sessions reveal that government purchasing professionals are interested in increased green product choices available on contract. While some university purchasing offices have management support and are interested in developing specifications and policies, most can not dedicate time to designing internal green policies or searching for environmentally preferable purchasing contract language and would be interested in utilizing pre-negotiated state contracts. They also need assistance justifying price differentials for more durable and healthier products. Specific recommendations for state agencies would include:
  - Evaluate products in terms of broad environmental impacts including: durability, energy efficiency, performance, recycled content and recyclability, toxicity, biodegradability, local manufacturers, and packaging.
  - Engage P&C regarding products and contractual services that take into account environmental impacts.
  
- III. North Carolina government, under the new leadership of Governor Bev Perdue and DENR Secretary Dee Freeman, should consider initiating an updated Executive Order to strengthen the goals set forth in the 1999 EO 156, set forth under Governor James Hunt's administration.** Executive Order 156 directs state agencies to conduct a wide range of environmental initiatives and practices, including recycling, purchasing environmentally preferable products, and energy efficiency.

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**Agencies that Purchased 100 Percent Recycled Paper in FY 09**

Asheboro City Schools	Pamlico County Schools
Bertie County Schools	Perquimans County Schools
Central Carolina Community College	Stokes County Schools
Chapel Hill-Carrboro City Schools	Swain County Schools
Cleveland Community College	Watauga County Schools
Currituck County Board of Education	Wayne Community College
Fayetteville Tech Community College	Wilson Community College
Guilford County Schools	Wilson County Schools
Lenoir Community College	Winston-Salem State University
Madison County Schools	Yancey County Schools
NC School of the Arts	

**Agencies that Failed to Report Data for FY 09**

Alamance Community College	Jackson County Public Schools
Alamance-Burlington School System	Johnston County Schools
Alexander County Schools	Juvenile Justice and Delinquency Prevention
Alleghany County Board of Education	Lenoir County Public Schools
Avery County Schools	Lieutenant Governor's Office (in Labor)
Bladen Community College	Lincoln County Schools
Buncombe County Schools	McDowell County Schools
Cabarrus County Schools	McDowell Technical Community College
Caldwell County Schools	Mitchell County Schools
Carteret County Schools	Nash/Rocky Mount Schools
Catawba County Schools	NC School of Science & Mathematics
Cherokee County Schools	NC State University
Clay County Board of Education	New Hanover County Schools
Clinton City Schools	Northampton County Schools
Coastal Carolina Community College	Orange County Schools
Columbus County Schools	Pasquotank County Schools
Dare County Schools	Person County Schools
Edgecombe Community College	Robeson County Public Schools
Edgecombe County Schools	Rutherford County Schools
Elkin City Schools	Sampson County Schools
Employment Security Commission	Southeastern Community College
Environment and Natural Resources, Dept. of	Stanly Community College
Fayetteville State University	Thomasville City Schools
Franklin County Schools	Tri-County Community College
Gates County Public Schools	UNC Hospitals
General Assembly	UNC Pembroke
Graham County Schools	Union County Public Schools
Halifax County Schools	Wake County Schools
Harnett County Schools	Warren County Schools
Henderson County Public Schools	Wayne County Public Schools
Hertford County Schools	Western Piedmont Community College
Hoke County Board of Education	Whiteville City Schools
Hyde County Board of Education	Wilkes Community College

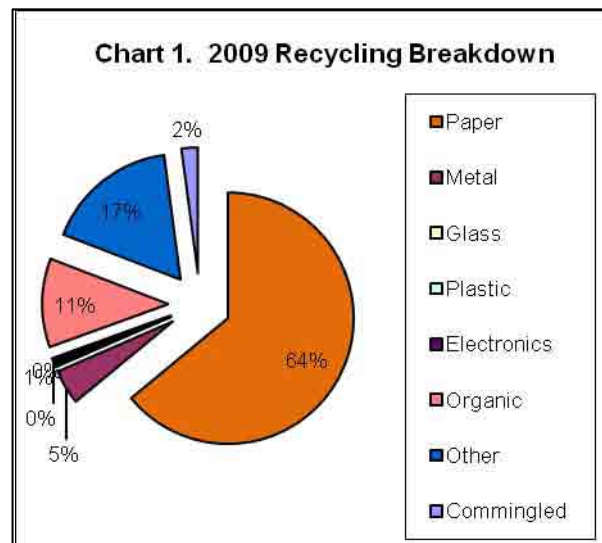
**State Agency Source Reduction, Recycling, and Composting Efforts**

State agencies are directed to recycle by state law - N.C. General Statute 143 and by Executive Order 156. The Division of Pollution Prevention and Environmental Assistance suspended reporting for a few years, but in 2005 started a new baseline for state recycling trends and participation has increased annually. **Sixty-four** agencies reported data, which constitutes over sixty percent of the required reporting entities. Universities and community colleges are heavily represented, accounting for 49 reports.

Agency departments pose a difficult challenge in reporting because they often have several regional offices to gather data from, and many have office spaces in leased facilities or share buildings with non-state businesses. Departments make up 25 percent of the required reports. More than twice as many state employees work in regional offices across the state than in the Capital area. In FY09, 15 agency departments reported, but six of them filed very incomplete reports without any tonnages or cost data. The Department of Transportation filed an extensive report, and a complete summary of its solid waste and recycling program is included in this State Solid Waste Management Annual Report.

The majority of agency offices located in the Raleigh-area have been included under one contract for recycling and solid waste collection, managed by the Department of Administration's Facilities Management Division. Facilities Management gathers data from the collection companies and completes this report for agencies in the capital region. For the next FY, this process will change as Facilities Management has dropped that recycling contract for leased spaces due to budget challenges. As of July 2009, lessors whose buildings house state agencies in the Raleigh area were required to establish their own recycling contract. DPPEA has been working with Facilities Management, the State Property Office, and Raleigh-area state employees and property managers of buildings occupied by state employees, to educate them on this change and provide assistance in locating recycling options for paper, plastic and glass bottles, aluminum cans, and cardboard.

**Recycling Performance.** In fiscal year 2009, state agencies collectively diverted 67,542 tons from disposal in landfills and incinerators. Respondents reported recycling 43,247 tons of paper, 3,000 tons of metals, 200 tons of glass, 220 tons of plastic, 1,422 tons of commingled containers, 7,679 tons of organics, and 11,514 tons of 'other' materials. The 'other' category consists of materials such as lead-acid batteries, textiles/fabrics, motor oil, tires, and construction and demolition debris. The commingled containers category was added two years ago because expanding markets across the state are able to handle mixed materials. This development is a great improvement, as simple programs have the highest participation rate.



An additional 672,000 tons of asphalt was recycled by Department of Transportation, but that outstanding diversion skewed the data and was extrapolated out for the sake of drawing comparisons. While last year DOT recycling tonnages amounted to 96 percent of all recycling data reported, this year's totals put DOT more in line with efforts of other agencies and therefore we were able to include their data with the rest of the reported statistics.

**Based on FY 2009 data, the agency recycling rate for all wastes managed during the year was 22 percent.** While recycling weights increased by over 40 percent from last year, this is recycling rate is significantly lower than 2008's rate of 52 percent. Commingled tonnages decreased by nearly half while metal and plastic more than doubled and paper and glass tonnages quadrupled. Even without including DOT's asphalt tonnages, the 'other' category increased by more than 700 percent. This amplification can

be attributed to increased recycling of construction and demolition waste; the primary contributing factor is construction and demolition waste from DOT, East Carolina University, and Wilkes Community College.

It must be noted that the recycling data reported by agencies each year is extremely variable, and drawing comparisons is difficult because reporting behaviors are not consistent year to year. For instance, while almost all reported recycling tonnages, the overall reported amount of disposed solid waste tonnages also increased by more than 150,000 tons in FY 09, in part because agencies simply did a better job of reporting. Seven more agencies reported data this year, and the data represented comes from varying agencies each year, and is therefore erratic. Also, a quarter of the reporting agencies had a recycling rate under 10 percent.

Data was collected for electronics recycling for the fifth year in a row. Encouragingly, the majority of agencies has a process in place to manage excess electronics, and in FY 2009 collected 262 tons of electronics. This figure does not include data from DOA or the State Surplus Office. Most agencies report using the statewide electronics-recycling contract ([www.doa.state.nc.us/PandC/926a.htm](http://www.doa.state.nc.us/PandC/926a.htm)) to complement recycling opportunities through state surplus. A handful of agencies reported working directly with non-contract vendors, all of which are listed in our online directory at [www.p2pays.org/dmrm](http://www.p2pays.org/dmrm). A few claim to work in conjunction with their local government to dispose of electronics and one or two donated to local schools. Agencies and local governments are becoming keenly aware of the need to recycle electronic materials, bearing in mind their contribution of hazardous substances to landfills and the opportunity to reclaim valuable resources from electronic products.

**Solid Waste and Program Costs.** State agencies landfilled approximately 236,908 tons of solid waste in FY 2009, at a cost of about \$13.8 million in collection and disposal fees. The average estimated cost was of \$58 per ton. This is the highest solid waste tonnage data reported since the report has been reinstated in 2005, and is three times the 85,056 tons reported last year. Some agencies, such as Department of Corrections, East Carolina University, Health and Human Services, Rowan-Cabarrus Community College, Department of Transportation, and Wake Technical Community College, experienced a substantial increase in solid waste tonnages. Most of those increases can be ascribed to construction and demolition waste from new buildings and renovations. The overall disposal costs went up by over \$1.6 million dollars from last year, but the cost per ton decreased by about \$182. This number is extremely fickle depending on how complete and accurate agency reports are.

Calculating the total cost of solid waste and recycling programs is difficult, and respondents may need training to review this computation. Additional calculations have been included to more accurately compute the expense of recycling programs. In order to determine the true cost or cost avoided, agencies must submit complete reports. The reliability of this data also depends on how in-depth the reporting agencies examine their program fees.

Agencies are asked to report the cost avoided through recycling, calculated by multiplying the recycling tonnage by the cost per ton of solid waste. While most appeared to do this from the data, some agencies reported tremendous differences in their cost avoided through recycling. Those discrepancies were either miscalculations or took into consideration other costs of the program that were not supplied in the report. From the data agencies reported, the total cost avoided is estimated over \$26.4 million. This is about half the money diverted last year, and can be ascribed to the economic situation in FY 09, which affected the value and collection costs of many recyclables.

While nearly half of the reports claim some revenues for the sale of recyclables, amounting to more than half a million dollars, the majority still experienced net program costs totaling nearly \$2.5 million. Program costs include collection, processing, and outreach and education. **The result is an average cost of almost \$3 per ton of recyclables, a small fraction of the cost for solid waste disposal**, which exemplifies the savings in recycling. It should be noted that 18 agencies did not include recycling program costs although they did report recycling tonnages. Recycling programs should not have the expectation of zero cost, but can expect that there will be an overall savings by avoiding the higher disposal fees of solid waste. As with most new programs and efforts, there is an upfront cost for containers and initial education, and minimal costs to continue marketing the program.

With the economic downturn, recycling commodity prices also declined dramatically starting in October 2008. Some programs did not receive revenues for the sale of their materials in 2009, and some experienced increased recycling collection costs. State agencies can assist our local markets by continuing to improve recycling programs and through an increased effort in buying recycled content products. Some of those state efforts are included in this report as well.

**Administrative Support and Source Reduction.** A clear majority of agencies report that they receive top-down administrative support for recycling efforts, and almost half have a lead coordinator for waste reduction and recycling program. Seventy-three percent have ongoing educational programs for waste reduction and recycling and many are using one of DPPEA's educational programs ([www.re3.org](http://www.re3.org) and/or [www.recycleguys.org](http://www.recycleguys.org)). Most agencies that routinely host the public at their facilities, such as state parks, highway rest areas, museums, and sports venues, provide recycling opportunities for visitors. Some agencies detailed that limited training is provided but could be improved if upper tier administrative support is gained. Recycling information was generally communicated and distributed via:

- ✓ Employee email, newspaper, radio, word of mouth and one-on-one education at campus events where promotional items are distributed.
- ✓ Website, brochures, student groups, volunteers and volunteer activities.
- ✓ Presentations at training sessions and managers meetings, as well as annual reports.
- ✓ Recycling policies and procedures listed in materials such as Employee Manuals, printed on campus phone directories, given to residence hall staff, and posted online.
- ✓ Posters and signs in break rooms, recycling centers, hallways, and restrooms.

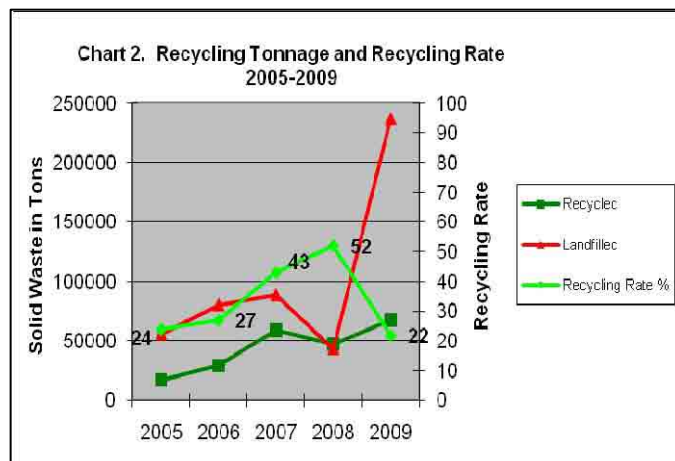
Ninety-four percent of reporting state agencies practice waste reduction at the source, including reducing office paper by eliminating unnecessary reports and forms or converting to electronic format, making fewer copies, double sided printing, using email and voice mail to communicate, and posting announcements on bulletin boards or in break areas. Agencies estimate a reduction in paper usage in fiscal year 2009. A quarter of agencies conducted solid waste assessments of the amount and types of solid waste at their facilities. Some use this reporting process to reevaluate their program. Other agencies conduct site visits, collect landfill invoices, or audit on-site trash dumpsters. The results help in finding the best place to put recycling containers, deciphering which materials are most feasible to recycle, and identifying where waste reduction techniques would be most efficient.

**Conclusion**

While the revitalization of the recycling report has shown a great percentage of agencies continuing their waste reduction and recycling efforts that were established several years ago, there are still challenges. Some agencies, including community colleges and a few universities, are struggling to recycle basic material like cardboard and aluminum cans. Sometimes this is a market issue. More often, it is a perceived barrier due to lack of education and funding, which stems from insufficient support internally.

Inconsistencies and inaccurate reports are still a problem, making finite conclusions complicated. For instance, a variable set of agencies report each year and there is missing data in many reports. In addition, many departments neglect to report for their regional offices. The integrity of the data improves with annual updates to the report form.

Some of the variability in statistics can be attributed to the inability of agencies to accurately track tonnages. Solid waste and recycling weights are still estimated because collection companies have not integrated onboard truck scales. Exact weights can only be obtained if collection is completed at one facility and the truck is brought across scales to obtain an exact weight, which rarely





occurs. For these reasons, figures reported likely underestimate the true quantities and costs of waste being disposed. Incomplete tracking and estimation may also contribute to fluctuations in reported recycling over time.

The unreliability of the data prevents the natural and hopeful conclusion that increased recycling tonnages would cause a decrease in solid waste being disposed of in the state's landfills. This year's recycling tonnage increased by 40 percent from last year. Concurrently, the solid waste tonnages reported also increased – by more than 400 percent! **Therefore, this year's recycling rate is 22 percent, a significant decrease from last year.** Improved awareness of agency solid waste streams and more accurate data collection will make a more reliable comparison possible.

It is encouraging that some agencies have pulled forward as leaders in waste reduction and recycling efforts. Many universities provide reuse programs including large-scale collection and redistribution of clothing, furniture, household supplies, and even electronic products. A few universities have conducted sustainability audits over the last year or two, which include energy and water tracking mechanisms as well as waste audits of the campus. With the re-establishment of the recycling report, some community colleges and universities reached out for assistance to restart or revitalize their program.

DPPEA has outreach and education campaigns available to all universities and community colleges to help promote recycling programs. In FY 2009, many schools took advantage of the RE3 campaign to help promote the new legislation that bans plastic bottles from being disposed of in the landfill. At annual outreach events from job festivals to Earth Day celebrations, campus coordinators gave out promotional materials to encourage students to visit [www.re3.org](http://www.re3.org) to learn more about recycling. DPPEA utilized cutting edge public communication tools, such as a web-blog, a FaceBook page, and viral marketing campaigns, which were all well received and enhanced efforts to increase recycling statewide.

### Recommendations

Upon review and consideration of the data contained in this report, DPPEA submits the following recommendations to improve the solid waste reduction and recycling efforts of North Carolina state agencies.

- I. Use the Source Reduction and Recycling Report data to assist programs statewide. Tracking the amounts of solid waste disposed annually by state agencies is the best way to determine whether efforts to reduce waste, including recycling programs, are affecting the waste stream. This information, along with data on the costs for collection and disposal, can be used to evaluate the cost efficacy of agencies' waste management strategies, as well as the costs avoided through waste reduction and recycling. To maximize data recovery and assessment, it is recommended that agencies:
  - Conduct waste assessments at their constituent facilities, offices, and institutions.
  - Require full accounting for all costs associated with solid waste collection and disposal services.
- II. Develop a means to effectively communicate about recycling programs. Programs are ineffective if they are not visible and not explained to employees. This may be as simple as quarterly email reminders of what is accepted at the various bins in your facility, and where the bins are located (i.e. by the copy machine, in the staff lounge, in the lobby, etc.). Depending on the work environment, such efforts may include a full-fledged outreach and education program. Agencies should make use of materials available for promotional initiatives from DPPEA, including posters, stickers, and other advertising tools through the RE3 program at [www.re3.org](http://www.re3.org).
- III. Agencies should join NC Project Green ([www.ncprojectgreen.com](http://www.ncprojectgreen.com)), a DPPEA program that focuses on sustainability in government. The audience for the project is state agencies and local governments. Universities and community colleges should consider joining Project Green, as well as the Carolina Recycling Association's Collegiate Recycling Coalition ([www.cra-recycle.org/CRC](http://www.cra-recycle.org/CRC)). From these two programs, participants will be educated about recycling markets and how to set up a successful recycling program. Respondents may need training to review how to calculate some of this report data, and these programs can help, along with some direct training from DPPEA.

N.C. Solid Waste Management Annual Report Fiscal Year 2008-2009

# Chapter 8

3R Program and Report

North Carolina Department of Transportation



# NCDOT REDUCE/REUSE/RECYCLE REPORT

FISCAL YEAR 2008-2009



John L. Sharp  
Environmental Specialist  
General Service Division



## EUGENE A. CONTI, JR. SECRETARY

"It is vitally important for all North Carolinians to preserve and protect our environment for future generations. NCDOT has made a strong commitment to recycle, reduce the amount of waste produced in projects and reuse as many materials as possible, and we continue to make this a central focus in our daily operations."





**TERRY GIBSON, P.E.  
STATE HIGHWAY ADMINISTRATOR**

“The 3R Program is an important program at NCDOT. Being good stewards of the environment, and keeping a close watch on the larger picture, will help us to be more responsible toward conserving our natural resources today and in the years to come.”



**MICHAEL D. ROBERTSON  
DMV COMMISSIONER**

“At the Division of Motor Vehicles, one of our key programs is working with the N.C. Division of Air Quality and the U.S. Environmental Protection Agency to reduce the pollutants coming from the vehicles we drive. Our safety and emissions inspections help keep our vehicles operating safely and cleanly. We take great pride in doing all we can to preserve the quality of our environment for future North Carolinians.”



# NCDOT 3R Program Tree

Source Reduction  
New Technology

Source Reduction  
New Design

Source Reduction  
Procurement

Reuse  
Materials

Source Reduction  
Planning

Reuse  
Composting

Reuse  
Items

Reuse  
Waste Exchange

Reuse  
Swap Shop Surplus

Recycle  
Paper/Aluminum  
Plastic/Cardboard

Recycle Purchasing  
Buy Recycled Items

**Benefits:** • More Efficient Operation • Cost Savings • Environmental Sustainability • Compliance

**REDUCE REUSE RECYCLE**

# Education on Waste Reduction and Recycling

**Effective education is key to a successful waste reduction program.**

**As of 2008, NCDOT has the following measures in place:**

- Top-down support for a recycling program;
  - A lead coordinator for waste reduction and recycling efforts;
  - WastEnders program;
  - Waste reduction and recycling opportunities for visitors at its public facilities such as highway rest stops; and
  - Ongoing educational and promotional programs for waste reduction and recycling.
- A majority of the information was communicated and distributed electronically through e-mail and online.



**NCDOT 3R PROGRAM**  
• REDUCE • REUSE • RECYCLE



# Source Reduction of Waste/ Waste Prevention and Reuse



**NCDOT places source reduction of waste/  
waste prevention and reuse at the top of  
the hierarchy of preferred methods for  
managing solid waste. Executive Order  
156 requires state agencies to practice  
waste reduction.**

**The following are actions taken by NCDOT in 2008 to practice waste reduction:**

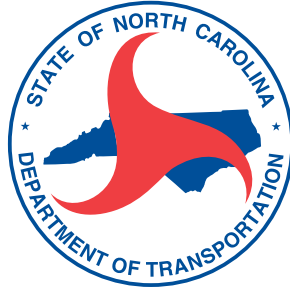
- Most employees practiced at least one technique for reducing waste.
- 70 percent of NCDOT facilities took action to reduce office paper such as copy paper, letterhead, envelopes and packaging.

This was done through:

- Eliminating unnecessary reports and reducing report size;
- Eliminating unnecessary forms or converting to electronic format;
- Making fewer copies;
- Printing or copying documents on both sides of paper;
- Using electronic mail and voice mail; and
- Posting announcements on bulletin boards and in break areas.







## Reuse - NCDOT Swap Shop/ Property Request



This is an expansion program of the NCDOT 3R Program that provides a formalized process, to all NCDOT employees, to review and exchange surplus items and materials within NCDOT state-wide before disposing of it through State Surplus Properties. This also provides a formalized process for any Department within NCDOT state-wide to communicate to all other Departments a need of an item (s) or material (s). To view item (s) that are in the process of being surplus or item (s) that are needed by other Departments go to our NCDOT web site using Internet Explorer <https://intranet.dot.state.nc.us/portal>.



# NCDOT 3R PROGRAM

• REDUCE • REUSE • RECYCLE

## Recycled Products & Solid Waste Utilization in Construction & Maintenance Projects



Reused Materials 2008-2009	Quantity	Unit of Measure
Aggregate Base Course	19,595	Tons
Concrete Pipe	3,475	Linear Feet
Guardrail	13,604	Linear Feet
Portable Concrete Barrier	7,301	Linear Feet
Sign Posts	9,216	each
Signal Heads	658	each
Signs	26,659	each
Steel Beams	360,100	Pounds





STATE OF NORTH CAROLINA  
DEPARTMENT OF TRANSPORTATION

BEVERLY EAVES PURDUE  
GOVERNOR

EUGENE A. CONTI, JR.  
SECRETARY

**Recycling and Solid Waste Management Report  
For Highway Construction and Maintenance Projects  
Fiscal Year 2009**

This report is a summary of the recycling and solid waste management efforts on highway construction and maintenance projects within the North Carolina Department of Transportation for fiscal year 2009 (July 1, 2008 - June 30, 2009) as required by G.S. 136-28.8(g). This statute mandates the Department prepare an annual report on the amounts and types of recycled materials specified or used in construction and maintenance operations during the previous fiscal year. The types of recycled materials incorporated into the projects noted would normally contribute to the consumer and industrial waste streams, compounding the problem of declining space in landfills.

Efforts to utilize recycled and solid waste materials are in response to the requirements of G.S. 136-28.8(b) which mandates the Department to use recycled materials in highway projects, specifically:

- (1) Rubber from tires for pavements, subbase materials, and other appropriate applications.
- (2) Recycled materials for guardrail posts, right of way fence posts, and sign supports.
- (3) Recycling technology including but not limited to hot in-place recycling on roads in highway maintenance.

All applications of recycled materials are to be consistent with economic feasibility and applicable engineering and environmental quality standards.

**Highway Construction and Maintenance Projects**

Specifications now require that many of the products used in highway construction projects, such as guardrail offset blocks and flexible delineator posts, be manufactured from some quantity of recycled materials. Glass beads used for retroreflective pavement markings are manufactured from 100 % recycled glass. Reclaimed asphalt pavement (RAP) may constitute up to 50 % of the total material used in most recycled mixtures, and RAP mixtures are used on a majority of projects. Fly ash is sometimes used as a concrete component for up to 20 % by weight of the required cement content. Some of the notable recycled or solid waste materials utilized this fiscal year are listed below.

**MAILING ADDRESS:**  
NC DEPARTMENT OF TRANSPORTATION  
QUALITY ENHANCEMENT UNIT  
1502 MAIL SERVICE CENTER  
RALEIGH NC 27699-1502

TELEPHONE: 919-508-1867  
FAX: 919-508-1954

WEBSITE: [WWW.NCDOT.GOV](http://WWW.NCDOT.GOV)

**LOCATION:**  
RANEY BUILDING  
104 FAYETTEVILLE STREET MALL  
RALEIGH NC 27601

Recycling and Solid Waste Management Report  
For Highway Construction and Maintenance Projects  
Fiscal Year 2009

1. Over 670,000 tons of Reclaimed Asphalt Pavement (RAP) was used as an asphalt mix additive.
2. About 5,000 cubic yards of clearing and grubbing debris was used as mulch for erosion control and roadside environmental applications.
3. Over 32,000 tons of coal combustion fly ash was used in concrete mixes.
4. Approximately 7,500 tons of recycled glass beads were used in pavement marking.
5. Maintenance personnel across the state continue to reuse products including:
  - Aggregate Base Course
  - Concrete pipe
  - Guardrail
  - Signs and posts
  - Steel Beams

See Attachment 1 for quantities of recycled and solid waste materials used during the 2009 fiscal year. Attachment 2 summarizes total quantities from 1989 through June 30, 2009. The report includes current year quantities, as well as a rolling average since 1989.

## **Website**

For up-to-date information on NCDOT's use of recycled materials, visit

<http://www.ncdot.org/~adu>

or

<http://www.ncdot.org/doh/preconstruct/altern/value/recycle/default.html>

Attachment 1

**North Carolina Department of Transportation  
Recycled Products & Solid Waste Utilization in Construction & Maintenance Projects  
Fiscal Year July 1, 2008 - June 30, 2009**

Product Category and Description	Usage	Quantity	1989-2009 Rolling Average (Yr)	Unit of Measure
<b>1-Asphalt:</b>				
Reclaimed Asphalt Pavement (RAP)	Asphalt Mix Additive	671,969	210,135	Tons
Reclaimed Asphalt Shingles (RAS)	Asphalt Mix Additive	13,938	2,891	Tons
Reclaimed Asphalt Pavement (RAP)	Shoulder Reconstruction	5,460	302	Cubic Yards
Hot-In-Place Asphalt Recycling	Pavement	699,473	120,693	Square Yards
Full-Depth Reclamation	Pavement	8,593	7,052	Cubic Yards
<b>2-Clearing and Grubbing Debris:</b>				
Mulch	Mulch	149	25	Acres
Mulch	Roadside Environmental	3,072	1,672	Cubic Yards
Mulch	Erosion Control	2,083	1,979	Cubic Yards
<b>3-Coal Combustion Products:</b>				
Fly Ash	Concrete Mix Additive	32,224	4,709	Tons
<b>4-Concrete:</b>				
Recycled Concrete	Aggregate Base Course	1,906	307	Tons
Recycled Concrete	Fill Material	837	2,687	Tons
<b>5-Glass:</b>				
Recycled Glass Beads	Pavement Markings	7,500	3,564	Tons
<b>6-Plastic:</b>				
Recycled Plastic Offset Blocks	Guardrail Offset Blocks	18,212	15,974	Each
Recycled Plastic Pipe (All Types)	Pipe	405	2,856	Linear Feet
Recycled Plastic Flexible Delineators	Flexible Delineators	125	239	Each
<b>7-Scrap Tires:</b>				
Chipped Tires	Embankment Fill	4,080	584,602	Tires
Crumb Rubber	Crack Sealant	100	6	Tires
Tire Sidewalls	Traffic Drum Ballast	3,719	3,110	Tires
Whole Tires	Retaining Wall	865	168	Tires
<b>Total Waste Scrap Tires</b>		<b>8,764</b>	<b>597,211</b>	<b>Tires</b>

Continued on Next Page

Attachment 1

**North Carolina Department of Transportation  
Recycled Products & Solid Waste Utilization in Construction & Maintenance Projects  
Fiscal Year July 1, 2008 - June 30, 2009**

Product Category and Description	Usage	Quantity	1989-2009 Rolling Average (Yr)	Unit of Measure
<b>8-Roadside Environmental:</b>				
Hydromulch	Mulch	7,000	4,458	Pounds

<b>9-Other:</b>				
<b>No information Provided</b>				

<b>10-Reused Materials:</b>				
Aggregate Base Course	Aggregate Base Course	19,595	2,020	Tons
Concrete Pipe	Concrete Pipe	3,475	465	Linear Feet
Guardrail	Guardrail	13,604	1,735	Linear Feet
Portable Concrete Barrier	Portable Concrete Barrier	7,301	365	Each
Sign Posts	Sign Posts	9,216	525	Each
Signal Heads	Signal Heads	658	37	Each
Signs	Signs	26,659	1,397	Each
Steel Beams	Steel Beams	360,100	26,680	Pounds
Signal Pole (wood)	Signal Pole Replacement	17	1	Each
Signal Cabinet	Signal Repair	3	0	Each
1" Rigid Pipe	Signal Repair	110	6	Linear Feet
LED Signal Lamps	Signal Repair	200	10	Each

**End Fiscal Year 2009 Summary**

## Attachment 2

**North Carolina Department of Transportation**  
**Recycled Products & Solid Waste Utilization in Construction & Maintenance Projects**  
**Summary, January 1989 through June 2009**

Product Category and Description	Usage	Quantity	Unit of Measure
<b>1-Asphalt:</b>			
Reclaimed Asphalt Pavement (RAP)	Asphalt Mix Additive	4,202,693	Tons
Reclaimed Asphalt Pavement (RAP)	Aggregate Base Course	23,508	Tons
Reclaimed Asphalt Pavement (RAP)	Shoulder Reconstruction	6,047	Cubic Yards
Reclaimed Asphalt Shingles (RAS)	Asphalt Mix Additive	57,824	Tons
Hot-In-Place Asphalt Recycling	Pavement	2,413,867	Square Yards
Full-Depth Reclamation	Pavement	141,044	Cubic Yards
<b>2-Clearing and Grubbing Debris:</b>			
Mulch	Mulch	506	Acres
Mulch	Roadside Environmental	33,432	Cubic Yards
Mulch	Erosion Control	39,585	Cubic Yards
<b>3-Coal Combustion Products:</b>			
Fly Ash	Concrete Mix Additive	94,183	Tons
Fly Ash	Embankment Fill	865,186	Cubic Yards
Fly Ash	Flowable Fill	630	Cubic Yards
Fly Ash	Asphalt Mix Additive	40,800	Tons
Bottom Ash	Embankment Fill	2,707	Cubic Yards
<b>4-Concrete:</b>			
Recycled Concrete	Aggregate Base Course	6,135	Tons
Recycled Concrete	Fill Material	53,747	Tons
Crack and Seat	Base Material	260,778	Tons
Rubblized Concrete	Base Material	310,917	Tons
<b>5-Glass:</b>			
Recycled Glass Beads	Pavement Markings	71,273	Tons
Crushed Glass	Subdrain Backfill	130	Tons
Crushed Glass	Pipe Foundation	333	Tons
Crushed Glass	Aggregate Base	203	Tons
<b>6-Plastic:</b>			
Recycled Plastic Offset Blocks	Guardrail Offset Blocks	319,477	Each
Recycled Plastic Fence Posts (All Sizes)	Fence Posts	8,100	Each
Recycled Plastic Pipe (All Types)	Pipe	57,123	Linear Feet
Recycled Plastic Flexible Delineators	Flexible Delineator Posts	4,788	Each
Recycled Plastic Barricades	Type III Barricades	2,091	Feet
Recycled Plastic Traffic Separators	Railroad Safety Device	2,922	Linear Feet

**Continued on Next Page**

## Attachment 2

**North Carolina Department of Transportation**  
**Recycled Products & Solid Waste Utilization in Construction & Maintenance Projects**  
**Summary, January 1989 through June 2009**

Product Category and Description	Usage	Quantity	Unit of Measure
<b>7-Scrap Tires:</b>			
Chipped Tires	Embankment Fill	11,695,045	Tires
Chipped Tires	Lightweight Aggregate	50,739	Tires
Chipped Tires	Sound Wall Panels	8,000	Tires
Crumb Rubber	Crack Sealant	125	Tires
Crumb Rubber	Soil Amendment	2,000	Tires
Crumb Rubber	Asphalt Mix Additive	124,512	Tires
Rubber Mulch	Mulch	1,225	Tires
Tire Sidewalls	Traffic Drum Ballast	62,203	Tires
Whole Tires	Retaining Wall	3,365	Tires
<b>Total Waste Scrap Tires</b>		<b>11,944,214</b>	<b>Tires</b>
<b>8-Roadside Environmental:</b>			
Advanced Alkaline Sludge	Soil Amendment	495	Tons
Aged Leaf Mold & Yard Debris	Soil Amendment	2,370	Tons
Ammonium Sulfate Liquid	Fertilizer/Soil Amendment	420,948	Gallons
Bark Mulch	Soil Amendment	10,434	Tons
Bioremediated Petroleum Affected Soils	Soil Amendment	920	Cubic Yards
Cotton Gin Waste	Soil Amendment	7,130	Cubic Yards
Hog Waste Compost	Fertilizer/Soil Amendment	25	Cubic Yards
Hurricane Fran Mulch	Soil Amendment	200,000	Cubic Yards
Hydromulch	Mulch	89,160	Pounds
Lime-Stabilized Municipal Sludge	Soil Amendment	704	Tons
Municipal Sludge	Soil Amendment	8,610	Tons
Poultry Litter	Fertilizer/Soil Amendment	425	Tons
Soil Derived from Demolition Debris	Soil Amendment	1,742	Tons
<b>9-Other:</b>			
Steel Slag	Base Aggregate	224	Tons
Processed Silica	Embankment Fill	46,072	Cubic Yards
Recycled Polyester Resin	Weedmat	1,152	Square Yards
Recycled Bridge Items	Decking & Beams (wood)	1,500	Linear Feet
Reclaimed Asphalt Pavement (RAP)	Patching	900	Tons
Used Unclassified Structure	Borrow	3,180	Cubic Yards
Mabey Bridge	Bridge	1	Each
Drainage Ditch Excavation	Borrow	200	Cubic Yards
Corrugated Metal Pipe	Metal Pipe	2,500	Linear Feet
Erosion Control Stone 'B'	Slope Protection	340	Tons
White Roofing Rock	Mulch, Ditch Liner	250	Cubic Yards

Continued on Next Page



Attachment 2

**North Carolina Department of Transportation  
Recycled Products & Solid Waste Utilization in Construction & Maintenance Projects  
Summary, January 1989 through June 2009**

Product Category and Description	Usage	Quantity	Unit of Measure
<b>10-Reused Materials:</b>			
Aggregate Base Course	Aggregate Base Course	40,394	Tons
Concrete Pipe	Concrete Pipe	9,305	Linear Feet
Guardrail	Guardrail	34,694	Linear Feet
Refurbished Traffic Signal Heads	Traffic Signal Heads	11	Each
Sign Posts	Sign Posts	10,492	Each
Signal Heads	Signal Heads	738	Each
Signs	Signs	27,948	Each
Silt Fence and Posts	Silt Fence and Posts	2,550	Linear Feet
Steel Beams	Steel Beams	533,600	Pounds
Double Faced Concrete Barrier	Concrete Barrier	8,041	Linear Feet
Wooden Breakaway Posts	Guardrail Offset Blocks	11,409	Each
40' Signal Pole (wood)	Signal Pole Replacement	17	Each
LED Signal Lamps	Signal Repair	200	Each
Signal Cabinet	Signal Repair	3	Each
1" Rigid Pipe	Signal Repair	110	Linear Feet
Portable Concrete Barrier	Portable Concrete Barrier	7,301	Each

End 1989-2009 Summary

End Report

# The NCDOT Division of Highways has embraced recycling throughout North Carolina.



The growth of recycling programs throughout NCDOT reflects employees' commitment to conserving resources, saving on operating costs and transforming waste materials into useable resources.

## Recycling provides NCDOT and North Carolina with several major benefits:

- Conserves natural resources and landfill space;
- Conserves energy and water;
- Reduces pollution; and
- Creates jobs and reduces costs in manufacturing sectors that are an important part of the economy.



# In 2008-2009, NCDOT recycled 718 tons of paper such as office papers, telephone books and cardboard.

## **NCDOT has embraced recycling throughout North Carolina.**

The growth in recycling programs throughout NCDOT reflects the common-sense instinct of its employees to conserve resources and save on operating costs in their own backyard. Transforming waste materials into useable resources keeps with our mission of connecting people and places in North Carolina — safely and efficiently, with accountability and environmental sensitivity.

- Conserves energy and water;
- Conserves natural resources and landfill space;
- Programs can be cost-competitive with solid waste land fill disposal and incineration;
- Reduces pollution; and
- Creates jobs and reduces costs in manufacturing sectors that are an important part of the economy.



## **NCDOT 2008–2009 Paper Recycling Program Environmental Impact**

- 5,033,000 gallons of water saved
- 2,876,000 kilowatt hours of energy saved
- 273,220 gallons of oil saved
- 2,157 cubic yards of land fill space
- 12,223 trees saved



# In 2008-2009, NCDOT recycled 12 tons of plastic such as jugs, buckets and bottles.



NCDOT Rest areas are recycling opportunities for the energetic



In 2008-2009, NCDOT recycled 680,358 tons of oil, tires and asphalt.



In 2008-2009, NCDOT recycled 1,148 tons of organic material such as yard waste and wood mulch.



In 2008-2009, NCDOT recycled 64 tons of electronics such as computers, monitors and printers.



NCDOT also recycled 1636 tons of metal such as highway signs and scrap metal that same year.



# NCDOT Rail, Ferry and Aviation Divisions



The NCDOT Rail Division leads the way among alternative modes in reuse and recycling of materials. Rail Division reuse programs provided thousands of dollars in cost savings.



Reuse and Recycle programs in the Ferry and Aviation divisions keep their waste stream to a minimum.

**REDUCE REUSE RECYCLE**



# NCDOT Solid Waste Disposal and Cost Information July 1, 2008 - June 30, 2009

## **SOLID WASTE DISPOSAL AND COST INFORMATION**

1. Total tons of solid waste disposed of in land fills or by incineration  
**64,606**
2. Total costs for solid waste collection and disposal  
**\$ 1,938,195**
3. Total tons recycled or composted  
**683,985**
4. Total solid waste collection and disposal costs avoided through recycling and composting  
**\$ 20,519,550**
5. Total revenues from sale of recycled materials and compost products  
**\$ 266,790**

NCDOT's focus on waste management over the past year has moved towards implementing and educating employees on source reduction, reuse, and recycle practices. These practices have resulted in a significant reduction in our waste stream and a large increase in recycling numbers reported.

- **Establishing and implementing a construction and demolition solid waste plan.**
- **Increasing specifications to allow more reuse of asphalt, hot in-place recycling and Highway Construction and Materials System (HiCAMS) reporting.**
- **Eliminating mass printing of several manuals, documents and forms by placing them online for customers and employees.**

