North Carolina Solid Waste and Materials Management Annual Report FY2012-13

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

NCDENR

NORTH CAROLINA SOLID WASTE AND MATERIALS MANAGEMENT ANNUAL REPORT FISCAL YEAR 2012-13

This consolidated annual report is required by the North Carolina General Assembly. The report combines several annual reports that were once issued separately by the N.C. Department of Environment and Natural Resources, including 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 of sustainable and efficient supplies and materials.

Solid waste and materials management information presented comes from 644 (100 county and 544 municipal) local government annual reports and 370 (including 18 out-of-state) solid waste management facilities. These reports represent activities related to the management of solid waste for the period July 1, 2012, through June 30, 2013.

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Executive Summary

It is with cautious optimism that the Division of Waste Management and the Division of Environmental Assistance and Customer Service studied the reports from facilities and local governments and concluded that the behavior of citizenry and industry in North Carolina has embraced the fiscally sound concept that resource recovery is good for all of North Carolina, but is especially good for business in North Carolina.

In FY 2012-13 (July 1, 2012 – June 30, 2013), the state per capita disposal rate dropped and North Carolina continued to dispose of solid waste at a lower rate relative to the last decade. This is most likely due to increased recycling, reduced consumption of some materials and possible ongoing effects of the economic downturn, particularly in the construction industry. North Carolina disposed of 9,149,130 tons of waste at in-state and out-of-state facilities. This represents a small decrease of 294,250 tons from the previous fiscal year.

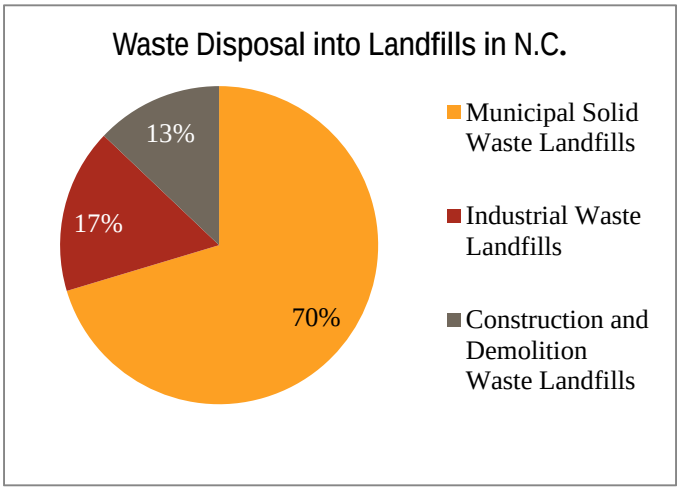
Per capita disposal has continued to fall to a record low of 0.94 tons of waste per person per year, the third year at less than one ton per capita. Overall, in-state MSW landfills and C&D landfills reported receiving less waste; approximately three percent and eleven percent respectively. The decrease in per capita disposal occurred even though there was a one percent increase in population and a slight upturn in the economy.

Historically, good economic growth has led to increased waste disposal. Landfill bans (such as those for plastic bottles, aluminum, and electronics) and an increase in recycling activity may be keeping waste disposal from rising. Indications are that the North Carolina recycling economy is growing and helping to increase jobs, capital investment, and tax base.

Data for much of the information in this report along with other subsidiary reports is available on the web at http://portal.ncdenr.org/web/wm/sw2013.

Solid Waste Management

Waste types handled at North Carolina facilities include municipal solid waste, industrial waste, construction and demolition waste, land-clearing waste, scrap tires, medical waste, compost, and septage. North Carolina disposed of a total of 9,149,130 tons of municipal solid waste [MSW] and construction and demolition [C&D] waste in waste management facilities located within the state and out-of-state. This represents a decrease of 294,250 tons from the previous fiscal year.



The N.C. Department of Revenue reported Solid Waste Tax collection of $17,147,457.70 which equates to 8,573,728.85 tons of taxable solid waste going into landfills within North Carolina and, through transfer stations, going to landfills in neighboring states.

Revenue from the Solid Waste Tax was distributed to:

- Inactive Hazardous Sites Cleanup Fund - 50% is used to fund the assessment and remediation of pre-1983 landfills,
- Local Governments – 18.75% to counties and 18.75% to municipalities to assist them with their waste and materials management programs, and
- Solid Waste Management Trust Fund – 12.5% to fund grants to local governments and state agencies for recycling and the handling of waste.

Key Findings

- The state per capita disposal rate remains below one ton per person.
- North Carolina-permitted solid waste management landfills received a total of 8,646,423 tons of solid waste for fiscal year 2012-13. Waste originating from South Carolina and Virginia equaled 178,351 tons.
- North Carolina exported 684,068 tons for fiscal year 2012-13, an 87,785 ton increase from the previous year. Exported solid waste was sent to South Carolina, Virginia, Tennessee and Georgia.
- Recycling of traditional recyclable materials decreased 0.1 percent from fiscal year 2011-12 to fiscal year 2012-13 due chiefly to a continued decline in the generation of discarded paper. However, local government collection of most container materials –e.g. plastic and glass – grew in Fiscal Year 2012-13
- The rate of electronic materials collection has increased to 3.7 pounds per capita in Fiscal Year 2012-13.
- Drop-off recycling programs, which make up 45% of the collected recyclables, remain a critical component of waste reduction in the state, providing services in rural areas and in the collection of special wastes.
- Curbside recycling programs in the state reached a record high in Fiscal Year 2012-13, exceeding 300 programs for the first time.

Departmental Considerations

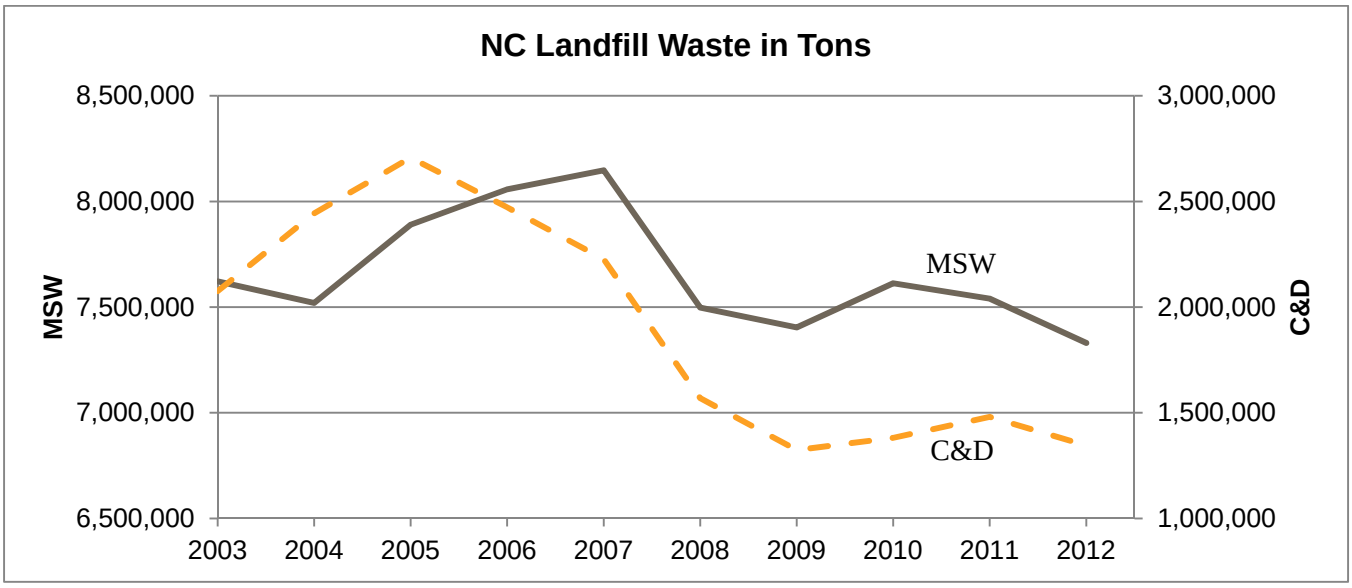
- The Department should coordinate efforts among local government and industry to ensure disposal capacity is available in all areas within North Carolina.
- The Department should encourage the diversion of identified large solid waste streams, such as food and wood wastes from large generators of these wastes.
- The Department should review the current permitting framework associated with new waste management technologies and procedures.
- The Department should work to expand collection of recyclable materials to meet the demand of growing recycling markets in North Carolina.

History of Solid Waste Disposal

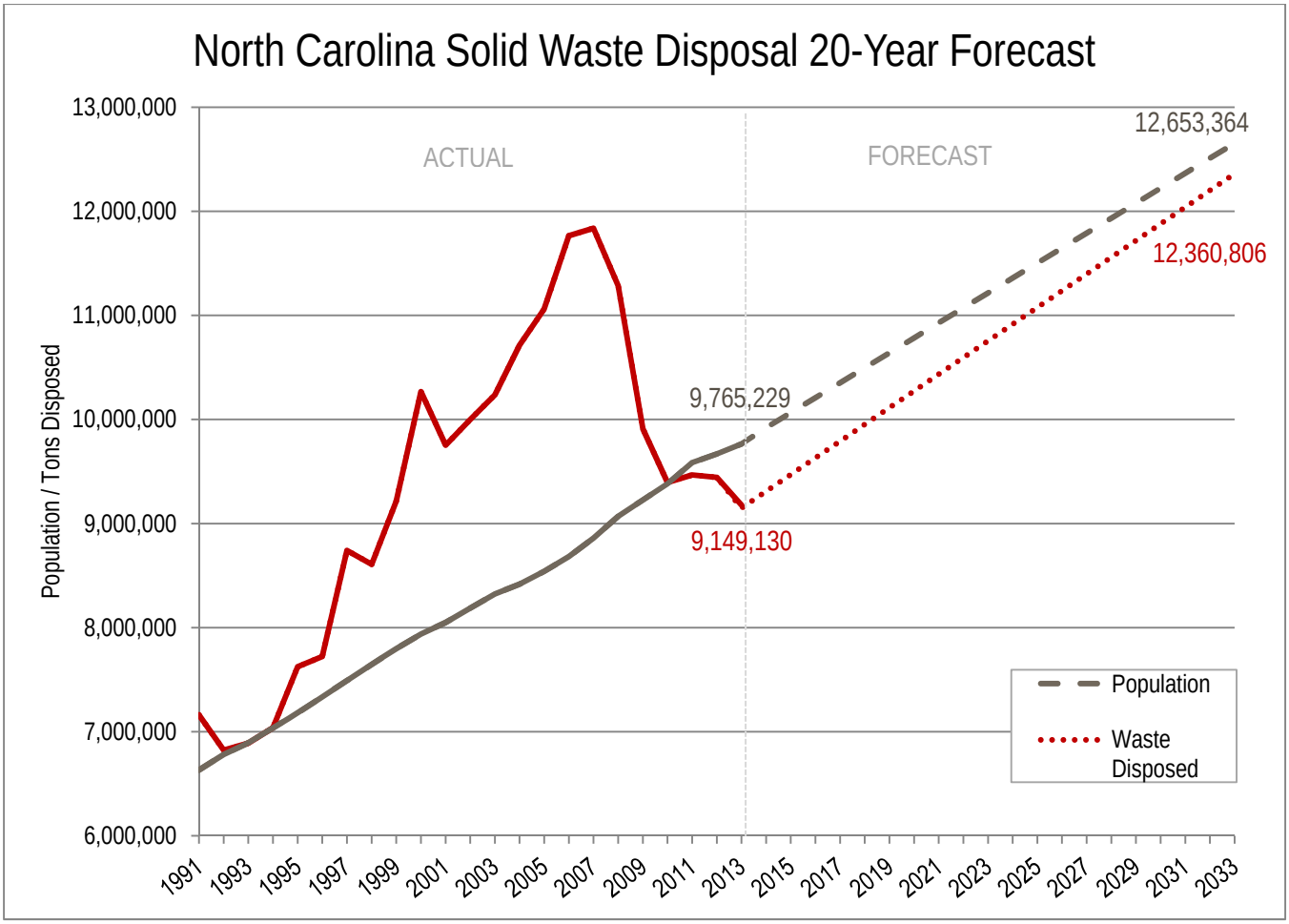
Fiscal Year	Tons of waste disposed	NC population	Tons of waste per person in a year	Per capita waste change from Base Year 91-92	Per capita waste change from previous year
FY 2012-13	9,149,130	9,765,229	0.94	-12.1%	-4.1%
2011-2012	9,443,380	9,669,244	0.98	-9.0%	-1.0%
2010-2011	9,467,045	9,586,227	0.99	-8.0%	-1.0%
2009-2010	9,395,457	9,382,609	1.00	-6.4%	-6.8%
2008-2009	9,910,031	9,227,016	1.07	0.4%	-13.7%
2007-2008	11,284,712	9,069,398	1.24	16.3%	-6.9%
2006-2007	11,837,104	8,860,341	1.34	24.8%	-1.4%
2005-2006	11,765,183	8,682,066	1.36	26.6%	4.9%
1991-1992*	7,257,428	6,781,321	1.07		
1990-1991	7,161,455	6,632,448	1.08		

* Baseline Year

Using North Carolina permitted MSW and C&D landfills as barometers of the economy for waste disposal, we see that MSW and C&D waste is currently experiencing a decline from their peaks in 2007 and 2005, respectively. Although there may be several reasons for this decline in waste disposed, one evident reason is the previous economic recession. Analysis suggests that storm/disaster clean ups may have been the partial cause for the slight uptick in waste seen from 2009 to 2011. There were no such events during FY 2012-13. Additionally, as the economy begins to turn, companies may have completed the demolition phase of new projects and are now in a constructing phase, which would not generate as much waste. There are also ongoing declines in the generation of materials such as newspaper – the portion of that material not recycled and still disposed is dropping steadily, thus helping drive down landfilled tonnage. As population growth continues, an increase in waste would be expected but gains in recycling may offset growth in disposal.



In the past, solid waste disposal data showed a strong upward trend. However, beginning in FY 2006-07, before the 2008 recession, disposal rates started to fall and have declined every year since on a per capita basis. This has affected the model as the gap between future waste disposal and population narrows. The following graph shows that if per capita disposal remains static (it is presently 0.94 tons of waste per person per year) in twenty years the disposal amount will be 12,360,806 tons.



Landfill Capacity

The total remaining capacity of all North Carolina MSW landfills measures approximately 380 million cubic yards, equating to approximately 235 million tons. This represents an increase from last year due mainly to the new Granville County MSW landfill being permitted. The estimate was obtained using 0.62 tons of waste per cubic yard of air space. The capacity does not include waste exported to out-of- state landfills. The state capacity equals 32 years of waste disposal if North Carolina's rate of landfill use remains steady at approximately 7.3 million tons per year. Continued efforts to increase recycling and material diversion should help the state maintain strong landfill capacity. Much of the state's capacity is not available statewide due to permit conditions, franchise arrangements, service areas and distance. Although overall state capacity is sufficient, some regions have limited waste disposal capacity. Those areas may experience higher disposal costs and possible disruptions in service as facilities close or fuel costs make transport of waste to distant facilities prohibitive.

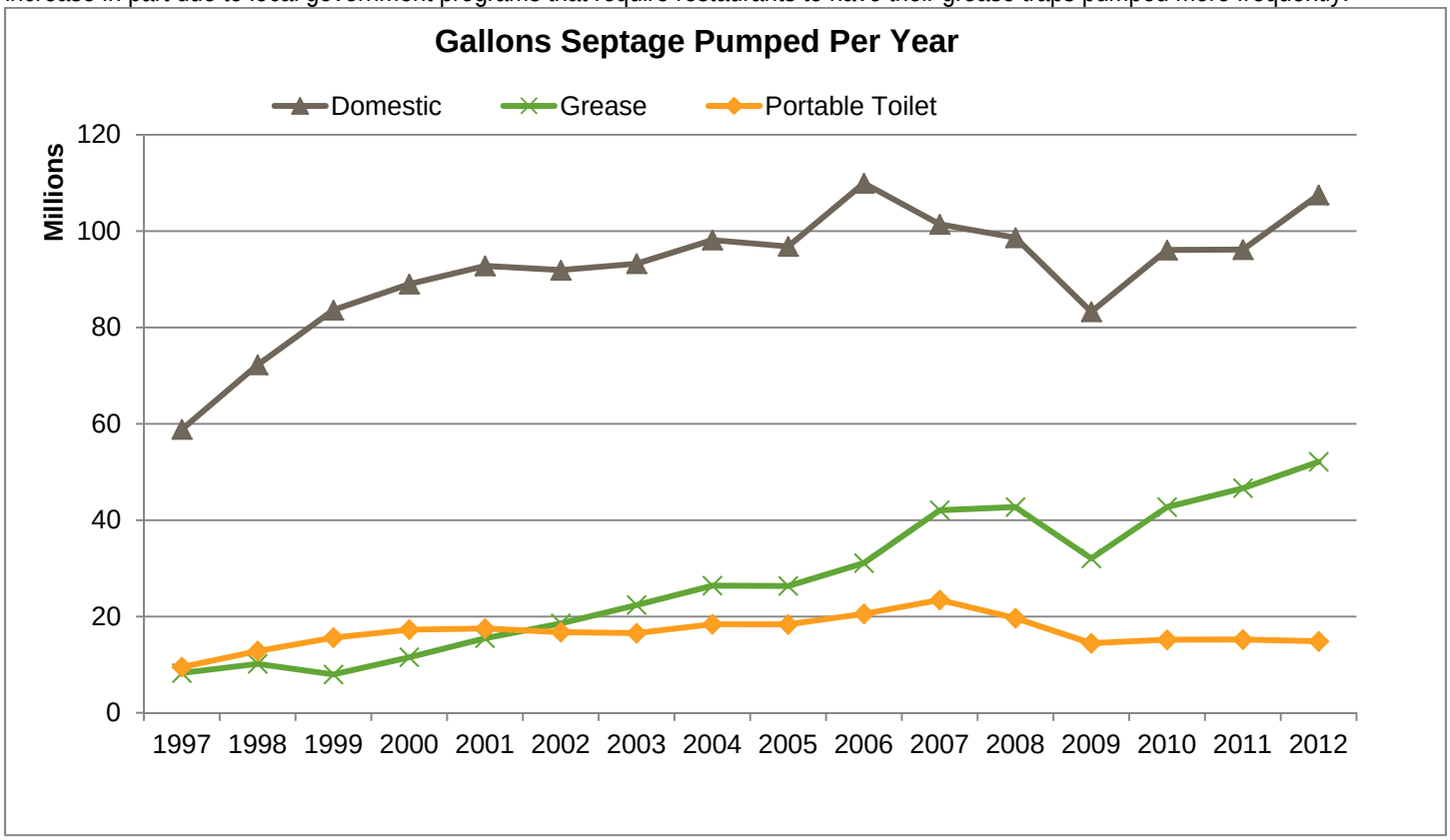
The Division of Waste Management
Solid Waste Section Permitting Branch (Post Closure Use of Landfills)

Permitting Branch staff (engineers and hydrogeologists) continues to review and write a myriad of different solid waste permits, provide technical assistance, research new solid waste technologies, and effectively communicate to provide program consistency across the state. Fiscal Year 2012-13 was a breakout year in the development and post-closure use of landfills. Permitting staff were integral in brownfield agreements that are or will be executed at old manufacturing sites with legacy landfills. Innovative and sustainable uses for landfills include shooting ranges developed by local law enforcement or the Wildlife Resource Commission, athletic fields and energy production. All of these kinds of uses were proposed to the agency and approved. The second solar powered electricity project at an operational landfill was designed for Onslow County and will be installed in 2014. It joins the successful solar project at the industrial landfill of Blue Ridge Paper in Canton, NC.

The Division of Waste Management
Solid Waste Section Composting and Land Application (CLA) Branch

The major areas of emphasis in the CLA branch include permitting and compliance activities associated with septage and solid waste compost facilities. The program also assists waste generators with evaluations of 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. Some examples of beneficially reused waste include wood ash and tobacco dust.

The volumes of septage pumped in FY 2012-13 (174,469,180 gallons total) shows that the overall volume of septage isincreasing towards the industry high figures from FY 2006-07. Grease septage volumes managed by permitted septage firms continue to increase in part due to local government programs that require restaurants to have their grease traps pumped more frequently.



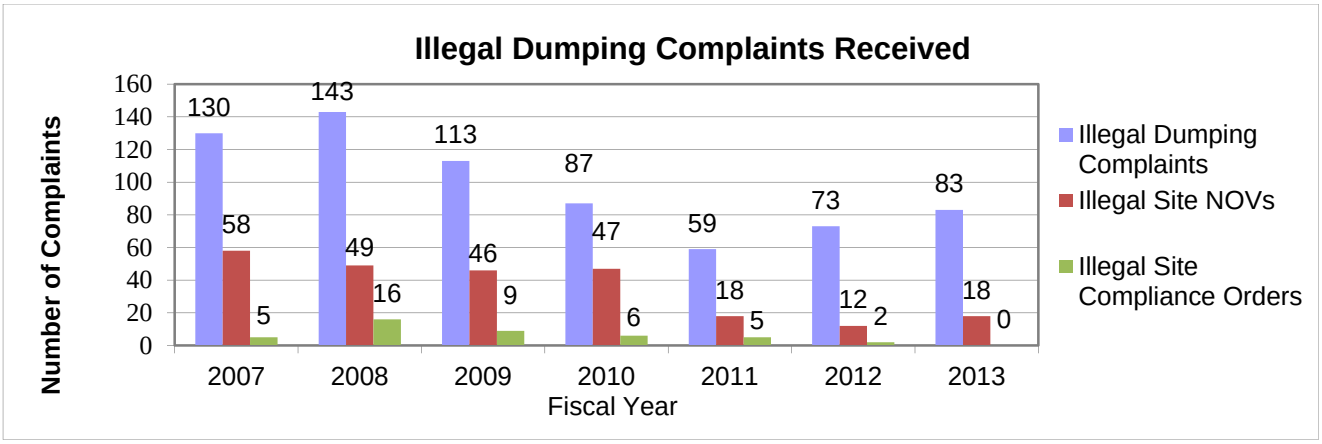
Compost Facilities in FY 2012-13 saw a continued interest in the diversion of organics from the municipal solid wastestream. Thirteen solid waste compost facilities accepted food waste in FY 2012-13 for a total reported tonnage of 29,040. An additional 18,351 tons of food processing residuals were accepted by solid waste compost facilities.

The Division of Waste Management
Solid Waste Section Field Operations (FOB) Branch

The Environmental Specialists in the FOB branch are independently responsible for the protection and safeguarding of human health and the environment from the potential adverse effects to off-site public entities, including releases to air, soil, surface water and ground water and vector control due to the improper management of solid waste.

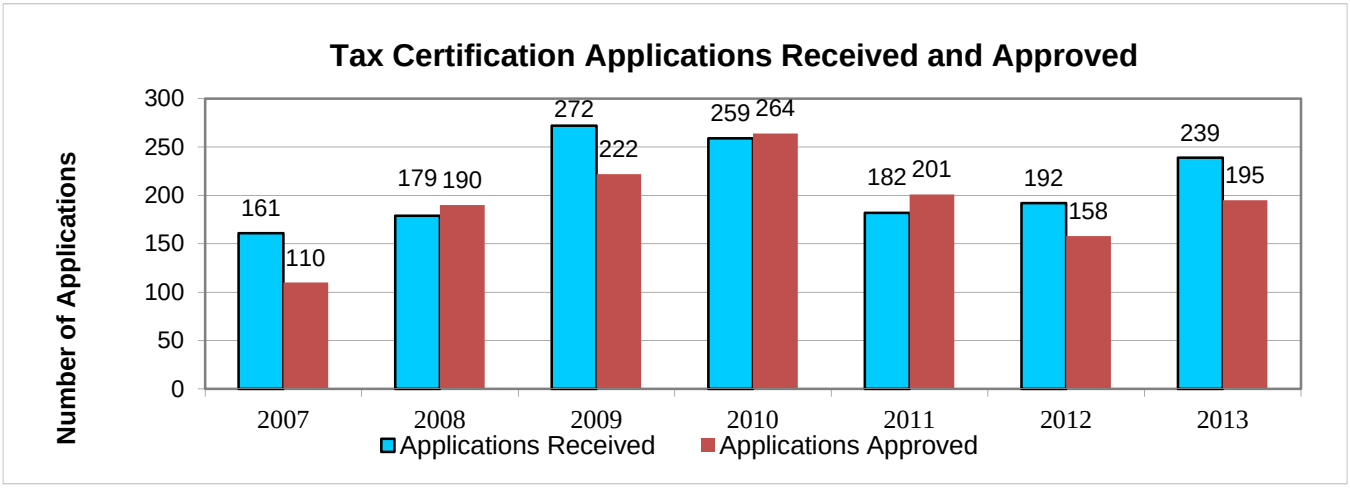
Illegal Dumping

- Illegal dumping is the disposal of waste in unpermitted areas. In North Carolina, illegal dumping has been a problem for years, and has been a drain on staff resources and time. The Solid Waste Section is often the lead agency while addressing the illegal dumping of solid waste. As demonstrated in the chart below, a strong enforcement program decreases the number and incidences of illegal dumping across the State.



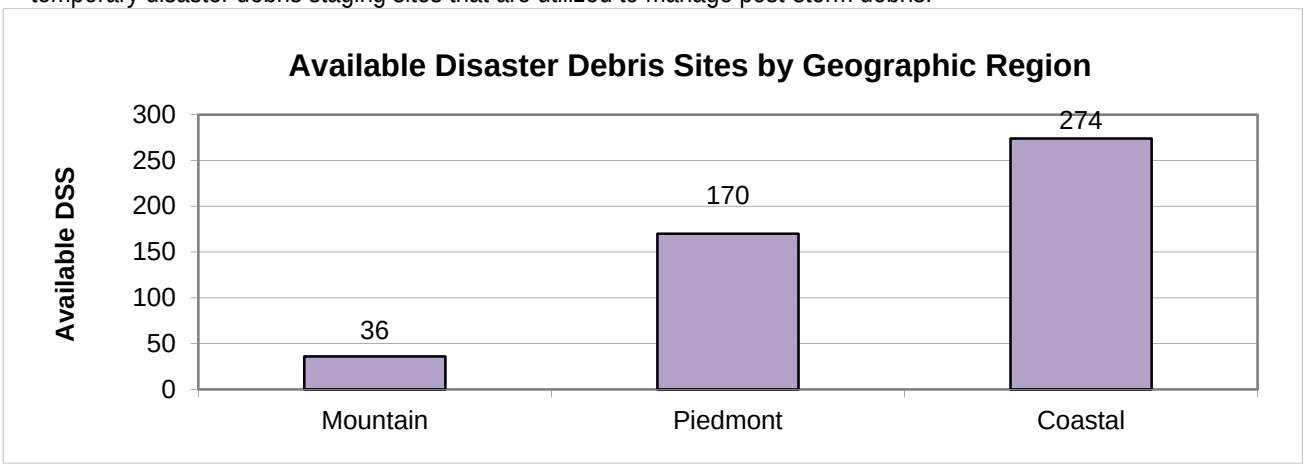
Tax Certification Program Business Incentive

- North Carolina offers a property tax exemption on equipment and facilities used exclusively for recycling and resource recovery of solid waste. Per General Statute 105-275(8), DENR has the authority to certify real and personal property being used for these purposes, and the Solid Waste Section has been delegated that responsibility. The program has and continues to serve as an economic development tool for businesses engaged in recycling and resource recovery statewide.



Emergency and Disaster Response

- Field Operations Branch (FOB) staff are also involved in planning and responding to natural and man-made disasters as it pertains to solid waste. This includes providing training and technical assistance to citizens and staff of local governments. FOB staff are active members of the State Emergency Response Team. Presently staff have vetted and approved 480 temporary disaster debris staging sites that are utilized to manage post-storm debris.



Local Government Waste Reduction Activities and Recycling Markets

Annual reports received from local governments provide data on public source reduction, reuse, recycling and composting activities statewide as well as other aspects of solid waste management. Data from these reports helps to produce a picture of waste reduction, recycling and materials management efforts in North Carolina. This data offers information that helps to gauge the relative effectiveness of local government programs in diverting materials from disposal and delivering them to industry for reprocessing. Data from these annual reports also helps to document the trends in recycling and reuse program implementation and the evolving nature of public materials recovery efforts in North Carolina.

Source Reduction and Reuse Programs

The total number of local governments operating a source reduction and/or reuse program decreased slightly during Fiscal Year 2012-13 (July 1, 2012 – June 30, 2013), down from 113 total programs in FY 2011-12 to 107 programs. Promoting source reduction and local reuse options continues to be a cost effective method for helping citizens reduce the amount of solid waste discarded. A core group of local governments continues to operate swap shop programs for citizens to drop-off reusable goods, allowing others to collect those items for personal use. The number of governments operating swap-shop programs is at an eight-year low. During FY 2012-13, 27 local governments reported operating 87 individual swap shops across the state. While initiating swap-shop programs involves minimal expense, they can demand a high degree of customer service attention and may attract scavenging activities. Thus they require well thought-out ground rules and ongoing monitoring and maintenance to continue to function at a high level. As an alternative to operating swap-shops, some communities facilitate access to charitable drop-boxes maintained by organizations such as the Salvation Army or Goodwill by hosting drop-boxes at public collection centers.

Other notable trends include a reduction in the number of communities operating paint-exchange and / or waste exchange programs. In general, the number of communities hosting reuse programs is down versus the previous year.

Source reduction and reuse programs continue to be very popular with citizens, although they do require staff attention. On a cost per-ton basis these programs can be one of the most efficient diversion efforts a public recycling program can undertake. Despite this, less than 20% of local governments in North Carolina report promoting or operating waste reduction or reuse programs.

Local Reduction / Reuse Programs								
Program Type	FY 2005-06	FY 2006-07	FY 2007-08	FY 2008-09	FY 2009-10	FY 2010-11	FY 2011-12	FY 2012-13
Source Reduction Programs								
Backyard Composting	55	53	48	53	54	54	56	51
Grass Cycling	33	32	34	33	33	28	30	33
Junk Mail Reduction	59	55	59	57	60	62	61	59
Enviroshopping	25	26	21	23	29	29	28	20
Promotion of Non-toxics	23	22	17	18	26	24	24	24
Phone Book Opt-Out	N/A	N/A	N/A	N/A	N/A	N/A	27	26
Other	1	3	1	9	14	19	18	14
Reuse Programs								
Swap Shop Programs	37	32	31	32	29	31	31	27
Paint Exchange	18	19	18	18	17	17	20	13
Waste Exchange	3	3	2	2	2	3	4	1
Pallet Exchange	4	5	3	6	10	9	10	9
Other	5	4	8	8	6	9	11	5
Local Governments with Programs	102	95	97	96	105	108	113	107

Local Government Recovery

The following table documents local government materials recovery operations over the past ten years. Local government recovery showed a modest decline during FY 2012-13 when compared to the previous year. The notable drop in the recovery of organics is largely the result of the absence of a severe weather event during FY 2012-13, causing yard waste recovery to return to a level in line with years without a storm event. The decrease in total paper recovery along with several other individual materials will be examined in greater detail later in this chapter.

Local Government Recovery (Tons) and Performance Measures					
Material	FY 2003-04	FY 2004-05	FY 2005-06	FY 2006-07	FY 2007-08
Total Paper	267,371	303,514	292,641	305,615	321,019
Total Glass	52,117	44,003	45,421	51,883	56,837
Total Plastics	18,679	18,320	18,177	19,373	22,298
Total Metal*	114,097	109,612	108,488	96,884	84,740
Total Organics**	589,124	583,101	619,494	631,393	554,576
Special Wastes***	6,271	6,690	6,955	8,304	7,195
Electronics and Televisions***	N/A	N/A	N/A	N/A	N/A
Construction and Demolition Debris	24,084	20,292	24,001	40,352	59,501
Tires****	N/A	113,670	146,177	187,273	142,160
Other	4,773	5,677	7,743	5,558	6,753
Totals	1,076,516	1,204,879	1,269,097	1,346,635	1,255,079
Per Capita Recovery (lbs.)	255.76	282.13	292.35	303.97	276.77
Recovery Ratio (Recycling:Disposal)	0.10	0.11	0.11	0.11	0.11

Local Government Recovery (Tons) and Performance Measures (*continued*)					
Material	FY 2008-09	FY 2009-10	FY 2010-11	FY 2011-12	FY 2012-13
Total Paper	342,008	343,031	347,622	344,758	321,819
Total Glass	69,446	75,124	86,163	96,819	117,237
Total Plastics	23,947	29,206	36,047	36,670	39,322
Total Metal*	69,242	61,251	57,681	51,545	51,662
Total Organics**	593,323	589,482	635,495	706,560	604,889
Special Wastes***	8,433	7,225	7,085	6,961	6,496
Electronics and Televisions***	N/A	4,574	7,452	14,688	14,160
Construction and Demolition Debris	33,209	20,832[t]	26,303[t]	93,858[t]	71,225
Tires****	147,055	119,177	97,323	121,552	120,013
Other	8,474	1,948	1,098	1,616	1,725
Totals	1,295,137	1,251,848[t]	1,302,27[t]	1,475,028[t]	1,348,548
Per Capita Recovery (lbs.)	280.73	266.84[t]	271.70[t]	305.10[t]	276.19
Recovery Ratio (Recycling:Disposal)	0.13	0.13[t]	0.14	0.16	0.15

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

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

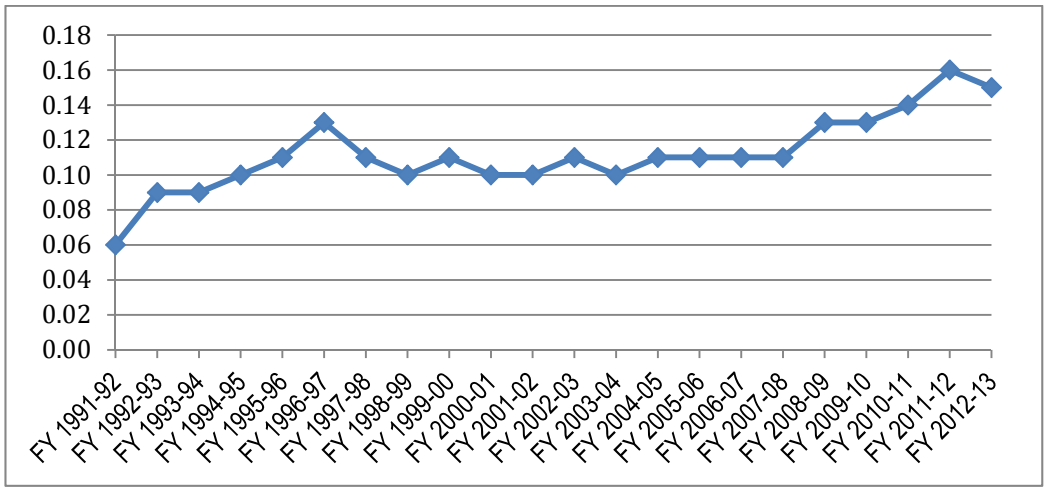
*** For FY 2000-01 through FY 2008-09 Special Wastes includes electronics, used oil, oil filters, antifreeze, paint and batteries. Beginning in For FY 2009-10 and beyond Special Wastes excludes electronics and includes recovery from the programs described in the Special Waste Management section in this chapter.

**** For FY 2010-11 and beyond, the tons of tires recovered include only tires managed by N.C. local governments. In FY2009-10, this figure inadvertently included some tires from out-of-state sources, and in fiscal years prior to FY 2009-10 the tires figure included all tires recovered at the private tire facilities in North Carolina. This includes those tires received at facilities from sources outside of North Carolina.

Due to reporting errors, Construction and Demolition Debris Tonnages, Total Recovery, and Per Capita Recovery for FY 2009-10, 2010-11 and 2011-12 were all revised in 2013 as a result of decreased Construction and Demolition Debris Recovery. This change also resulted in a revised Recycling: Disposal Recovery Ratio for FY 2009-10.

The ratio of local government recycling to overall state disposal is used to examine the success of materials recovery from year to year relative to landfilling. For FY 2012-13 the ratio declined for the first time since FY 2003-04, despite landfilled tonnage falling to a record low. This slight drop in the ratio results from a combination of factors including decreases in the recovery of organics (chiefly yard waste, as noted above and below), paper and construction and demolition debris. The following chart demonstrates the changing ratio of materials recovery when compared to disposal in North Carolina and highlights the overall increasing relevance of materials recovery through the past decade.

Ratio of Recycling to Disposal FY 1991-92 to FY 2012-13

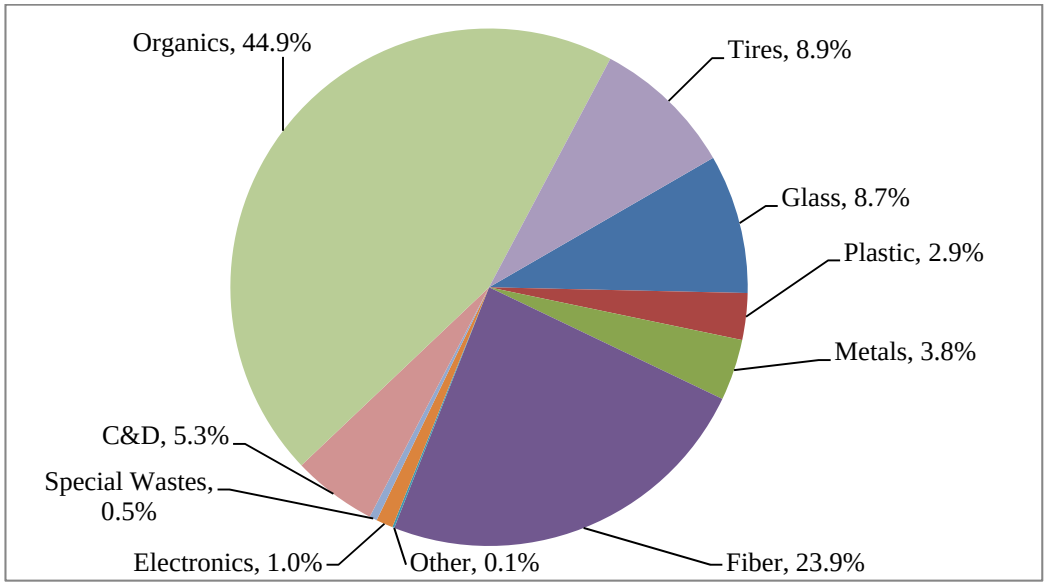


Recovery of Particular Materials

Significant demand exists in North Carolina and beyond for recovered materials as feedstock for a wide variety of industries. Public recycling programs play an increasingly important role in providing materials to the supply chain for private manufacturing.

Organics continue to represent the single largest category of materials recovered by local governments. Generation of organic materials is erratic because the largest component of the organics stream, vegetative debris (yard waste), can vary widely due to annual weather conditions and storm events. In general, the recovery of organics is accomplished through mulching and composting programs, though organics recovery also includes efforts to manage materials such as clean wood (dimensional lumber), pallets, food waste, and oyster shells. In FY 2012-13 the total recovery of organic materials decreased by 14.4 percent versus FY 2011-12 (see more on yard waste below, including information on additional diversion). During FY 2012-13 the recovery of organics constituted just under 45 percent of total local government recovery. Fiber and tires were the next two largest categories of materials recovered, contributing 23.9 percent and 8.9 percent respectively. Electronics and televisions are measured separately from other special wastes and when combined represent one percent of total recovery. The following chart provides a material-specific look at local government recovery operations in FY 2012-13.

Characterization of Local Government Recovery



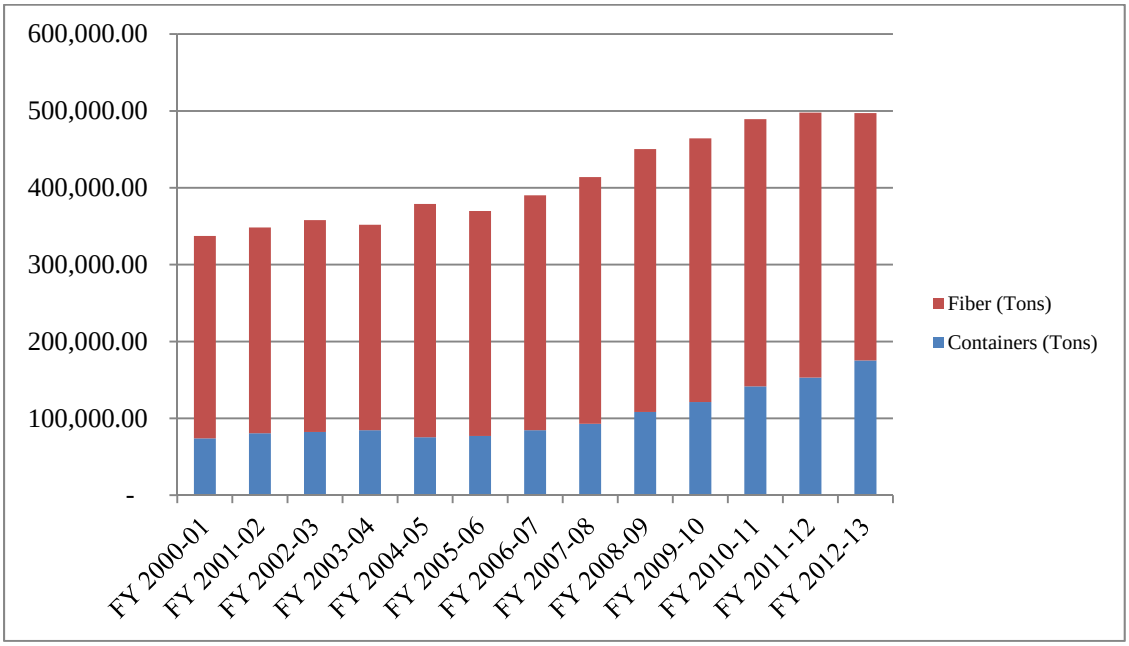
Recovery of Traditional Materials

Traditional recyclable materials include fiber or paper (corrugated cardboard, magazines, newspapers, office fiber and residential mixed paper) and containers (aluminum beverage cans, glass bottles and jars, plastic bottles and containers and steel food containers).

Data on the recovery of traditional recyclable materials in FY 2012-13 draws attention to the evolving nature of the amounts and type of materials collected by public recycling programs across the state. The amount of recovered containers increased by 14.5 percent when compared to FY 2011-12, while total fiber (or paper) recovery actually declined by 6.7 percent. The continued decrease in the circulation of printed newspapers, the downsizing of those papers still in print and the falling circulation of magazines have all contributed to an overall decrease in the amount of paper recovered by public recycling programs. Data from the America Forest & Paper Association and the EPA Waste Characterization Report shows that newsprint generation nationwide fell by a calculated 34% between 2006 and 2011.

The recovery of traditional materials in FY 2012-13 is essentially flat when compared to the previous year, actually showing a 0.1% decrease versus FY 2011-12. This decrease should not be interpreted as a decline in the success of public recycling efforts, which have expanded considerably. Instead, it is a consequence of the changing nature of the types of packaging materials entering and exiting households across the state. The following chart documents the trend in the recovery of traditional materials over the past 13 years and illustrates the growing importance of container recovery.

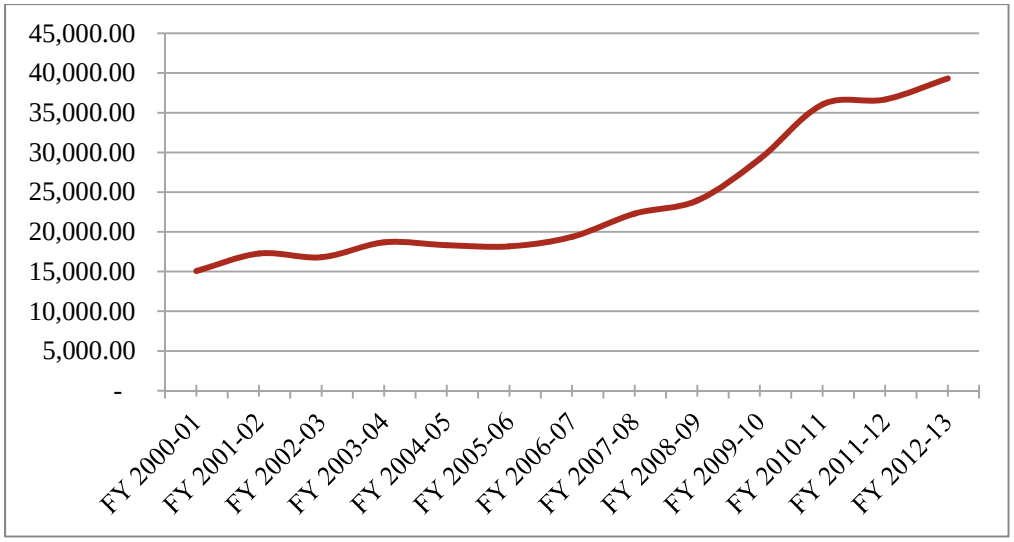
Traditional Recyclable Material Recovery FY 2000-01 to FY 2012-13



Plastic Recycling In North Carolina

North Carolina's disposal ban on plastic bottles became effective on Oct. 1, 2009. While plastic bottle recovery has experienced significant growth since the disposal ban took effect, the impact of the disposal ban on recovery of plastics appears to have tapered off in in recent years. The Department of Environment and Natural Resources continues to examine the effectiveness of public efforts to recover plastics, especially as the demand for recovered plastic resin remains very strong and North Carolina-based manufacturers are forced to look beyond the state for feedstock. The following chart illustrates the increased public recovery of plastic over the past 13 fiscal years.

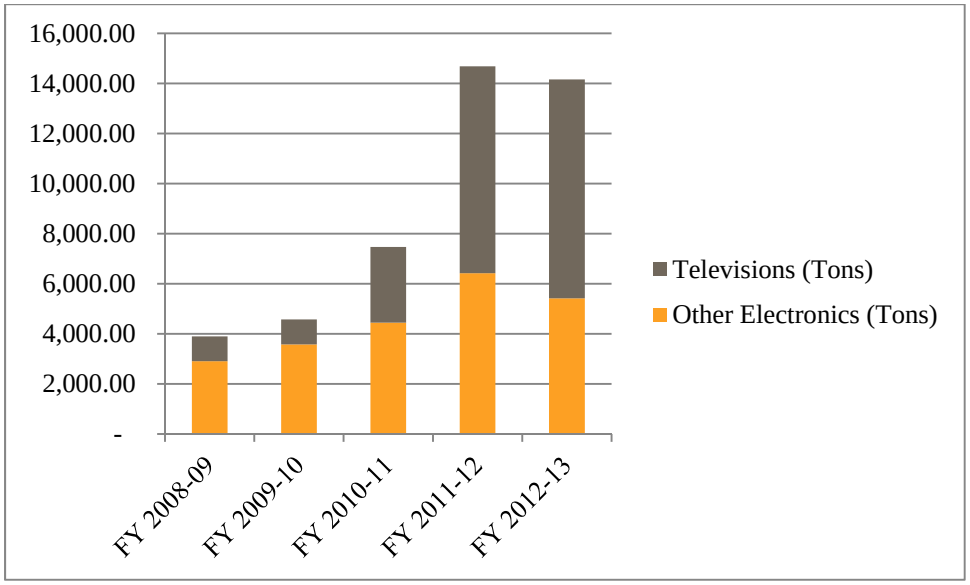
Plastics Recovery FY 2000-01 to FY 2012-13



Focus on Electronics

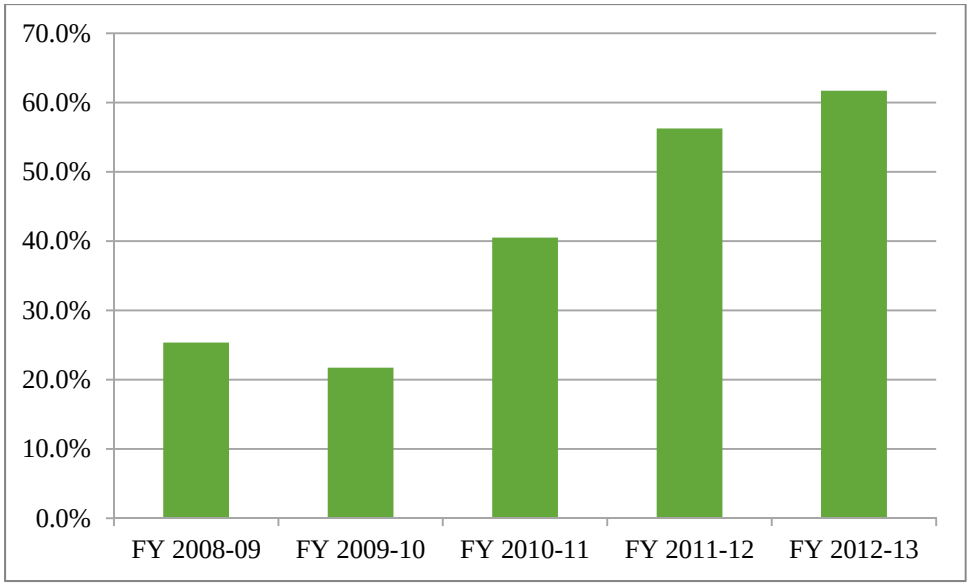
The number of local governments operating an electronics recycling program has increased four-fold in the past seven years to 125 public programs. There were only 31 programs in FY 2007-08, growing to 114 programs in FY 2011-12. Data on public electronics recycling efforts measures the collection of television and of "other electronics", including computers, printers, scanners and other devices that connect to computers, along with computer monitors, cell phones, stereos, video players and other low grade electronic devices. Compared to the previous year, the combined total amount of electronics and televisions recovered by local governments during FY 2012-13 decreased slightly, down 3.6 percent. A closer look at FY 2012-13 when compared to FY 2011-12 shows that the amount of televisions managed by local governments increased by 5.7 percent while the amount of other electronics fell by 15.6 percent. The following table examines public electronics recycling efforts since FY 2008-09 and shows that amounts of televisions and other electronics recovered.

Electronics Recovery FY 2008-09 – FY 2012-13



As noted above, televisions have continued to constitute a proportionally larger amount of the total electronics collected and managed by public programs. Television recovery has increased dramatically since the implementation of the disposal ban, and televisions now constitute 61.7% of the total electronics equipment managed by public programs. The following table illustrates how televisions have become proportionally more significant to public recycling programs over the past five years.

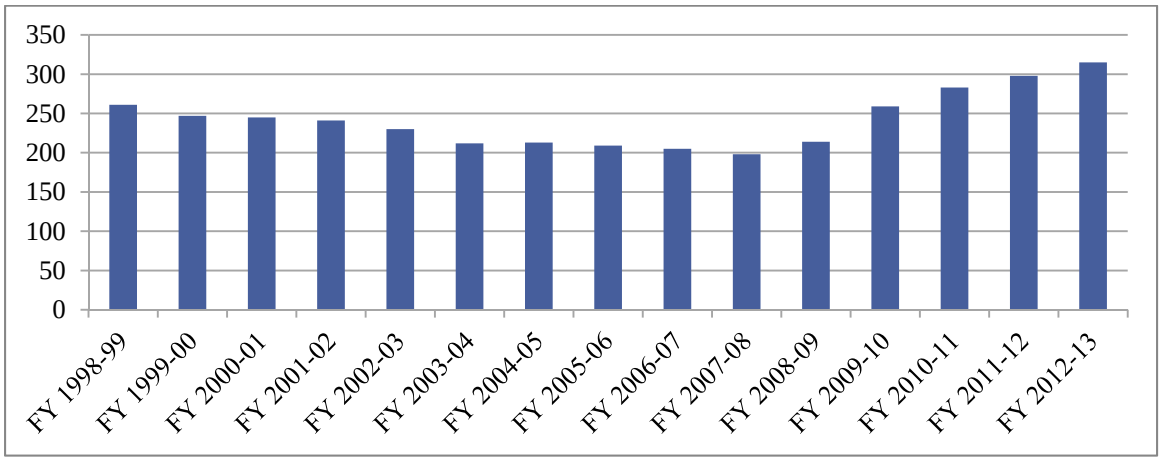
Television Recovery FY 2008-09 – FY 2012-13



Public Curbside Recycling Programs in North Carolina

The number of publicly operated curbside recycling programs in North Carolina continued a significant upward trend during FY 2012-13, climbing to a new high of 315 total programs. Access to efficient recyclable materials processing facilities, coupled with the ease and efficiency of collecting commingled (single-stream) recyclables using carts, has enabled the growth and effectiveness of curbside recycling programs across North Carolina. These factors have helped to make curbside recycling more affordable and have allowed communities across the state to implement new curbside recycling programs, even as local government budgets remain tight.

Local Government Curbside Recycling Programs FY 1998-99 – FY 2012-13



The number of North Carolina households served by curbside recycling in FY 2012-13 grew to just over 1.841 million, up from 1.798 million during FY 2011-12. The continued growth in the number of households served by curbside recycling has been an ongoing trend, even during years when the state experienced a decrease in the total number of curbside recycling programs operated by local governments.

Types of Public Recycling Efforts

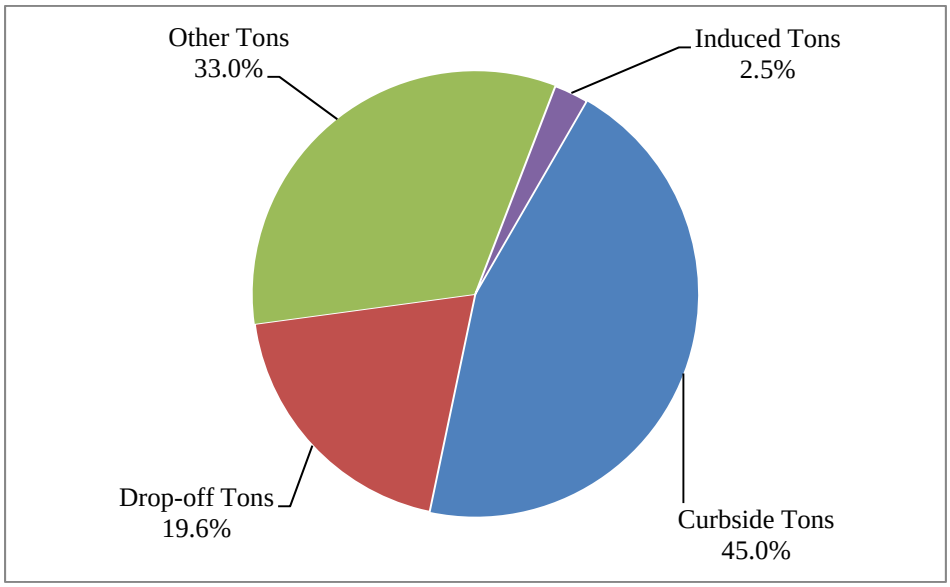
Public recycling programs use a variety of strategies to recover materials, including curbside and drop-off collection, and by operating or sponsoring programs that collect materials from businesses. Public programs can also offer services that manage special wastes, and they can operate recycling programs that target specific waste streams such as construction and demolition debris or food waste.

Excluding yard waste collection, in FY 2012-13 curbside recycling programs contributed more towards the recovery of recyclable materials in North Carolina than any other type of recycling effort for the fourth year in a row. An increasing number of North Carolinians and an increasing amount of the materials recovered in North Carolina are handled by public curbside recycling programs. Drop-off recycling programs remain a critical component of waste reduction in the state, especially when it comes to providing services

in rural areas and in the collection of special wastes. However, the steady expansion of the number of households with curbside recycling services has again contributed to a continued decrease in the reliance on drop-off programs for the recycling of traditional materials. During FY 2012-13, almost 45 percent of all recyclable materials recovered by local governments were collected through curbside programs. This compares to 19.6 percent from drop-off recycling programs and 33.0 percent from "other" recycling programs such as multifamily, commercial and school recycling efforts.

For FY 2012-13, information was gathered for the first time on the use of public recycling strategies that encourage and or facilitate recycling without necessitating that local governments directly or contractually operate actual collection efforts. Examples of these strategies include local disposal bans on materials like corrugated cardboard, mandatory recycling ordinances, or licensed hauler systems where service providers are required to offer recycling collection as a condition of doing business in a jurisdiction. These types of strategies induce or encourage the growth of private recovery activity and infrastructure. In FY 2012-13, approximately17,000 tons of recyclables were recovered through these types of strategies. This local government "induced" recycling equated to 2.5 percent of the materials recovered last year (excluding yard waste). The following chart illustrates local government recovery efforts by program sector for FY 2012-13.

Recovery by Program Type, FY 2012-13



Special Waste Management

In addition to collecting traditional materials like paper, bottles, and cans, counties and municipalities continued in FY 2012-13 to divert a range of "special wastes" from landfills, some of which are banned from disposal and some of which have toxic or other problematic aspects.

A large category of such special wastes are automotive-related. In FY 2012-13, local government recovery of antifreeze, oil, oil filters, and lead acid batteries was down from previous years. This decline may reflect an erosion of do-it-yourself activity in car maintenance or possibly longer intervals between maintenance by car owners. For lead acid batteries, collected tons were at only one quarter the rate they were just five years ago, likely because more citizens now take the batteries to scrap yards for pay.

Collection of other specific special wastes, such as dry cell batteries and used cooking oil, also experienced small drops in FY 2012-13. But other materials, such as propane tanks, pesticides, pesticide containers, and lights-containing-mercury (LCMs), saw slight growth. The number of LCM collection programs is expanding in response to the growing generation of spent fluorescent bulbs by North Carolina households; new LCM programs are also being spurred in part by state grant funding.

Fifty-nine local governments, many in regional partnerships with each other, worked to reduce waste stream toxicity through household hazardous waste collection programs in FY2012-13. With minor variations from year to year, the communities who offer HHW collection have remained fairly steady, demonstrating that early commitments to conduct these programs in the 1990s have been maintained. Although HHW drop-off services are offered to most citizens in the densest population areas of North Carolina, rural communities appear to be unable to afford the high expense of such programs.

Local Government Special Waste Management, FY 2008-09 to FY 2012-13					
	FY 2008-09	FY2009-10	FY 2010-11	FY 2011-12	FY 2012-13
Used Motor Oil					
Number of programs	125	131	129	129	127
Gallons collected	822,748	845,270	858,389	860,785	762,066
Oil Filters					
Number of programs	62	103	106	105	104
Tons collected	56.29	137.2	167.89	184.41	166.97
Antifreeze					
Number of programs	68	74	72	74	71
Gallons collected	26,482	28,054	39,089	35,159	22,916
Lead Acid Batteries					
Number of programs	91	98	96	93	91
Tons collected	1,201	788	501	363	316
Dry Cell Batteries					
Number of programs	NA	NA	36	37	34
Tons collected	NA	NA	41.30	45.37	43.65
Paint					
Number of exchange programs	NA	NA	17	21	13
Number of other collection programs	NA	NA	13	13	9
Total tons collected	NA	NA	143.27	117.94	111.74
Pesticide Containers					
Number of programs	NA	NA	60	66	64
Tons collected	NA	NA	105.49	118.32	143.45
Pesticides					
Number of programs	NA	NA	16	16	16
Tons collected	NA	NA	7.48	14.03	14.12
Lights Containing Mercury					
Number of programs	NA	NA	33	48	58
Tons collected	NA	NA	28.81	37.93	46.07
Propane Tanks					
Number of programs	NA	NA	NA	37	46
Tons collected	NA	NA	NA	47.22	61.33
Other Special Wastes					
Number of programs	NA	NA	6	8	7
Tons collected	NA	NA	7.14	1.71	.66
Used Cooking Oil					
Number of programs	NA	NA	NA	55	61
Tons collected	NA	NA	NA	142.15	133.05
Household Hazardous Waste					
Number of communities with programs	40	52	53	57	59
Number of permanent sites	21	20	20	20	20
HHW tons collected	2,733.68	3,382.74	3,116.44	2,905.63	2902.6
Total cost reported	$3,123,480	$3,787,369	$3,763,970	$3,860,467	$4,517,330
Conversions: Oil, 1 gal = 7.4 lbs; Antifreeze, 1 gal = 8.42 lbs; Lead Acid Battery, 1 battery = 35.9 lbs; Paint, 1 gal = 11.5lbs;propane tank = 18 lbs; 1 gallon of used cooking oil = 7.5 lbs.					

Yard Waste Management

Following FY 2011-12, in which Hurricane Irene helped inflate yard waste totals, the amount of organic materials managed by local governments returned to more historical levels in FY 2012-13, as indicated in the table and following chart. The state's yard waste disposal ban has kept a cumulative 10 million tons of material out of landfills over the past 18 years.

The yard waste reported as "diverted" in the table and chart count only instances in which local governments directly mulch or compost material themselves, or deliver organics such as leaves and grass to gardeners and farmers. Additional material is diverted, however,

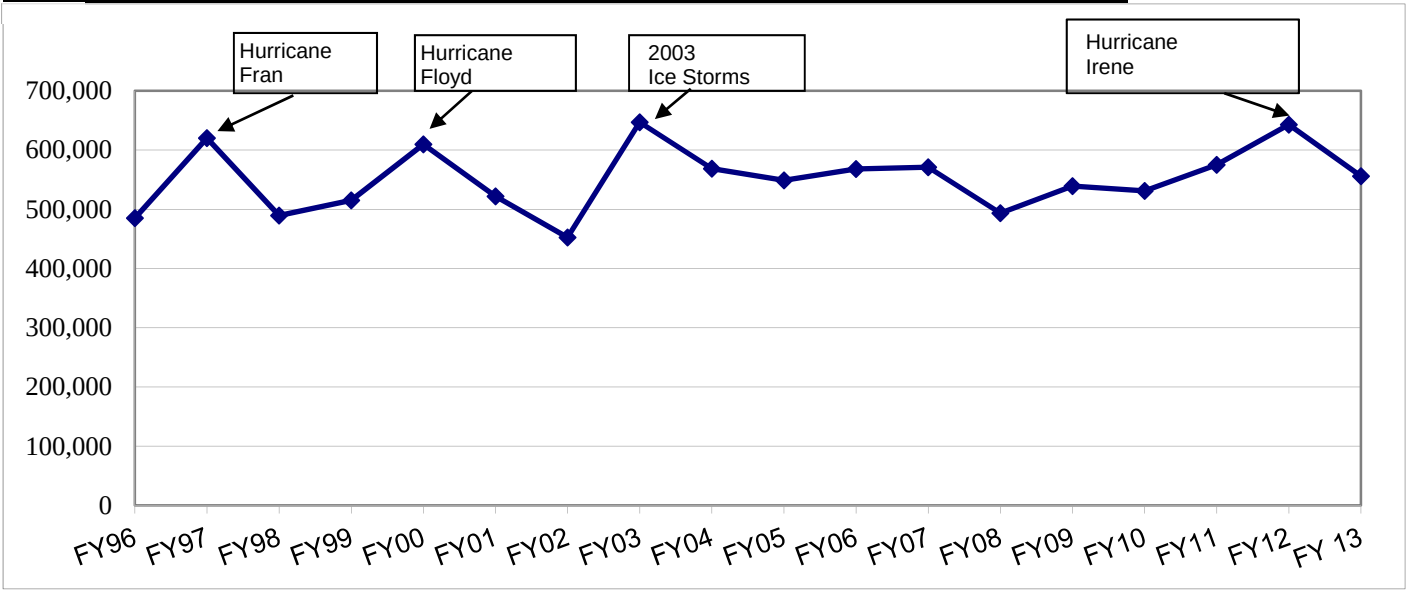
by municipalities who use private mulch and compost operations – hence, a large portion of the 120,986 tons of material noted in the table as going to a "private facility" is not landfilled but instead used to create value-added organic products.

Cary's 19,370 tons, Asheville's 7,172 tons, Wilmington's 11,128 tons, and Concord's 8,570 tons all go to private facilities that make mulch or compost. The total tonnage from these four municipalities alone (46,240 tons) increases the amount of disposal-diverted yard waste in FY 2012-13 by over 8.5 percent. It is also likely that some portion of the local government-collected yard waste going to land clearing and inert debris (LCID) landfills is converted to mulch, compost, or biomass fuels. Thus the tonnage reported in the table below for "total disposal diversion" almost certainly undercounts the actual total.

Local Government Yard Waste Management FY 2011-12 and FY 2012-13			
Destination of Materials	FY 2011-12 Tons Managed	FY 2012-13 Tons Managed	Percentage Change
End Users (direct delivery)	35,774	28,751	-19.6%
Local Mulch/Compost Facility	607,244	527,138	-13.2%
TOTAL DISPOSAL DIVERSION*	643,018	555,889	-13.6%
Other Public Facility**	*156,636*	*177,743*	*-13.5%*
Private Facility	135,717	120,986	-11%
LCID Landfill	120,653	142,814	-18.4%
YARD WASTE TOTALS	899,388	819,689	-8.9%

* Tonnages 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, particularly "Local/Compost Facility."

Local Government Diversion of Yard Waste From Disposal, FY 1995-96 to FY 2012-13



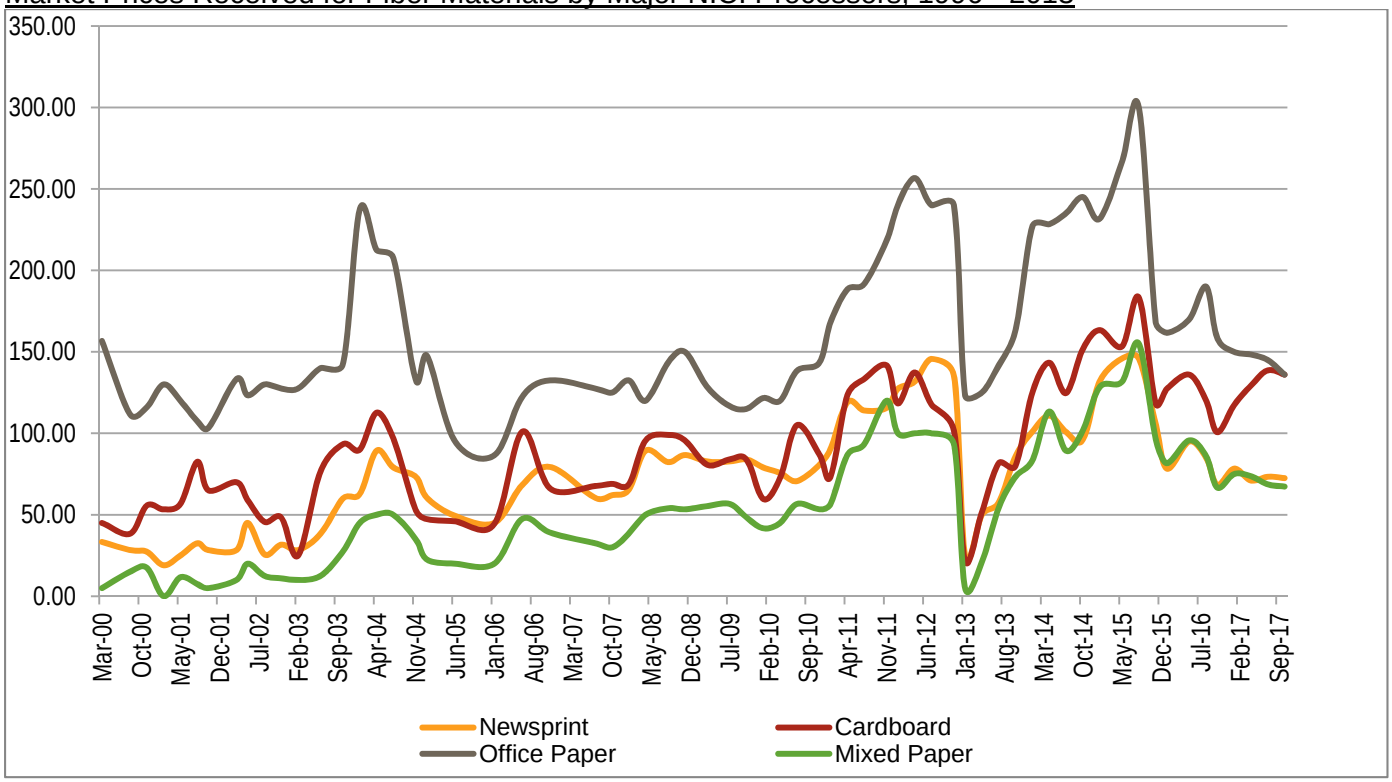
Recycling Markets and Prices

Recycling commodity prices for paper and container materials (aluminum, plastic, steel and glass) remained relatively flat through the course of FY 2012-13. The average gross revenue for the "basket" of materials moving through a typical Material Recovery Facility (MRF) floated around $100/ton, with little movement up or down and suppressed in particular by lack of value in paper markets. China, a major market for container and fiber materials, instituted new quality standards on imported loads of plastic and paper in the spring of 2013, which dampened prices and introduced uncertainty into recycling markets. Although the profitability of North Carolina MRFs was negatively affected, they still competed hard for new material in a number of local government bidding processes during the course of the fiscal year.

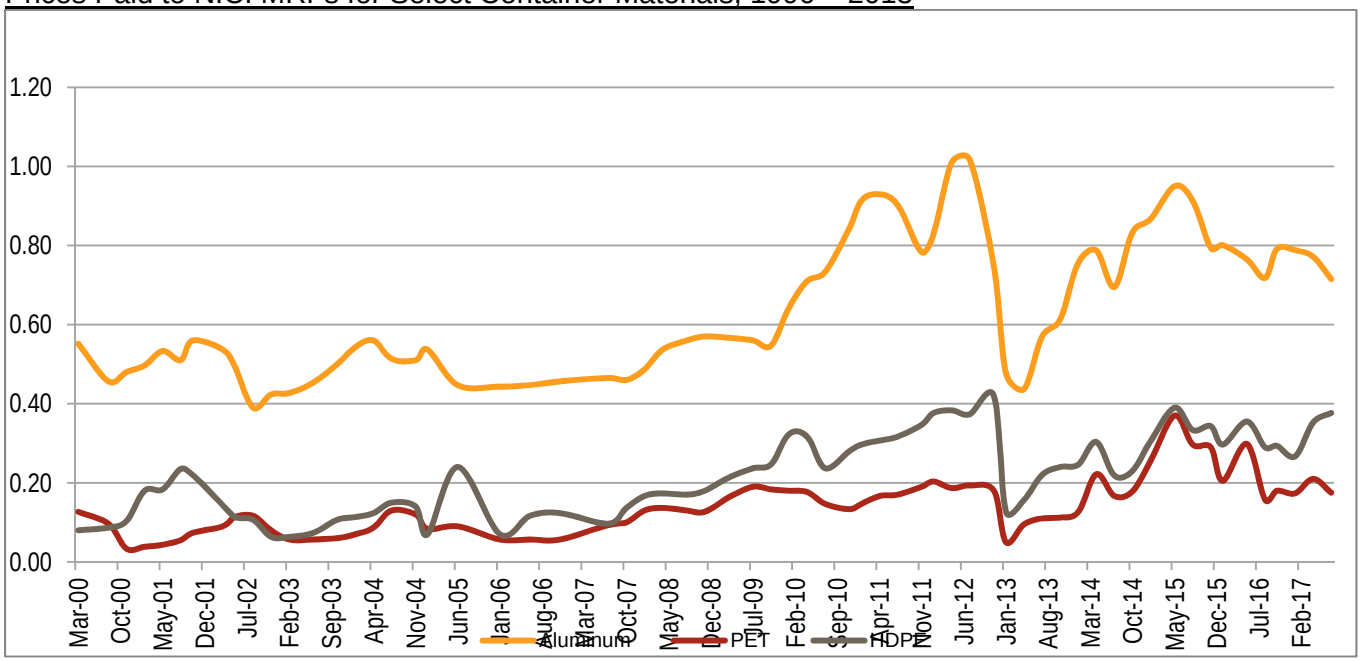
The following table shows the price trends for FY 2012-13 based on quarterly surveys of MRFs in three regions in North Carolina.

Recycling Market Prices Received by Major N.C. Processors, FY 2012-13					
Material	Summer 2012	Fall 2012	Winter 2012-13	Spring 2013	Summer 2013
Aluminum Cans, lbs., loose	$.72	$.79	$.79	$.77	$.72
Steel Cans, gross tons, baled	$137	$130	$172	$153	$170
PET, lbs. baled	$.16	$.18	$.17	$.21	$.18
HDPE Natural, lbs., baled	$.29	$.29	$.27	$.35	$.38
Newsprint, ton, baled	$85	$68	$78	$71	$73
Corrugated, ton, baled	$120	$101	$117	$129	$139
Office paper, ton, baled	$190	$158	$150	$148	$145
Mixed paper, ton, baled	$86	$67	$75	$74	$69
Clear glass, ton	$25	$25	$24	$28	$28
Brown glass, ton	$18	$18	$15	$19	$19
Green glass, ton	$2.50	$2.5	$9	$2	$5

Market Prices Received for Fiber Materials by Major N.C. Processors, 1996 - 2013



Prices Paid to N.C. MRFs for Select Container Materials, 1996 – 2013



Recycling Market Developments in FY 2012-13

Despite the uninspiring and uncertain picture for traditional materials, North Carolina's recycling economy maintained its steady march of expansion in FY 2012-13. A recycling jobs study completed after the end of the fiscal year showed a 12 percent growth in recycling employment from 2010 to 2013, accompanied by approximately $80 million in capital investment over the same period by recycling firms around the state.

Expanding markets for non-traditional materials continued to offer local government programs and private recycling companies the opportunity to enhance their material recovery activities. Toward the end of the fiscal year, new developments in private composting and digestion infrastructure signaled fresh prospects for food waste diversion in the Charlotte area. A state project to help establish markets for agricultural plastics also began to give nurseries, landscapers, and farmers a number of options statewide to recycle film, pots, and drip tape. The demand for both yellow and brown grease was also boosted by the development of new biofuels and food processing infrastructure, while steady markets for materials such as shingles and carpet provided local governments and generators with viable and growing outlets for additional tonnage.

The state's Recycling Business Development Grant program contributed to additional recycling expansions across North Carolina in FY 2012-13. Funded projects included a major manufacturing facility for recycled-content building materials in eastern North Carolina and the upgrade of one of the state's largest MRFs to single stream capacity in Conover. Small-scale collection companies remained a dynamic part of the state recycling economy as several independent haulers worked to expand pick-up services and their ability to deliver materials efficiently to market. There was positive momentum in the organics and construction waste recycling sectors and also more activity in the area of tire processing, which is expected to bring a much-needed new level of competition for tires collected by North Carolina counties.

FY 2013-14 opened with lingering flatness in traditional material markets and continued uncertainty posed by China's import policies. But new data gathered in the summer of 2013 indicated that North Carolina MRFs have a substantial unused processing capacity and a strong ability to absorb more collected recyclables. The state recycling jobs study also revealed a "bullish" aspect to the state's recycling economy, with 51 percent of companies surveyed projecting to make capital investments worth $47 million over the next two years. These developments should allow North Carolina to expand material diversion and to continue to reduce its long-term dependence on landfill disposal of recyclable commodities.

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 a white goods management law because white goods were difficult to dispose and contained greenhouse gasses, in particular chlorofluorocarbon refrigerants (CFCs). To fund this statute, the General Assembly imposed a $3 tax on new white goods purchases.

- Counties were mandated to manage white goods by providing at least one disposal site, at no cost to citizens, and to arrange for the removal of CFCs.
- The majority of the white goods tax revenue, 72% totaling $2,630,296.96, was distributed to county governments for use in running their programs.
- First quarter distributions and forfeited funds, which normally would go to White Goods Disposal Account, were diverted to the General Fund per Session Law 2011-145, Section 2.2.(g)

White Goods Tax Collection/Distributions	
Net Tax Collections by the Dept of Revenue	$4,424,018.28
Dept. of Revenue Cost of Collecting	$290,245.17
Diverted to the General Fund (1st Quarter "White Goods Funds")	$303,459.77
To White Goods Disposal Account (20% of Revenue)	$615,741.44
To White Goods Disposal Account (Forfeited County Distributions)	$253,573.10
To Solid Waste Management Trust Fund (8% of Revenue)	$330,701.84
Distributions to Counties (72% of Revenue)	$2,630,296.96

- County governments with unspent funding exceeding 25% of what they received over the past year became ineligible to receive funding, creating forfeited funds which went into the White Goods Management Account.

Counties that forfeited their White Goods Distributions:			
Alexander	Anson	Avery	Beaufort
Bertie	Cherokee	Forsyth	Henderson
Hertford	Hoke	Hyde	Jones
Lincoln	Pender	Sampson	

- County governments can to apply for grants for white good program cost overruns, white goods clean ups, and capital improvement grants. There was no need for cleanup grants this fiscal year because the high value of the metals resulted in small local businesses removing all abandoned appliances.

White Goods Disposal Account	
Balance of Funds as of July 1, 2012	$1,678,142.11
Debits	[$511,600.19]
Credits	$869,314.54
Ending Balance June 30, 2013	$2,035,856.46

Cost Overrun Grants to County Programs	[$251,237.79]
Site Cleanup Grants	$0
Capital Improvement Grants	[$253,543.34]
Repay of forfeited funds	[$6,819.06]
Total Debits	[$511,600.19]
Distributions to White Goods Disposal Acct	$615,741.44
Funds from forfeitures	227,207.67
Total Credits	$869,314.54

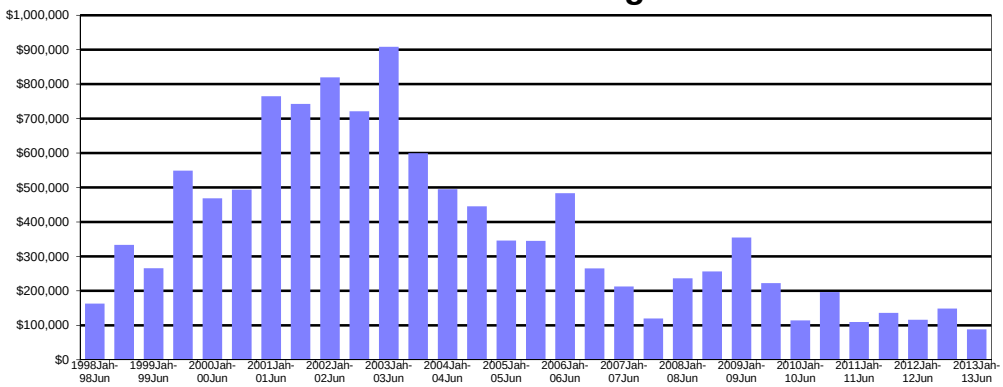
Cost Overrun Grants: January-June 2012, Awarded October 2012

County	Tax Proceeds	Requested	Awards
Brunswick	$15,891.21	$12,160.40	$12,160.40
Chatham	$9,382.59	$17,439.82	$17,439.82
Cleveland	$14,432.92	$32,660.58	$32,660.58
Columbus	$8,550.26	$11,765.12	$11,765.12
Currituck	$3,460.85	$6,441.40	$6,441.40
McDowell	$14,070.93	$1,888.07	$1,888.07
Orange	$19,732.54	$7,206.72	$7,206.72
Rockingham	$13,774.07	$4,677.00	$4,677.00
Scotland	$5,302.85	$3,014.00	$3,014.00
Stanly	$8,918.98	$7,675.62	$7,675.62
Stokes	$6,974.59	$2,941.24	$2,941.24
Warren	$3,089.48	$3,160.85	$3,160.85
Washington	$1,942.63	$4,878.37	$4,878.37
Total			$115,909.19

Cost Overrun Grant Round July- December 2012, Awarded April 2013

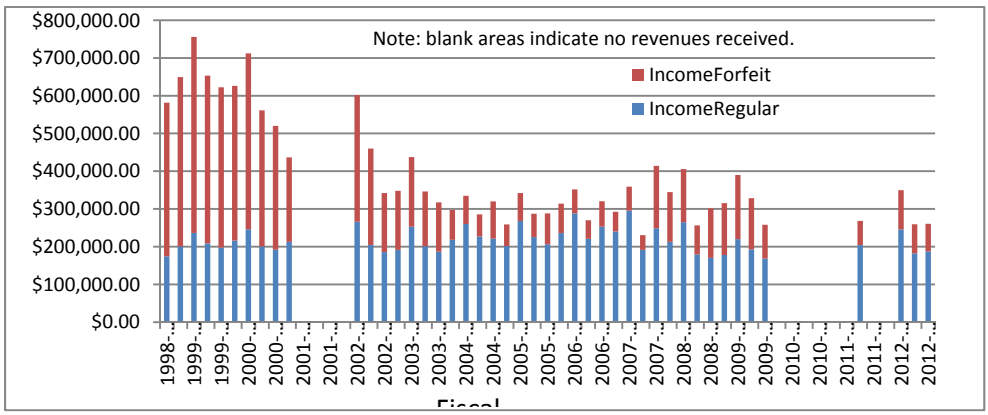
County	Tax Proceeds Reported	Requested	Awards
Brunswick	$17,556.18	$7,407.67	$7,407.67
Columbus	$9,190.46	$23,189.57	$22,030.09
Lee	$9,293.58	$4,340.70	$4,340.70
Lenoir	$9,454.58	$25,303.41	$24,038.24
Mitchell	$2,470.24	$22,075.04	$20,971.29
Orange	$21,642.53	$11,895.87	$11,301.08
Pamlico	$2,106.30	$2,143.70	$2,143.70
Pasquotank	$6,445.77	$4,306.33	$4,306.33
Rockingham	$14,913.02	$6,700.80	$6,365.76
Rutherford	$10,901.60	$3,200.58	$3,200.58
Scotland	$5,742.98	$2,856.66	$2,856.66
Stanly	$9,713.12	$24.038.70	$22,836.77
Warren	$3,328.72	$6.48	$6.48
Washington	$2,081.75	$3,523.25	$3,523.25
Total			$135,328.60

Division of Waste Management
Solid Waste Section White Goods Program Data

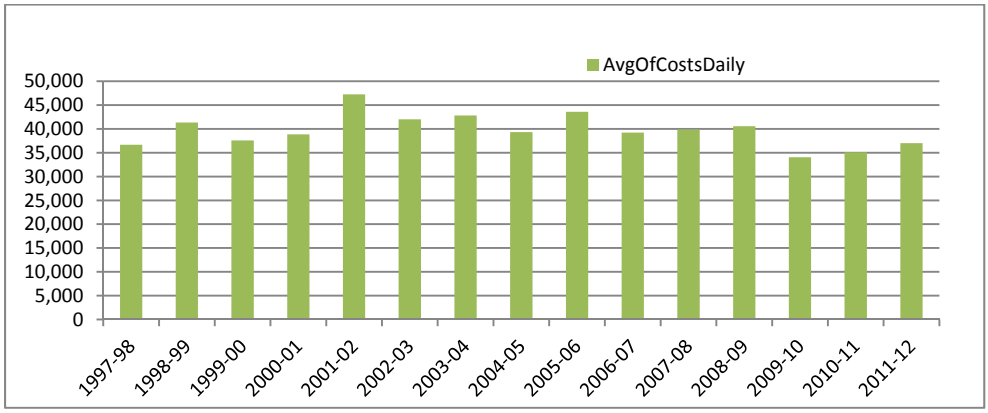


Total requests for white goods cost overrun grants by grant period by counties

When the market for scrap metal falls, counties require cost overrun grants to meet expenditures. The market for scrap metal remains strong driven by demand from overseas markets.

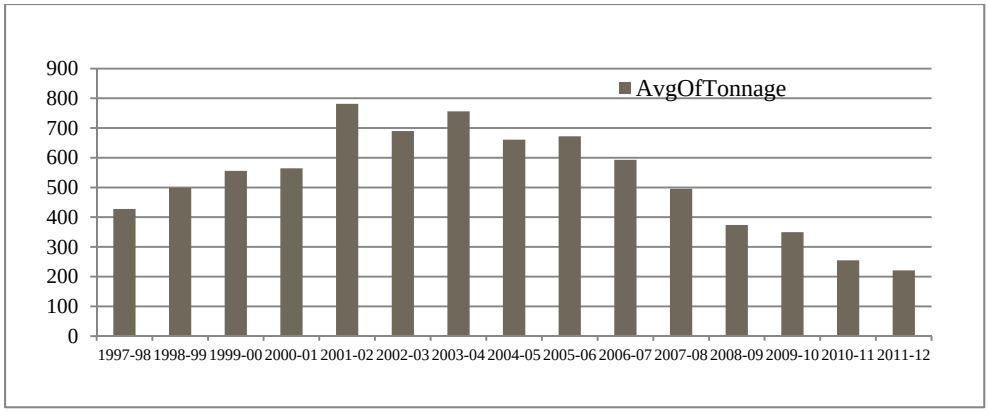


White goods income received by fiscal quarter by counties



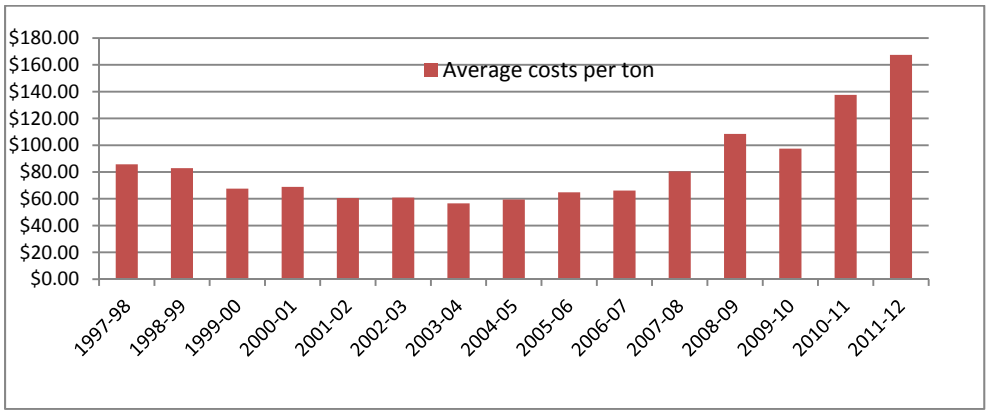
County average of daily operational costs

This graph demonstrates that through the time period shown that costs have been fairly stable with slight variations with fuel and labor through economic fluctuations.



Tonnage of Scrap Metal and Appliances

This graph demonstrates that through the decade average tonnage collected by counties has decreased as the value of scrap metal rose.



Average costs per ton by counties to manage white goods

This shows that as daily operational costs have remained fairly steady and tonnages of scrap metal collected by counties has fallen, the cost to manage a ton of white goods and scrap metal has increased.

Recent Changes and Future Direction

- Legislative changes to the White Goods program were made according to Session Law 2013-360. The Department of Revenue will send the portion of the White Goods tax distributed after August 1, 2013 which previously went to the White Goods Management Account (20%) and all forfeited funds, to the General Fund.
- The White Goods program will continue to function as it has in the past, awarding grants as needed for cost overruns, capital improvements, and cleanups until funding is exhausted or until June 30, 2017, whichever occurs first.

Scrap Tire Management

The Division of Waste Management
Solid Waste Section Scrap Tire Disposal Account

The Scrap Tire Disposal Account was created by the 1993 General Assembly. Its purpose is to provide each county with funds for the disposal of scrap tires at no cost to citizens and businesses. The Solid Waste Section administers the program by providing additional funding to counties for the cleanup of illegal tire dumps and when counties incur deficits in their scrap tire programs. To fund this statute the General Assembly imposed a tax, 1% on the sale of new large tires and 2%, on the sale of new small tires.

Distributions of Scrap Tire Tax Revenue

Net tax collections	$16,914,132.23
Less: actual cost of collecting	$288,589.55
Proceeds available for distribution	$16,625,542.68
Solid waste management trust fund (8%)	$1,330,043.41
Scrap tire disposal account and General fund (17%)	$2,131,551.41
Inactive hazardous sites cleanup fund (2.5%)	$415,638.57
Bernard Allen Memorial emergency drinking water fund (2.5%)	$415,638.57
Amount distributed to counties (70%)	$11,637,879.87

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.

Scrap Tire Disposal Account	FY 2012-13
Beginning balance	$1,767,729.04
Tax distributions	$2,688,904.67
Administration of program	($73,459.41)
Cost Overrun Grants to Counties	($1,029,722.39)
Clean Up Grants to Counties	($64,568.37)
Cleanup Repayments by Responsible Parties	642.84
Market Development Business Grants	$0.00
Ending balance	$3,289,526.38

Cost Overruns

- The first cost-overrun grant cycle (Table 1) for the FY 2012-13 included grants to 41 counties.
- The second grant cycle (Table 2) included grants to 49 counties.
- The two grant cycles in 2012-13 totaled $1,029,722.39.

Table 1: County Cost Overrun Grants October 2011-March 2012, Awarded August 2012

County	Tax Proceeds Reported	Requested	Awards
Alleghany	$6,588.71	$5,707.07	$5,421.72
Ashe	$16,147.68	$21,355.23	$19,219.71
Bladen	$20,786.50	$7,629.20	$6,866.28
Brunswick	$63,802.76	$9,657.69	$9,174.81
Catawba	$91,215.71	$19,476.90	$19,476.90
Cherokee	$51,358.80	$25,840.25	$25,840.25
Chowan	$8,706.71	$18,412.45	$18,412.45
Clay	$62,264.91	$989.44	$989.44
Cleveland	$57,947.00	$10,715.12	$9,643.61
Columbus	$34,329.01	$16,766.70	$15,090.03
CRSWMA	$108,521.18	$19,468.65	$19,468.65
Currituck	$13,895.22	$18,086.08	$16,277.47
Dare	$19,986.14	$14,151.66	$14,151.66
Duplin	$34,638.67	$10,384.97	$9,346.47
Edgecombe	$33,430.74	$17,026.10	$16,174.80
Forsyth	$207,492.25	$19,456.26	$17,510.63
Gates	$7,203.88	$1,341.02	$1,341.02
Graham	$5,242.19	$6,942.25	$6,595.14
Halifax	$32,219.28	$5,107.10	$4,851.74
Haywood	$34,885.79	$41,655.13	$39,572.37
Hertford	$14,640.14	$506.66	$506.66
Hyde	$3,410.83	$2,098.21	$2,098.21
Jackson	$23,875.31	$1,656.73	$1,656.73
Jones	$5,991.84	$1,928.90	$1,928.90
Lenoir	$35,089.27	$33,907.08	$32,211.73
Macon	$20,021.52	$12,882.57	$11,594.31
Mecklenburg	$544,943.82	$22,705.34	$19,299.54
Mitchell	$9,193.89	$12,028.71	$11,427.27
Montgomery	$16,509.75	$818.49	$818.49
New Hanover	$119,989.35	$25,920.76	$25,920.76
Northampton	$13,041.18	$3,741.42	$3,741.42
Orange	$79,225.56	$1,912.64	$1,912.64
Pender	$30,967.13	$5,058.70	$4,805.76
Perquimans	$7,954.11	$304.15	$304.15
Rutherford	$40,110.28	$28,759.62	$27,321.64

Surry	$59,564.31	$16,042.10	$16,042.10
Warren	$12,404.19	$11,744.31	$11,157.09
Washington	$7,799.59	$9,922.30	$9,922.30
Wayne	$72,482.92	$15,393.53	$14,623.85
Wilkes	$40,943.67	$15,368.91	$13,832.02
Wilson	$48,153.45	$19,210.23	$19,210.23
		Total	$505,760.95

Table 2: County Cost Overrun Grants for April-September 2012, Awarded February 2013

County	Tax Proceeds Reported	Requested	Awards
Alleghany	$7,075.16	$3,190.15	$3,190.15
Ashe	$17,435.26	$16,186.97	$15,377.62
Beaufort	$30,473.11	$1,195.89	$1,195.89
Bladen	$22,394.50	$4,403.88	$4,403.88
Brunswick	$69,467.81	$13,494.96	$13,494.96
Camden	$6,337.00	$5,247.00	$4,984.65
Catawba	$98,516.08	$7,745.26	$7,745.26
Cherokee	$17,442.10	$12,198.70	$12,198.70
Chowan	$9,404.10	$27,380.55	$27,380.55
Clay	$6,706.42	$3,529.73	$3,529.73
Columbus	$36,858.49	$14,379.54	$13,660.56
CRSWMA	$117,684.49	$7,714.02	$7,714.02
Currituck	$15,017.82	$11,430.44	$10,858.92
Dare	$21,668.48	$7,570.86	$7,570.86
Duplin	$37,611.00	$5,405.24	$5,134.98
Edgecombe	$35,874.85	$22,484.71	$22,484.71
Forsyth	$224,846.10	$23,635.41	$22,453.64
Gaston	$131,685.57	$1,132.83	$1,132.83
Gates	$7,684.49	$236.81	$236.81
Graham	$5,672.93	$8,189.74	$8,189.74
Halifax	$34,684.94	$1,010.87	$1,010.87
Haywood	$37,809.38	$32,889.76	$31,245.27
Hertford	$15,679.19	$7,201.91	$7,201.91
Hyde	$3,690.09	$565.40	$565.40
Jackson	$25,798.28	$5,492.49	$5,492.49
Lenoir	$37,797.68	$36,160.66	$36,160.66
Lincoln	$50,177.45	$22,235.55	$20,012.00
Macon	$21,765.84	$18,800.49	$18,800.49
McDowell	$28,792.73	$10,596.13	$10,066.32
Mecklenburg	$593,325.76	$12,523.53	$11,271.18

Mitchell	$9,890.55	$11,429.65	$11,429.65
Montgomery	$17,770.00	$570.26	$570.26
New	$130,527.29	$28,459.03	$28,459.03
Northampton	$13,982.96	$553.84	$553.84
Pasquotank	$25,859.86	$33,991.74	$33,991.74
Pender	$33,710.15	$3,278.23	$3,278.23
Perquimans	$8,597.67	$4,512.04	$4,512.04
Pitt	$108,061.90	$1,577.87	$1,577.87
Randolph	$90,686.12	$14,873.00	$14,129.35
Richmond	$29,606.12	$10,862.86	$10,319.72
Rockingham	$59,595.69	$930.99	$930.99
Rutherford	$43,397.24	$12,800.47	$12,160.45
Sampson	$40,477.00	$6,095.00	$5,790.25
Surry	$46,883.58	$12,294.92	$12,294.92
Warren	$13,334.23	$11,080.35	$11,080.35
Washington	$8,361.43	$10,232.49	$10,232.49
Wayne	$78,461.37	$6,378.83	$6,059.89
Wilkes	$44,227.46	$2,033.13	$2,033.13
Wilson	$51,864.63	$19,792.19	$19,792.19
Total			$523,961.44

Tire Cleanups

- 35 nuisance tire sites (Table 3) were cleaned in 15 counties and three municipalities using $64,568.37 in funds.

Table 3: County Clean Up Grants

Municipality	Amount	Date
Coastal Regional Solid Waste	$1,523.20	7/5/2012
Winston-Salem, City of	$422.48	7/5/2012
Coastal Regional Solid Waste	$107.95	7/10/2012
Alamance County Landfill	$87.28	7/14/2012
Guilford County Finance	$10,135.95	7/24/2012
Hyde County	$5,099.04	7/24/2012
Rutherford County Solid Waste	$1,470.90	8/1/2012
UNION COUNTY PUBLIC WORKS	$162.52	8/21/2012
RHODHISS TOWN OF	$7,187.83	9/4/2012
MADISON COUNTY SOLID WASTE	$4,720.67	9/18/2012
BLADEN COUNTY FINANCE OFFICE	$3,000.00	10/2/2012
BUNCOMBE COUNTY FINANCE DEPT	$280.83	10/9/2012
BUNCOMBE COUNTY FINANCE DEPT	$319.09	10/9/2012
ALAMANCE COUNTY LANDFILL	$104.89	10/16/2012
ALAMANCE COUNTY LANDFILL	$114.84	10/16/2012
RHODHISS TOWN OF	$2,120.00	10/29/2012

UNION COUNTY PUBLIC WORKS	$82.96	11/13/2012
WASHINGTON COUNTY FINANCE	$10,328.39	12/11/2012
ROCKINGHAM COUNTY LANDFILL	$6,523.24	12/20/2012
CHATHAM COUNTY	$475.68	2/5/2013
IREDELL COUNTY FINANCE OFFICE	$272.00	2/5/2013
UNION COUNTY PUBLIC WORKS	$129.88	2/5/2013
WILSON COUNTY FINANCE	$3,427.36	2/5/2013
ALAMANCE COUNTY LANDFILL	$56.65	2/26/2013
ALAMANCE COUNTY LANDFILL	$231.98	2/26/2013
UNION COUNTY PUBLIC WORKS	$877.20	3/26/2013
DURHAM CITY OF	$131.87	4/16/2013
UNION COUNTY PUBLIC WORKS	$272.00	4/23/2013
ALAMANCE COUNTY LANDFILL	$25.26	5/7/2013
BUNCOMBE COUNTY FINANCE DEPT	$353.28	5/14/2013
COASTAL REGIONAL SOLID WASTE	$2,857.70	5/14/2013
ALAMANCE COUNTY LANDFILL	$211.30	6/4/2013
VANCE COUNTY PLANNING	$967.61	6/4/2013
IREDELL COUNTY FINANCE	$237.60	6/11/2013
UNION COUNTY PUBLIC WORKS	$248.94	6/25/2013
Total	$64,568.37	

Scrap Tire Collection

All counties are required to provide a facility for scrap tire collection and to report on their management programs.

- Counties reported receiving approximately 133,253 total tons from N.C. scrap tire generators.
- The counties shipped about 104,855tons to two private North Carolina recycling facilities; the remaining tons were shipped to an out-of-state processor.
- The Solid Waste Section assists counties in learning how to avoid fraudulent disposal of out-of-state tires.
- 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 course of business in North Carolina, a potential problem emerged: the illegal free disposal of out-of-state tires at county collection sites.

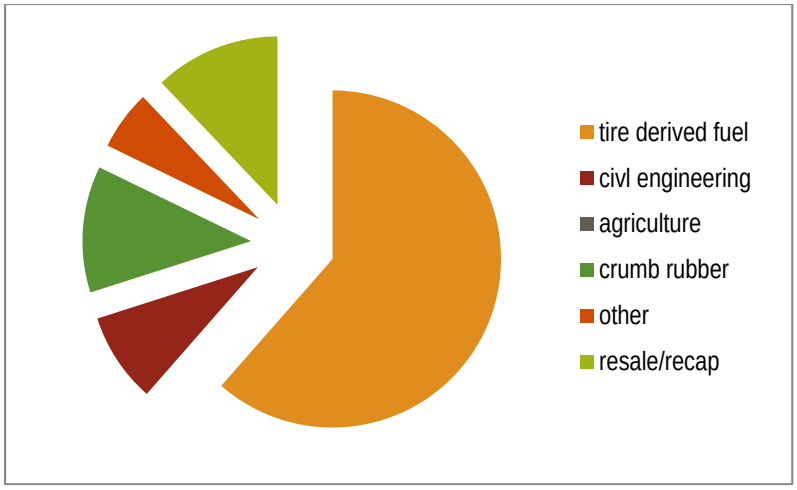
County Tire Disposal

- There are 98 county programs, including one regional program [Carteret, Craven and Pamlico (CRSWMA)].
- Counties reported spending a total of $11,100,250.56 for scrap tire management and disposal.
- Of the total spent, $10,206,085.26 was for direct disposal costs and $894,165.30 was for other costs, such as labor or equipment costs.

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.

Tire Recycling

North Carolina counties reported that 141,260 tons of scrap tires were generated, of which 85% were recycled. In addition to the tires from North Carolina, 26,044 tons of tires from other states went to North Carolina processors. Tires generated in North Carolina which went to other states equaled 8,845 tons. A total of 141,252 tons of tires were recycled at North Carolina processors and 23,210 tons of tires went to two permitted tire landfills in the state:



86,323 tons as tire-derived fuel
17,035 tons for crumb rubber
16,963 tons were recapped or resold as used tires
12,112 tons for civil engineering purposes
4,499 tons were used for other purposes

Electronics Management Program

Session Law 2010-67 established the Electronics Management Program. The law established that manufacturers of electronics, as well as retailers, consumers, and the state must all share accountability for the responsible recycling and reuse of electronic equipment.

Computer equipment includes desktop and laptop computers, monitors and video displays for computers, printers, scanners or combination printer-scanner fax machines, mice, keyboards and other peripherals. Household items such as cell phones, video recorders, cable or satellite boxes, and all commercial devices such as printers and data networking systems are not included in the law. The Electronics Management Fund, administered by the Division of Waste Management, consists of computer and television manufacturers' registration and annual fees. The majority of the fund is used to subsidize local government electronics recycling programs.

Manufacturers' Responsibilities

Computer equipment and television manufacturers have different kinds of obligations under Session Law 2010-67, as described below. The Session Law is designed to provide electronics recycling opportunities for the "consumer," defined as an occupant of a dwelling who used the equipment for personal or home business use. A nonprofit organization with fewer than 10 employees is also considered a consumer. Before selling equipment in North Carolina, a manufacturer must register with the state. Equipment manufacturers must also pay a fee, which is dependent upon the type of equipment and recycling plan level.

Computer manufacturers pay an initial fee of $10,000 to $15,000 and then an annual fee of $2,500 - $15,000, depending on the level of their plan. Computer equipment manufacturers must provide a plan which will provide a mechanism through which consumers can recycle their brands of equipment. The related recycling and transportation must be accomplished using environmentally sound management practices. Manufacturers must provide a consumer recycling education program and a toll-free phone number. The plans must provide for free and reasonably convenient recycling. Each registered computer equipment manufacturer must also submit an annual final report detailing the total weight of computer equipment collected for recycling and reuse for the previous year and summarizing the actions it implemented from its specific approved plan.

Television manufacturers pay an annual fee of $2,500. Each television manufacturer is obligated to recycle or arrange for the recycling of its market share of televisions and must annually report on the tonnage of televisions they recycled or arranged to recycle.

Distributions to Local Governments from the Electronics Management Fund

Beginning in January 2013, the electronics programs were required to prove to the Division of Waste Management that all recycling of computer equipment and televisions is being conducted by R2 or e-Steward certified facilities in order to receive future distributions. The funding is to be used only for management of electronics. Local governments, 81 counties and one city had eligible Electronics Recycling Plans and received their per capita share of a total $483,390.68 in distributions from the Electronics Management Fund in February 2013. The distribution amounts can be viewed at http://portal.ncdenr.org/web/wm/sw/electronics.

Retailer's Responsibilities

Effective July 1, 2011, retailers in North Carolina may only sell televisions, desktop computers, laptop computers, printers, scanners, printer-scanner-fax combinations, mice, keyboards, and other computer peripherals which display the manufacturer label of a registered manufacturer in compliance with the new electronics management law.

State Agencies and Governmental Entities Responsibilities

State agencies and governmental entities in North Carolina may only buy televisions, desktop computers, laptop computers, printers, scanners, printer-scanner-fax combinations, mice, keyboards, and other computer peripherals which are produced by registered manufacturers in compliance with the electronics management law. A list of manufacturers who are in compliance, updated whenever a change occurs, can be viewed on the following webpage: http://portal.ncdenr.org/web/wm/sw/electronics

Recycling Rates within North Carolina

Data on the recycling of computer equipment and televisions comes from two major sources: manufacturer reports and local government solid waste annual reports. The table below presents summary information of tonnage from the manufacturers.

Type of Collection	Computer Equipment Manufacturers (tons)	Television Manufacturers (tons)
Mail-back Program	3.77	0
Retail Collection	220	568
Scheduled Collection Events	0.33	45
Permanent drop-off through local government programs	5,420	8,739
Permanent drop-off sponsored by manufacturers	1,875	1,010
Total	7,518.69	10,363.01

Local government recycling programs data shows an increase of 36% percent in television tonnage collected by counties and cities from FY2011-12 to FY2012-13. Televisions collected through non-local government recycling programs decreased by 31%. Additionally, other electronics collected through local government recycling programs, showed a decrease of 34%. Televisions are becoming increasingly costly to recycle, whereas other electronics often have positive value. Therefore, the cost to local governments, for these recycling programs, increases as the mixture of items shifts towards televisions.

County and Municipal Collection Programs	FY 2009-10 (tons)	FY 2010-11 (tons)	FY 2011-12 (tons)	FY 2012-13 (tons)
Televisions	993.48	3,019.39	6,423.58	8,739.47
Other Electronics	3,580.15	4,432.15	8,264.91	5,419.81
Total	4,573.63	7,451.54	14,688.49	14,159.28

Overall Recycling of Electronics	FY 2009-10	FY 2010-11	FY 2011-12	FY 2012-13
Manufacturer Televisions (non-local government collections)	NA	1,754.23	2,732.96	1,623.54
Manufacturer Computer Equipment (non-local government collections)	NA	2,895.82	3,996.03	2,098.88
Local Government Televisions	993.48	3,019.39	8,264.91	8,739.47
Local Government Other Electronics	3,580.15	4,432.15	6,423.58	5,419.81
TOTAL (tons)	4,573.63	12,101.59	21,417.48	17,881.70
Total Pounds Per Capita	0.98	2.5	4.43	3.66

Compliance and Enforcement of Electronics Laws

A small number of companies have not registered or paid their fees. These companies are ineligible to market their products in North Carolina. Citizens and government agencies can check the Division of Waste Management website, http://portal.ncdenr.org/web/wm/sw/electronics, to determine which companies may sell in North Carolina.

The Division of Waste Management and the Division of Environmental Assistance and Outreach have been coordinating with manufacturer stakeholder groups, as well as a national consortium of states with electronics programs – Electronics Recycling Coordination Clearinghouse (ERCC), to seek ways to streamline and automate reporting requirements for North Carolina. Manufacturer reporting requirements vary greatly from state to state. North Carolina has joined with other states in allowing manufacturers to register via web access at http://www.ecycleclearinghouse.org.

Electronics Management Fund

Fees paid into the electronics management fund are used to support approved electronics management within North Carolina counties. The television equipment funds and up to 10 percent of the computer equipment funds that may be used to administer the program.

Balance of Funds as of July 1, 2012	$464,461.78
Credits	$462,500.00
Debits	$524,019.51
Ending Balance June 30, 2013	$402,942.27
Computer Equipment Manufacturer Fees	$380,000.00
Television Manufacturer Fees	$82,500.00
Total Credits	$462,500.00
Distributions to Local Government Programs	$483,390.68
Cost of Market Share Data	$5,350.71
ERCC Membership	$4,850.00
Administrative and Salary Costs	$30,428.12
Total Debits	$524,019.51

Abandoned Manufactured Homes (AMH) Program

As established in G.S. 130A-309.111, the Division of Environmental Assistance and Customer Service (DEACS) operates a grant program that provides funding to North Carolina counties to facilitate identification, deconstruction, recycling and disposal of abandoned manufactured homes which are deemed unfit, unsafe, and hazardous. The Abandoned Manufactured Homes Grant Program Request for Proposals (RFP) was originally developed and made available to North Carolina counties in October 2009, and FY 2012-13 was the fourth year of grant program operation.

Each grant program participant must submit an annual report to the state, in August of each year, that documents and summarizes county program information from the previous Fiscal Year.

Statistics for AMH Program for Fiscal Year 2012-13	
Units Deconstructed	95 Units
Materials Landfilled	1,050.79 Tons
Materials Recycled (percentage of total tonnage)	126.18 (10.7%)
Mercury Thermostats Recovered	31 Thermostats

Funding for the grantees is based on a county's development tier rating as determined by the N.C. Department of Commerce. During FY 2012-13 counties in Tier 1 and Tier 2 were eligible for a maximum of $40,000 in grant funding and Tier 3 counties were eligible for a total of $25,000 in funding. Eleven (11) North Carolina counties participated and incurred costs in the AMH program during FY 2012-13.

Grant contracts are initially written with one-year contract terms. However contract extensions have been made available to programs that have not able to take full advantage of funding availability during the one-year time frame.

AMH Grant Program County Participants during FY2012-13

County	Contract Start Date	Contract End Date	Grant Award	County Costs Incurred during FY	Responsible Party Fees Collected	# Units Deconstructed during FY
Burke	2/26/2010	2/28/2014	$40,000.00	$18,157.32	$5,000.00	12
Franklin	2/26/2010	2/28/2014	$40,000.00	$0.00	$0.00	-
Bertie	5/3/2010	5/1/2014	$40,000.00	$0.00	$0.00	-
Iredell	11/29/2010	11/30/2013	$25,000.00	$10,907.50	$2,008.50	13
Stanly	11/1/2011	6/30/2013	$37,500.00	$24,731.32	$5,250.00	17
Henderson	1/1/2012	12/31/2012	$37,500.00	$17,487.80	$903.87	12
Harnett	2/20/2012	2/19/2013	$37,500.00	$38,833.91	$9,828.00	14
Onslow	3/1/2012	2/28/2014	$37,500.00	$8,299.00	$2,125.00	4
Jackson	10/1/2012	9/30/2013	$40,000.00	$617.37	$1,300.00	-
Warren	10/15/2012	10/14/2013	$37,500.00	$22.515.99	$3,835.00	13
Alamance	12/1/2013	11/30/2013	$40,000.00	$12,357.50	$0.00	10

Program Participant Highlights, FY 2012-13

As noted in the table above, Henderson, Harnett and Stanly Counties all completed work on existing AMH Grants during FY 2012-13. Three county programs reported no deconstruction activity during FY 2012-13 including Bertie, Franklin and Jackson counties. Bertie and Franklin County both operate programs that are completely voluntary, and the program in Jackson County is just ramping up. Jackson County collected responsible party fees late during FY 2012-13 for a deconstruction project that was finalized in early FY 2013-14, and for this reason, the program shows fee revenue but no deconstruction activity.

Additional Information on the AMH Program

In total, DEACS initiated three new grant contracts during FY 2012-13 totaling an expenditure of $117,500 from the Solid Waste Trust Fund. In addition to providing funding, DEACS continues to offer technical assistance to county AMH programs. Examples of technical assistance provided during FY 2012-13 include answering questions on AMH program requirements, assisting communities with the preparation of proposals for AMH grant funding, providing guidance on improving the amount of recyclables recovered during deconstruction, answering questions regarding eligibility for funding, and the assisting program managers with questions about the effects of title transfers and inheritance on AMH activities.

Counties face a continuing challenge in making their AMH programs effective in getting property owners and/or responsible parties to commit to AMH removal / deconstruction. This is a particular problem in communities where program participation is entirely voluntary, and is especially problematic in cases where responsible parties face a financial obligation associated with AMH deconstruction. When voluntary programs require responsible parties / property owners to pay for some portion of deconstruction costs, it typically discourages program participation, especially in the most economically distressed parts of the state.

Counties that are able to use planning, zoning or code enforcement strategies to encourage and or incentivize responsible party participation in deconstruction efforts are having the greatest success with their AMH programs. In addition, some programs have been able to avoid charging responsible party fees by subsidizing or even waiving tipping fees for the disposal of debris from deconstruction projects. This is making program participation more affordable and is increasing the number of units eventually deconstructed.

Counties continue to report that their AMH programs are well-received by citizens. DEACS anticipates continuing the AMH program in FY 2013-14. However, cuts to the state recycling grant program will reduce the amount of funding for AMH grants and limit the number of grant awards the program can make to address the AMH issue.

NC Department of Administration - Environmentally Preferred Purchasing

The Department of Administration continues to promote the purchase and use of sustainable, 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(a3)}

Presently, 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 2012 to 2013 fiscal year indicate the sustainable features or criteria of those products. Sustainable attributes include Reduction, More Efficient, More Durable, Longer Lasting, Reusable, Refillable, Repairable, Refurbished, Recyclable, Washable, and Less Toxic than their traditional counterparts. Efficient resource use includes Energy Star for electric energy demand and reduced water consumption.

Table 1 lists the IPS purchase awards by the type and dollar amounts awarded by the Division of Purchase and Contract.

Table 1

IPS Commodity Purchase Awards by Bid Type	Number Awards by Bid Type	Percentage Number Awards by Bid Type	Awarded Dollars by Bid Type	Percentage Awarded Dollars by Bid Type
Agency RFP	303	14.39%	$130,545,991.49	13.36%
Contractual Services	332	15.76%	$180,216,139.32	18.45%
Agency Specific Term Contracts	210	9.97%	$60,067,157.76	6.15%
Open Market Purchases	672	31.91%	$57,816,378.08	5.92%
Quotes	255	12.11%	$30,965,673.24	3.17%
Recovery Funds	2	0.09%	$181,901.25	0.02%
Term Contracts	180	8.55%	$471,976,842.42	48.31%
Waivers	152	7.22%	$45,119,701.57	4.62%
Total	2106	100.00%	$976,889,785.13	100.00%

NC E-Procurement @ Your Service

As of July 4th, 2013, this enterprise-wide system has 52,067 registered vendors, and 8.778 users, representing 217 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 74,720 catalog items clearly marked as "Recycled" of the total 162,933 catalog items, as of October 10, 2013.

Purchasing Compliance Reviews

North Carolina Administrative Code (01 NCAC 05B .1605) mandates that the Division of Purchase and Contract conduct compliance reviews on purchasing practices of all state agencies (institutions, hospitals, community colleges, universities, and state agencies). All compliance reviews, except universities, are conducted utilizing data from the NC E-Procurement System. 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.

Procurement Training

In January 2013 the Division of Purchase and Contract implemented a new training program to provide North Carolina public procurement personnel and contract administrators the skills necessary to more efficiently and effectively carry out their duties. The procurement training is specific to the State of North Carolina, developed and delivered by the Division of Purchase and Contract. The new procurement training includes three (3) new courses: North Carolina Procurement – Part 1, North Carolina Procurement – Part 2, and Contract Administration. Each course is a one-day instructor-led classroom training integrating case studies and role play activities to apply the information taught. The classes are offered free of charge. The only cost incurred by North Carolina agencies is travel-related expenses. In order to minimize impact to agency business operations and travel-related expenses, the classes are offered regionally throughout the state. For the period of January 24 through October 3, 2013 there were thirty-three (33) procurement and contract administration classes offered with 756 attendees. There are six (6) additional procurement and contract administration classes planned in October and November 2013, with 154 registered students. For the period of January through December 2013 there will be 39 procurement and contract administration classes offered with 910 anticipated participants.

In addition to the procurement and contract administration classes, the Division of Purchase and Contract also offers E-Procurement and E-Quote training. For the period of January through December 2013, 22 E-Procurement and E-Quote classes will be offered, with 240 anticipated participants.

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 NC allows vendors to register to receive electronic notification of solicitations. Vendor Link had 24,901 registered vendors as of June 30, 2013. The system continues to grow, with the addition of users increasing to 557 agencies, schools and institutions with 1166 purchasers, posting 5708 solicitations using the database from July 1, 2012 to June 30, 2013.

Examples of Sustainable Open Market Awards

Clean Air Weld Station – Student welding booths purchased for Rockingham Community College incorporate a low energy air filtration (LEAF) system for welding smoke & grinding dust removal. Contaminated air flow is drafted horizontally to the back of the station for the initial stage of filtration, which reduces smoke and dust exposure to the student welder. Energy savings of up to 80% are claimed for the system responsive to the actual welding operation for sufficient airflow by using the Smart Start (automatic start stop), VFD (variable frequency drive), LED lights, high efficiency blowers and premium efficiency motors. A self-contained, closed-loop air filtration system also reduces or may eliminate the exhaust of conditioned building air thereby reducing energy demands for the facility. The manufacturer allowed an educational discount of 22% of the purchase price. This is an example of reduced energy consumption and reduced environmental air pollution.

Used Electric Boom Lift – A 2007 boom lift rented by the Department of Agriculture for a four month period was quoted and purchased at $19,500.00. Equipment purchase was determined to be more cost effective than renting based on projected use. A new boom lift would cost approximately $43,900.00, with the purchase of the used lift resulting in a 56% savings. This is an example of reuse of resources.

Used 53' x 102" Hauling Trailers – Ten trailers were purchased for the Department of Public Safety, Correction Enterprises at a cost of $109,000.00 where the estimated price of new trailers would be $282,000.00. Used equipment provided a 61% saving from new. This is an example of reuse of resources.

Trailer-Mounted Solar Powered Message Sign - Eight trailer mounted signs with a three line by 12 character matrix display provide programmable messages for NC Department of Transportation for current and new road construction projects. Signs are designed with a solar charging capability to the primary battery power supply. Amber displays may be remotely operated and interfaced with radar or traffic control applications. Portable solar powered unit includes energy efficient LED lamp matrix and controls.

Used Forms Processing Equipment – A used Bell & Howell forms cutter and burster was quoted for the Department of Revenue to satisfy an urgent need for equipment to aid in the disbursement of tax refunds to NC taxpayers. Device was purchased for $28,423 resulting in a savings of $11,563 compared to new equipment purchase. This is an example of reuse of resources.

New State Fair Expo Building Lighting – The State Fair Expo Building was retrofitted with a quantity of 130 type T8, 32 watt fluorescent high bay fixtures for the Department of Agriculture from state fair receipts. Energy efficient fixtures include sufficient ventilation to keep the three electronic instant start, high power factor (90% or greater) ballast cool so the ballast life will not be reduced. In addition, the fixtures included a motion sensor with a time delay settings from 30 seconds up to 20 minutes. The lamp reflectors employ a highly tooled shape to give a 95% reflectivity of the fluorescent light. This is an example of the purchase of energy efficient products that are designed long life and to provide efficient area illumination on an as-needed basis.

Latent Master Mobile Fingerprint Station – A mobile fingerprint station was purchased for the North Carolina Justice Academy with grant fund for training courses. An ultraviolet-to-infrared light spectrum imaging system provides a fingerprint viewer and image capture video system. Reduced chemicals are used, mixed and stored for fingerprint detection and capture. Reduced external illumination requirements also improve energy efficiency and reduce processing time.

Used Freightliner Truck – A used freightliner 2010 Model Cascadia, class B truck was purchased for $59,368, which allowed a $79,180 savings compared to a new 2014 model of the same size and capacity. The used vehicle was determined to meet the user's needs at Johnston Community College at a significant savings. This is an example of reuse of resources.

Recycled Plastic Lumber – An agency-specific term contract was bid for recycled sheet stock to cover signage applications needed by the Department of Environment And Natural Resources. Sheet stock is manufactured with a range of 45% to 65% postindustrial recycled HDPE (high density polyethylene). This multi-layered non-porous material resists deterioration from moisture and UV light exposure and is inherently resistant to wood penetrating insects. Material is very durable with a stain-resistant surface that also serves to resist permanent markings such as graffiti. This is an example of using recycled materials that are longer lasting in an outdoor environment.

Enforcement Vehicle Light Bars - A three-year, agency-specific term contract was awarded to supply emergency LED-type bar lights to the Wildlife Resources Commission. These bar lights offer more functionality (light patterns other than available with strobe lamps), energy efficiency (reduced electrical load on the car's alternator and battery), and significantly decrease maintenance (long-life solid state LED displays eliminates lamp replacement due to mechanical vibration). Secondary benefits may include increased life for the lead acid automotive battery and potentially decreased automotive fuel consumption.

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:

- 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.
- Appliances, Domestic, 045A – The majority of refrigerators, washers, and dishwashers covered by this contract are Energy Star Qualified.
- Automotive, Industrial Parts and Supplies, 060A - Some products included 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 10. Core (junk) batteries are considered to be an environmental hazard and are otherwise expensive to properly remove. The Division of Surplus, State Surplus Property collected state-wide from state agencies and local governments 604,000 pounds of wet cell batteries that were recycled during the 2011 to 2012 fiscal year.
- 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 less than new tires.
- 2013 Models Passenger Cars, 070A – Cars are available in 4 and 6 cylinder gasoline engines with most flex fuel (E85) compatible. Contract includes a full electric car (Ford Focus) and plug-in hybrid cars (Toyota Camry and Prius C).
- 2013 Law Enforcement Vehicles, 070B - Cars are typically four-door, available in six and eight cylinder engines and some are flex fuel (E85) compatible. 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.

- 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.
- 2013 Model Year Trucks, Vans, Utility Vehicles, Crossovers-Conventional Fuels and AFVs, TC # 070G – All diesel 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.
- 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 14 different NEV models available from this contract from eight suppliers offering the brands; GEM, E-Ride, Columbia, Cushman, Polaris, and Star brand vehicles. The contract vehicles are offered with a price range of $10,232 to $30,123 and include an extended warranty. Because these vehicles do not consume hydrocarbon fuel they produce zero direct emissions. These vehicles are considered good additions to agency fleets to help meet petroleum reduction goals.
- Golf Cars, 070P – Electric and gas-fueled vehicles are available with two, four and six passenger models. Models are made with components of 85-90% recycled steel, plastic and aluminum.
- Light Transit Vehicles, 070U – Vehicles accommodate public transportation needs and are Americans with Disabilities Act (ADA) compliant. Engines meet current EPA emissions guideline. Alternate fuel/engine options include flex fuel (E85), propane and gas/electric motor hybrid engines.
- Remanufactured Toner Cartridges, 207A - Currently common use Hewlett Packard and Lexmark cartridges are remanufactured to equivalency with the original OEM performance. New Brother Brand drum assemblies and toner hopper assemblies were also added. Product specifications are being transitioned from mandated construction requirements to the use of 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. This contract reduces the number of reusable cartridges added to the waste stream.
- Ballasts, 285B – Ballasts of all types are available, including electronic types that are more energy efficient, support variable illumination and reduce electromagnetic 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. Electronic ballasts contain no PCBs and can be disposed of in the trash. Reduced product shape and size (form factor) also minimizes packaging and metal enclosure requirements.
- LED Lighting, 285C – Contract consists of lamps for cove lighting, area lighting, downlights, troffers and wall packs employing LED illumination for energy savings. Packaging is 60% recycled materials. Technology utilizes LED illumination for energy savings.
- Energy Saving Devices, 285D – Contract includes T8 size tubular fluorescent retrofit kits, LED exit signs, LED exit sign retrofit kits, occupancy/vacancy sensors, electronic dimmable ballasts, and controls. Products utilize LED illumination and dimmable ballasts for energy savings.
- Paper, Computer and Labels, 395B - Computer paper contains from 30% to 50% recycled with 30% post-consumer content.
- Propane Tankwagon, 405A – Contract vendors have reported 4,194,408 gallons were purchased last year of this clean burning fuel.
- Oils, Lubricants, Greases, and Antifreeze, 405H – The following synthetic, bio-degradable, and recycled lubricants were reported as supplied under this contract: Biodegradable Bar & Chain Oil (18 gallons), Biodegradable Two Cycle Oil (11 gallons), Synthetic Motor Oil (1,841 gallons), Biodegradable Hydraulic Oil (945 Gallons), Synthetic Gear Lubricant (16,110 Pounds), Synthetic Automatic Transmission Fluid (2,342 Gallons), and Synthetic Grease (3,068 Pounds). 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. This year 18,078 gallons were purchased of Diesel Exhaust Fluid (DEF), an aqueous urea solution used in diesel engines to lower nitrogen oxides concentration in exhaust emissions. Nitrogen oxides, like hydrocarbons, are precursors to the formation of ozone and also contribute to the formation of acid rain. Covered by an agency specific contract the Division of Surplus, State Surplus Property collected and disposed of waste oil and antifreeze with 321,000 gallons of motor oil recycled for the 2011 to 2012 fiscal year.
- Propane Transport, 405K – Contract vendors have reported 2,218,099 gallons were purchased last year of this clean burning fuel.
- B-20 Transport, 405L - B20 blended fuel contains 80% diesel fuel and 20% virgin soy or reprocessed vegetable oil. This means that of the reported 7,350,323 gallons of B20 blended fuel purchased, 1,470,064 gallons were produced from plant mater. This results in a reduction of crude oil consumption.

- Gasohol, E-10 Transport, 405M - E-10 blended fuel contains 90% unleaded gasoline and 10% ethanol. This means that of the 4,332,599 gallons of E10 blended fuel reported as purchased, 433,259 gallons were derived from ethanol. This results in a reduction of crude oil consumption.
- Pipeline Natural Gas, 405N – Contract vendors have reported 2,398,146 dekatherms as purchased last year of this clean burning fuel.
- Ultra-Low Sulfur Diesel Transport, 405P – Contract 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 the Department of Public Instruction and the Department of Transportation. Approximately 26,637,104 gallons were reported as 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. Tankwagon loads are less than 6,000 gallons down to a minimum of 500 gallons. Approximately 495,834 gallons were reported as 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 approximately 35,787 gallons of the blended E85 fuel reported as purchased 30,418 gallons were derived from ethanol which reduces crude oil consumption.
- E-10 Tankwagon, 405S - 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 714,417 gallons of the blended E10 fuel purchased, 71,441 gallons were derived from ethanol which reduces crude oil consumption.
- Ultra-Low Sulfur Diesel #2 Emergency Transport, 405T – Contract offers 15 ppm of sulfur content compared to 500 ppm sulfur for the standard diesel #2 fuel. This contract is used in emergency cases when there is a pipeline interruption. The ultra-low sulfur content will help to provide compliance with clean air mandates. No sales were required from this contract during the fiscal year.
- E-10 Emergency Transport, 405U – E-10 blended fuel offers 90% unleaded gasoline and 10% ethanol. This contract is used in emergency cases when there is a pipeline interruption. The ethanol blend can reduce crude oil consumption. No sales were required from this contract during the fiscal year.
- Bio-Diesel Fuel, 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 236,347 gallons purchased, 47,269 gallons are derived from plant mater. This results in a reduction of crude oil consumption.
- E-85 Tankwagon, 405X - E-85 blended fuel contains 15% unleaded gasoline and 85% ethanol derived from corn production. Tankwagon loads are less than 6,000 gallons down to a minimum of 500 gallons. From the approximately 43,681 gallons reported sold of the blended E85 fuel, 37,128 gallons were derived from ethanol which reduces crude oil consumption.
- Aviation Fuels, 405Y - Contract includes aviation gasoline (avgas) and Jet A fuels. The aviation gasoline provided has a lower lead content of the fuel. From this contract approximately 8,099 gallons were reported sold. Lead from engine exhaust fumes is classified an irreversibly neurotoxin and the lower lead content gasoline would be less toxic than the traditional formulation.
- Furniture, Metal, Folding Chairs, Tables, Storage Units, Wood Library Furniture, 420A - 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 from 15% to 75% post-consumer waste and is reusable. Wood, plastic and metal contain recycled post-consumer content and are recyclable. Product offerings are using more sustainable methods because they offer a competitive price advantage over those who use all virgin materials. Soy foam in chair seats and backs are now becoming available and is more environmentally friendly because it is made partly from soybeans, a renewable resource.
- Furniture, Library, Wooden, 420D – Packaging is recycled. Wood scraps from the manufacturing process are either mulched for recycled materials or converted into energy. Manufacturing may use a water-based top coat in wood finishing process.
- Furniture Contracts, 425A & 425D - Product offerings are using more sustainable methods because they offer a competitive price advantage over those containing all virgin materials. Soy foam in chair seats and backs are now becoming available and is more environmentally friendly because it is made partly from soybeans, a renewable resource.
- 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 materials, is reusable and recyclable for continued use. Product offerings are using more sustainable methods because they offer a competitive price advantage over those who use all virgin materials. Some manufacturers are now offering soy foam in chair seats and backs as well as recycled wood components. Fabric and chair cushions contain up to 100% post-consumer recycled content with approximately 40% total recycled content for the complete product. Packaging contains up to 100% recycled materials and is recyclable.
- Metal Cabinets, Lateral, Vertical and Storage, 425H - Cabinets contain from 10% to 30% recycled content. Corrugated boxes have a minimum of 50% post-consumer waste and are recyclable.
- 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 – Numerous environmentally friendly janitorial cleaners are available through this contract that are Certified Compliant to Green Seal GS-37 Environmental Standard For Cleaning Products For Industrial and Institutional Use, dated September 2011, or the EcoLogo Certification Criteria Document CCD-146, Environmental Standard for Hard Surface Cleaners, dated August 2011. These products include General Purpose Cleaner, Environmentally Friendly Neutral Cleaner, Environmentally Friendly Window and Glass Cleaner, Environmentally Friendly Hydrogen Peroxide, and Environmentally Friendly Cleaner Degreaser. Pre-moistened towelettes are available to provide an alternative to 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. Lamp 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 water consumption.
- Locks, Locking Devices & Accessories, 450B – Product metal content includes 26-31% Pre-Consumer recycled materials and 4-6% Post-Consumer recycled materials. Some models support the material and resources credits for Leadership in Energy and Environmental Design (LEED) building certifications.
- 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).
- Grounds Maintenance Equipment, 515B – Contract includes, walk behind products/equipment, mowers and lawn and garden tractors, hand held equipment (hand-held type), hand held equipment, tractors, utility vehicles, golf and turf equipment, and other equipment. Equipment is manufactured with typically 20% recycled steel and plastic.
- LED Vehicle Traffic Signal Modules, 550A - Traffic signals and crosswalk notification 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 certification for reduced energy consumption.
- Traffic Signal Equipment, 550D - Lenses and signal head hardware are compatible with energy efficient LED lamps. Depending on brand, aluminum components may have up to 85% recycled content.
- Traffic Cones and Drums, 550F – Contract includes caution drums and cones with up to 35% recycled content in the plastic body and up to 100% post-consumer recycled content for the rubber support base for either product.
- Trailer-Mounted Solar Powered Flashing Arrow Board, 550G – Agency-specific term contract provides availability of a trailer-mounted, solar-charged 15 lamp LED array arrow board and related parts for the NC Department of Transportation. Amber lights on panel board are electronically actuated to form various configurations to signal, control, and direct high speed vehicle traffic. Portable solar powered unit includes energy efficient lamps and controls.
- 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 – All products on the contract are certified to Green Seal standards GS-1 or GS-9, or Ecologo CCD-084 or CCD-086. Paper products are manufactured from 100% recycled fiber, with 40% to 80% of

that recycled content being from post-consumer content. Products are manufactured using either elemental chlorine-free or chlorine-free systems. This is an example of the use of recycled materials.

- Office Paper, 645A - Various products contain post-consumer recycled content, from 100% to 30%, and chlorine free copy paper. Other recycled and virgin paper products including envelopes are supported.
- Laminators & Laminating Film, 665A - Some of the film contains 5% post-consumer content. Packaging contains 25%-80% post consumer content.
- 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.
- Ammunition, 680A - Brass shell casings can be saved and recycled and others can be reloaded.
- Vending Machines and Money Changers, 740B - Vending machines, which were purchased for the Department of Health and Human Services, are twice as energy efficient as machines made five years ago. Equipment features high-efficiency refrigeration, foam-injected insulation and LED display lighting. Refrigerated versus chilled storage space allocation is adjustable for varied product dispensing. Wireless monitoring systems boost efficiency with 24/7 communication and report diagnostics including amount of product needed to refill unit. This is an example of reduced energy consumption with the reduced cost of service/refill trips on an as needed basis. Packaging, refrigerant and metal components may contain recycled content and are recyclable.
- Construction Equipment, 760H – Construction Equipment covers excavators, wheel excavators, track loaders, compact track loaders, wheel loaders, skid steer loaders, backhoe loaders, crawler dozers, crawler loaders, wheel dozers, motor graders, utility cranes, and compactors. Appropriate attachments or equivalent products are included in the contract. Equipment manuals and parts catalogs are provided in hard copy and electronic copies. Engines meet current EPA Tier and emissions guidelines.
- Forestry Equipment, 760L – Equipment includes feller bunchers, knuckleboom loaders, forestry swing machines, and harvesters. Appropriate attachments are included in the contract. Equipment manuals and parts catalogs are provided in hard copy and electronic copies. Engines meet current EPA Tier requirements.
- 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 may be provided in soft copy instead of hard copy printed materials.
- Recycling Services for Fluorescent Lamps, Ballasts & Other Mercury Containing Devices, 926B – Contract assists agencies and local governments with contracted disposal of discarded electronic products that are diverted from landfill disposal.
- Electronic Equipment Recycling Services, 926C – The State of North Carolina requires that its recycled electronics not contribute to unsafe and environmentally damaging processing practices. The purpose of this contract is to assist agencies in complying with the state's electronic recycling requirements by providing recycling service options for end-of-life electronic equipment, including the collection, de-manufacturing, and recycling of computer monitors, televisions, desktop CPUs, laptop computers, printers, scanners, keyboards and mice, copy machines, DVD players, VCRs, stereo systems, tape players, CD players, radios, telephones, cell phones, readers, network equipment, servers, fax machines, electronic games, and other consumer electronics generated by State of North Carolina agencies and other eligible users. Eligible contract users include county and municipal governments, local education agencies, community colleges, state universities, and other local public agencies or authorities. Some recycled products generate a revenue stream that may be used to pay for the recycling of other products. The Division of Surplus, State Surplus Property resold or recycled 595,000 pounds of computer and electronic equipment during the 2011 to 2012 fiscal year.

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
Refrigerant Recovery System (filters reusable refrigerant),
Recycled Carpet fiber,
Recycled Paper fiber,
Recycled Content Furniture (not traditional wood),
Printers,
Tire Recapping & Repairing Service,
Uniforms, Wiping Cloths

More Durable
Above-Ground Vaulted Fuel Storage Tanks,
Classroom Furniture, Electronic Lamps & Ballasts,
Vacuum Cleaners, Floor Polish,
Grader Slope Attachment,
Plastic Lumber, Mattresses,
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,
Lamps,
Traffic Signals – LED,
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.

Recycled Metals – The Division of Surplus, State Surplus Property resold 1,175,000 pounds of scrap metals collected state-wide from state agencies, and local governments during the 2011 to 2012 fiscal year.

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
Medical Diagnostic Equipment & Instrumentation,
Remanufactured Toner Cartridges,
Scientific Equipment, Sewing Machines

Less Toxic
Alternative Fuel Vehicles, 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, and Motor Oil – refined, HVAC & Refrigeration Equipment – Refrigerants.

Washable - HVAC Filters, Wiping Cloths

Top- Down Support Leads the Way to the Success of NCDOT 3R Program:

Secretary of Transportation- Anthony Tata
"NCDOT is focused on better connecting our citizens to greater opportunities, while taking careful steps to protect our natural resources. We strive to find the balance between human, economic, and environmental impacts in every project we do. As part of those efforts we play an important role in encouraging all of our employees to help reduce waste, recycle, and reuse materials when possible."

Chief Deputy Secretary for Support- Nick Tennyson
"By reducing waste, recycling, and reusing materials - whether on construction sites or day-to-day in the office – we are ensuring that we are operating as efficiently as possible, thereby being good stewards of taxpayer dollars as well as the natural environment.

Chief Engineer Terry Gibson
"*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."*

Commissioner Kelly Thomas:
"As part of our DMV Reform, we are continuously searching for ways to operate more efficiently. Reducing waste, recycling and reusing materials are simple ways we can achieve this goal, while at the same time supporting jobs in this industry and preserving North Carolina's natural resources."

JOHN L. SHARP Environmental Specialist

Support Service Materials Diversion

During FY 2012-13, NCDOT employees' continued demonstration of their commonsense approach to handling its waste stream proves to be very successful in diverting materials from the landfill.

NCDOT employees recycled the following for FY 2012-13:

FY 2012-13 Waste Material	Weight
Paper: newspaper, magazines, cardboard, office paper, telephone books, hardback books, etc.	686 tons
Metal: aluminum cans, steel cans, scrap metal, white goods, etc.	3011 tons
Glass Containers: clear, brown, green, and mixed glass	10 tons
Plastic: PETE #1, HDPE #2, LDPE #4, mixed plastic, etc.	33 tons
Commingled Containers: single stream collection of aluminum and steel cans, glass and plastic	64 tons
Electronics: monitors, computers, printers, copiers ,televisions, etc.	67 tons
Organic materials: wooden pallets, other wood, yard waste, food scraps, cooking grease, etc.	1299 tons
Other materials: lead acid batteries, motor oil, white goods , etc.	653 tons
Grand Total	5823 tons


During FY 2012-13, NCDOT upgraded and added more recycling containers statewide at our Rest Areas/ Visitor Centers as well as the Ferry Division and Rail Division and it is paying huge dividends in materials collected and recycled from the general public. This year over 82 tons of plastic and glass containers, aluminum cans, newspaper, and cardboard were collected and recycled from these facilities.

During FY 2012-13 NCDOT implemented a statewide fluorescent light bulb recycling program with great success. The program diverted over 2650 bulbs from landfills.

During FY 2012-13, NCDOT Construction and Demolition Program recycled and reused over 523 tons of waste materials state-wide. NCDOT has developed a statewide map to make it easier to recycle construction and demolition waste materials: https://connect.ncdot.gov/resources/Environmental/

FY 2012-13 NCDOT revenue generated from the sale of recycle waste materials:

2012 2013 Waste Material	Revenue Generated
Recyclable Oil	$131,860
Recyclable Metal-Non Aluminum	$433,881
Recyclable Batteries	$86,207
Recyclable Aluminum	$81,655.80
Recyclable Cardboard	$1143
Total	$734,746

NCDOT's continuous focus on waste management is educating employees on source reduction, reuse, and recycle practices. These practices will continue to lead in significant reduction in our waste stream and lessen our environmental foot print on the planet.

NCDOT has set these goals for FY 2013-14:

- Increasing the number of Construction and Demolition Waste Reduction projects statewide
- Increasing specifications to allow more reuse of asphalt, hot in-place recycling and Highway Construction and Materials System (HICAMS) reporting
- Eliminating mass printing of manuals, documents and forms by placing them online for customers and employees.

Recycling and Solid Waste Management Report for Highway Construction and Maintenance Projects

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 state fiscal year 2012 (July 1, 2012 - June 30, 2013) as required by G.S. 136-28.8(g). This statute mandates that 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 state fiscal year. The types of recycled materials incorporated into the projects noted would routinely 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. All applications of recycled materials are to be consistent with economic feasibility, applicable engineering, and environmental quality standards.

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:

- 1.45 Million tons of Reclaimed Asphalt Pavement (RAP) was used as an asphalt mix additive.
- 119,779 tons of Reclaimed Asphalt Shingles (RAS) were used as an asphalt mix additive.
- 19,468 tons of coal combustion fly ash was used in concrete mixes.
- Approximately 6,000 tons of recycled glass beads were used in pavement markings.
- Maintenance personnel across the state continue to reuse products including aggregate base course, concrete pipe, guardrail, signs and posts, and steel beams.

North Carolina Department of Transportation Recycled Products & Solid Waste Utilization in Construction & Maintenance Projects Fiscal Year July 1, 2012 - June 30, 2013					
Product Category and Description	Usage		English Quantity	English Measure	
1-Asphalt:					
Reclaimed Asphalt Pavement (RAP)	Asphalt Mix Additive		1,449,226	ton	
Reclaimed Asphalt Shingles (RAS)	Asphalt Mix Additive		119,779	ton	
Reclaimed Asphalt Pavement (RAP)	Shoulder Reconstruction		42,629	cubic yard	
Hot-In-Place Asphalt Recycling	Pavement		20,743	square yard	
Full-Depth Reclamation	Pavement		0	cubic yard	
2-Clearing and Grubbing Debris:					
Mulch	Mulch		100	acre	
Mulch	Mulch -Roadside Environmental		22,954	cubic yard	
Mulch	Erosion Control		0	cubic yard	
3-Coal Combustion Products:					
Fly Ash	Concrete Mix Additive		19,468	ton	
Fly Ash	Embankment Fill		0	cubic yard	
Fly Ash	Flowable Fill		2	cubic yard	
Bottom Ash	Embankment Fill		0	cubic yard	
4-Concrete:					
Recycled Concrete	Aggregate Base Course (ABC)		281	ton	
Recycled Concrete	Fill Material		145	ton	
Crack and Seat	Base Material		205	ton	
Rubblized Concrete	Base Material		0	ton	
5-Glass:					
Recycled Glass Beads	Pavement Markings		6,000	ton	
Crushed Glass	Subdrain Backfill		0.0	cubic yard	
Crushed Glass	Aggregate Base		0.0	cubic yard	
6-Plastic:					
Recycled Plastic Offset Blocks	Guardrail Offset Blocks		26,843	each.	
Recycled Plastic Fence Posts (All Sizes)	Fence Posts		20	each	
Recycled Plastic Pipe (All Types and Sizes)	Pipe		3,666	linear foot	
Recycled Plastic Sign Supports	Sign Supports		2	each/ea.	
Recycled Plastic Flexible Delineators	Flexible Delineators		0	each	
7-Scrap Tires:					
Chipped Tires	Embankment Fill		0	cubic yard	
Chipped Tires	Lightweight Aggregate		0	cubic yard	
Crumb Rubber	Crack Sealant		0	pound	
Crumb Rubber	Asphalt Mix Additive		0	pound	
Rubber Mulch	Mulch		0	cubic yard	
Tire Sidewalls	Traffic Drum Ballast		3,818	each	
Whole Tires	Retaining Wall		130	each	
8-Roadside Environmental:					
Animal Waste	Fertilizer/Soil Amendment		0.0	ton	
Bioremediated Petroleum Afftected Soils	Soil Amendment		0.0	cubic yard	
Sludge	Soil Amendment		0.0	ton	
9-Other:					
Recycled shoulder and ditch material					
Scrap metal			40.0	ton	
Timber					

Timber Bridge Deck/Rail					
Wood Pallets*					
Steel Slag					
Processed Silica					
Recycled Polyester Resin					
Recycled Bridge Items					
Reclaimed Asphalt Pavement (RAP)					
Used Unclassified Structure					
Mabey Bridge					
Drainage Ditch Excavation					
Corrugated Metal Pipe			420	linear foot	
Erosion Control Stone 'B'					
White Roofing Rock					
Aluminum					
Cardboard					
Asphalt Millings					
Used Motor Oil	Heating Fuel		8,000	gal	
Aluminum Cans			20	Lbs	
Plastic Bottles			10	Lbs	
Printer Cartridges			2	each	
Steel I-Beams	Future Bridge Maint. Repairs		400	linear foot	
Steel Plank Floor	Future Bridge Maint. Repairs		960	square foot	
Scrap Aluminum	Scrap Aluminum		1,440	pounds	
tested asphalt return to rap pile			6,000	tons	
Silt Fence			2,200	linear foot	
10-Reused Materials:					
Aggregate Base Course	Aggregate Base Course		25,116	ton	
Concrete Pipe	Concrete Pipe		1,082	linear foot	
Guardrail	Guardrail		5,687	linear foot	
Sign Posts	Sign Posts		494	each	
Signal Heads	Signal Heads		15	each	
Signs	Signs		1,374	each	
Steel Beams	Steel Beams		5,881	Linear foot	
Signs	Signs		13	ton	
Signal Cabinets	Signal Cabinets		0	each	
Fence Reset			0	linear foot	
Rip Rap			50	ton	
Silt Fence and Post	Silt Fence		0	each	
Concrete Barrier			0	linear foot	
Guardrail Offset Blocks			0	each	
Signal Pole Replacement			0	each	
Signal Repair			0	each	
Steel Silt Fence Post	Silt Fence		0	each	
Steel Beams	Steel Beams		0	pounds	
steel H piles			250	linear foot	

NCDOT Recycled Products & Solid Waste Utilization in Construction & Maintenance Projects Summary
January, 1989 - June 30, 2013

Product Category and Description	Usage	Quantity	Unit of Measure	Rolling Average
1-Asphalt:				
Reclaimed Asphalt Pavement (RAP)	Asphalt Mix Additive	8,154,415	ton	339,767
Reclaimed Asphalt Shingles (RAS)	Asphalt Mix Additive	216,936	ton	9,039
Reclaimed Asphalt Pavement (RAP)	Shoulder Reconstruction	108,330	cubic yard	4,514
Hot-In-Place Asphalt Recycling	Pavement	3,220,030	square yard	134,168
Full-Depth Reclamation	Pavement	175,698	cubic yard	7,321
Asphalt Millings	Shoulder Repair	175	Tons	7
2-Clearing and Grubbing Debris:				
Mulch	Mulch	823	acre	34
Mulch	Mulch - Roadside Environmental	75,918	cubic yard	3,163
Mulch	Erosion Control	46,851	cubic yard	1,952
3-Coal Combustion Products:				
Fly Ash	Concrete Mix Additive	335,608	ton	13,984
Fly Ash (Not used as Fill since 2007)	Embankment Fill	865,186	cubic yard	36,049
Fly Ash	Flowable Fill	810	cubic yard	34
Bottom Ash	Embankment Fill	2,707	cubic yard	113
4-Concrete:				
Recycled Concrete	Aggregate Base Course (ABC)	6,830	ton	285
Recycled Concrete	Fill Material	55,213	ton	2,301
Crack and Seat	Base Material	261,058	ton	10,877
Rubblized Concrete	Base Material	311,017	ton	12,959
5-Glass:				
Recycled Glass Beads	Pavement Markings	92,219	ton	3,842
Crushed Glass	Subdrain Backfill	130	cubic yard	5
Crushed Glass	Aggregate Base	203	cubic yard	8
Crushed Glass	Pipe Foundation	333	Tons	14
6-Plastic:				
Recycled Plastic Offset Blocks	Guardrail Offset Blocks	3,137,474	each	130,728
Recycled Plastic Fence Posts (All Sizes)	Fence Posts	8,320	each/ea.	347
Recycled Plastic Pipe (All Types and Sizes)	Pipe	61,369	linear foot	2,557
Recycled Plastic Sign Supports	Sign Supports	22	each/ea.	1
Recycled Plastic Flexible Delineators	Flexible Delineators	4,838	each/ea.	202
Type III Barricades		2,091	Feet	87
7-Scrap Tires:				
Chipped Tires (Not used in Fill since 2003)	Embankment Fill	11,692,045	Tires	487,169
Chipped Tires	Lightweight Aggregate	50,739	Tires	2,114
Crumb Rubber	Crack Sealant	42,273	Tires	1,761
Crumb Rubber	Asphalt Mix Additive	156,442	Tires	6,518
Rubber Mulch	Mulch	3,603	Tires	150
Soil Amendment		2,000	Tires	83
Tire Sidewalls	Traffic Drum Ballast	81,567	Tires	3,399
Whole Tires	Retaining Wall	4,342	Tires	181
Chipped Tires	Sound Wall Panels	8,000	Tires	333
Tire Scraps on roadway	Taken to tire recycler	41	Ton	2
8-Roadside Environmental:				
Advanced Alkaline Sludge	Soil Amendment	495	Tons	21
Aged Leaf Mold & Yard Debris	Soil Amendment	2,370	Tons	99
Ammonium Sulfate Liquid	Fertilizer/Soil Amendment	420,948	Gallons	17,540

Bark Mulch	Soil Amendment		Tons	
Bioremediated Petroleum Affected Soils	Soil Amendment		Cubic Yards	
Cotton Gin Waste	Soil Amendment	7,130	Cubic Yards	297
Hog Waste Compost	Fertilizer/Soil Amendment	28	Cubic Yards	1
Hurricane Fran Mulch	Soil Amendment	200,040	Cubic Yards	8,335
Hydromulch	Mulch	89,160	Pounds	3,715
Lime-Stabilized Municipal Sludge	Soil Amendment		Tons	
Municipal Sludge	Soil Amendment	8,610	Tons	359
Poultry Litter	Fertilizer/Soil Amendment	428	Tons	18
Soil Derived from Demolition Debris	Soil Amendment	1,742	Tons	73
Compost Material	Compost Blanket	79,000	Cubic Yards	3,292
9-Other:				
Recycled shoulder and ditch material		40,000	cubic yards	1,667
Scrap metal		36,155	ton	1,506
Timber	Caps	150	linear foot	6
Timber	Flooring	1,250	linear foot	52
Timber Bridge Deck/Rail		4,620	Linear Feet	193
Wood Pallets*	Wood Pallets	400	Each	17
Steel Slag	Base Aggregate	224	Tons	9
Processed Silica	Embankment Fill	46,072	Cubic Yards	1,920
Recycled Polyester Resin	Weedmat	1,152	Square Yards	48
Recycled Bridge Items	Decking & Beams (wood)	1,500	Linear foot	63
Reclaimed Asphalt Pavement (RAP)	Patching	900	Tons	38
Used Unclassified Structure	Borrow	3,180	Cubic Yards	133
Mabey Bridge	Bridge	2	Each	0
Drainage Ditch Excavation	Borrow	200	Cubic Yards	8
Corrugated Metal Pipe	Metal Pipe	2,920	Linear foot	122
Erosion Control Stone 'B'	Slope Protection	340	Tons	14
White Roofing Rock	Mulch, Ditch Liner	1,690	cubic yards	70
Aluminum	Traffic Signal Cabinets	40	each	2
Cardboard	Cardboard Boxes	210	pound	9
10-Reused Materials:				
Aggregate Base Course	Aggregate Base Course	127,175	ton	5,299
Concrete Pipe	Concrete Pipe	15,227	linear foot	634
Guardrail	Guardrail	111,034	linear foot	4,626
Portable Concrete Barrier	Portable Concrete Barrier	60,264	each/ea.	2,511
Sign Posts	Sign Posts	57,958	each	2,415
Signal Heads	Signal Heads	1,200	each	50
Signs	Signs	45,447	each	1,894
Steel Beams	Steel Beams	724,163	linear foot	30,173
Signal Cabinets	Signal Cabinets	24	each	1
Fence Reset		79	linear foot	3
Rip Rap		66	ton	3
Silt Fence and Post	Silt Fence	2,550	each	106
Concrete Barrier		8,091	linear foot	337
Guardrail Offset Blocks		11,409	each	475
Signal Pole Replacement		17	each	1
Signal Repair		203	each	8
Steel Silt Fence Post	Silt Fence	100	each	4
Steel Beams	Steel Beams	718,282	pounds	29,928