North Carolina

SOLID WASTE MANAGEMENT

Annual Report

JULY 1, 1999 - JUNE 30, 2000

State of North Carolina
Michael F. Easley, Governor

Department of Environment
and Natural Resources
William G. Ross Jr., Secretary

Reduce--Reuse--Recycle

March 2001

Published by

Division of Waste Management

Dexter Matthews, Chief, Solid Waste Section
1646 Mail Service Center
Raleigh, NC 27699-1646
(919) 733-0692
http://wastenot.enr.state.nc.us

Division of Pollution Prevention and Environmental Assistance

Scott Mouw, Chief, Community & Business Assistance Section
1639 Mail Service Center
Raleigh, NC 27699-1639
(919) 715-6500
http://www.p2pays.org

Department of Environment and Natural Resources

1601 Mail Service Center
Raleigh, NC 27699-1601
(919) 733-4984
http://www.enr.state.nc.us

This document, required by state law, is an annual report on the status of solid waste management in North Carolina. Information for this document was gathered from solid waste facility reports submitted by operators of permitted facilities (both public and private), and from annual solid waste management reports submitted by local governments.

Special thanks

We gratefully acknowledge the assistance of staff from local governments and public and private waste management facilities in North Carolina.

250 copies of this public document were printed at a cost of $344.15 or $1.38 per copy.

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Solid Waste Management Annual Report
Fiscal Year 1999-2000

This Annual Report is required by the North Carolina General Assembly in G.S. 130A-309.06(c), the Solid Waste Management Act of 1989[1]. The information presented is from both local government annual reports and reports from permitted solid waste management facilities. These reports represent activities related to the management of solid waste for the period July 1, 1999 to June 30, 2000. This year's report also incorporates information from local government ten-year solid waste management plans, state agency data and voluntary reporting from out-of-state landfills that received North Carolina waste. In FY 99-00 all 100 counties, 421 municipalities and 200 solid waste facilities submitted annual reports.

FINDINGS OF THE ANNUAL REPORT

Based on the information and reports received, the Department presents the following findings:

- Waste disposal continues to increase rapidly.
- Most of the waste in North Carolina is generated from counties with high populations and strong economic growth.
- North Carolina continues to rely on out-of-state landfills for a portion of its disposal capacity.
- Solid waste landfills are difficult to site.
- Unlined landfills release contaminants into the groundwater and surface waters of the state long after they are closed.
- Natural disasters dramatically increase waste generation.
- Construction and demolition waste is a significant part of the waste stream.
- Illegal disposal continues to be a problem, especially by construction, demolition and land-clearing contractors.
- Recovery of some traditional recycling materials is declining.
- Market prices for most major recyclable commodities have been stable and do not indicate a lack of demand for collected materials.
- Recycling services and markets offered by the private sector suffer occasional setbacks but are expanding. This gives waste generators more options for diverting materials from disposal.
- Distinct differences exist between successful and unsuccessful local government reduction programs. Successful programs have a variety of components that need to be adopted by more local governments.
- Local government recycling efforts would be improved by increasing the number of new recycling processing facilities.
- Implementing public recycling education programs increases recovery.
- Source reduction and reuse are underutilized as waste management strategies.
- Disposal bans are effective and play a significant role in waste reduction. The statewide disposal ban on yard waste disposal has been particularly effective.

[1] This legislation was originally passed in 1989, but amended in 1991 and 1995.

- The scrap tire program, which is supported by an advance disposal fee, successfully handles a hard-to-manage portion of the waste stream, which results in decreases in illegal dumping. Legislative changes are needed to maintain the program's current status.
- Many areas of the state continue to lack basic services and programs to divert used or waste oil, oil filters, antifreeze and household hazardous waste from disposal.
- Buy-recycled programs are critical to strengthening recycling markets.

IMPLICATIONS FOR SOLID WASTE MANAGEMENT

North Carolina's projected population growth and increase in waste generation will undoubtedly impact environmental quality. Based on June 1999 figures from the Office of State Planning, the State's population is projected to grow from it's current 7.7 million to 8.2 million by the year 2005, and to 8.7 million by 2010. This growth is expected to be accompanied by economic expansion. This will place increased demands on North Carolina's physical and economic resources.

The issues surrounding solid waste management have grown more complex. Solutions to the problems are not easily identified and lack consensus. Consequently, the Department recommends that a solid waste study committee be established to examine the issues presented here.

Issues recommended for the study committee include:

- What are the most effective means to achieve greater waste reduction statewide?
- Can the state ensure adequate disposal capacity without providing disincentives to waste reduction and without long-term negative environmental or social impacts?
- How should the state approach its continuing illegal dumping problem?
- What are the best ways to manage and reduce problematic and large waste streams such as electronics, construction debris and organic wastes?
- What additional resources will be needed to achieve greater waste reduction? Where can those resources be found?

SOLID WASTE DISPOSAL

♦ FINDING: WASTE DISPOSAL CONTINUES TO INCREASE RAPIDLY.

The state measures waste reduction by comparing its per capita waste disposal rate in the base year (FY 91-92) to its per capita rate in the current year. This comparison indicates whether or not the state is increasing or decreasing its waste disposed on a per capita basis.

Formula: Total Tons Disposed ÷ Population = Per Capita Disposal Rate

Historic Solid Waste Disposal Rate

Fiscal Years	Tons Disposed	Population	Per Capita Disposal Rate	Percent Waste Reduction from Base Year 1991-92
1999-2000	(adjusted) 9,889,180	7,647,934	1.29	-20 %
1999-2000	10,218,962	7,647,934	1.34	-22 %
1998-1999	9,211,477	7,544,360	1.22	-13 %
1997-1998	8,493,921	7.431.161	1.15	-6 %
1996-1997	(adjusted) 8,041,734	7,323,085	1.10	-2 %
1996-1997	8,741,733	7,323,085	1.20	-11 %
1995-1996	7,722,794	7,194,238	1.07	0 %
1994-1995	7,624,144	7,064,470	1.08	0 %
1993-1994	7,038,505	6,949,095	1.01	6 %
1992-1993	6,890,818	6,836,977	1.01	6 %
1991-1992	(managed) *7,257,428*	*6,739,959*	(Base Year Rate) *1.08*	
1991-1992	6,822,890	6,739,959	1.01	
1990-1991	7,161,455	6,648,689	1.07	

It is clear from the chart that waste disposal has increased both in absolute amounts and on a per capita basis. This is true even when storm and disaster-related debris are excluded from the calculations.

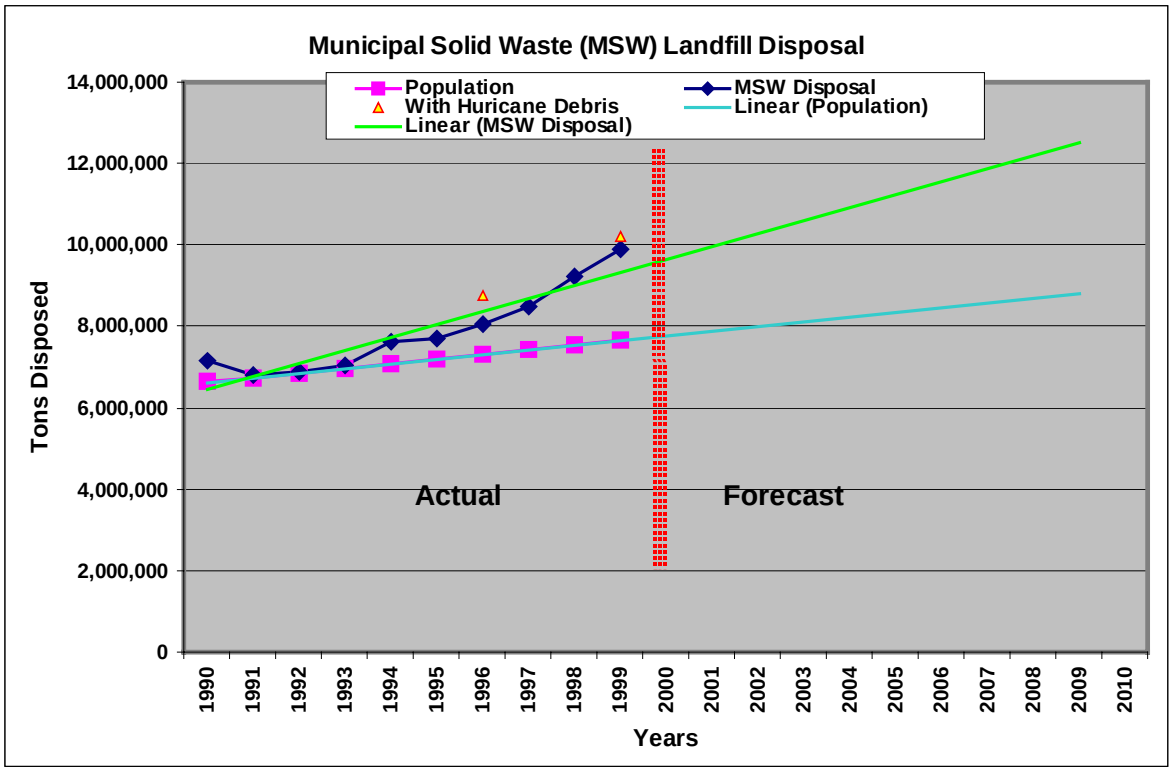
Solid waste was first reported on a statewide basis in 1990-1991. In the early 1990's the state made slight reductions in per capita waste. Several factors came together to cause this reduction. The initiation of tipping fees served as incentive for waste that did not require landfill disposal to be managed by other options. Local governments initiated recycling programs in response to a disposal crisis and state mandates. These programs began recovering materials that were relatively easy to capture and primarily came from residential waste. Also, during the early 1990's, the economy was weak and there was strong public and private interest in finding new ways to reduce waste.

In recent years disposal has increased dramatically. It is obvious that the State will not reach its 1991 goal of a 40% per capita decrease by 2001. In fact, 2001's disposal rate may be close to a 40% *increase* when compared to 1991.

The increase in disposal of the past several years is due to several factors. These include an increase in the use of disposable products, increased packaging, and the entry of new materials into the waste stream, particularly computers and other electronics. Industrial and commercial by-product waste has also increased, and the high level of economic activity has contributed to the growth in waste.

Tipping fees at landfills have remained relatively steady and affordable. There has not been an increase in waste diversion activity. However, the growth in recycling efforts seen in the early 90's stagnated and recycling programs have not expanded.

It is important to note that despite these efforts, the single most dramatic impact on the growth of waste disposed in North Carolina is the increase of construction and demolition debris.

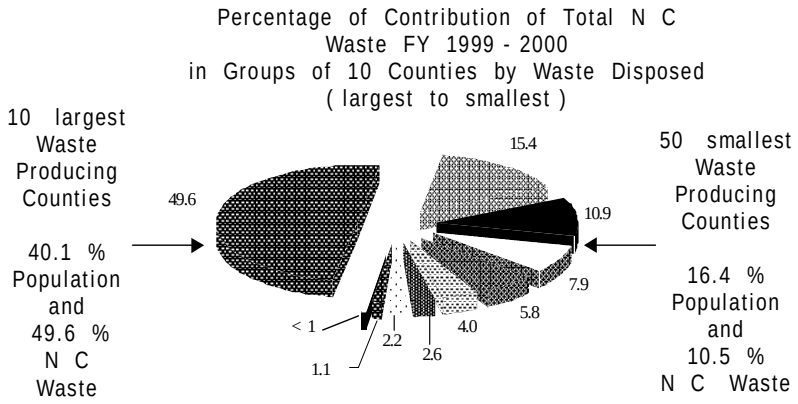


When combined with absolute population growth the continued increase in disposal rates could mean that North Carolina will have to dispose of nearly 13 million tons (or nearly a ton and a half of waste for every citizen) by 2010. This forecast does not include the impact of natural disasters, such as a hurricane, on the projected waste stream.

- **FINDING: MOST OF THE WASTE IN NORTH CAROLINA IS GENERATED FROM COUNTIES WITH HIGH POPULATIONS AND STRONG ECONOMIC GROWTH.**

In FY 99-00, 10 North Carolina counties with the highest waste disposal (49.6 % of the state's waste) held 40.1% of the state's population. This percentage is down slightly from last year where 33% of the population accounted for 51% of the waste disposal. Hurricanes Dennis and Floyd may have contributed to the decrease as a portion of the state total noted in these 10 counties. However, hurricane-related waste dramatically increased waste disposal in many rural counties in the eastern part of state. For example, Pitt County replaced Iredell

County in the top 10 for FY 99-00. The increase in its waste disposal was primarily due to debris from Hurricane Floyd.



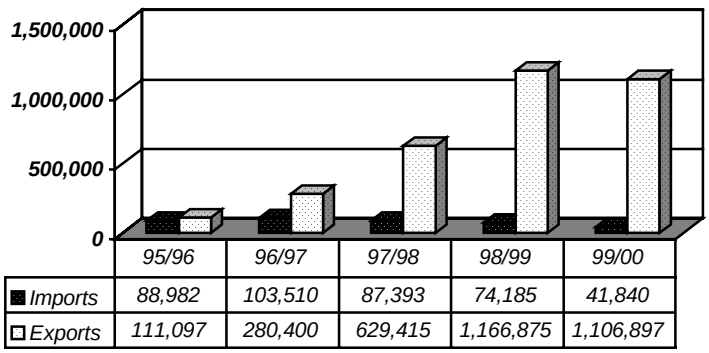
The per capita disposal rate was 1.65 for these top ten counties, approximately 30% higher than the` state rate. Conversely, half of North Carolina counties, those with lowest waste disposal, had 16.4% of the state's population and produced 10.5% of the waste landfilled during the same fiscal year. Nine of the top ten counties with the highest waste disposal were also nine of the top ten counties with the highest populations. Pitt County, as previously mentioned, was the exception to this finding and was tenth in terms of waste disposal the past fiscal year.

Ten Largest Waste Producing Counties FY 99-00

County	Tons Disposed FY 99-00	Percentage by County of Total NC Disposed	Cumulative Percentages
MECKLENBURG	1,282,196	12.55 %	12.5 %
WAKE	958,831	9.38 %	21.9 %
GUILFORD	756,754	7.41 %	29.3 %
FORSYTH	422,827	4.14 %	33.5 %
CUMBERLAND	389,286	3.81 %	37.3 %
NEW HANOVER	275,930	2.70 %	40.0 %
DURHAM	267,299	2.62 %	42.6 %
GASTON	260,383	2.55 %	45.1 %
BUNCOMBE	247,300	2.42 %	47.6 %
PITT	209,768	2.05 %	49.6 %

- **FINDING: NORTH CAROLINA CONTINUES TO RELY ON OUT-OF-STATE LANDFILLS FOR A PORTION OF ITS DISPOSAL CAPACITY.**

Solid Waste Imports/Exports



North Carolina has always been a net exporter of solid waste. In recent years, North Carolina has shifted to exporting significantly more than it imports. North Carolina exported 11% of the total waste disposed in FY 99-00. The chart to the right shows total tons imported and exported from FY 95-96 through FY 99-00. The state exported 1,106,897 tons of waste for FY 99-00, slightly less than the FY 98-99 total of 1,166,875 tons. Imports have decreased as well. In FY 98-99 74,185 tons were imported, compared to 41,840

tons during the most recent fiscal year. Exports are tracked by transfer station reports within North Carolina and voluntary reports from out-of-state facilities. Waste imports are tracked through annual reports submitted by North Carolina solid waste facilities.

The movement of waste across state lines has become a national issue. Several states currently classified as net importers have made efforts to restrict interstate movement of waste. New York City's plan to close Fresh Kills Island landfill will increase the amount of exported waste. This is expected to stir a more detailed review of interstate waste movement in the nation.

Imports and Exports from FY 95-96 through FY 99-00

Fiscal Year	Total Tons Exported	Receiving Facility	Distribution of Tons Received	Total Tons Imported	Receiving Facility	Distribution of Tons Received
1999-2000	**1,106,897**	Bristol Landfill, VA	14,001	**41,840**	Addington Upper Piedmont Regional Landfill, Person Co.	32,976 (VA)
		Brunswick Landfill, VA	432,645		Gaston Co. Landfill	640 (SC)
		Iris Glenn Landfill, TN	43,680		GDS Recycling Services, Catawba Co.	377 (SC)
		Lee Co., SC	148,412		Griffin Farms C&D Landfill, Union Co.	565 (SC)
		Palmetto Landfill, SC	463,587		Mecklenburg Co. Landfill	15 (SC)
		Pinebluff Landfill, GA	4,572		Piedmont Sanitary Landfill, Forsyth Co.	7,158 (VA)
					Uwharrie Environmental MRF, Montgomery Co.	101 (SC)
					Uwharrie Environmental Landfill, Montgomery Co.	8(SC)
1998-1999	**1,166,875**	Bristol Landfill, VA	14,766	**74,185**	Addington Upper Piedmont Regional Landfill, Person Co.	53,798 (VA)
		Brunswick Landfill, VA	382,479		Gaston Co. Landfill	418 (SC)
		Iris Glenn Landfill, TN	41,612		Griffin Farms C&D, Union Co.	594 (SC)
		Lee Co., SC	277,246		New Hanover Waste to Energy	57 (MD)
		Palmetto Landfill, SC	446,858		Piedmont Sanitary LF, Forsyth Co.	19,251 (VA)
		Pinebluff Landfill, GA	3,914		Uwharrie Environmental MRF, Montgomery Co	67 (SC)
1997-1998	**629,415**	Palmetto Landfill, SC	422,248	**87,393**	Piedmont Sanitary Landfill, Forsyth Co.	80,570 (VA)
		Brunswick Landfill, VA	190,890		Addington Upper Piedmont Regional Landfill, Person Co.	6,194 (VA)
		Lee Co. Landfill, SC	16,277		Union Co. Landfill	629 (SC)
1996-1997	**280,400**	Palmetto Landfill, SC	280,400	**103,510**	Piedmont Sanitary Landfill, Forsyth County	103,120 (VA)
					Union County Landfill	390 (SC)
1995-1996	**111,097**	Palmetto Landfill, SC	111,097	**88,982**	Piedmont Sanitary Landfill, Forsyth County	88,982 (VA)

♦ FINDING: SOLID WASTE LANDFILLS ARE DIFFICULT TO SITE.

Several recent efforts to gain local government approval for siting a new landfill or expanding an existing landfill in North Carolina have not been successful. Additionally, each of the recent approvals for new municipal solid waste landfills in North Carolina has been challenged under various legal procedures. In just the past six months, there have been well-publicized rejections of various landfill proposals in Duplin, Halifax and Chatham Counties. Additionally, the recent permit decisions in the City of Albemarle, Mecklenburg, Wake, Greene and Anson Counties have all encountered some type of legal challenge.

A landfill is an essential component of a comprehensive program that safely and economically manages solid waste. For many years North Carolina had a system of county owned and operated landfills. These primarily served the county in which they were located. Currently, most of North Carolina's municipal solid waste is landfilled in regional landfills. These landfills are either owned by a local government, a private waste management company, or a combination of the two and serve a wide geographic region.

The existing requirements for gaining a state permit to a landfill in North Carolina include certification to the state that the local government that has jurisdiction over the location gives its approval. This approval involves several procedural steps and is a public decision. The state in its permit review must consider the local government approval process and conduct additional review to meet the U.S. EPA's environmental justice

policies. These considerations are significant portions of the legal challenges to the permits that have recently been issued.
The public response to landfill proposals has been intensely negative, especially from the people who would neighbor proposed landfill sites. This response has been consistent, regardless of whether the landfill in question is regional or exclusive to the county where it is located. Local elected officials cite negative public response as a primary reason for not giving local government approval for a proposed landfill.

- **FINDING: UNLINED LANDFILLS RELEASE CONTAMINANTS INTO THE GROUNDWATER AND SURFACE WATERS OF THE STATE LONG AFTER THEY ARE CLOSED.**

Recent landfill regulations have improved the management and monitoring of existing landfills. Unfortunately, the last generation of unlined sanitary landfills are known to release varying amounts of chemicals in the form of leachate. Leachate is any liquid, or suspended components in liquid, that has percolated through or drained from solid waste. Leachate has the potential to contaminate local and regional groundwater and surface water. Leachate often contains a wide variety of potentially toxic chemicals. These chemicals represent a potential threat to health of those who live or otherwise use properties located near the old landfills. Leachate from municipal solid waste can contaminate groundwater and make it unusable or undesirable due to tastes and odors, reduced service life of appliances (e.g., dishwashers, hot water heaters, plumbing), fabric (clothes), etc. Because most landfill facilities were located in relatively remote areas near groundwater discharge features, the potential threat has been minimized.

As a result of the initiation of U. S. EPA RCRA 40 CFR Part 258 Solid Waste Disposal Facility Criteria (Subtitle D), North Carolina changed its Solid Waste Management Rules in October 1993. The result was significant changes in groundwater monitoring programs for active municipal solid waste landfill units. These changes include increased sampling frequency, routine detection monitoring for a more extensive constituent list, (including volatile organic analysis), statistical analysis of water quality data, and an automatic elevation to Phase II assessment monitoring if significant increases are reported. The rules also include formalized procedures for groundwater assessments and corrective action, and at least 30 years of post-closure monitoring.

The statewide network of water quality monitoring wells required at permitted landfills now numbers over 1,000 wells. Since 1989, all permitted municipal solid waste landfills in North Carolina have been required to monitor groundwater quality. As new facilities are permitted, and additional water quality assessments and investigations are initiated at contaminated sites, the network of wells will expand.

Groundwater detection monitoring systems are designed to provide an early warning of groundwater contamination. They allow water quality problems to be assessed and corrected before there is a real threat to public health. Monitoring systems at over 90 percent of the unlined landfills have shown evidence of some degradation of groundwater quality. The Solid Waste Section's Environmental Compliance Unit is responsible for implementing the Solid Waste Management Rules that prescribe water quality monitoring, assessment and corrective action for solid waste management facilities. The Solid Waste Section Environmental Monitoring program is designed to accomplish the following:

- Monitor the effect of the disposal unit on the area's ground and surface water quality.
- Evaluate the effectiveness of monitoring systems designed to detect contaminants leaving the site.
- Facilitate and evaluate groundwater assessment programs at facilities where contamination has been detected.
- Prioritize facilities for remedial action based on data and monitor remedial activities.
- Evaluate methane monitoring data and the appropriateness of methane corrective action plans.

Approximately 218 North Carolina landfills submit water quality data on a regular basis to the Solid Waste Section. These landfills include construction and demolition (C&D), land clearing and inert debris (LCID), municipal solid waste (MSW), industrial solid waste (ISW) landfills, tire monofills and illegal dump sites. Eleven of the sites under assessment or corrective action at end of 1999 have mitigated their groundwater problems[2] during the year 2000 to the extent that they are no longer priority targets for assessment or corrective action. Approximately 74 of the 218 sites are currently conducting some phase of water quality assessment and/or corrective action that exceeds detection monitoring.

Corrective action can, and likely will, involve multi-pronged approaches. Best case scenarios may only call for landfill cap improvements. Other corrective measure scenarios may involve acquiring additional buffer to control land use, supplying public water to the surrounding area, voluntary deed restrictions of the contaminated property, and active remediation. The highest priority is given to the landfills that have documented water quality impacts to potable wells. This ranking ensures that appropriate and adequate steps are taken to eliminate potential health threats. The following corrective measures/controls have been, or are being implemented in response to each incident of known contamination in private drinking water wells.

- Require quarterly sampling and submission of data to the State Toxicologist for review.
- Provide public water to the effected residents.
- Acquire property for future controls.
- Abandon and replace contaminated wells with deeper, clean wells.

NATURAL DISASTERS

- **FINDING: NATURAL DISASTERS DRAMATICALLY INCREASE WASTE GENERATION.**

During FY 99-00, North Carolina experienced two major hurricanes. Hurricane Dennis struck six eastern counties on August 29, 1999. Hurricane Floyd devastated the North Carolina coast and inland counties on September 15, 1999. After Hurricane Floyd, sixty-six counties were designated a disaster area by presidential declaration. These natural disasters substantially increased the quantity of waste requiring management in FY 99-00. Hurricane Dennis increased disposal among coastal counties; Hurricane Floyd increased disposal in the eastern half of the state.

Unlike the analysis of Hurricane Fran in FY 96-97, separate disposal figures were tracked in counties affected by Hurricanes Dennis and Floyd. Instead of using projections for hurricane-related waste, as was done in FY 96-97, the Division attempted to gain actual figures for FY 99-00. Reports received from designated disaster counties show approximately 330,000 tons of municipal solid waste and construction and demolition waste can be attributed to Hurricanes Dennis and Floyd. Vegetative organic debris that goes into land clearing and inert debris landfills was not reported. Organic debris handled by Federal Emergency Management Authority (FEMA) in some counties was also unreported.

Organics may include pallets, crates and many other materials but it is primarily yard-type debris. In FY 96-97, after Hurricane Fran, local governments increased their organic recycling by approximately 141,827 tons. This debris was composted and mulched. After Fran, yard waste increased substantially, then dropped to normal

[2] This includes implementing plans to acquire additional permitted buffer and/or provide public water supplies to potentially impacted groundwater users while monitoring continues.

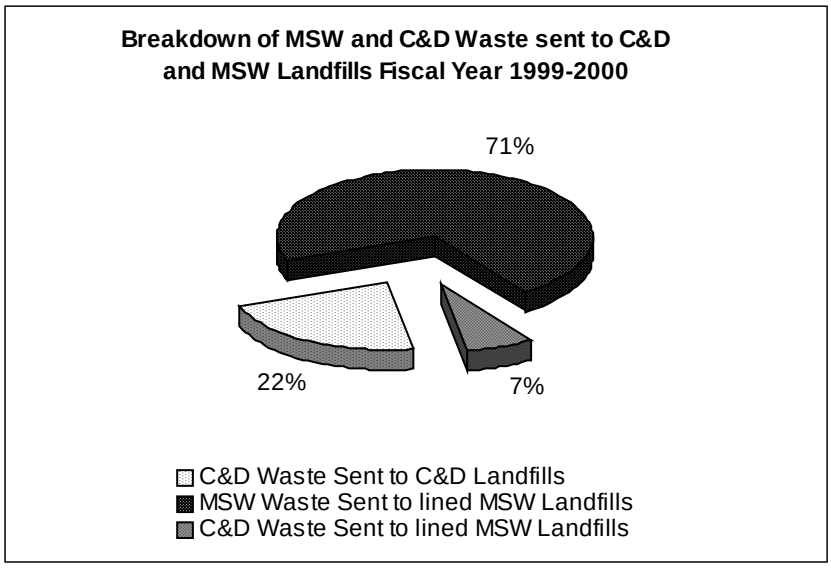
growth levels the following year. The recovery of organics, particularly yard debris, as a result of Hurricanes Dennis and Floyd was 113,724 tons.

CONSTRUCTION AND DEMOLITION (C&D) WASTE

- **FINDING: CONSTRUCTION AND DEMOLITION WASTE IS A SIGNIFICANT PART OF THE WASTE STREAM.**

"Construction" and "demolition" when used in conjunction with "waste" or "debris" means solid waste resulting solely from construction, remodeling, repair, or demolition operations on pavement, buildings, or other structures, but does not include inert debris, land-clearing debris or yard debris.[3]

The transition to lined municipal solid waste landfills by January 1998 caused the number of permitted construction and demolition landfills to rise. It also enabled C&D waste sent to permitted facilities to be tracked separately. Although C&D waste can still be combined with municipal solid waste (MSW) and transported to a lined landfill, it costs more to do so.



In the latest statewide market assessment conducted in 1998, C&D waste accounted for approximately 29% of the total waste stream. In FY 99-00, a total of 2,056,369 tons of C&D waste was sent to both stand alone and C&D landfills placed on top of old municipal landfills. The tonnage sent to C&D landfills represents 22% of the total North Carolina (MSW + C&D) waste disposed. Based on the 1998 market assessment, it is projected that approximately 650,000 tons, or 7% of C&D waste, was sent to lined municipal solid waste landfills. In FY 99-00, the amount of C&D waste disposed in C&D landfills showed 872,534 tons sent to C&D landfills located on old landfills and 1,175,963 tons sent to stand-alone C&D units.

Besides the number of natural disasters that occurred across North Carolina this past fiscal year, one key factor influencing this C&D waste increase was the continuing economic and building growth. Because of the increase in C&D waste, C&D recycling has become an important, though not fully utilized solid waste management option. Four construction and demolition material recovery facilities are now in operation. Local government reports indicate 61,325 total tons of C&D recovery. The total tons was made up of 59,598 C&D tons and 1,727 tons of "other" materials, such as vinyl siding.

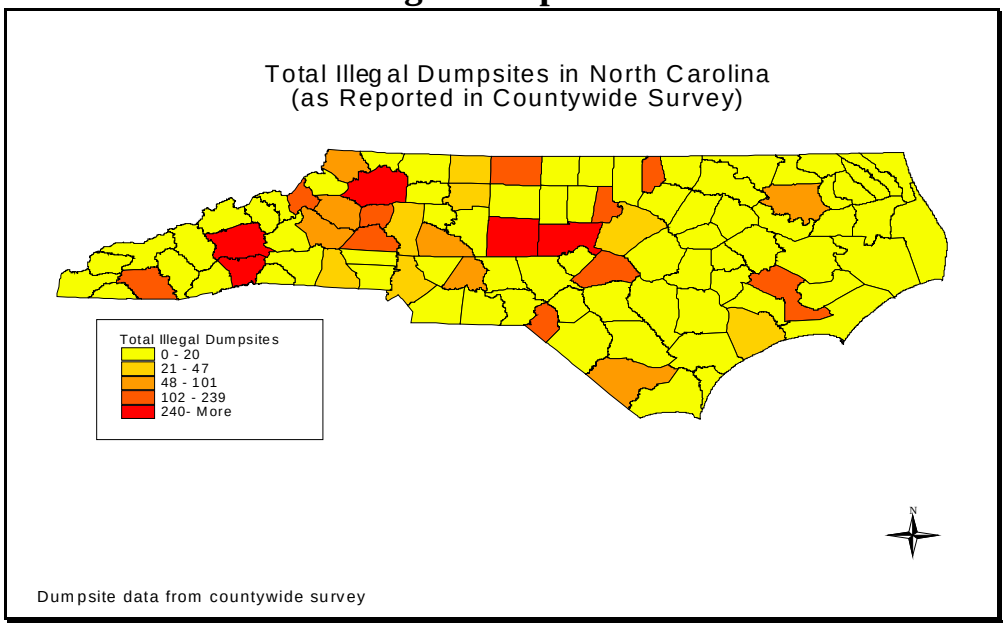
- **ILLEGAL DISPOSAL CONTINUES TO BE A PROBLEM, ESPECIALLY BY CONSTRUCTION, DEMOLITION AND LAND-CLEARING CONTRACTORS.**

Illegal dumping in North Carolina haunts ravines, abandoned and unsecured lots, farm land, private and public property, country dirt roads and dead-end roads. The vast majority of illegal dumpsites, 76 percent, were established by construction, demolition or land-clearing contractors. Illegal dumping touches work, lives and the environment in numerous ways. It affects human and environmental health, aesthetics, tourism, property values and development. Cleanup efforts are extensive and costly. At a minimum, 960 open illegal dumps exist

[3] GS 130A-290

within 97 counties. Roughly 3,551 closed[4] illegal dumpsites linger within 90 counties. On average, 45 open and closed dumpsites exist per county[5]. The following chart demonstrates these figures.

Estimated Number of Illegal Dumpsites Within North Carolina



Because illegal dumping is a local problem, it is more effectively and efficiently handled at the local level. Local enforcement of illegal dumping laws is necessary to deter current and future violators. North Carolina counties have been granted the authority in the General Statutes to draft ordinances to prevent and sanction illegal dumpers. The statutes authorize both counties and municipalities to respond to the improper disposal of solid waste. Many local governments either have an illegal dumping prevention program (of some degree or another) or they have the basic framework for such a program.

However, a number of counties do not have essential illegal dumping prevention and enforcement programs in place. Despite the ability for counties to construct and enforce local illegal dumping ordinances, 26 counties still do not have a specific ordinance that addresses illegal dumping. Of the 74 counties that do have an illegal dumping ordinance, only 54 offer the ability to prosecute violators criminally[6]. A survey of all counties showed that one-half without an illegal dumping ordinance feel that they have a moderate to severe illegal dumping problem.

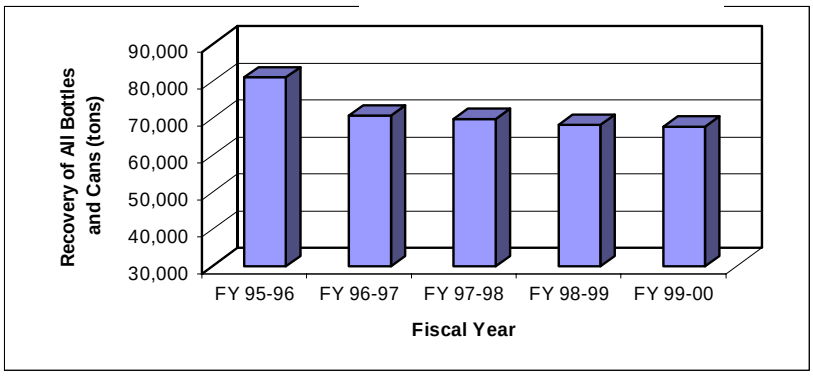
Many local governments claim they do not have the resources (time, funds, staff, equipment), dedication, commitment, and/or the desire to develop an illegal dumping prevention program. But many other communities have recognized the problem and acted upon it.

LOCAL GOVERNMENT PROGRAMS

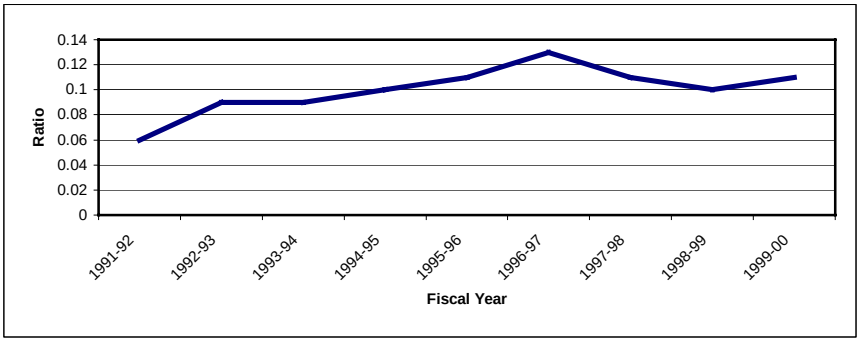
- **FINDING: RECOVERY OF SOME TRADITIONAL RECYCLING MATERIALS IS DECLINING.**

[4] A closed dumpsite is one in which acceptable material has been buried in place and recorded with the Register of Deeds.
[5] This is most likely an underestimate of what truly exists within each county. Many counties do not actively search for illegal dumpsites, due to a lack of resources, time, desire, and/or an environmental enforcement officer.
[6] (this ability is specifically authorized within their local ordinance and was not meant to include General Statute §14-399 provisions, the Litter Law)

The overall local government recovery of materials in North Carolina increased by almost 14% in FY 99-00. The increase was primarily due to increased organics recycling, but traditional recyclable materials such as glass/plastic bottles and aluminum/steel cans continued to decline. The recovery of traditional recyclables has dropped annually since FY 95-96 despite a 6.3% increase in population over the same period. Despite changes in packaging that have resulted in more plastic and less aluminum and glass, this trend suggests participation in local recycling programs is declining and that the programs are lo[illegible] Most paper commodities (e.g., office paper, old newspaper, etc.) have experienced negative or no growth since FY 95-96. The chart highlights the decrease in glass, plastic bottles and cans recovered by local governments since FY 95-96. The scale has been increased to make the trend more visible.



The recovery of materials by local governments outpaced both growths in population and disposal, primarily because yard waste recovery increased. This strong growth increased the recovery ratio to 0.11. The following figure depicts the ratio in growth and recycling is outpacing that of disposal. This years increase is due to the large increase in organics recovery following Hurricane Floyd. Without significant changes or improvements to local government programs, the ratio will likely decrease next year.



Growth Rate of Recycling vs. Disposal FY 91-92 to FY 99-00

The following table presents tonnages of recyclable materials collected by local governments from FY 92-93 through FY 99-00. Fiscal Year 99-00 data indicate a 13.86 % increase in recovery from the previous year. The majority of the increase is due to a 113,000 ton increase in organics recovery, probably attributable to Hurricane Floyd. A similar increase in organics recovery was experienced after Hurricane Fran. The year following Hurricane Fran saw organics recovery drop to a normal level.

Local Government Diversion of Materials from Disposal FY 92-93 to FY 99-00

Material	FY 92-93	FY 93-94	FY 94-95	FY 95-96	FY 96-97	FY 97-98	FY 98-99	FY 99-00
Total Paper	151,676	164,806	185,270	212,577	228,025	216,121	233,339	241,859
Total Glass	32,611	37,537	38,088	49,601	44,978	43,449	41,623	41,826
Total Plastics	9,264	9,797	12,339	16,253	13,699	14,399	14,835	14,474
Total Metal*	44,302	51,468	59,483	65,977	77,252	81,262	77,564	86,480
Total Organics**	378,516	350,142	495,034	498,583	640,410	504,554	525,033	638,757
Special Wastes***	1,715	2,106	2,466	3,212	3,230	3,527	3,817	4,709
C & D Debris	N/A	N/A	N/A	N/A	N/A	N/A	N/A	59,598
Other	4,272	16,387	5,987	333	12,762	35,977	63,794	5,329
Totals	**622,356**	**632,243**	**798,667**	**846,536**	**1,020,356**	**899,290**	**960,005**	**1,093,032**

Per Capita Recovery (lbs.)	**182.17**	**182.00**	**226.19**	**235.59**	**279.19**	**242.03**	**254.40**	**285.61**
Recovery Ratio (Recycling:Disposal)	**0.09**	**0.09**	**0.10**	**0.11**	**0.13**	**0.11**	**0.10**	**0.11**

* Includes white goods, aluminum cans, steel cans, and other metals.
** Includes yard waste, pallets, and wood waste.
*** Includes used oil, oil filters, antifreeze, and batteries.

Two commodities, metals and corrugated cardboard, drove the remainder of the increase. The increase in metals during FY 99-00 came from an increase in the tonnage of white goods recovered by local governments. Although most paper commodities experienced recovery decreases in FY 99-00, old corrugated cardboard experienced a large increase, which boosted the total paper recovered by local governments. Several factors accounted for in the increase in old corrugated cardboard. Two counties that implemented disposal bans for corrugated cardboard experienced dramatic increases in recovery. Improved reporting by several communities also contributed to the increase, as did strong corrugated cardboard markets in the latter part of FY 99-00.

An analysis of the top 10 waste generating counties was conducted to determine effectiveness of local government recycling programs. It seems logical that the larger counties would contribute more to recycling than smaller, less populated counties, but this was not necessarily the case.

As table below demonstrates, only four of the top ten counties contributed more to overall recycling than to waste disposal. Mecklenburg County topped the list by contributing more than 20% of the tonnage recovered by local governments. This disproportionate contribution was due to the almost 54,000 tons of construction and demolition waste recovered by the County. These numbers demonstrate the power of construction and demolition debris recycling programs. Durham, Buncombe and Pitt counties also recycled more than they disposed.

At the other end of the spectrum, Cumberland County and Gaston County provided limited recycling efforts. Despite disposing of more than six percent of North Carolina's waste, these counties account for about one and one-half percent of North Carolina's recovery.

In all, the top ten waste producing counties accounted for more than 53% of all local government recycling. However, it is clear that some counties and their municipalities are contributing to the increase in the state's disposal burden.

Disposal vs. Recycling in Ten Largest Waste Producing Counties FY 99-00

County	Disposal	Recycling	Contribution to Disposal	Contribution to Recycling*
Mecklenburg	1,282,196	97,586	12.55 %	20.39 %
Wake	958,832	32,602	9.38 %	6.81 %
Guilford	756,755	29,392	7.41 %	6.14 %
Forsyth	422,828	15,436	4.14 %	3.22 %
Cumberland	389,286	2,790	3.81 %	0.58 %
New Hanover	275,930	10,298	2.70 %	2.15 %
Durham	267,300	17,687	2.62 %	3.69 %
Gaston	260,383	4,852	2.55 %	1.01 %
Buncombe	247,300	17,909	2.42 %	3.74 %
Pitt	209,768	28,282	2.05 %	5.91 %

* Includes recovery from county and municipal sources. Yard waste and special waste (e.g., used oil) recycling were excluded.

- **FINDING: MARKET PRICES FOR MOST MAJOR RECYCLABLE COMMODITIES HAVE BEEN STABLE AND DO NOT INDICATE A LACK OF DEMAND FOR COLLECTED MATERIALS.**

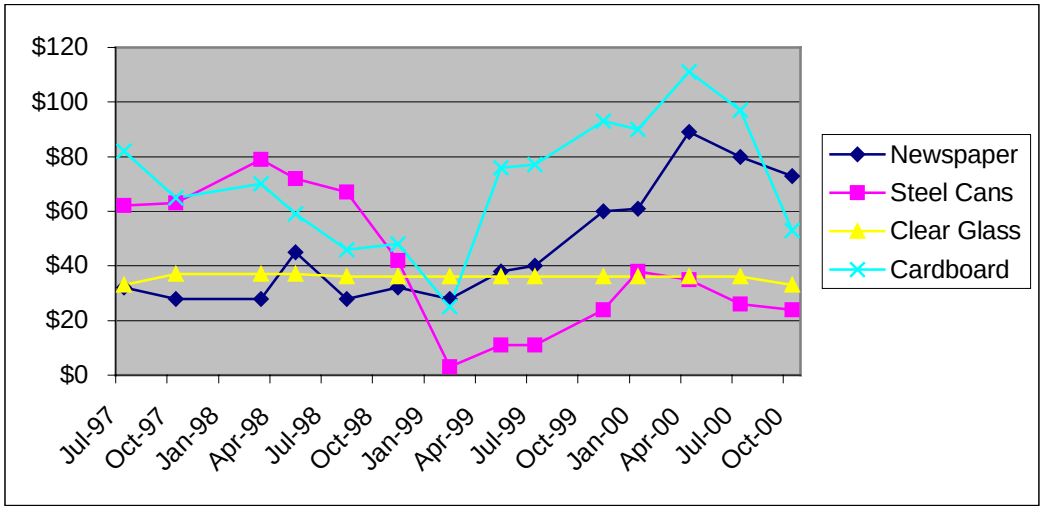
The health of recycling markets for traditional commodities is reflected in the prices received for material. As depicted in the table below, FY 99-00 was generally a good year for recycling prices. Prices for many paper products, cardboard in particular, remained high throughout the year. Although prices for newsprint remained strong after the end of the fiscal year, prices for corrugated took a considerable tumble. Aluminum and plastics saw a general rise during FY 99-00, but steel cans remained depressed. Glass was, as always, very steady in pricing. However, the closure of the processing facility at Owens-Brockway in Winston-Salem near year's end made the marketing of glass by communities in western North Carolina more difficult.

Recycling Prices By Material- Fall 1999 through Summer 2000

Materials	Fall 1999	Winter 1999-00	Spring 2000	Summer 2000
Aluminum cans, lbs., loose	$.50	$.54	$.56	$.51
Steel cans, gross tons, baled	$24	$38	$35	$26
PETE, lbs., baled	$.06	$.07	$.09	$.12
HDPE, lbs., baled	$.11	$.11	$.12	$.15
Newsprint, ton, baled	$60	$61	$89	$80
Corrugated, ton, baled	$93	$90	$113	$97
Sorted white paper, ton, baled	$143	$237	$212	$208
Mixed paper, ton, baled	$28	$35	$50	$50
Clear glass, ton	$36	$36	$36	$36
Brown glass, ton	$25	$25	$25	$25
Green glass, ton	$6	$6	$6	$6

The Division of Pollution Prevention and Environmental Assistance surveyed a mix of cities and counties at the beginning of FY 99-00 to test local government interaction with recycling markets. Survey results revealed some acute regional problems, but in general found a healthy relationship between North Carolina recycling programs and markets. Ninety-three percent of respondents said they felt that markets allowed them to continue and strengthen their recycling programs. Over two-thirds of the communities surveyed indicated that markets would probably allow them to add materials to existing programs. Overall, the survey indicated the importance of building good long-term relationships with markets as a way to stabilize recycling programs and give them room to expand. Remote, rural areas of the state face the most difficulties in marketing some materials.

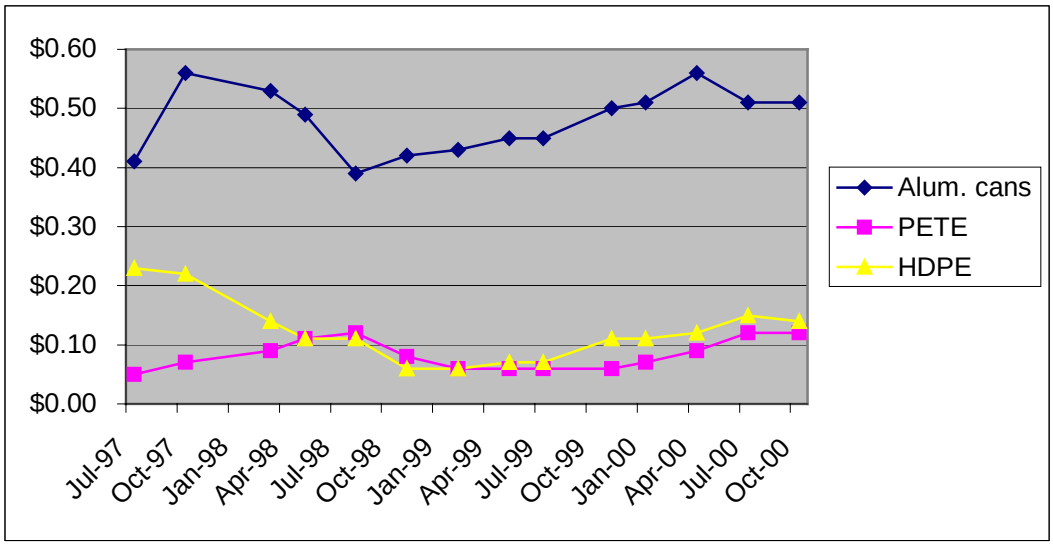
The following two figures show the price history for certain commodities in North Carolina. The data were tracked by the North Carolina Recycling Business Assistance Center in a quarterly survey of processors in eastern, central, and western North Carolina.



Quarterly Price Per Ton of Recyclable Materials

1997-2000

These charts show the volatility of prices. They also show that prices over the past three and one-half years have never gone negative for any commodity. Positive prices throughout indicate overall market demand for the commodities, although factors ranging from global economics to competition with virgin materials cause volatility.



Quarterly Price Per Ton of Recyclable Materials

1997-2000

- **FINDING: RECYCLING SERVICES AND MARKETS OFFERED BY THE PRIVATE SECTOR SUFFER OCCASIONAL SETBACKS BUT ARE EXPANDING. THIS GIVES WASTE GENERATORS MORE OPTIONS FOR DIVERTING MATERIALS FROM DISPOSAL.**

The recycling of construction and demolition wastes proved a challenging issue in FY 99-00. A large central processing center in Mecklenburg County struggled with operational and market difficulties and eventually shut down. A similar facility in Havelock also experienced many problems. At the same time, however, processors of specific construction waste streams experienced growth. These new endeavors included wallboard processors in Union and Chatham Counties and a carpet-recycling firm in Charlotte and Raleigh. As FY 00-01 began, many looked to the opening of a private centralized processor in Raleigh to demonstrate a properly capitalized and well planned C&D recycling facility. Private C&D recyclers also began or continued operations in northeastern N.C., and a number of Habitat for Humanity operations expanded sales in their construction and demolition materials reuse businesses.

The numbers of jobs in the recycling sector and the numbers of listings in North Carolina Recycling Markets Directory are two indicators of the expansion of private sector recycling markets. A DPPEA study conducted in FY 99-00 documented a 12% increase in private sector recycling employment over the past five years. At the same time, the number of businesses listed in the North Carolina Recycling Markets Directory increased 29% between 1989 and 2000.

- **FINDING: DISTINCT DIFFERENCES EXIST BETWEEN SUCCESSFUL AND UNSUCCESSFUL LOCAL GOVERNMENT REDUCTION PROGRAMS. SUCCESSFUL PROGRAMS HAVE A VARIETY OF COMPONENTS THAT NEED TO BE ADOPTED BY MORE LOCAL GOVERNMENTS.**

Since the early-1990's, local governments have provided a consistent level of recycling services. These programs have provided most North Carolina citizens with dependable access to recycling opportunities.

County waste reduction programs have come a long way since the early 1990's. Most have been transformed from "green box" systems to staffed convenience centers. This transformation has greatly improved the image of county solid waste management programs and cuts down on illegal disposal. Most counties, however, still have more to do to operate effective waste reduction programs. The table below provides a checklist of twenty programs that can be part of a waste reduction program. The list is not conclusive, but lists the most common options tracked in the annual reports. The average county waste reduction program is likely to only use eight options or 40%, of the 20 most common. The most successful county waste reduction programs generally use 14 or more of these programs.

Average County Waste Reduction Programs

Program	Yes/No	Program	Yes/No
In-House Reduction	**Yes**	Local Disposal Ban	No
Backyard Composting	No	Pay As You Throw	No
Source Reduction	No	Oil Recycling	**Yes**
Reuse	No	Oil Filter Recycling	No
Recycling Program	**Yes**	Antifreeze Recycling	No
Curbside	No	Battery Recycling	**Yes**
Drop-off	**Yes**	HHW Collection	No
Other Program	**Yes**	Mulching/Composting	**Yes**
Education Program	**Yes**	C&D Reuse/Recycling	No

Municipal waste reduction programs in North Carolina are like county programs, in that they only provide basic recycling services. Although municipalities may rely on counties to provide some of their services, (such as household hazardous waste collection), there are many programs not being utilized. For example, of the 297 municipalities with recycling programs less than 10 % offer backyard composting.

County and municipal waste reduction programs vary widely. Fifty-seven percent of county drop-off recycling programs are operated by county employees. On the other hand, seventy-seven percent of municipal programs are much more likely to use private service providers.

Many smaller municipalities use private service providers because they lack the capital needed to operate their own recycling programs. However, many of these local governments appear to believe that once a recycling contract is in-place they have finished the job. A comparison of the recovery rates between public-run and contracted recycling programs found that publicly operated systems recover approximately 83 pounds more per household. Municipal governments that contract for recycling services need to take a more active role in waste

reduction. They could significantly increase their recovery rates by the addition of new low cost programs such as junk mail reduction or backyard composting.

Counties continued to use drop-off centers as their primary recovery method. Ninety-three counties utilized drop-off centers for the collection of recyclable materials. On the other hand, municipalities continue to rely on curbside recycling. Of the 297 municipalities providing recycling services, 247 rely on curbside collection for at least a portion of their recycling efforts.

Curbside and drop-off programs make up the vast majority of recycling conducted by local governments. In FY 99-00, these programs contributed approximately 370,000 tons to overall recovery. The quantity contributed by each program type was about equal, with drop-off programs recovering slightly more than curbside programs. Total recovery by program type is provided in the table.

Total Recovery by Program

Program Type	Total Tons		Percent of Total Recovery	
	FY 98-99	FY 99-00	FY 98-99	FY 99-00
Curbside	162,450	173,569	37 %	36 %
Drop-off	155,163	195,790	35 %	41 %
Mixed waste processing	8,814	7,412	2 %	2 %
Other programs	115,308	101,703	26 %	21 %

Due to changes in the reporting method, specific changes in "Other" programs could not be determined. However, the tonnage recovered from "Other" programs did decrease by approximately 13,600 tons. Despite decreased recovery during FY 99-00, this category continues to offer the best opportunity for increased waste reduction. Construction and demolition debris recycling, multifamily recycling services and school based recycling programs provide the most promise.

Although popular interest and participation in recycling has lagged for the past few years, having local governments maintain public recycling services provides a foundation for increasing recovery in the future.

Adding programs is not the only way to achieve waste reduction success. Another difference between successful and unsuccessful programs is the ability to customize programs for local conditions. Rural communities and urban/suburban communities face different challenges that need to be addressed using unique waste reduction strategies.

In rural areas the waste stream may be predominantly residential. In these cases, traditional residential recovery programs, a strong education program and a waste audit program focused on a handful of industries would likely result in a successful program. In urban areas, as little as 25% of the waste stream may be residential. Urban waste streams require local governments to look beyond residential waste. They must take a more active role in commercial and industrial waste reduction and the recovery of construction and demolition waste. Unfortunately, the majority of local governments are not doing so.

- **FINDING: LOCAL GOVERNMENT RECYCLING EFFORTS WOULD BE IMPROVED BY INCREASING THE NUMBER OF NEW RECYCLING PROCESSING FACILITIES.**

Material processing facilities consolidate items for efficient transportation. They also provide a crucial link between locally collected materials and distant end-use markets. MRF's accept commingled materials, separate them by specific commodities, and often bale or densify materials. By accepting commingled materials MRF's help communities avoid the cost and logistics of curbside separation. The table below is an indicator of the

health of the processing infrastructure in North Carolina. It shows a list of population centers served and not served by MRF's for FY 99-00.

N. C. Communities With and Without MRF's

Served by MRF's	Not served by MRF's
• Greensboro • High Point • Charlotte/Mecklenburg • Winston-Salem • Durham • Greenville • Catawba County • New Bern/Craven • Davidson Co. including Lexington/Thomasville	• Asheville • Fayetteville • Raleigh/Cary/Wake Co. • Burlington/Alamance Co. • Wilmington • Jacksonville • Chapel Hill/Orange Co. • Kannapolis/Concord/Salisbury • Gastonia/Shelby • Wilson/Rocky Mount • Goldsboro • Statesville/Mooresville • Most rural counties in the state

The presence of a MRF can make a difference in the kind and amount of materials collected per capita. The table on the next page shows FY 99-00 data for communities that are similar in size.

MRF vs. Non-MRF Communities

	Community with MRF: Greensboro		**Community without MRF: Raleigh**	
Population category 100,000+	Materials Collected Newsprint, magazines, cardboard, chipboard, brown paper grocery bags, #1 and #2 plastics (not just soda bottles and milk jugs), aluminum cans, steel cans, aerosol cans, glass bottles and jars.	Curbside recovery 138 lbs. per capita	Materials Collected Newsprint, magazines, white junk mail, #1 and #2 plastic drink bottles, aluminum cans, steel cans, glass bottles and jars	Curbside recovery 86 lbs. per capita
	Community with MRF: High Point		**Community without MRF: Wilmington**	
Population Category 50,000 to 100,000	Materials Collected Newsprint, magazines, #1 and #2 plastic bottles, aluminum cans, steel cans, glass bottles and jars	Curbside recovery 76 lbs. per capita	Materials Collected Newsprint, cardboard, #1 and #2 plastic bottles, aluminum cans, steel cans, glass bottles and jars.	Curbside recovery 66 lbs. per capita

Per capita recovery in the table is calculated by dividing the total tons collected curbside by total municipal population

As the table shows, Greensboro and High Point, with programs supported by MRF's, have achieved higher per capita curbside recycling rates in addition to volume. The contrast between Greensboro and Raleigh also points out the difference in the mixture of materials collected. Although other factors can affect the relative success of recycling programs, MRF's give local programs a marketing “foundation” that allows greater flexibility in both the type of materials collected and the options and costs collections bring.

MRF's have also proven their worth by offering much-needed market outlets for smaller municipalities and counties. The Eastern Carolina Vocational Center MRF in Greenville receives materials from many small towns and counties within and surrounding Pitt County. It also serves as a critical regional outlet for collected glass. Private haulers who serve small towns with curbside services rely on ECVC to take their materials, sometimes from communities over 100 miles away. Mecklenburg County's MRF also offers a market for materials collected by local governments in adjacent Union County.

- **FINDING: IMPLEMENTATING PUBLIC RECYCLING EDUCATION PROGRAMS INCREASES RECOVERY.**

Of the 397 local governments in North Carolina with recycling programs, 50% indicated they have an education program that either informs residents about the importance of waste reduction or describes other solid waste programs. The variety of education programs and the subjectiveness of some of the data make it difficult to draw broad conclusions on how effective these programs can be. What is clear is that communities with education programs recover more material per household than those without. Communities with education programs appear to recover 5% to 10% more per household.

A correlation was also found among communities with education programs. Communities with comprehensive education programs recover more per household than those with simple education programs. Providing specific estimates on how much more is collected per household is very difficult. The variability in how data was reported and the differing levels of service affect the validity of this analysis.

Participation for local government recycling programs remained low during FY 99-00. Curbside programs report an average participation rate of 57% while drop-off programs report an average rate of 32%. The average participation rate for all local government recycling programs was 47%. Combined the low participation rate and the limited number of communities with education programs clearly decreased the amount of waste diverted. Increasing participation through enhanced education could have dramatic impacts on the quantity of waste recovered for recycling.

- **FINDING: SOURCE REDUCTION AND REUSE ARE UNDERUTILIZED AS WASTE MANAGEMENT STRATEGIES.**

The number of source reduction and reuse programs operated by local governments remained relatively constant during FY 99-00. Only seven local governments added new programs. Although source reduction and reuse programs are generally low cost options for diversion, local governments continue to overlook these programs. Of the programs types listed below, backyard composting and swap shops show the most promise for further expansion. The potential for increases in these two program types is partially attributed to the annual funding these programs receive from the Department of Pollution Prevention and Environmental Assistance.

Source Reduction and Reuse Programs Operated by Local Governments

Program Type	FY 1994-95	FY 1995-96	FY 1996-97	FY 1997-98	FY 1998-99	FY 1999-00
Source Reduction Programs						
Backyard Composting	92	70	82	81	53	59
Grass Cycling	49	40	41	43	41	36
Xeriscaping	12	12	11	13	12	11
Junk Mail Reduction	20	40	56	55	57	64
Enviroshopping	35	27	36	35	35	32
Promotion of Non-toxics	38	34	39	35	30	31

Other	11	10	9	1	5	6
Reuse Programs						
Swap Shops	N/A	13	10	17	22	23
Paint Exchange	17	22	28	25	27	23
Waste Exchange	18	13	11	14	8	8
Pallet Exchange	N/A	N/A	N/A	N/A	7	7
Other	N/A	N/A	4	6	15	10
Local Governments with Programs	N/A	104	116	123	110	117

- **FINDING: DISPOSAL BANS ARE EFFECTIVE AND PLAY A SIGNIFICANT ROLE IN WASTE REDUCTION. THE STATEWIDE DISPOSAL BAN ON YARD WASTE HAS BEEN PARTICULARLY EFFECTIVE.**

Disposal diversion ordinances are slowly growing as a method of increasing waste reduction in North Carolina. Although DDO's can range from outright bans of materials (e.g., aluminum cans) to requiring that material be separated for recycling, their underlying purpose is to expand waste reduction. The State currently bans several materials from landfills, including used motor oil, aluminum cans and white goods. Sixty-eight North Carolina local governments reported using DDO's to divert additional materials. Some municipalities report county level ordinances, so the actual number of communities with DDO's may be slightly lower.

The majority of DDO's in North Carolina address corrugated cardboard, although some divert clean wood, pallets and even traditional household recyclables. Data available from three communities that recently passed DDO's indicate these ordinances can be quite successful. In 1998, the City of Durham passed a recycling ordinance that required the separation of specific household materials, such as: glass and plastic bottles. After enforcement at the residential level began on January 1, 2000, the City experienced a 27% increase in is per capita recovery for the rest of the fiscal year. The DDO also affected commercial and industrial generators, but by the end of FY 99-00, the City had yet to hire a commercial/industrial enforcement officer.

Columbus and Iredell Counties passed disposal diversion ordinances that banned the disposal of corrugated cardboard at county disposal sites. Both communities experienced increases in corrugated cardboard recovery. The City of Whiteville, in Columbus County, saw corrugated cardboard recovery increase 1862% from FY 98-99 to FY 99-00 *even though the disposal ban was in-place for only a portion of the year.*

Clearly, well-designed disposal diversion ordinances have dramatic affects on the local waste stream. Local governments should be encouraged to use DDOs to increase waste reduction. Many materials, such as pallets and corrugated cardboard, have well defined recycling infrastructures that are underutilized. A recent analysis found that if each North Carolina county banned the disposal of pallets and achieved a 70% capture rate, more than 197,000 tons of pallets and wood crates would be diverted from disposal per year.

The table below validates the effectiveness of North Carolina's yard waste disposal ban, which went into effect, January 1, 1993. Over 600,000 tons of yard waste materials were diverted from disposal in FY 99-00. The largest portion was converted into mulch and compost by local governments. Over 77% of managed yard waste went to such uses; the remainder went to land clearing and inert debris landfills or other private facilities.

Yard Waste Disposal Programs

Destination of Materials	Number of Local Govt.'s	FY 99-00 total tons
End users (direct delivery)	90	52,857
Local govt. mulch/compost facility	187	556,792
TOTAL DISPOSAL DIVERSION		**609,649**

Other public facility	75	114,537
Private facility	26	55,769
C & D Landfill	23	3,336
LCID Landfill	48	122,037
YARD WASTE TOTALS		**790,791**

Note: "Yard Waste Totals" exclude tonnages for "other public facilities" since it is assumed these tons were captured under other categories.

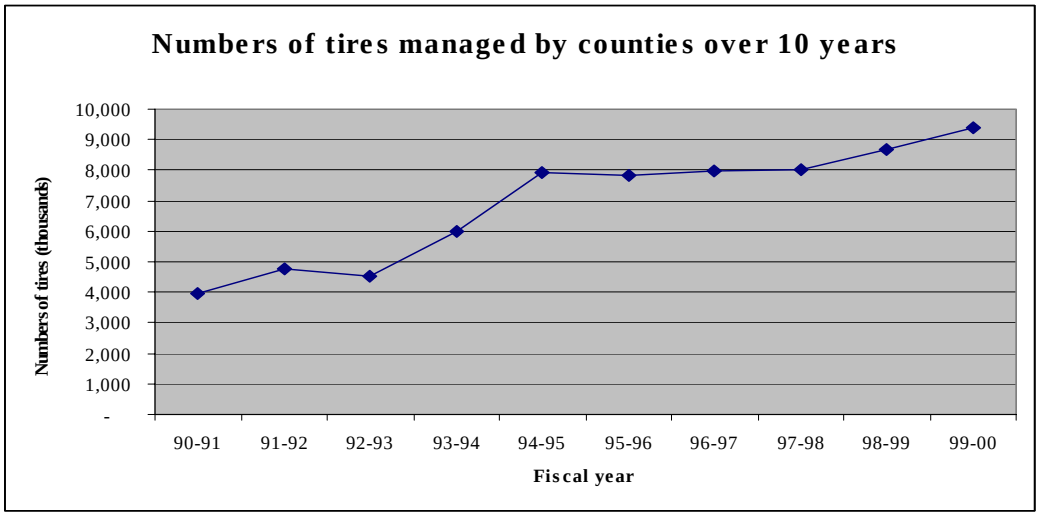
An undocumented portion of these materials may be converted to mulch and compost as well. The 609,649 tons of yard waste directly diverted represent an 18% increase over FY 98-99. Two hurricanes, a winter storm in the Piedmont, and better record keeping by local governments may have impacted this increase.

- **FINDING: THE SCRAP TIRE PROGRAM, SUPPORTED BY AN ADVANCE DISPOSAL FEE, SUCCESSFULLY HANDLES A HARD-TO-MANAGE PORTION OF THE WASTE STREAM WHICH RESULTS IN DECREASES IN ILLEGAL DUMPING. LEGISLATIVE CHANGES ARE NEEDED TO MAINTAIN THE PROGRAM'S CURRENT STATUS.**

A scrap tire advance disposal fee is collected at the point of sale for new tires. All counties are required to have a scrap tire program, which is funded by the fees collected. Counties are allocated funds based on their populations. The North Carolina Department of Revenue collected about $10 million in FY 99-00 through this program.

The Waste Management Trust Fund is administered by DPPEA and receives five percent of the net proceeds. This fund is used for county recycling grants. The Scrap Tire Disposal Account is also used to cleanup illegal tire sites and provides grants to counties for their scrap tire programs. In FY 99-00 counties reported receiving about 9.4 million tires. The number of tires has increased during the past nine years, which reflects both the success of the program and a decrease in illegal dumping.

Since 1994, funds from the Scrap Tire Disposal Account have been used to inventory and clean up nuisance tire sites. Approximately 6.6 million tires have been cleared from 294 sites and numerous countywide cleanup events. Currently 42 sites containing approximately 133,000 tires, remain to be cleaned up. New sites, most containing less than 10,000 tires, continue to be found and scheduled for cleanup.



The 2% passenger tire advance disposal fee funds the current program. On June 30, 2002 that will revert to 1%. The higher fee should be continued because the reversion will cause counties to incur large program cost deficits and eliminate the state tire cleanup program. Counties needing to fund their deficits may implement landfill disposal fees, which could lead to an increase in illegal tire dumping.

The scrap tire program currently funds a time-limited position to coordinate cleanup of illegal tire sites and provide technical assistance to counties. It should be continued past its sunset of June 30, 2001 to maintain the same level of service and assistance provided over the past three years. A full analysis of the scrap tire program and the legislative changes it needs can be found in the October 2000 *Scrap Tire Management Special Report* presented to the General Assembly. A copy of the report is available on the Section's web site.

- **FINDING: MANY AREAS OF THE STATE CONTINUE TO LACK BASIC SERVICES AND PROGRAMS TO DIVERT USED OR WASTE OIL, OIL FILTERS, ANTIFREEZE AND HOUSEHOLD HAZARDOUS WASTE FROM DISPOSAL.**

The table on the next page shows trends in the collection of used motor oil, oil filters, antifreeze, and household hazardous waste by local North Carolina governments. Fiscal Year 2000 saw a substantial increase in number of gallons of used oil received by local public collection programs. The 18% increase is in keeping with a general upwards trend in gallons collected over the past four years, despite the lack of program growth. Better educational efforts, record keeping or a combination of both may be the reason for the increase.

Collection of Used Motor Oil, Filters, Antifreeze, Lead-Acid Batteries and HHW

	FY 95-96	FY 96-97	FY 97-98	FY 98-99	FY 99-00
Used Motor Oil					
Number of local programs	118	122	115	127	126
Gallons collected	601,744	575,859	646,646	736,436	871,533
Oil Filters					
Number of local programs	N/A	N/A	8	11	14
Tons collected	N/A	N/A	6	6.61	
Antifreeze					
Number of local programs	59	48	46	46	49
Gallons collected	18,859	9,026	8,770	9,568	15,977
Lead Acid Batteries					
Number of local programs	85	90	84	79	90
Number collected	50,458	59,112	61,118	58,237	74,737
Household Hazardous Waste					
Number of programs	19	20	20	17	24
Number of permanent sites	8	7	9	10	13
Tons collected	389.95	653.24	657.29	1,017.78	965.58
Total cost reported	N/A	$1,402,485 ($2,147/ton)	$1,301,638 ($1,875/ton)	$1,672,271 ($1,643/ton)	$1,644,818 ($1,703/ton)

Despite the rise in collected gallons, large gaps in public oil collection services exist statewide. Twelve rural counties have no public collection sites whatsoever, while another 26 counties have only one. Many of these 26 counties are geographically large - some citizens would need to drive 40 miles or more roundtrip to recycle their oil at a public collection site. Moreover, only 38 out of 529 municipalities offer public oil collection services.

The infrastructure gaps are even greater for other automotive-related products. Only 14 local governments currently collect oil filters and 49 accept antifreeze. There does seem to be an upward trend in the number of local programs for both materials.

In terms of tons collected, overall costs and the number of local governments involved in their collection the recovery of household hazardous waste remained steady. There appear to be no major shifts in the willingness of counties or municipalities not currently involved in HHW collection to start. The result is that citizens in most counties have no alternative except to dispose of HHW in their solid waste. As a result, the vast majority of North Carolina's household hazardous waste is disposed of in landfills.

- **FINDING: BUY-RECYCLED PROGRAMS ARE CRITICAL TO STRENGTHENING RECYCLING MARKETS.**

It is a commonly understood maxim that recycling markets can only exist if recycled content products are purchased. Increased levels of recycled content in common products like paper, glass and metals, coupled with the advent of new products, such as plastic lumber and finger-jointed lumber, account for the dramatic increase in recycling collections through the 1990's.

North Carolina has taken a major stride in boosting paper recycling markets by specifying that state term contracts exclude virgin-only paper products. As a result, state agency recycled paper purchases increased dramatically in FY 99-00. Agencies reported spending $43,510,743 on recycled paper. This accounts for 84% of all paper products purchased and an increase of 20% in one year. The North Carolina Department of Administration continues to look for new recycled products to make available to state and local agencies. Some examples include re-refined oil and recycled content carpet.

The issues surrounding solid waste management have grown more complex. Solutions to the problems are not easily identified and lack consensus. Consequently, the Department recommends that a solid waste study committee be established to examine the issues presented here.

FOR MORE INFORMATION

North Carolina Department of Environment
And Natural Resources
Division of Waste Management
Solid Waste Section
1646 Mail Service Center
Raleigh, NC 27699-1646
(919) 733-0692
http://wastenot.enr.state.nc.us

North Carolina Department of Environment
And Natural Resources
Division of Pollution Prevention &
Environmental Assistance
1639 Mail Service Center
Raleigh, NC 27699-1639
(919) 733-6500
http://www.p2pays.org