North Carolina

SOLID WASTE MANAGEMENT

Annual Report

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Department of Environment
and Natural Resources
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Reduce, Reuse, Recycle

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This document, required yearly 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.

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Overview and Summary

This report on the state of solid waste management in North Carolina for FY 1997-98 can be summarized as follows.

1. All municipal solid waste landfills operating in North Carolina are equipped with liners and leachate collection systems that are designed to protect the environment.

2. North Carolina will not achieve the goal of reducing waste by 40 percent by the year 2001.

3. Waste exports increased to approximately 8 percent of the total waste disposed.

Waste reduction activities must be accelerated considerably if North Carolina is to reduce its solid waste disposal burden. To date, a small minority of local governments have established public source reduction programs, and few have expanded their recycling programs in recent years. Recycling tonnages collected by cities and counties are growing slowly, and recovery of containers (bottles and cans) has dropped. The estimated public recycling participation rate in the state is 44 percent, reflecting a de-emphasis on public education among local jurisdictions.

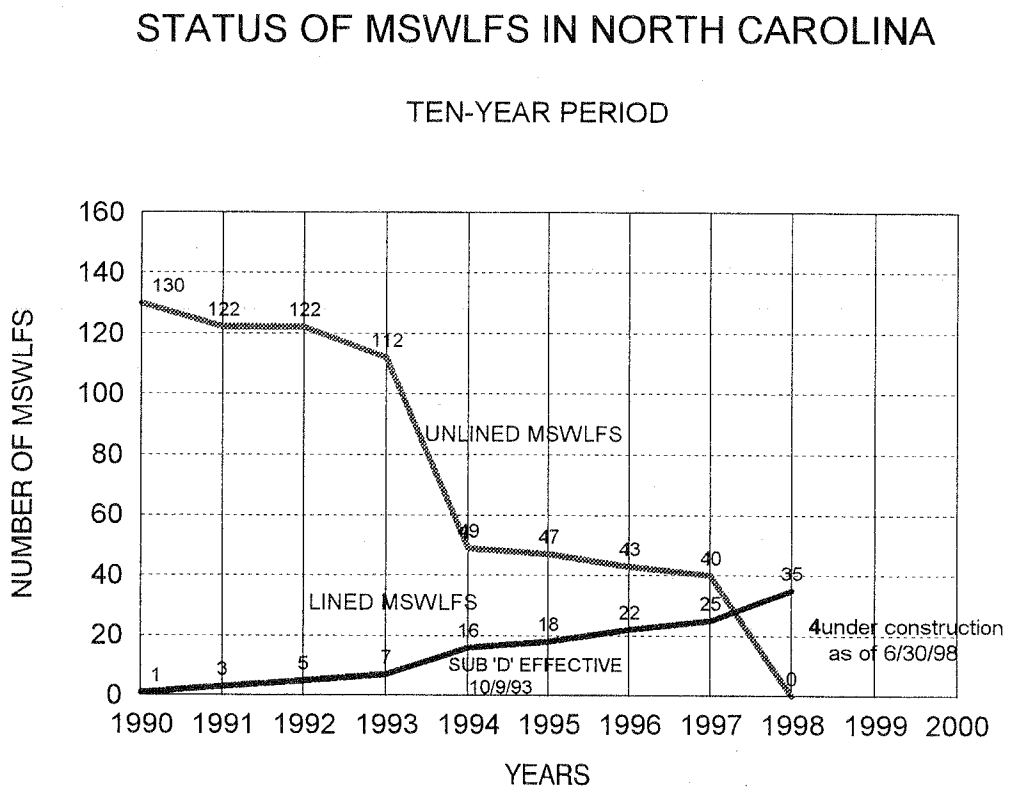
On the other hand, gains in public and private sector recycling since the early 1900s have allowed North Carolina to hold down disposal rates despite increases in generation brought on by economic growth. Over that time, the nature of the disposed waste stream has changed, with construction and demolition wastes now a dominant portion of landfilled tonnages. Programs to address this waste stream and to strengthen recycling markets through aggressive buy-recycled activities are needed to increase the effectiveness of North Carolina's waste reduction efforts.

Regulated Waste Management Facilities and Activities

Municipal Solid Waste Landfills

During FY 1997-98, trends in solid waste management facilities continued to be driven by the so-called '98 Rule, which required all active sanitary landfills to be equipped with liners and leachate collection systems by January 1, 1998. The rule, supported by federal "Subtitle D" regulations (which also requires liner and leachate collection systems), has been a major factor in the closing of North Carolina's old unlined landfills. (Please see Figure 1)

Figure 1. Status of Municipal Solid Waste Landfills in North Carolina



The number of municipal solid waste landfills (MSWLFs) in North Carolina has decreased from 131 in 1990 to 35 in FY 1997-98. Forty municipal solid waste landfills closed or ceased operations in FY 1997-98.

By the end of FY 1997-98, permits to construct had been issued for four more MSWLFs, and three MSWLF applications had been received for review.

Construction and Demolition (C&D) Landfills

As noted in the annual report for FY 1996-97, a consequence of the rule requiring liners and leachate systems is an increased incentive for disposers of solid waste to separate construction and demolition waste from municipal solid waste. Disposers that had relied upon now-inactive, unlined MSWLFs, find much of the cost of managing waste is transferring it to out-of-county or out-of-state regional lined landfills.

Since current rules do not require that construction and demolition [C&D] waste be disposed in a lined landfill, many solid waste managers have chosen to avoid the extra expense of transferring this type of waste, usually both heavy and cumbersome. The number of landfills constructed to receive only C&D waste has risen by more than 50 percent in this state since the effective date of the '98 Rule. The Solid Waste Section started a policy allowing permits to be issued for C&Ds sited over inactive, unlined MSWLFs. The majority of C&D permits issued since 1998 have been for this type of facility.

There were 23 permits issued for C&D landfills during FY 1997-98, bringing the total number of C&D landfills in operation during FY 1997-98 to 48.

Industrial Landfills

At the beginning of FY 1997-98 there were 27 active industrial waste landfills [ILFs], only three of which were lined. Five ILFs closed as of January 1, 1998. Those that did not close were required to ensure compliance with state groundwater standards. These submissions, which incorporate complex computer modeling demonstrations, are now under review. A final evaluation of the submitted information will determine the compliance status of the remaining industrial landfills.

Transfer Stations: Waste Imports and Exports

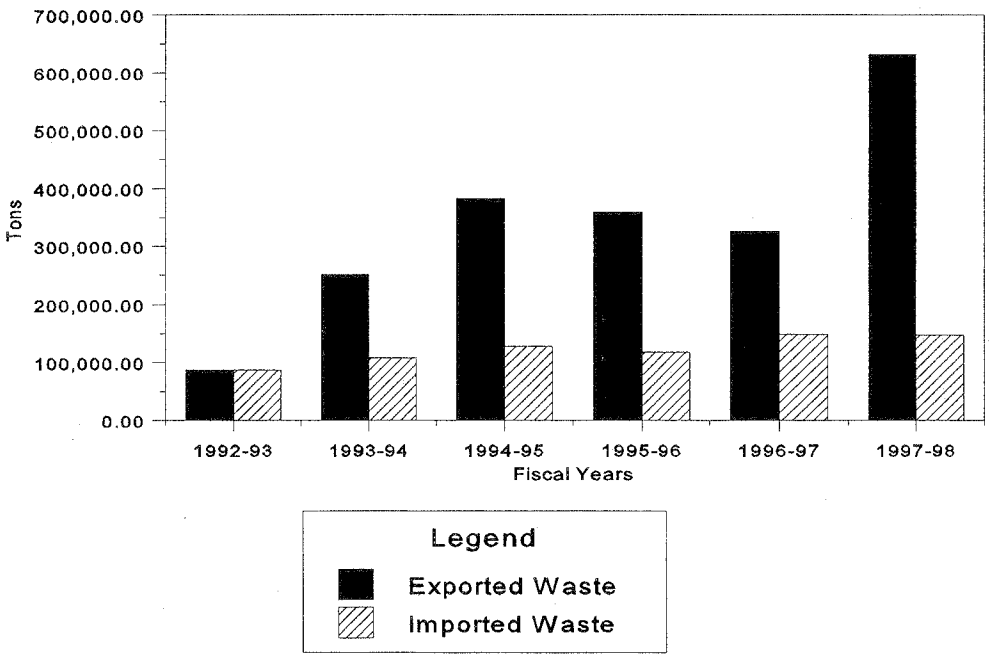
Another significant consequence of the closure of unlined landfills has been the advent of the transfer station as a major component of the solid waste infrastructure in North Carolina. Transfer stations are facilities where waste materials are taken from collection vehicles and placed in larger vehicles for transport to a disposal site.

Since the effective date of the '98 Rule, 15 new transfer stations have been permitted in North Carolina, bringing the total number of operating transfer stations in this state to 68.

Waste exports are tracked through North Carolina transfer station reports and by voluntary reporting of out-of-state facilities. Waste imports to North Carolina facilities are tracked through the annual facility reporting process.

The 1998 rule prohibiting unlined landfills from receiving municipal solid waste substantially increased the amount of waste being exported from North Carolina for disposal. (See Figure 2).

Figure 2. Imported and Exported Waste Tonnages, FYS 1991-92 to 1997-98



In FY 1997-98, landfills in Tennessee, Georgia, South Carolina and Virginia received waste from North Carolina. Exports in FY 1997-98 were approximately 630,863 tons, up from 326,959 in FY 1996-97. Exports nearly doubled in large part due to the closure of a landfill in Durham. Waste previously directed to Durham is now directed, along with waste from other counties in northeastern North Carolina, to the large regional landfill in Brunswick County, Virginia.[1]

[1] The amount of tonnage exported to Virginia as a consequence of the Durham landfill's closure is expected to increase since the tonnage noted here represents only six months of activity.

Imported waste tonnages decreased slightly from previous years, with 101,626 tons imported in FY 1997-98, slightly less than the 103,509 tons imported in FY 1996-97. This trend is consistent with increased exports, as disposers in neighboring states seek alternatives to the now inactive unlined landfills in North Carolina.

Return of the Garbage Barge?

In 1987, North Carolina's solid waste management program received fleeting national attention when a scow laden with municipal waste from New York City attempted to unload its cargo in a North Carolina landfill. Ultimately, the garbage barge returned to New York with its waste, but its brief appearance in a North Carolina harbor raised concerns about importing waste into this state.

New York City's plan to close Fresh Kills landfill in 2001 raises the possibility of another garbage barge in North Carolina's future. While Virginia appears to be the favored destination for much of what New York previously disposed at Fresh Kills, Virginia lawmakers are seeking to avoid this prospect. If Virginia is successful in limiting its landfills to accepting waste at 1998 averages, North Carolina's own exports to Virginia could be affected, and North Carolina itself may be targeted to receive imports from Fresh Kills.

Septage Management

Domestic septage from septic tanks and portable toilet waste are managed in North Carolina through land application and by discharges at wastewater treatment plants. Grease trap pumpings are also managed through land application, by wastewater treatment plants, and sometimes by recycling.

In FY 1997-98, there were approximately 160 permitted land application sites in use in about 55 counties. Wastewater treatment plants in approximately 75 counties allowed some form of septage to be discharged. Nine counties (Avery, Chowan, Granville, Hoke, Hyde, Jones, Madison, New Hanover, and Yancey) have no approved means of managing the septage that they produce.

Many of the wastewater treatment plants that allow the discharge of domestic septage and portable toilet waste do not accept grease trap pumpings. However, there are four companies in North Carolina that will recycle the grease trap pumpings and one company that will compost it.

Several wastewater treatment plants stopped allowing septage for discharge in FY 1997-98 because tests on bio-solids indicated unacceptably high levels of regulated metals.

Composting

Interest in composting as a waste management method continues to increase slowly in North Carolina. Most of this interest continues to be for the management of yard waste or various source separated organics. There are no mixed waste compost facilities in North Carolina.

Low tipping fees at landfills is the primary barrier to increased composting in North Carolina. Even if a

compost facility charges a small tipping fee and then charges for the compost product, it is very difficult to compete with the low tipping fees in some areas.

The Division continues to use the rules allowing compost pilot or demonstration projects to try to encourage composting. These rules enable interested parties to try composting with minimal initial expense and paperwork.

Land Application

One way the division supports the beneficial reuse of waste products is through approval of projects for the land application of wastes such as tobacco dust, wood ash, and whey. These wastes can provide valuable nutrients or act as soil liming agents.

Nutrient management planning is required on all sites that receive wastes for beneficial reuse. The purpose of a nutrient management plan is to be certain that nutrients are applied to a site in quantities and during the season that the crop can benefit. Nitrogen is normally the nutrient that determines the application rate.

The number of septage land application sites was lower in FY 1997-98 because nutrient management regulations made the smaller sites economically impractical to operate.

Waste Reduction Efforts

Annual reports received from local governments provide data on source reduction, recycling, and composting activities statewide, as well as other aspects of solid waste management. In addition to this local data, an assessment of recycling markets completed by the Division of Pollution Prevention and Environmental Assistance (DPPEA) in early 1999 provides supplementary information on the overall recycling picture for North Carolina. The first part of this section addresses local programs, and the second section presents a brief overview of commodities and recycling markets.

Local Government Programs

Source Reduction and Reuse

Table 1 below shows trends in local source reduction programs. The total number of such programs dropped slightly from FY 1996-97 to FY 1997-98. Few local governments (only 17 percent) appear to be making efforts to address the top of the waste management hierarchy with formal programs, despite indications that these programs can be cost-effective. Backyard composting programs remain the most popular of all local source reduction activities. DPPEA estimates that at least 8,700 composting bins have been distributed or sold by local governments to date.

"Junk mail" reduction, the second most common type of source reduction program, also continues to be one of the best options for local governments to reduce the amount of waste generated. It is a low cost option that requires little effort from citizens, yet produces tangible results. With less than 9 percent of communities implementing junk mail reduction program, this method is clearly not being used to its potential.

Table 1: Trends in Publicly Targeted Source Reduction Programs

Program Type	FY 1993-94	FY 1994-95	FY 1995-96	FY 1996-97	FY 1997-98
Backyard Composting	90	92	70	82	81
Grass Cycling	52	49	40	41	43
Xeriscaping	10	12	12	11	13
Junk Mail Reduction	16	20	40	56	55
Enviroshopping	35	35	27	36	35
Promotion of Non-toxics	29	38	34	39	35
Other	14	11	10	9	1
Total Local Governments	**106**	**132**	**83**	**110**	**106**

A slight increase in the number of local governments reporting "reuse" programs in FY 1997-98 results in part from the growing popularity of "swap shops." A swap shop usually consists of a simple sheltered site to which people bring goods that might otherwise be thrown away. Since patrons of swap shops bring in their own unwanted items for trade with someone else's unwanted items, goods are "reused" instead of disposed. Given the relatively low cost of implementation and the popularity of this type of reuse program, the number of swap shops is expected to increase yearly.

Recycling Programs

Figure 3 shows that the number of county-run recycling programs has been fairly consistent over the past six fiscal years. It is unlikely that significant increases or decreases in curbside, drop-off, or mixed waste processing will occur in the foreseeable future. Any changes over the next few years will likely come in the "other" category, which includes activities such as school and commercial/industrial recycling programs. This category enjoyed a healthy increase in FY 1997-98.

Figure 3: Trends in County Recycling Programs, FYs 1991-92 to 1997-98

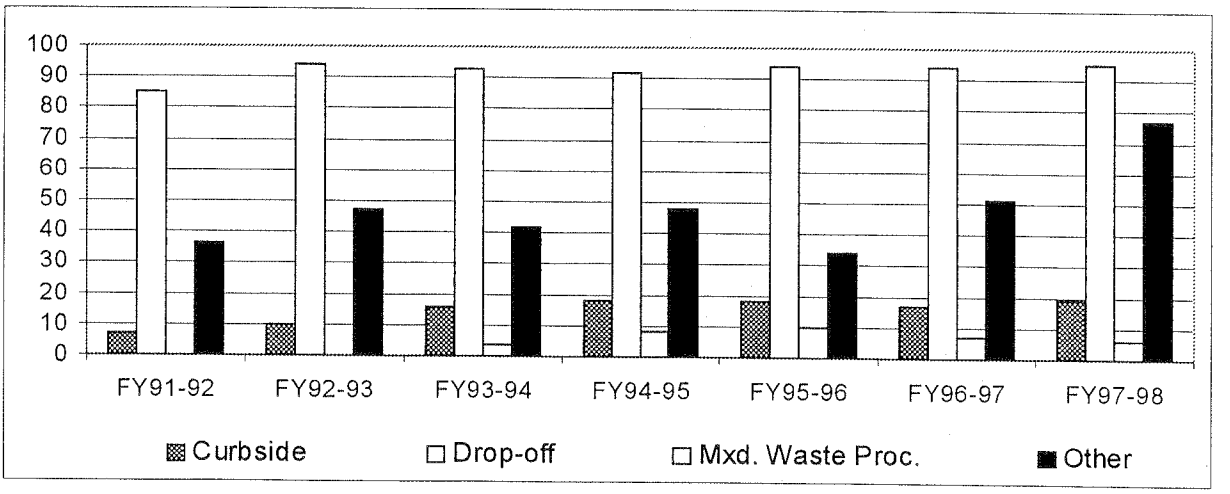
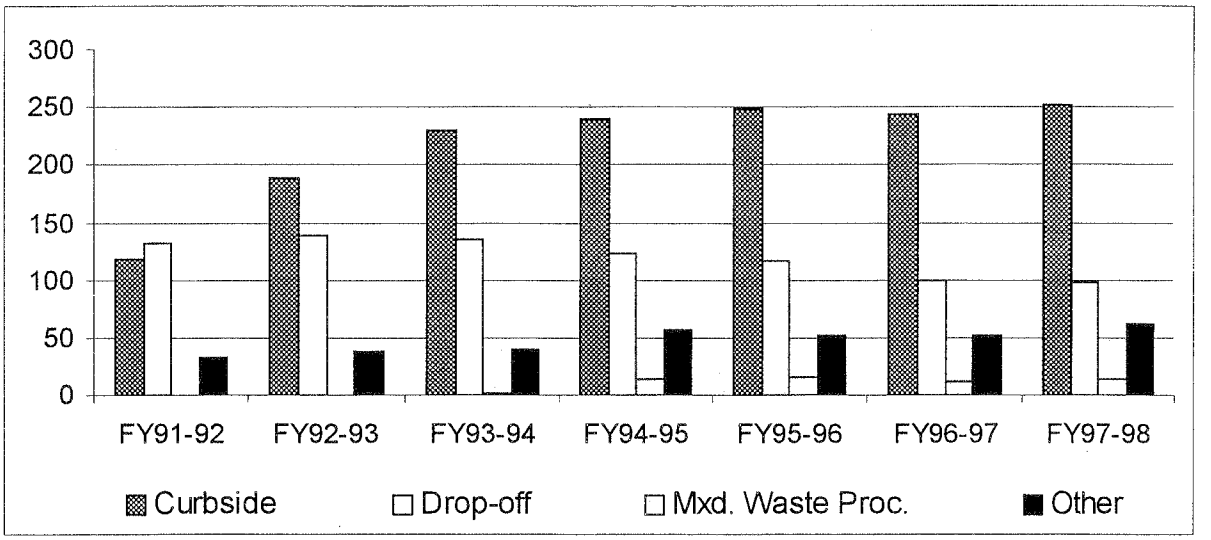


Figure 4 shows slow growth in municipal curbside programs and a slow decline in drop-off programs. Apparently, a number of small municipalities added curbside and discontinued drop-off operations in FY 1997-98. As with county programs, there was also an increase in "other" programs in FY 1997-98

Figure 4: Trends in Municipal Recycling Programs, FYs 1991-92 to 1997-98



Local governments still rely heavily on contractors to run their recycling programs, although the pressure to privatize recycling services may have subsided somewhat. Some communities, frustrated with the contracted cost of recycling and the services provided, may conclude that they can do it better. Moreover, private contractors often find recycling a low-profit service. (Please see Table 2).

Table 2: Public vs. Private Operation of Local Recycling Programs, FY 1996-97 and FY 1997-98

Program Type	Percentage Using Private Contractors			
	Counties		Municipalities	
	FY 1996-97	FY 1997-98	FY 1996-97	FY 1997-98
Curbside	82%	79%	76%	75%
Drop-off	51%	52%	51%	56%
Other Programs	31%	41%	31%	35%

To boost diversion rates, many local government recycling programs go beyond servicing the residential. Table 3 indicates that the number of local jurisdictions extending curbside and drop-off programs to commercial and industrial generators has been fairly steady over the past four fiscal years. There appear to be no major factors on the horizon that will increase the number of local programs open to these sectors. Local governments with commercial or industrial curbside collection reported serving a total of 8,134 accounts.

Table 3: Local Governments Providing Recycling Services to Commercial and Industrial Generators (percentage of total programs in parenthesis)

Fiscal Year	Curbside		Drop-off	
	Commercial	Industrial	Commercial	Industrial
1994-95	118 (48%)	23 (9%)	114 (53%)	49 (23%)
1995-96	119 (48%)	25 (10%	106 (48%)	45 (20%)
1996-97	112 (43%)	16 (6%)	103 (53%)	35 (18%)
1997-98	123 (45%)	18 (7%)	100 (52%)	42 (22%)

Education and Recycling Participation Rates

Of the 403 local government recycling programs in the state, only 206 (51%) indicated having an education program to inform citizens of program requirements and the benefits of waste reduction. As can be seen in Table 4, the lack of an education or public outreach programs has negative impacts on the effectiveness and efficiency of local curbside recycling programs. Curbside programs in communities with education programs had higher participation rates and recovered 26% more recyclables per household served. Local governments without education programs are missing opportunities to maximize the efficiency of their waste reduction programs.

Table 4: Recovery from Curbside Recycling Programs with and without Education Programs

Local Government	Number of Programs	Participation	Pounds per household participating	Pounds per household served
Curbside w/ education	127	62%	453.25	282.80
Curbside w/o education	144	54%	413.05	223.58

An analysis was not developed for drop-off programs due to uncertainties surrounding actual participation and households served.

The lack of strong educational efforts is a clear detriment to higher waste diversion through existing programs. Analysis of local government reports reveals that North Carolina's overall public recycling participation rate is just over 44 percent, down 3 percent from a similar calculation made two years ago. If North Carolina can increase its participation rate to 70 percent, it could translate into as much as 200,000 additional tons of waste diverted from disposal. Local governments have numerous options for increasing participation, from educational efforts to implementation of pay-as-you-throw programs.

Tonnages Diverted or Recovered: Results by Program and by Material

Table 5 presents tonnages of recyclable materials collected by local governments from FY 1990-91 through FY 1997-98. After peaking at over 1 million tons the previous year, local government tonnages fell by over 100,000 tons last year. This decline came mostly in the organics category, reflecting the increase in managed yard waste from Hurricane Fran in FY 1996-97 (for more detail, see yard waste table below). Other categories that suffered decreases included paper and glass, but most other materials experienced small increases. Overall, if FY 1996-97 is considered an anomaly due to Fran, the trend line between FY 1995-96 and FY1997-98 does show an upward swing.

The slow or no growth in recycling tonnages reflects a similar slow or no growth pattern in numbers of programs. It also likely reflects relatively weak markets and a decrease or less aggressive educational effort on recycling throughout the state. The table shows a calculation of tons per capita diverted by local programs (bottom row). The 242 lbs. per capita equates to .12 tons per capita, which is just over 10 percent of the disposal rate of 1.15 tons per capita. For North Carolina or for most local governments to

make any progress toward their waste reduction goals, per capita diversion rates will have to rise. If all local governments were able to reach a rate of 325 lbs. per capita diversion, overall tonnages would rise by 310,000. Substantial increases in recycling participation plus widespread source reduction efforts such as backyard composting would be necessary to reach this diversion rate or higher.

Table 5: Local Government Diversion of Materials from Disposal FYs 1990-91 to 1997-98

Material	FY 90-91	FY 91-92	FY 92-93	FY 93-94	FY 94-95	FY 95-96	FY 96-97	FY 97-98
Total Paper	99,488	98,729	151,676	164,806	185,270	212,577	228,025	216,121
Total Glass	16,816	25,997	32,611	37,537	38,088	49,601	44,978	43,449
Total Plastics	2,878	6,128	9,264	9,797	12,339	16,253	13,699	14,399
Total Metal*	30,875	34,148	44,302	51,468	59,483	65,977	77,252	81,262
Total Organics**	105,871	267,428	378,516	350,142	495,034	498,583	640,410	504,554
Special Wastes***	607	1,265	1,715	2,106	2,466	3,212	3,230	3,527
Other	N/A	N/A	4,272	16,387	5,987	333	12,762	35,977
Totals	**256,535**	**433,695**	**622,356**	**632,243**	**798,667**	**846,536**	**1,020,356**	**899,290**
Per Capita Recovery (lbs.)	**77.36**	**128.54**	**182.17**	**182.00**	**226.19**	**235.59**	**279.19**	**242.03**

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

The Influence of Haulers on the Program Expansion

A long-term issue for recycling in North Carolina is the commitment of private haulers to expansion of programs. Recycling services tend to be a low-margin operation, often characterized by low commodity price. Consequently, private haulers have few incentives to increase recovery or expansion into new commodities. North Carolina is dominated by four large haulers (three of whom own their own landfills), who are utilizing those disposal assets as a competitive advantage in selling hauling services. With haulers concentrating more on the simpler and more predictable operations of traditional solid waste collection and disposal, it is unlikely they will provide leadership in expanding recycling in the state. Local recycling coordinators therefore have an increased burden to initiate program expansions, educate the public and persuade haulers to increase the number of materials collected.

What Recovery Methods Work?

More recyclables were recovered from curbside collection than from drop-off programs in FY 1997-98. (See Table 6) There was also a substantial growth in the amount recovered through "other" programs as well, reflecting the expansion of these programs. There may be fluctuation over the next few years in the "other" category, because additional programs in this area are relatively easy to add and to eliminate.

Table 6: Local Government Recovery of Recyclable Materials by Method, FY 1996-97 and FY 1997-98.

Program type	Total Tons		Percentage of Recovery*	
	FY 1996-97	FY 1997-98	FY 1996-97	FY 1997-98
Curbside	154,555	158,920	39 %	39 %
Drop-off	161,970	153,835	41 %	38 %
Mixed Waste processing	12,657	7,446	3 %	2 %
Other programs	67,894	86,100	17 %	21 %

* 23 local governments operated both curbside and drop-off programs, but reported recovery under only the drop-off category or the curbside category.

Recovery of Specific Commodities

Table 7 provides more detail on the recovery of specific commodities in local government programs. As a group, container tonnages of all material types (glass, aluminum, plastic) declined. No material is showing the large gains experienced earlier in the 1990s. The recovery figures again suggest that recycling participation is stagnating. Also, relatively weak market prices throughout FY 1997-98 also provided little incentive to expand material collections.

Table 7: Recovery of Specific Materials by Local Programs

Material	Tons of Materials Recovered					
	FY 1992-93	FY 1993-94	FY 1994-95	FY 1995-96	FY 1996-97	FY 1997-98
Newspaper	85,728	97,534	109,927	109,531	121,502	121,666
Cardboard	27,679	42,905	51,464	61,569	61,324	59,030
Magazines	1,289	2,739	2,749	3,807	4,382	5,269
Office Paper	13,500	4,921	5,777	5,932	5,927	3,225
Mixed Paper	15,004	6,973	12,616	28,807	26,693	22,337
Other Paper	315	2,720	1,735	4,080	8,197	4,595
Clear Glass	18,580	21,276	19,802	23,659	21,388	20,896
Brown Glass	7,612	8,920	9,802	16,063	13,854	13,665
Green Glass	6,419	7,341	8,485	10,322	9,737	8,888
Alum. Cans	4,484	4,208	4,785	5,700	5,060	5,137
Steel Cans	3,179	4,289	6,503	8,977	7,550	7,236
White Goods	28,769	34,126	41,296	39,996	46,018	48,811
PETE	4,857	5,308	6,883	6,376	5,173	4,592
HDPE	3,501	4,118	5,390	4,027	3,032	3,388
Mixed Plastic	N/A	N/A	4,429	5,894	4,907	5,945

Yard Wastes

Table 8 shows reported local government recovery and management activities for yard wastes in FY 1997-98. As noted above, the slide in yard waste diversion from the previous year almost certainly reflects the abnormal burden of managing Hurricane Fran debris in FY 1996-97. A review of FY 1995-96 data shows that FY 1997-98 may be best characterized as a return to "normal" yard waste management numbers. If it is assumed that tonnage going to a "Private Facility" (as indicated on local report forms and presented here) is actually mulched or composted, then 72 percent of yard wastes are diverted from disposal.

Table 8: Local Government Yard Waste Management by Type and Destination for FY 97-98

Destination of materials	Number of Local Govts using destination	Leaves and Grass	Limbs and Brush	Mixed yard Waste	Totals by Destination *(FY1996-97 tons in parentheses)*
End Users (direct delivery)	96	33,865	36,186	5,741	75,792 *(65,512)*
Local Government mulch/compost facility	180	73,524	135,165	204,981	413,670 *(554,582)*
TOTAL					489,462* *(620,095)*
Other Public Facility	51	1,779	27,813	17,104	46,696** *(67,956)*
Private Facility	27	16,581	42,949	11,733	71,263 *(47,420)*
Construction & Demolition Facility	47			104,956	104,956 ***
LCID Landfill	28			61,770	61,770 *(209,760)****
		125,749	242,113	406,285	774,146

* Counted as the total yard waste diversion by local govts. and included in Organics figure in Table 11 above.
** Excluded from diversion to avoid double counting with the local government mulch/compost facility figure
*** Excluded from diversion because use constitutes disposal. FY 1996-97 number included C&D landfills.

Construction and Demolition Waste

Thirty-two local governments provided recycling or salvage of construction and demolition (C&D) debris during FY 1997-98. Although not specifically requested, ten local governments reported recovering almost 25,000 tons of C&D, ranging from vinyl siding to mixed construction waste. Given recent estimates identifying the C&D component of the waste stream as approximately 33 percent of the entire waste stream, continued efforts to recover C&D are needed in North Carolina

Special Wastes

Table 9 provides data on local government management of used oil, oil filters, antifreeze, lead acid batteries, and household hazardous wastes. Oil collections enjoyed a healthy gain from the previous year, although DPPEA estimates there may be as many as 4 million gallons of "do-it-yourselfer" oil still not being captured by recycling programs. Oil filters are a new commodity getting some attention in local recycling efforts, although the cost of marketing the filters may be a burden to rapid expansion of these programs. The table also indicates that local government antifreeze recycling figures declined for the second year in row.

Table 9: Local Government Management of Special Wastes for FY 97-98

	FY 95-96	FY96-97	FY 97-98
Used Motor Oil			
Number of local programs *(number of public sites)*	118 *(407)*	122 *(418)*	115 *(414)*
Gallons	601,744	575,858.5	646,646
Oil Filters			
Number of local programs *(number of public sites)*	N/A	N/A	8 *(15)*
Tons collected	N/A	N/A	~6
Antifreeze			
Number of local programs *(number of public sites)*	59 (206)	48 *(91)*	46 *(104)*
Gallons	18,859	9,026	8,770
Lead Acid Batteries			
Number of local programs *(number of public sites)*	85 (307)	90 *(337)*	84 *(325)*
Number collected	50,458	59,112	61,118
Household Hazardous Wastes			
Number of programs	19	20	20
Number of Permanent sites	8	7	9
Tons collected	389.95	653.24	657.29
Total costs reported *(raw average cost per ton)*	N/A	$1,402,485 *($2147/ton)*	$1,301,638 *($1,875/ton)*

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

Solid Waste Collection

Table 10 shows data on local government solid waste collection efforts. There were no big changes in this area for FY 1997-98. Clearly, the vast majority of cities and counties still see solid waste collection from households as a core local service. The majority of municipalities also include the commercial sector in their solid waste collection programs.

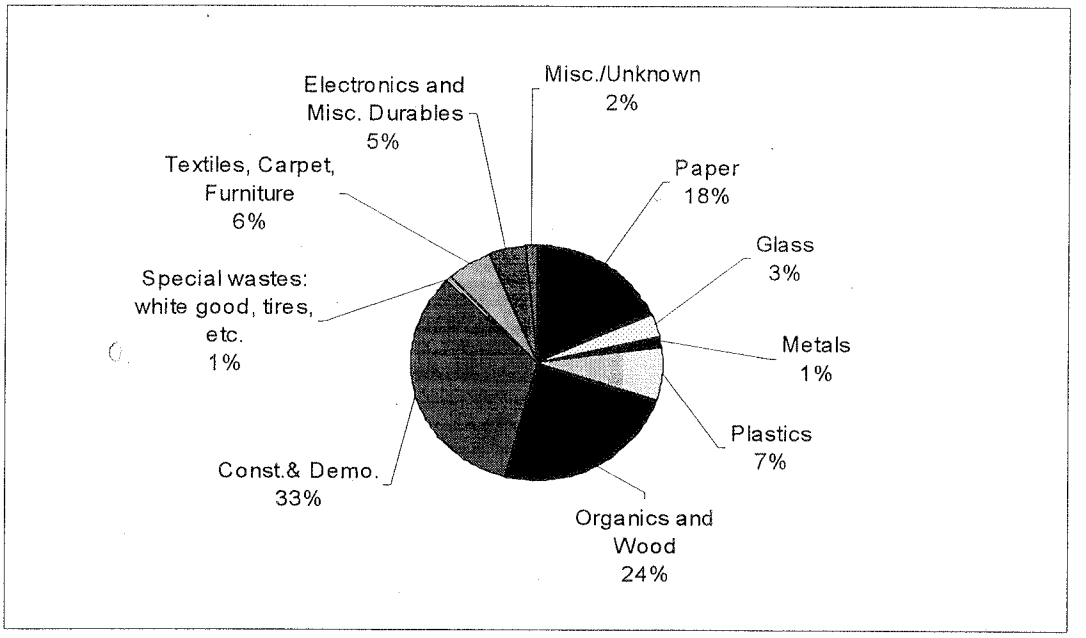
Table 10: Local Government Solid Waste Collection Services and Sector Served

	Residential	Commercial	Industrial
Municipalities	407 (78%)	296 (57%)	99 (19%)
Counties	79 (79%)	31 (31%)	16 (16%)

Recycling Markets

In 1998, the DPPEA conducted an assessment of recycling markets (as required by state statute) which included analyzing generation, recovery, and overall demand for 26 commodities. The assessment provided information that allows the State to estimate the current composition of its waste stream, which is shown below in Figure 3. Perhaps the most surprising finding of the assessment is that construction and demolition (C&D) wastes now make up as much as a third of North Carolina's disposed waste. In addition, C&D combined with paper and wood/organics (including food wastes), constitute 75 percent of the state's waste. Clearly, these waste streams will need to be addressed if the State wants to make any progress towards its waste reduction goal.

Figure 5: Estimated Composition of North Carolina's Waste Stream



The recycling market assessment also provides a glimpse into the approximate recovery rates for various commodities. Table 11 below shows these estimates for a select group of commodities

Table 11: Estimated Recovery Rates for Select Commodities

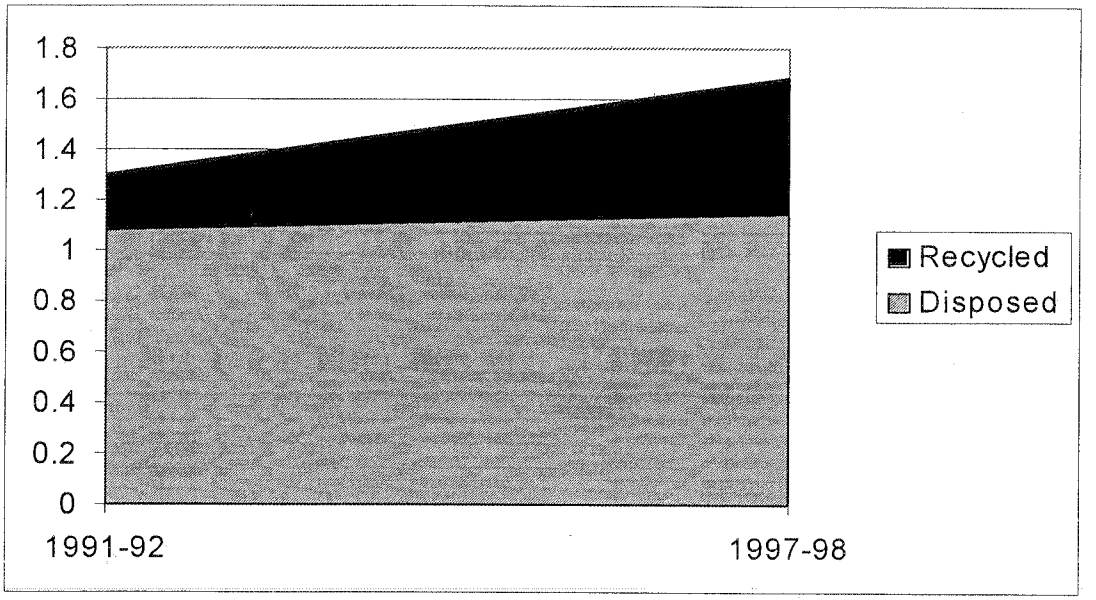
Material	Generation	Recovery	Recovery rate
Total Paper	2,105,804	759,019	36%
Newspaper	282,412	159,594	57%
Cardboard	852,770	424,456	50%
Office Paper	186,773	54,722	29%
Glass	282,197	45,026	16%
Aluminum Cans	42,891	21,076	49%
Steel Cans	77,858	8,383	11%
PETE	47,260	13,609	29%
HDPE	114,536	7,203	6%
Food Waste	862,500	17,250	2%
Construction & Demolition	2,519,000	77,847	3%
Pallets	433,665	151,661	35%
Textiles	173,275	14,268	8%

The market assessment allows the state to estimate its overall recycling rate. Calculating this rate is difficult because of the issue of deciding which commodities to count. For example, some states count the recycling of automobiles in their rates. North Carolina does not because the automobile waste stream has been diverted from disposal for many years – in other words, cars don't go into MSW landfills.

One of the questions in calculating North Carolina's recycling rate is whether to include "secondary" wood waste, a very large waste stream generated at furniture plants and other manufacturers of finished wood products. This waste stream enjoys a high rate of diversion, but much of it still is disposed in MSW landfills. Therefore, including secondary wood waste, the estimated overall recycling rate for North Carolina is 32 percent.

As indicated in this report, North Carolina is failing to make progress toward its 40 percent per capita waste reduction goal. As North Carolina's economy has expanded over this decade, the disposed waste stream has risen, but so has the recycling rate. The 1991 State Solid Waste Management Plan estimated North Carolina's recycling rate to be about 17 percent. As Figure 4 below shows, recycling has allowed the state to hold down disposal rates despite increases in generation brought on by economic growth..

Figure 6: Disposal and Recycling Trends in North Carolina, FY 91-92 to FY 97-98



Prices paid for recyclable materials are an indicator of overall market health. According to information collected by the NC Recycling Business Assistance Center (RBAC), prices paid for recyclable materials remained fairly steady for most commodities through FY 1997-98, as shown in Table 12 below. Price information for the table is provided through RBAC's quarterly survey of processors in the eastern, central, and western parts of the state.

Table 12: Prices Paid for Recyclable Materials in FY 1997-98

Material	July 1997	October 1997	March 1998	May 1998
Aluminum Cans, lbs., loose	$.41	$.56	$.53	$.49
Steel cans, gross ton, baled	$62	$63	$79	$72
PETE, lbs., baled	$.05	$.07	$.09	$.11
HDPE, lbs., baled	$.23	$.22	$.14	$.11
Newsprint, ton baled	$32	$28	$28	$45
Corrugated, ton baled	$82	$65	$70	$59
Office paper, ton baled	$107	$145	$126	$123
Magazines, ton baled	$20	$22	$20	$25
Mixed paper, ton baled	$7	$5	$10	$20
Clear glass, ton	$33	$37	$37	$37
Brown glass, ton	$22	$26	$26	$26
Green glass, ton	$8	$8	$8	$8

Entering FY 1998-99, prices for many commodities suffered a decline, reflecting relatively poor overall domestic demand and the effects of the Asian economic recession. As the market assessment was able to document, many recyclable commodities in North Carolina, especially paper, metals, and plastics, are affected by both overall world-wide trade and specifically by global trade in their virgin counterparts. For example, the demand and prices paid for recycled aluminum are influenced by global production of virgin bauxite ore and the overall supply/demand balance for finished aluminum products. Recycled PETE has been negatively affected by a large increase in world-wide virgin PETE manufacturing capacity and by the overall low global price of petroleum. Recycled steel prices plummeted in 1998 as the faltering Asian economies cut back on domestic demand for finished steel and Asian steel manufacturers flooded world markets with their product. The resulting global oversupply brought the market price paid for steel cans and white goods in North Carolina down to around $0/ton.

North Carolina's ability to divert materials from disposal will depend on a persistent increase in demand for recyclable commodities. Such an increase will be difficult to achieve without a global economic turn-around, but the State can still be active in promoting buy-recycled practices that gradually shift manufacturing production from virgin to recycled feedstocks. One of the most promising signs for paper recycling markets in 1998 was the promulgation of Federal Executive Order 13101, essentially ending federal purchase of some virgin papers and raising the post-consumer recycled-content standard to 30 percent. Similar actions by state governments (including North Carolina) and local communities are examples of efforts that help increase demand for recycled paper and other currently disposed commodities.

There are many opportunities for waste reduction and recycling to expand in North Carolina, whether in the form of increasing local program participation rates or developing new infrastructure to address the growing C&D waste stream. Relatively low tipping fees may continue to be a barrier to encouraging greater waste reduction, but efficient local programs and the development of new and innovative private sector recycling efforts should help overcome that barrier. Despite not making any progress toward its waste reduction goal, North Carolina's recycling rate has almost doubled in eight years.

The State Waste Reduction Goal

North Carolina's "Solid Waste Management Act"[1] set a statewide waste reduction goal of forty percent on a per capita basis. All local governments in North Carolina are required by the same Act to be a part of a local 10-year comprehensive solid waste management plan. General Statute 130A-309.09A requires that in addition to addressing other waste issues, each plan:

> Include a goal for the reduction of municipal solid waste on a per capita basis by 30 June 2001 and a goal for the further reduction of municipal solid waste by 30 June 2006. The solid waste reduction goals shall be determined by the unit or units of local government that prepare the plan, and **shall be determined so as to assist the State, to the maximum extent practical, to achieve the State's forty percent (40%) municipal solid waste reduction goal . . .**

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

Local Government Plans for Waste Reduction

In 1998 the Solid Waste Section completed analysis of local government solid waste management plans developed in compliance with this law. A total of 130 waste management plans were submitted. Most counties planned with their local municipalities; 14 municipalities planned separate from their counties.

A comparison of the goals in local plans to the state goal (using an average weighted relative to population) shows that if each of the local plans were successful in achieving their chosen goals, a 27 percent reduction could be achieved. This "good faith" effort from local government falls far short of the state's own waste reduction goals, but would still be an important achievement for the state. (See Appendix C for a list of the local government plans and their stated goals).

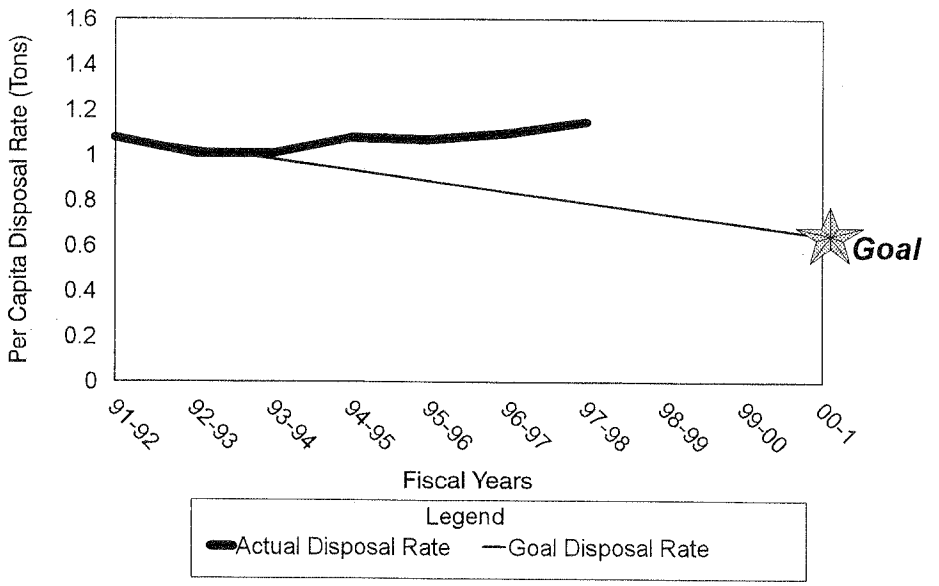
Assessment of State Waste Reduction Progress

The state measures waste reduction by comparing the amount of waste each person disposed (per capita disposal rate) in the base year (FY 1991-92) to the per capita rate in the current year.

In other words: Total Waste Disposed ÷ Population = Per Capita Disposal Rate

The per capita rate for the FY 1991-92 base year was 1.08 tons. Each year is compared to the base year to measure progress toward the goal. After a slight decrease in the first two years, the per capita disposal rate (adjusted for Hurricane Fran) for FY 1997-98 has increased to 1.15 tons. (See Figure 7).

Figure 7: Progress Toward 40 Percent Reduction Goal



To achieve the state waste reduction goal of 40 percent by the year 2001, the state per capita disposal rate would have to decrease from its current number of 1.15 tons per person to .72 tons per person. Between 2 million and 3 million tons of waste currently being disposed by landfilling or incineration would either have to be managed in some other way (reused, recycled, composted, or mulched) or not be generated (source-reduced). The state's success rate over the past eight years indicates such a reduction will not occur.

Table 13 shows the amount of municipal solid waste disposed each year, the state population, and the resulting per capita rates of disposal.

Table 13: NC Per Capita Disposal Rates and Waste Reduction, FYs 1990-91 to 1997-98

Fiscal Years	Tons Disposed	Population	Per Capita Disposal Rate	Percent Waste Reduction from Base Year 1991-92
1997-98	8,493,921	7,431,161	1.15	-6%
1996-97	*8,041,734.00 (adjusted)*	7,323,085	1.10	-2%
1996-97	8,741,733.62	7,323,085	1.20	-11%
1995-96	7,722,794.78	7,194,238	1.07	0%
1994-95	7,624,144.85	7,064,470	1.08	0%
1993-94	7,038,505.34	6,949,095	1.01	6%
1992-93	6,890,818.15	6,836,977	1.01	6%
1991-92	*7,257,428.09 (managed)*	6,739,959	1.08 (Base Year)	
1991-92	6,822,890.35	6,739,959	1.01	
1990-91	7,161,455.00	6,648,689	1.07	

* The 1996-97 fiscal year is adjusted by subtracting 700,000, the tonnage estimated to have been created by Hurricanes Bertha and Fran.

** The tons managed figure was determined by adding the total amount of municipal solid waste disposed in landfills and incinerators to the amount of waste managed through recycling, composting and mulching efforts of local governments in FY 1991-92. Recycling, composting and mulching were added to the tons disposed in recognition of the fact that some local governments had begun waste reduction prior to 1991.

Municipal solid waste is calculated by adding North Carolina waste disposed in MSW landfills, C&D landfills, MSW incinerators, and tire monofills. Waste disposed in medical waste incinerators, industrial landfills, and land clearing and inert debris landfills was not included in this calculation.

As Table 13 shows, the per capita disposal rate decreased in FYS 1992-93 and 1993-94 before rising again to the base level in FY 1994-95. In FY 1997-98, the per capita disposal rate increased to 1.15 tons. This statistic represents the fourth year in a row that disposal facility reports showed no reduction in waste.

Analysis completed in previous years indicates a strong correlation between the strength of the economy and high disposal rates. As North Carolina's economy continues to strengthen, the state's per capita disposal rate

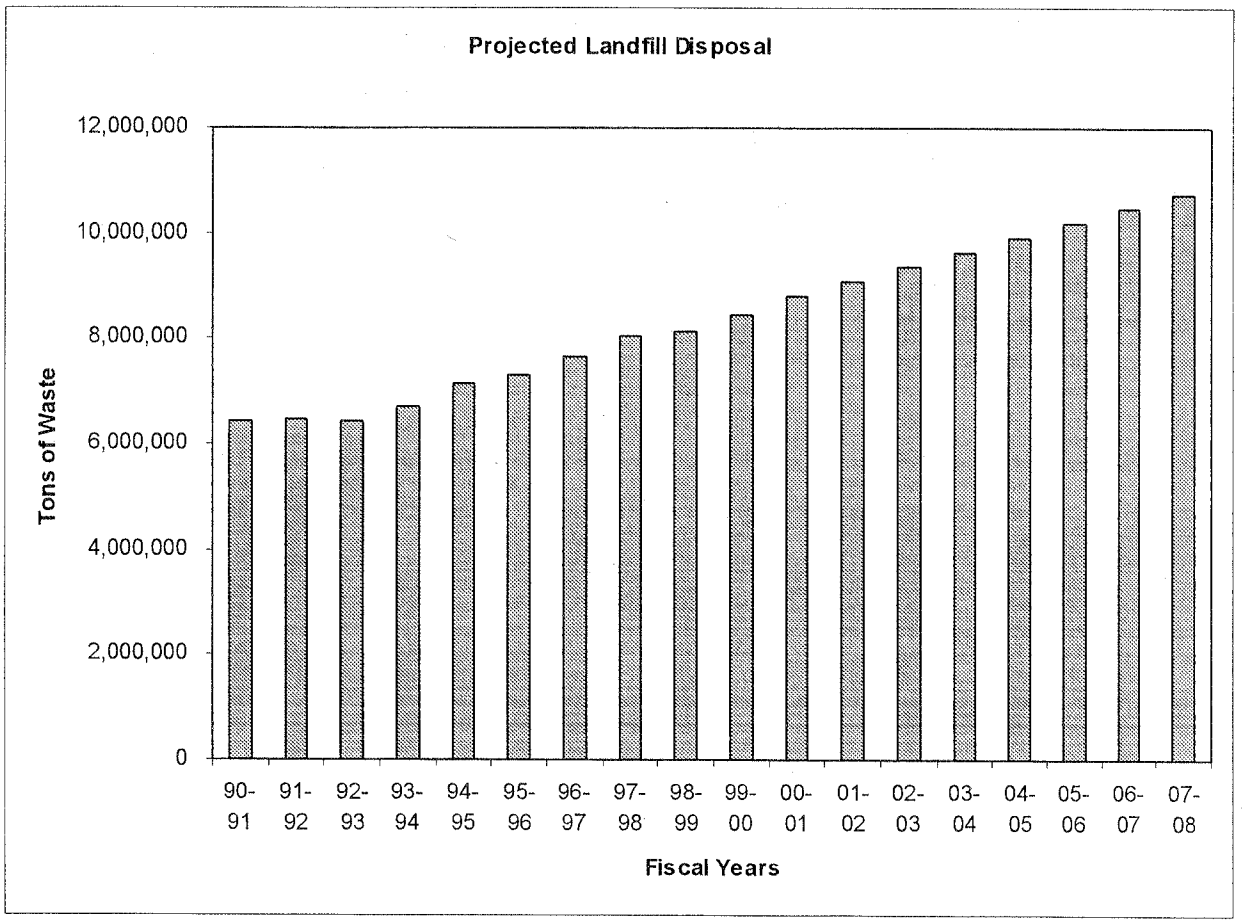
increases. Factors such as the relatively low cost of disposing waste by landfill in North Carolina and the weakness of reduction incentives also contribute to the high disposal figure.

Forecasting North Carolina Waste Disposal

North Carolina per capita disposal rates can be projected using linear regression trends and past disposal data. **Figure 8** shows a linear trend that projects North Carolina per capita disposal through FY 2009-10.

North Carolina's population is expected to continue growing, which means that the state will be faced with increasing amounts of waste to manage. A linear regression analysis of the next 10 years forecasts that the state will dispose of more than 1.2 tons per capita. This figure represents a 9 percent increase from existing rates, and is almost twice the rate needed to meet the state waste reduction goal.

Figure 8: Annual Per Capita Disposal Projections to FY 2001-08



Planning

The State's comprehensive plan for addressing solid waste issues is called the "North Carolina Recycling and Solid Waste Management Plan." It was published in 1992 and stated three general purposes:

> To ensure the adequate capacity of environmentally protective solid waste disposal facilities;
>
> To determine state goals and actions required to meet the reduction goals and other policies of the law; and
>
> To provide guidance for local governments' own programs to support these goals and actions.

In the seven years since the publication of the state plan, how far has the state progressed in these aims? All of North Carolina's active municipal solid waste landfills are now equipped with liner and leachate collection systems. All cities and counties in North Carolina are participants in local plans designed to address their current and future solid waste management needs.

However, the state is not able to report significant gains in reduction since tracking of waste disposal began in 1991, and for the past several years questions have been raised about the viability and the desirability of the state's waste reduction policy.

The law that required the state to plan for waste management also requires that the plan be updated. Staff from the Division of Waste Management and the Division of Pollution Prevention and Environmental Assistance began meeting in November 1998 to coordinate the process of re-examining and possibly rewriting the State Plan. This process is expected to involve state and local officials, environmental and business organizations, members of the regulated community and other interested parties.

The primary purpose of the state's solid waste management plan is to ensure the protection of the public health and the environment. Citizens and state officials charged with updating the plan will address concerns about the potential for increased importation of waste, offsite contamination from old landfills, questions of "environmental justice", and questions about the practicality of the state's current waste reduction policy, among other issues.

Additional Information

Additional solid waste information is available in the following reports:

- Annual Report on State Agency Waste Reduction and Buy-Recycled Activities
- NC DPPEA Annual Report
- White Goods Account Annual Report
- Scrap Tire Disposal Account Annual Report
- Scrap Tire Management Report
- Solid Waste Trust Fund Annual Report

Please contact DPPEA at (919)733-6500 and DWM, Solid Waste Section at (919)733-0692 for copies of these reports.

APPENDIX A-1 PUBLIC AND PRIVATE MUNICIPAL SOLID WASTE LANDFILLS (INCLUDES CONSTRUCTION AND DEMOLITION LANDFILLS), DESCENDING ORDER OF TONS, FY 1997-98

		TONS				LINED LANDFILL
PERMIT	FACILITY	FY 94-95	FY 95-96	FY 96-97	FY 97-98	FY 96-97
1304	BFI-CHARLOTTE MTR SPEEDWAY LANDFILL V	548,442	593,659	621,833	875,286	YES
3406	PIEDMONT SANITARY LANDFILL	507,123	552,899	606,859	551,748	YES
8201	BFI-SAMPSON COUNTY DISPOSAL INC	163,175	231,233	258,194	387,742	YES
0803	ADDINGTON-EAST CAROLINA REG LF	282,654	361,517	358,284	365,737	YES
9209	WAKE COUNTY LANDFILL	110,379	114,287	163,857	329,511	YES
3402	WINSTON-SALEM, CITY OF - LANDFILL	300,571	299,140	310,660	299,740	YES
6204	UWHARRIE ENV. REG. LANDFILL		13,055	62,126	293,753	YES
9214	BFI-HOLLY SPRINGS DISPOSAL INC	196,607	234,408	219,504	254,901	NO
6013	NORTH MECKLENBURG C&D LANDFILL	195,345	248,115	281,168	246,232	NO
2601	CUMBERLAND COUNTY LANDFILL	186,366	97,372	151,124	197,992	NO
4112	GREENSBORO, CITY OF, SOLID WASTE MAN FAC				192,362	
1803	CATAWBA COUNTY LANDFILL				184,526	
4103	GREENSBORO CITY OF - LANDFILL	277,941	284,829	309,798	173,895	NO
6504	NEW HANOVER COUNTY LANDFILL	80,786	114,365	163,648	155,442	YES
3606	GASTON COUNTY LANDFILL				150,775	
9201	RALEIGH CITY OF - LANDFILL	288,371	296,906	310,332	147,097	NO
4903	IREDELL COUNTY SANITARY LF	108,342	103,586	143,752	119,003	YES
2504	*CRSWMA - INTERIM REGIONAL LF	110,798	118,679	144,202	130,558	YES
4104	HIGH POINT CITY OF - LANDFILL	98,795	93,248	101,579	110,687	YES
3201	DURHAM, CITY OF LANDFILL	206,381	177,360	207,611	105,849	NO
7304	ADDINGTON-UPPER PIEDMONT REG LF			150	104,026	YES
1107	BUNCOMBE COUNTY MSW LANDFILL				85,466	
3412	WINSTON-SALEM CITY OF C&D LANDFILL			34,275	84,509	NO
2906	DAVIDSON CO MSW LINED LANDFILL	73,653	92,137	86,544	79,403	YES
9203	WAKE COUNTY LANDFILL	106,524	120,639	165,871	78,538	NO
1007	BRUNSWICK COUNTY LANDFILL	79,917	83,116	75,613	73,162	NO
8003	ROWAN COUNTY LANDFILL	105,367	83,378	65,641	71,762	YES
0104	AUSTIN QUARTER SWM FACILITY	68,240	67,484	65,897	69,765	YES
7904	ROCKINGHAM COUNTY LANDFILL		52,474	59,829	69,056	YES
9801	WILSON COUNTY LANDFILL	112,523	119,131	124,152	62,874	NO
1401	CALDWELL COUNTY LANDFILL	75,671	74,871	79,108	62,030	NO
5102	JOHNSTON COUNTY LANDFILL				61,933	
6801	ORANGE COUNTY LANDFILL	61,058	57,889	58,590	59,305	YES
9704	WILKES COUNTY MSWLF	53,892	41,372	57,827	58,196	YES
6201	MONTGOMERY COUNTY LANDFILL	138,041	188,685	131,896	51,903	NO

APPENDIX A-1 PUBLIC AND PRIVATE MUNICIPAL SOLID WASTE LANDFILLS (INCLUDES CONSTRUCTION AND DEMOLITION LANDFILLS), DESCENDING ORDER OF TONS, FY 1997-98

		TONS				LINED LANDFILL
PERMIT	FACILITY	FY 94-95	FY 95-96	FY 96-97	FY 97-98	FY 96-97
7803	ROBESON COUNTY LANDFILL	92,548	90,886	93,836	51,782	NO
1203	BURKE COUNTY LANDFILL	99,954	102,602	105,917	50,575	NO
9601	WAYNE COUNTY LANDFILL	86,820	90,833	103,103	49,159	NO
6709	ONSLOW COUNTY SUBTITLE D LANDFILL				47,458	
5403	LENOIR COUNTY LANDFILL	77,319	74,418	118,153	46,377	NO
6705	ONSLOW COUNTY MUNICIPAL SW LANDFILL	79,106	80,598	138,548	45,402	NO
4501	HENDERSON COUNTY LANDFILL	59,925	67,451	77,160	45,035	NO
3301	EDGECOMBE COUNTY LANDFILL	73,225	64,989	83,968	44,677	NO
4407	HAYWOOD CO WHITE OAK LANDFILL	34,736	38,630	39,340	42,899	YES
7601	RANDOLPH COUNTY LANDFILL	75,658	74,100	77,295	42,875	NO
2602	US ARMY - FT. BRAGG LANDFILL	45,238	71,062	90,182	41,066	NO
4302	HARNETT COUNTY LANDFILL	68,064	73,555	89,567	39,894	NO
2301	CLEVELAND COUNTY LANDFILL	71,298	70,480	75,511	39,037	NO
9001	UNION COUNTY LANDFILL	77,257	75,305	81,649	38,859	NO
6401	NASH COUNTY LANDFILL	80,908	91,896	87,289	37,751	NO
9606	WAYNE COUNTY				37,216	
9003	GRIFFIN FARMS C&D LANDFILL		17,070	34,550	36,460	NO
5503	LINCOLN COUNTY LANDFILL	34,090	34,238	31,596	35,391	YES
2608	FORT BRAGG C&D LANDFILL				33,104	
4903	IREDELL COUNTY C&D UNIT	17,400	24,278	31,860	30,620	NO
6801	ORANGE COUNTY C&D UNIT	63,553	31,342	37,832	30,168	NO
8401	ALBEMARLE, CITY OF-LANDFILL				29,748	
4103	GREENSBORO, CITY OF CDLF				29,319	
5101	JOHNSTON COUNTY LANDFILL	72,961	78,095	95,004	29,011	NO
8301	SCOTLAND COUNTY LANDFILL	48,654	57,150	55,867	28,618	NO
5703	MACON COUNTY LANDFILL	18,779	19,474	19,987	27,205	YES
	SURRY COUNTY MSW STOCKPILE				26,875	
1101	BUNCOMBE COUNTY LANDFILL	102,185	119,083	147,652	26,570	NO
9101	VANCE COUNTY LANDFILL	45,827	49,369	56,501	26,290	NO
8203	BFI-SAMPSON COUNTY C&D UNIT		18,686	191,254	25,712	NO
8103	RUTHERFORD COUNTY LANDFILL	54,105	50,076	50,934	24,961	
2601	CUMBERLAND COUNTY C&D UNIT				23,674	
1302	CABARRUS COUNTY LANDFILL	52,691	44,795	41,827	21,649	NO
1301	BFI-CHARLOTTE MOTOR SPEEDWAY		29,482	43,014	21,510	NO
2401	ARS - COLUMBUS COUNTY	100,015	47,185	52,377	21,147	NO

APPENDIX A-1 PUBLIC AND PRIVATE MUNICIPAL SOLID WASTE LANDFILLS (INCLUDES CONSTRUCTION AND DEMOLITION LANDFILLS), DESCENDING ORDER OF TONS, FY 1997-98

		TONS				LINED LANDFILL
PERMIT	FACILITY	FY 94-95	FY 95-96	FY 96-97	FY 97-98	FY 96-97
9203	WAKE COUNTY CDLF				20,879	
2803	DARE COUNTY C&D LANDFILL	16,649	14,638	18,417	20,469	NO
6708	CAMP LEJEUNE MSW LANDFILL				19,629	
3902	GRANVILLE COUNTY LANDFILL	20,457	21,224	26,788	18,109	NO
8602	SURRY COUNTY LANDFILL	53,341	50,065	47,836	17,961	NO
U0007	MOORE CO. C&D STOCKPILE	12,291	10,426	14,089	17,369	NO
4204	HALIFAX COUNTY LANDFILL	165,160	37,728	42,905	17,229	NO
0501	ASHE COUNTY LANDFILL	15,993	14,540	15,853	16,309	YES
5403	LENOIR COUNTY CDLF				15,832	
6703	US MARINE CORPS CAMP LEJUENE	33,636	39,356	70,133	15,550	NO
1107	BUNCOMBE COUNTY C&D UNIT				15,089	
3901	GRANVILLE COUNTY LANDFILL	45,698	43,212	42,771	14,549	NO
5002	JACKSON COUNTY LANDFILL	24,296	26,813	27,366	14,421	NO
1007	BRUNSWICK COUNTY CDLF				14,254	
8807	TRANSYLVANIA COUNTY SANITARY LANDFILL	16,452	9,294	11,533	14,082	YES
8301	SCOTLAND COUNTY CDLF				12,058	
9801	WILSON COUNTY CDLF				11,973	
0201	ALEXANDER COUNTY LANDFILL	21,671	22,026	21,771	10,644	NO
0104	AUSTIN QUARTER C&D UNIT***	9,014	9,299	10,824	10,499	NO
8401	ALBEMARLE, CITY OF, CDLF				10,173	
5901	MARTIN COUNTY C&D LANDFILL	1,936	3,530	8,141	9,189	NO
7002	PASQUOTANK COUNTY C&D LANDFILL		1,794	7,275	8,606	NO
8103	RUTHERFORD COUNTY C&D UNIT***	14,935	12,104	9,744	8,527	NO
2001	CHEROKEE COUNTY LANDFILL	24,618	23,058	22,395	8,329	NO
2002	CHEROKEE COUNTY MSW FACILITY				8,248	
8603	SURRY COUNTY LANDFILL	22,111	18,970	21,273	7,971	NO
3902	GRANVILLE COUNTY CDLF				7,744	
5301	LEE COUNTY C&D LANDFILL	3,893	5,370	5,669	6,833	NO
3003	DAVIE COUNTY C&D LANDFILL		6,859	6,040	6,528	NO
3301	EDGCOMBE COUNTY CDLF				5,878	
2301	CLEVELAND COUNTY CDLF				5,857	
5503	LINCOLN COUNTY C&D UNIT		3,053	3,311	5,411	NO
9601	WAYNE COUNTY CDLF				5,154	
1302	CABARRUS COUNTY CDLF				5,107	
4002	GREENE COUNTY LANDFILL	10,178	10,774	15,703	4,926	NO

APPENDIX A-1 PUBLIC AND PRIVATE MUNICIPAL SOLID WASTE LANDFILLS (INCLUDES CONSTRUCTION AND DEMOLITION LANDFILLS), DESCENDING ORDER OF TONS, FY 1997-98

		TONS				LINED LANDFILL
PERMIT	FACILITY	FY 94-95	FY 95-96	FY 96-97	FY 97-98	FY 96-97
5803	MADISON COUNTY LANDFILL	10,773	9,954	7,868	4,683	YES
1203	BURKE COUNTY CDLF				4,647	
5704	MACON COUNTY C&D LANDFILL	4,379	4,356	3,681	4,531	NO
9902	YADKIN COUNTY C&D LANDFILL	1,688	2,728	3,319	4,026	NO
9101	VANCE COUNTY CDLF				3,619	
4302	HARNETT COUNTY CDLF				3,066	
U0008	MCDOWELL CO. C&D STOCKPILE	4,461	3,961	4,231	2,887	NO
10002	YANCEY-MITCHELL C&D LANDFILL	3,254	3,600	3,484	2,831	NO
9502	WATAUGA COUNTY C&D LANDFILL		2,522	3,094	2,698	NO
4204	HALIFAX COUNTY CDLF				2,591	
	COLUMBUS COUNTY C&D LANDFILL			32	1,911	NO
0201	ALEXANDER COUNTY CDLF				1,448	
5803	MADISON COUNTY C&D UNIT***		1,062	10,481	1,378	NO
U0003	POLK CO. C&D STOCKPILE	1,557	1,577	2,380	1,374	NO
0603	AVERY COUNTY C&D LANDFILL			266	1,077	NO
U0002	NORTHAMPTON CO. C&D STOCKPILE	316	438	1,579	916	NO
4002	GREENE COUNTY CDLF				554	
5002	JACKSON COUNTY LANDFILL CDLF				552	
9404	WASHINGTON COUNTY C&D LANDFILL		103	1,084	509	NO
	ALBEMARLE, CITY OF	48,187	47,033	54,003		NO
07A**	BEAUFORT COUNTY DEMO LANDFILL	9,573	8,845	11,240		NO
1803	CATAWBA COUNTY LANDFILL	148,852	160,186	155,675		NO
3606	GASTON COUNTY LANDFILL	80,204	81,208	96,297		NO
4303	HARNETT CO ANDERSON CRK C&D LANDFILL			1,890		NO
7301	PERSON C&D LANDFILL	7,042	8,102	6,134		NO
7401	PITT COUNTY LANDFILL	101,769				
7901	ROCKINGHAM COUNTY LANDFILL	47,175				
U0006	HARNETT COUNTY C&D STOCKPILE	578	1,969			
	TOTAL TONS	**7,151,414**	**7,324,743**	**8,388,268**	**8,029,541**	

C&D = Construction and Demolition waste

*CRSWMA = Coastal Regional Solid Waste Management Authority

** permit conditions include acceptance of C&D waste

***C&D Unit data reported separately from MSW landfill beginning FY1995-96

APPENDIX A-2: SCRAP TIRE MONOFILLS, DESCENDING ORDER, FY 1997-98

PERMIT	FACILITY	TONS			
		FY 94-95	FY 95-96	FY 96-97	FY 97-98
1303	U S TIRE RECYCLING PARTNERS, LP	38359	28313	50495	44951
4304	CENTRAL CAROLINA TIRE RECYCLING	31651	27833	19886	24639
	TOTAL TONS*	**70010**	**56146**	**70381**	**69590**

*Tons landfilled (less tons recycled or reused)

APPENDIX A-3: INCINERATION FACILITIES, DESCENDING ORDER, FY 1997-98

PERMIT	FACILITY	NET TONS				ASH TONS
		FY 94-95	FY 95-96	FY 96-97	FY 97-98	FY 97-98
6505	NEW HANOVER WASTE-TO-ENERGY FACILITY	59619	84648	79564	81670	47530
6010-I	NORTHEAST WASTE-TO-ENERGY	51311				
0903	BCH ENERGY GENERATION FACILITY		48123			
	TOTAL TONS	**110930**	**132771**	**79564**	**81670**	**47530**

APPENDIX A-4: PRIVATE INDUSTRIAL LANDFILLS, DESCENDING ORDER, FY 1997-98

PERMIT	FACILITY	TONS			
		FY 94-95	FY 95-96	FY 96-97	FY 97-98
7302	CAROLINA POWER & LIGHT CO	410,668	547,750	496,565	1,262,833
4406	CHAMPION INTERNATIONAL	303,310	345,674	343,938	324,005
9401	WEYERHAEUSER	95,330	45,534	49,909	84,432
8503	DUKE POWER/BELEWS CREEK ST PLT	105,680	44,830	75,680	79,015
2402	INTERNATIONAL PAPER	264,689	69,833	295,426	64,987
3405	R J REYNOLDS	47,186	48,881	42,809	40,309
3413-TEMP	UNITED METALS RECYCLING, FORSYTH				29,030
2502	WEYERHAEUSER	6,506	6,506	19,245	20,410
8801	ECUSTA ASH LANDFILL	11,784	12,965	14,295	14,938
1102	BASF CORPORATION	17,262	12,308	9,915	12,514
8805	ECUSTA LANDFILL	6,741	5,140	5,534	5,250
9703	ABTCO INC	4,062	4,226	3,443	3,937
5603	COLLINS & AIKMAN	6,603	4,747	3,405	2,647
7602	EVEREADY BATTERY	465	368	251	290
1006	E.I. du PONT deNEMOURS Co./ CAPE FEAR P				197
6004	DUKE POWER COMPANY	14	73	144	189
1804	DUKE POWER/MARSHALL STEAM PLT	142,887	90,925	77,394	
4203	CHAMPION INTERNATIONAL	22,765	40,243	22,656	
2302	CLEVELAND CONTAINER SERVICE	91,134	75,675	76,192	
1006	DUPONT	27,946	17,962	2,028	
3605	FMC CORPORATION LITHIUM DIV	190,814	185,829	206,760	
1001	CAROLINA POWER & LIGHT CO.	15	10	24	
4503	CRANSTON PRINT WORKS	3,224	2,456		
0802	R J REYNOLDS LANDFILL	1,080	675		
6603	GEORGIA PACIFIC	109	0		
6702	WEYERHAEUSER	7,101			
8806	DUPONT	428	274		
9210	CAROLINA POWER & LIGHT CO	49	32	41	
5404	DUPONT	22,073	25,595	21,094	
	TOTAL TONS	**1,789,927**	**1,588,509**	**1,766,748**	**1,944,983**

APPENDIX A-5: TRANSFER STATIONS, PERMIT ORDER, FY 1997-98

PERMIT	TRANSFER STATION	TONS FY 97-98	DISPOSAL DESTINATION	DESTINATION PERMIT
0202-T	ALEXANDER CO. TRANSFER STATION	9,073	BFI-CHARLOTTE MTR SPEEDWAY LANDFILL V	1304
0303-T	ALLEGHANY COUNTY TRANSFER FACILITY	58	US TIRE DISPOSAL	1303
		7,795	PIEDMONT SANITARY LANDFILL	3406
0402	ANSON COUNTY TRANSFER STATION	3,311	UWHARRIE ENV. REG. LANDFILL	6204
0602-T	AVERY COUNTY TRANSFER STATION	14,258	BFI-CHARLOTTE MTR SPEEDWAY LANDFILL V	1304
0703-T	ARS - BEAUFORT TRANSFER STATION	43,451	ADDINGTON-EAST CAROLINA REG LF	0803
0904-T	BLADEN COUNTY TRANSFER STATION	416	CENTRAL CAROLINA TIRE MONOFILL	4304
		24,540	BFI-SAMPSON COUNTY DISPOSAL INC	8201
10003-T	YANCEY-MITCHELL TRANSFER STATION	19,246	WM - PALMETTO LANDFILL	
1001-T	BRUNSWICK CO TRANSFER/SOUTHPORT	1,546	BRUNSWICK COUNTY CDLF	1007
		2,025	BRUNSWICK COUNTY TRANSFER STATION	1010-T
		4,956	BRUNSWICK COUNTY LANDFILL	1007
1008-T	BRUNSWICK CO TRANSFER/LELAND	1,785	BRUNSWICK COUNTY CDLF	1007
		2,366	BRUNSWICK COUNTY TRANSFER STATION	1010-T
		4,876	BRUNSWICK COUNTY LANDFILL	1007
1009-T	BRUNSWICK CO TRANSFER/OCEAN ISLE BEACH	834	BRUNSWICK COUNTY CDLF	1007
		3,506	BRUNSWICK COUNTY TRANSFER STATION	1010-T
1009-T	BRUNSWICK CO TRANSFER/OCEAN ISLE BEACH	4,955	BRUNSWICK COUNTY LANDFILL	1007
1010-T	BRUNSWICK COUNTY TRANSFER STATION	31,424	BFI-SAMPSON COUNTY DISPOSAL INC	8201
1104	WASTE MANAGEMENT OF ASHEVILLE	102,260	WM - PALMETTO LANDFILL	
1108-T	BUNCOME COUNTY TRANSFER STATION	29,398	BUNCOMBE COUNTY MSW LANDFILL	1107
1205-T	BURKE COUNTY TRANSFER FACILITY	23,875	UWHARRIE ENV. REG. LANDFILL	6204
1604	CARTERET COUNTY TRANSFER STATION	58,417	CRSWMA - INTERIM REGIONAL LF	2504
1903-T	ARS - CHATHAM CO TRANSFER STATION	10,489	UWHARRIE ENV. REG. LANDFILL	6204
		13,647	PIEDMONT SANITARY LANDFILL	3406
2403-T	COLUMBUS COUNTY T. S.	605	CENTRAL CAROLINA TIRE MONOFILL	4304
		19,778	BFI-SAMPSON COUNTY DISPOSAL INC	8201
2510-T	CHERRY POINT T. S.	7,150	CRSWMA - INTERIM REGIONAL LF	2504
2804-T	DARE COUNTY TRANSFER STATION	44,276	ADDINGTON-EAST CAROLINA REG LF	0803
3002	DAVIE COUNTY TRANSFER STATION	17,224	WINSTON-SALEM, CITY OF - LANDFILL	3402
3102	DUPLIN COUNTY TRANSFER STATION	25,952	BFI-SAMPSON COUNTY DISPOSAL INC	8201
3212-T	DURHAM, CITY OF TRANSFER STATION #2	105,760	BRUNSWICK WASTE MANAGEMENT	
3302-T	EDGCOMBE COUNTY TRANSFER STATION	11,747	BERTIE COUNTY LANDFILL	0801
3502-T	FRANKLIN COUNTY TRANSFER STATON	36,848	PIEDMONT SANITARY LANDFILL	3406

APPENDIX A-5: TRANSFER STATIONS, PERMIT ORDER, FY 1997-98

PERMIT	TRANSFER STATION	TONS FY 97-98	DISPOSAL DESTINATION	DESTINATION PERMIT
4205-T	WELDON, TOWN OF, T.S.	1,199	ADDINGTON-EAST CAROLINA REG LF	0803
		22,275	BRUNSWICK COUNTY LANDFILL	1007
4305-T	HARNETT COUNTY TRANSFER STATION	328	HARNETT CNTY-DUNN/ERWIN T.S.	4307-T
		2,043	UWHARRIE ENV. REG. LANDFILL	6204
4307-T	HARNETT CNTY-DUNN/ERWIN T.S.	24,214	UWHARRIE ENV. REG. LANDFILL	6204
4504-T	HENDERSON COUNTY TRANSFER FACILITY	23,084	WM - PALMETTO LANDFILL	
4602-T	HERTFORD COUNTY TRANSFER STATION	3,092	ADDINGTON-EAST CAROLINA REG LF	0803
4904-T	IREDELL COUNTY TRANSFER STATION	23,462	IREDELL COUNTY SANITARY LF	4903
5304-T	ARS - LEE COUNTY TRANSFER STATION	1,623	UWHARRIE ENV. REG. LANDFILL	6204
		23,838	PIEDMONT SANITARY LANDFILL	3406
		36,275	UWHARRIE ENV. REG. LANDFILL	6204
5405-T	LENOIR COUNTY TRANSFER FACILITY	28,718	BFI-SAMPSON COUNTY DISPOSAL INC	8201
5407-T	DUPONT KINSTON TRANSFER FACILITY	6,349	BFI-SAMPSON COUNTY DISPOSAL INC	8201
5602-T	McDOWELL CO TRANSFER FACILITY	522	US TIRE DISPOSAL	1303
		14,050	BURKE COUNTY LANDFILL	1203
		14,155	BFI-CHARLOTTE MTR SPEEDWAY LANDFILL V	1304
6014	USA WASTE SERVICES TRANSFER ST.	202,029	LEE COUNTY LANDFILL	5301
6302	UWHARRIE ENV INC/MOORE CTY TS	12,968	MONTGOMERY COUNTY LANDFILL	6201
		47,454	UWHARRIE ENV. REG. LANDFILL	6204
6402T	ROCKY MOUNT TRANSFER STATION	2,638	NASH COUNTY LANDFILL	6401
		16,091	EDGECOMBE COUNTY LANDFILL	3301
		44,109	BRUNSWICK WASTE MANAGEMENT	
6903	PAMLICO COUNTY TRANSFER STATION	6,155	CRSWMA - INTERIM REGIONAL LF	2504
7003-T	PASQUOTANK COUNTY TRANSFER STATION	27,076	ADDINGTON-EAST CAROLINA REG LF	0803
7103	PENDER CO TRANSFER STATION	32	CENTRAL CAROLINA TIRE MONOFILL	4304
		11,784	BFI-SAMPSON COUNTY DISPOSAL INC	8201
7202-T	PERQUIMANS-CHOWAN-GATES TRANSFER	19,207	ADDINGTON-EAST CAROLINA REG LF	0803
7404-T	PITT COUNTY TRANSFER STATION	1,950	CENTRAL CAROLINA TIRE MONOFILL	4304
		112,731	ADDINGTON-EAST CAROLINA REG LF	0803
7503-T	POLK COUNTY TRANSFER STATION	150	US TIRE DISPOSAL	1303
		3,760	WM - PALMETTO LANDFILL	
7603-T	RANDOLPH COUNTY TRANSFER FACILITY	42,244	BFI-CHARLOTTE MTR SPEEDWAY LANDFILL V	1304
7703-T	RICHMOND COUNTY TRANSFER STATION	39,563	MONTGOMERY COUNTY LANDFILL	6201

APPENDIX A-5: TRANSFER STATIONS, PERMIT ORDER, FY 1997-98

PERMIT	TRANSFER STATION	TONS FY 97-98	DISPOSAL DESTINATION	DESTINATION PERMIT
7902	REIDSVILLE, CITY OF TRANSFER FACILITY	5,953	PIEDMONT SANITARY LANDFILL	3406
7903-T	EDEN, CITY OF TRANSFER STATION	11,165	ROCKINGHAM COUNTY LANDFILL	7901
8004-T	EAST SPENCER WASTE TRANSFER FACILITY	75,015	PIEDMONT SANITARY LANDFILL	3406
8104-T	RUTHERFORD COUNTY TRANSFER FACILITY	23,296	WM - PALMETTO LANDFILL	
8302-T	SCOTLAND COUNTY T.S.	14,779	UWHARRIE ENV. REG. LANDFILL	6204
9102-T	WASTE INDUSTRIES-VANCE COUNTY	20,466	ADDINGTON-UPPER PIEDMONT REG LF	7304
9211	CARY TOWN OF - TRANSFER STATION	1,641	WAKE COUNTY LANDFILL	9209
		5,005	WAKE COUNTY LANDFILL	9203
		11,316	BFI-SAMPSON COUNTY DISPOSAL INC	8201
9215	WASTE MANAGEMENT OF RAL-DUR	2,712	ADDINGTON-UPPER PIEDMONT REG LF	7304
		24,590	PIEDMONT SANITARY LANDFILL	3406
		32,979	BFI-SAMPSON COUNTY DISPOSAL INC	8201
9221-T	SOUTH WAKE TRANSFER STATION	82,933	WAKE COUNTY LANDFILL	9203
9503-T	WATAUGA CO TRANSFER FACILITY	34,316	PIEDMONT SANITARY LANDFILL	3406
9806-T	WASTE INDUSTRIES WILSON TRANSFER ST.	31,640	BFI-SAMPSON COUNTY DISPOSAL INC	8201
9807-T	CCC-WILSON TRANSFER STATION	18,060	BRUNSWICK WASTE MANAGEMENT	
9903	YADKIN COUNTY TRANSFER FACILITY	15,138	BFI-CHARLOTTE MTR SPEEDWAY LANDFILL V	1304

APPENDIX B: COUNTY WASTE REDUCTION, ALPHABETICAL ORDER, FY 1997-98

COUNTY	POPULATION		MSW MANAGED	MSW TONS DISPOSED			BASE YEAR PER CAPITA	PER CAPITA RATE	% WASTE REDUCTION
	FY 97-98	Jul-98	FY 91-92	FY 95-96	FY 96-97	FY 97-98	FY 91-92	FY 97-98	FY 97-98**
ALAMANCE*	119,820		99,302	79,538	80,131	88,901	**0.91**	**0.74**	18%
ALEXANDER	31,078		25,716	22,097	21,816	21,192	0.90	0.68	25%
ALLEGHANY	9,682		14,131	7,367	7,865	7,795	1.45	0.81	44%
ANSON	23,854		14,229	18,847	19,432	19,898	0.61	0.83	-35%
ASHE	23,596		18,089	16,689	18,375	18,877	0.81	0.80	1%
AVERY	15,460		11,130	14,009	14,540	14,571	0.74	0.94	-26%
BEAUFORT	43,400		52,669	48,679	60,352	42,283	1.24	0.97	22%
BERTIE	20,248		17,372	20,636	20,139	23,178	0.86	1.14	-32%
BLADEN	30,314		25,048	15,084	36,334	30,657	0.86	1.01	-17%
BRUNSWICK	65,200		78,123	104,972	129,796	151,765	1.48	2.33	-57%
BUNCOMBE*	191,122		159,040	179,570	209,992	198,703	**0.90**	**1.04**	-16%
BURKE	83,143		78,006	74,197	78,492	64,963	1.02	0.78	23%
CABARRUS	116,502		95,215	99,326	106,493	134,481	0.94	1.11	-18%
CALDWELL	74,728		65,532	75,403	80,023	80,904	0.92	1.08	-17%
CAMDEN	6,308		1,850	2,025	1,998	3,775	0.31	0.60	-94%
CARTERET	59,057		86,894	56,285	70,012	58,526	1.62	0.99	39%
CASWELL	22,059		5,136	8,976	13,154	8,856	0.25	0.40	-62%
CATAWBA*	129,540		151,559	161,181	157,235	153,828	**1.26**	**1.19**	6%
CHATHAM*	45,130		33,235	29,886	29,334	30,256	**0.84**	**0.67**	21%
CHEROKEE	22,416		16,020	15,543	16,595	16,417	0.78	0.73	6%
CHOWAN	14,219		13,692	12,723	13,231	9,551	0.99	0.67	32%
CLAY	8,066		4,172	2,515	1,468	2,383	0.57	0.30	48%
CLEVELAND*	90,650		73,138	71,221	76,908	74,749	**0.86**	**1.19**	-39%
COLUMBUS	51,942		45,199	47,690	53,076	39,479	0.91	0.67	26%
CRAVEN*	88,475		86,549	60,277	69,955	51,080	**1.05**	**0.58**	45%
CUMBERLAND	295,255		227,302	267,929	263,324	335,705	0.81	1.14	-40%
CURRITUCK	16,571		13,792	16,677	18,528	19,095	1.00	1.15	-15%
DARE	27,394		51,300	52,125	58,453	63,805	2.23	2.33	-4%
DAVIDSON	140,442		139,617	128,619	112,691	121,326	1.08	0.74	31%
DAVIE	31,192		19,348	25,997	25,156	26,741	0.68	0.86	-26%
DUPLIN*	44,080		33,310	32,335	38,360	37,243	**0.82**	**0.84**	-3%
DURHAM*	197,710		218,972	254,614	254,507	246,571	**1.17**	1.25	-6%
EDGECOMBE	55,396		71,471	65,976	84,361	101,426	1.25	1.83	-46%
FORSYTH*	287,160		304,290	380,874	433,445	440,241	**1.14**	**1.53**	-35%
FRANKLIN	43,487		28,702	30,461	37,549	39,184	0.76	0.90	-18%
GASTON	180,082		165,100	179,628	195,594	224,255	0.93	1.25	-34%
GATES	9,914		5,897	3,615	4,014	4,403	0.63	0.44	30%

APPENDIX B: COUNTY WASTE REDUCTION, ALPHABETICAL ORDER, FY 1997-98

COUNTY	POPULATION		MSW MANAGED	MSW TONS DISPOSED			BASE YEAR PER CAPITA	PER CAPITA RATE	% WASTE REDUCTION
	FY 97-98	Jul-98	FY 91-92	FY 95-96	FY 96-97	FY 97-98	FY 91-92	FY 97-98	FY 97-98**
GRAHAM		7,504	4,508	4,848	5,412	5,493	0.62	0.73	-17%
GRANVILLE		42,802	54,548	65,267	69,834	64,004	1.39	1.50	-8%
GREENE		17,651	13,917	10,969	15,753	8,679	0.90	0.49	45%
GUILFORD		383,186	471,541	449,957	497,875	619,485	1.35	1.62	-20%
HALIFAX		55,841	54,907	38,206	43,478	39,763	0.98	0.71	27%
HARNETT		81,358	69,073	78,258	92,862	68,721	1.01	0.84	17%
HAYWOOD		51,267	57,842	38,630	40,223	43,755	1.21	0.85	30%
HENDERSON		79,148	81,498	68,950	87,522	95,125	1.14	1.20	-5%
HERTFORD		21,916	14,288	14,719	15,049	14,586	0.63	0.67	-6%
HOKE		28,882	18,331	14,719	17,323	16,834	0.80	0.58	28%
HYDE		5,280	3,241	3,221	3,595	2,553	0.59	0.48	18%
IREDELL		109,261	131,282	129,140	177,545	150,528	1.36	1.62	-19%
JACKSON		29,142	18,661	26,813	27,366	22,266	0.68	0.76	-12%
JOHNSTON		103,181	74,169	79,822	104,902	117,438	0.88	1.14	-29%
JONES		8,988	4,360	2,685	3,875	4,481	0.47	0.50	-7%
LEE		48,369	48,341	53,664	58,051	61,277	1.16	1.27	-10%
LENOIR		59,038	67,693	75,268	118,655	95,019	1.17	1.61	-37%
LINCOLN		57,896	44,442	46,344	39,948	54,435	0.87	0.94	-8%
MACON		27,664	19,738	23,888	24,207	24,381	0.82	0.88	-7%
MADISON		18,330	11,676	11,190	18,569	6,064	0.68	0.33	52%
MARTIN		25,628	30,112	20,022	23,513	24,880	1.19	0.97	19%
MCDOWELL		39,424	29,180	33,499	33,506	31,272	0.82	0.79	3%
MECKLENBURG*		608,567	677,573	917,479	929,186	1,051,342	1.29	1.73	-34%
MITCHELL		14,729	15,768	9,243	9,306	10,691	1.11	0.73	34%
MONTGOMERY		24,473	28,873	27,809	30,936	14,531	1.23	0.59	52%
MOORE		69,502	74,062	76,236	85,783	87,953	1.23	1.27	-3%
NASH		87,101	84,594	92,312	87,713	49,967	1.09	0.57	48%
NEW HANOVER*		146,601	157,647	202,914	324,487	160,679	1.28	1.10	14%
NORTHAMPTON		20,800	19,528	9,644	10,840	12,562	0.94	0.60	36%
ONSLOW		147,352	158,344	130,246	247,352	130,087	1.04	0.88	15%
ORANGE		107,253	131,067	90,397	99,390	92,819	1.36	0.87	36%
PAMLICO		11,973	8,541	5,613	6,964	6,155	0.75	0.51	32%

APPENDIX B: COUNTY WASTE REDUCTION, ALPHABETICAL ORDER, FY 1997-98

COUNTY	POPULATION FY 97-98 Jul-98	MSW MANAGED FY 91-92	MSW TONS DISPOSED FY 95-96	MSW TONS DISPOSED FY 96-97	MSW TONS DISPOSED FY 97-98	BASE YEAR PER CAPITA FY 91-92	PER CAPITA RATE FY 97-98	% WASTE REDUCTION FY 97-98**
PASQUOTANK*	34,519	30,150	28,998	32,337	32,655	0.97	0.95	2%
PENDER	37,208	18,188	16,680	69,015	16,048	0.60	0.43	29%
PERQUIMANS	10,900	7,520	6,947	9,651	6,526	0.73	0.60	18%
PERSON	32,920	24,249	29,374	27,041	27,520	0.80	0.84	-5%
PITT*	124,395	132,896	116,769	119,643	109,242	1.21	0.88	27%
POLK	16,393	9,327	7,203	9,947	8,678	0.63	0.53	16%
RANDOLPH	121,550	78,663	81,558	83,788	90,824	0.73	0.75	-3%
RICHMOND	45,658	60,752	38,863	38,084	37,607	1.35	0.82	39%
ROBESON	112,704	104,700	96,166	104,543	61,943	0.99	0.55	45%
ROCKINGHAM	89,156	71,481	83,976	86,397	92,429	0.83	1.04	-25%
ROWAN	122,774	90,081	104,248	115,307	121,963	0.80	1.17	-46%
RUTHERFORD	59,396	89,175	63,091	61,644	56,150	1.56	0.95	39%
SAMPSON	52,650	33,545	39,221	52,591	48,556	0.70	0.92	-32%
SCOTLAND	35,004	39,867	52,861	48,258	46,064	1.17	1.32	-13%
STANLY	55,131	69,288	56,195	60,961	64,054	1.32	1.16	12%
STOKES	42,848	17,976	10,388	10,409	11,098	0.47	0.26	45%
SURRY	66,834	73,595	69,035	74,904	52,816	1.18	0.79	33%
SWAIN	11,994	5,651	6,168	5,536	6,006	0.50	0.50	1%
TRANSYLVANIA	27,845	30,072	15,013	17,148	20,659	1.16	0.74	36%
TYRRELL	3,672	2,985	1,912	1,471	1,223	0.79	0.33	58%
UNION	106,119	77,842	106,582	148,597	95,746	0.90	0.90	0%
VANCE	40,981	43,267	49,965	56,841	55,255	1.11	1.35	-22%
WAKE*	556,853	569,622	770,896	871,035	874,300	1.29	1.57	-22%
WARREN	18,140	10,978	9,728	9,217	8,665	0.63	0.48	24%
WASHINGTON	13,297	11,699	8,194	9,502	8,655	0.84	0.65	23%
WATAUGA	40,862	36,755	34,694	37,127	35,645	0.99	0.87	12%
WAYNE*	113,182	106,149	92,475	103,848	93,616	1.00	0.83	17%
WILKES	63,105	58,818	42,324	58,660	58,303	0.97	0.92	6%
WILSON	68,724	120,870	120,308	124,931	124,913	1.82	1.82	0%
YADKIN	35,199	20,779	16,140	17,268	20,574	0.67	0.58	13%
YANCEY	16,349	15,576	11,263	12,279	11,302	1.01	0.69	32%
TOTAL	**7,431,161**	**7,257,428**	**7,722,795**	**8,741,734**	**8,493,921**	**1.08**	**1.14**	**-6%**
FY 96-97 TOTAL ADJUSTED FOR HURRICANE FRAN				**8,041,734**				

*see Appendix B-cont. for counties using alternative base year

**Waste reduction formula: (base year per capita minus current year per capita) divided by base year per capita

APPENDIX B Contd.: COUNTIES USING APPROVED ALTERNATIVE BASE YEARS, FY 1997-98

***ALTERNATIVE BASE YEAR COUNTIES**

COUNTY	POPULATION	ALTERNATIVE BASE YEAR	MSW TONS DISPOSED			ALTERNATIVE BASE YEAR	PER CAPITA RATE	% WASTE REDUCTION
	FY 97-98	TONNAGE	FY 95-96	FY 96-97	FY 97-98	PER CAPITA	FY 97-98	FY 97-98
ALAMANCE (FY89-90)	119,820	117,862	79,538	80,131	88,901	1.10	0.74	33%
BUNCOMBE (FY88-89)	191,122	157,660	179,570	209,992	198,703	0.91	1.04	-14%
CATAWBA (FY89-90)	129,540	179,351	161,181	157,235	153,828	1.51	1.19	22%
CHATHAM (90-91)	45,130	34,315	29,886	29,334	30,256	0.89	0.67	24%
CLEVELAND (FY90-91)	90,650	74,096	71,221	76,908	74,749	0.87	0.82	6%
CRAVEN (FY90-91)	88,875	98,536	60,277	69,955	51,080	1.21	0.57	52%
DUPLIN (FY90-91)	44,080	48,900	32,335	38,360	37,243	1.22	0.84	31%
DURHAM (FY88-89)	197,710	224,196	254,614	254,507	246,571	1.31	1.25	5%
FORSYTH (FY88-89)	287,160	357,474	380,874	433,445	440,241	1.34	1.53	-14%
MECKLENBURG (89-90)	608,567	695,214	917,479	929,186	1,051,342	1.39	1.73	-24%
NEW HANOVER (88-89)	146,601	168,504	202,914	324,487	160,679	1.44	1.10	24%
PASQUOTANK (FY90-91)	34,156	32,081	28,998	32,337	32,655	1.02	0.96	7%
PITT (FY89-90)	124,395	177,390	116,769	119,643	109,242	1.66	0.88	47%
WAKE (FY 88-89)	556,853	544,520	770,896	871,035	874,300	1.40	1.57	-12%
WAYNE (FY90-91)	113,182	111,167	92,475	103,848	93,616	1.06	0.83	22%

APPENDIX C: PLANNING AREAS "GOOD FAITH" WASTE REDUCTION GOALS TOWARDS STATES 40% REDUCTION GOAL BY THE YEAR 2006

PLANNING AREA	% REDUCTION GOAL YEAR 2001	YEAR 2006
AHOSKIE	10.0	15.0
ALAMANCE	34.5	40.0
ALEXANDER	10.0	20.0
ALLEGHANY	40.0	45.0
ANSON	9.8	11.0
ASHE	10.0	15.0
AVERY	28.0	12.0
BATH*	NONE	NONE
BEAUFORT	2.5	5.0
BERTIE	20.0	40.0
BLADEN	5.0	10.0
BRUNSWICK	10.0	15.0
BUNCOMBE	5.0	10.0
BURKE	25.0	30.0
CABARRUS *	NONE	NONE
CALDWELL	10.0	25.0
CARTERET	40.0	40.0
CASWELL	10.0	20.0
CATAWBA	20.0	25.0
CHATHAM	30.0	35.0
CHEROKEE	6.0	12.0
CHOWAN	8.0	10.0
CLAY	45.5	47.0
CLEVELAND	15.0	20.0
COLUMBUS	5.0	10.0
CONCORD	50.8	50.8
CRAVEN	40.0	40.0
CUMBERLAND	5.0	10.0
CURRITUCK	0.0	5.0
DARE	9.3	9.3
DAVIDSON	15.0	20.0
DAVIE	-25.0	-20.0
DUPLIN	35.0	40.0

PLANNING AREA	% REDUCTION GOAL YEAR 2001	YEAR 2006
DURHAM	25.0	40.0
DURHAM CITY	25.0	40.0
EDGECOMBE	2.7	4.6
ELIZABETHTOWN	43.0	49.0
ELM	5.0	10.0
FORSYTH	20.0	40.0
FRANKLIN	25.0	40.0
GASTON	12.0	20.0
GATES	41.2	41.2
GRAHAM	10.0	15.0
GRANVILLE	4.0	4.0
GREENE	2.0	3.0
GUILFORD	15.1	16.8
HALIFAX	20.0	30.0
HARNETT	20.0	25.0
HAYWOOD	40.0	42.0
HENDERSON	40.0	50.0
HERTFORD	3.0	5.0
HOKE	5.0	10.0
HYDE	-10.0	-10.0
IREDELL	20.0	40.0
JACKSON	-9.0	9.0
JOHNSTON	12.0	15.0
JONES	10.0	10.0
LEE	10.0	20.0
LENOIR	30.0	40.0
LINCOLN	25.0	26.0
LINCOLNTON	25.0	26.0
MACON	10.0	25.0
MADISON	19.0	23.5
MARTIN *	NONE	NONE
MATTHEWS	20.0	25.0
MCDOWELL	20.0	30.0

APPENDIX C: PLANNING AREAS "GOOD FAITH" WASTE REDUCTION GOALS TOWARDS STATES 40% REDUCTION GOAL BY THE YEAR 2006

PLANNING AREA	% REDUCTION GOAL YEAR 2001	YEAR 2006
MECKLENBURG	35.0	41.0
MITCHELL	42.0	40.0
MONROE*	NONE	NONE
MONTGOMERY	7.0	10.0
MOORE	12.0	20.0
MURFREESBORO	15.0	30.0
NASH	4.9	9.8
NEW HANOVER	10.0	15.0
NORTHAMPTON	5.0	10.0
ONSLOW	25.0	40.0
ORANGE	45.0	61.0
PAMLICO	40.0	40.0
PASQUOTANK	17.0	23.0
PENDER	27.0	32.0
PERQUIMANS	10.6	12.3
PERSON	3.0	5.0
PITT	40.0	45.0
POLK	27.0	32.0
RALEIGH	33.0	35.0
RANDOLPH	5.0	10.0
RICHMOND	40.0	42.0
ROBESON	20.0	30.0
ROCKINGHAM	14.5	19.5
ROWAN	21.0	30.0
RUTHERFORD	35.0	40.0
SAMPSON	3.0	3.0
SCOTLAND	20.0	25.0
NORTH CAROLINA**	**20.8**	**27.1**

PLANNING AREA	% REDUCTION GOAL YEAR 2001	YEAR 2006
SOUTHERN SHORES	40.0	40.0
STANLY	25.0	40.0
STOKES	50.0	55.0
SURRY	40.0	50.0
SWAIN	16.0	18.0
TRANSYLVANIA	40.0	50.0
TYRRELL	37.0	37.0
UNION	38.0	40.0
VANCE	20.0	30.0
WAKE*	28.2	NONE
WARREN	20.0	40.0
WASHINGTON Y	30.0	40.0
WATAUGA	30.0	40.0
WAYNE	15.0	20.0
WHITE LAKE	38.0	42.0
WILKES	33.0	35.0
WILSON	12.5	12.5
YADKIN	40.0	50.0
YANCEY	40.0	40.0

*Planning areas without reduction goals assigned state average for calculation of weighted average or a given goal assumed for the second year without an indicated goal

**Weighted average reduction goals based on population

5- reimbursement programs

have reimbursement

end use
programs

CO
LA
OK
UT
VA

Ceased reimbursement

WI
OR
ID
WA
TX

considering

WV
DE
PA
NJ
AK
TX