Chapter Two: Current Status of Solid Waste Management

This chapter uses data to present a "snapshot" of the status of waste management in North Carolina. Waste stream composition, recovery efforts, litter and illegal disposal data are included along with disposal trends, comparisons of estimated potential recovery vs. actual recovery, waste profiles and an analysis of litter clean-up efforts. These facts identify areas where current solid waste management efforts are succeeding and areas that need further development. The data were used to shape the goals and actions necessary for North Carolina to build on its successes and make future improvements possible.

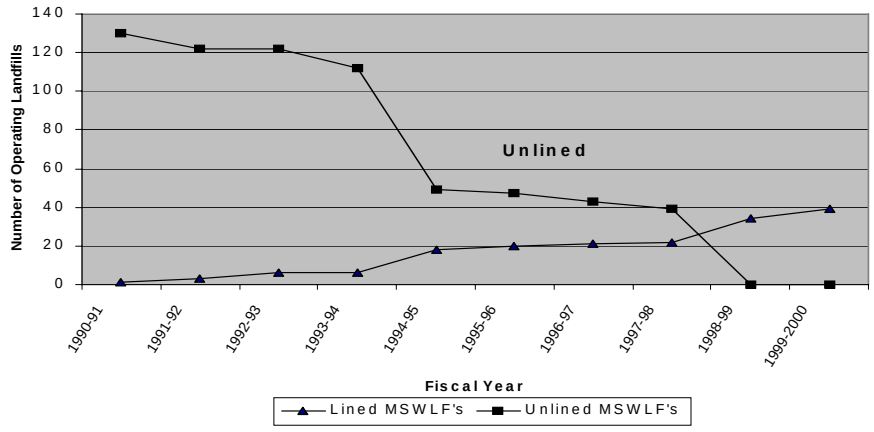
DISPOSAL OF SOLID WASTE

An overview of disposal within the state is essential to understand the current challenges. This section includes historical data from the past decade and projections for future disposal.

Phase-out of Unlined Landfills

North Carolina was one of the first states in the nation to phase-out old, unlined disposal facilities and replace them with lined landfills. Lined landfills better protect human health and the environment. As Figure 2.1 shows, North Carolina began exclusively disposing of its municipal solid waste in lined landfills in 1998. Many unlined landfills closed because of the transition. These closed facilities present long-term concerns for the state's groundwater, which is used by more than half of North Carolina's population for drinking water. It is important to note that the state does not require C&D landfills to be lined.

Figure 2.1. Number of Lined and Unlined Landfills Operating in North Carolina



Increasing Disposal Trends

Despite recycling increases and the establishment of a statewide waste reduction goal, disposing of waste in landfills remains North Carolina predominant solid waste management method. Figure 2.2 below shows a statistical history of disposal in North Carolina. This table presents an upward trend in solid waste disposal.

Figure 2.2

HISTORIC WASTE DISPOSAL

Fiscal Year	Tons Disposed	Population	Per Capita Disposal Rate	Change from 1991-1992
2002-2003	10,236,960	8,323,375	1.23	14%
2001-2002	9,999,284	8,188,008	1.22	13 %
2000-2001	9,752,510	8,049,313	1.21	12%
1999-2000	(adjusted*) 9,937,355	7,938,062	1.26	16 %
1999-2000	10,267,137	7,938,062	1.30	20 %
1998-1999	9,214,323	7,797,501	1.19	10 %
1997-1998	8,607,578	7,645,512	1.13	5 %
1996-1997	(adjusted*) 8,041,734	7,490,812	1.08	0 %
1996-1997	8,741,727	7,490,812	1.17	8 %
1995-1996	7,722,795	7,336,228	1.06	-2 %
1994-1995	7,624,144	7,180,525	1.07	-1 %
1993-1994	7,038,505	7,036,927	1.00	-7 %
1992-1993	6,890,818	6,892,673	1.00	-7 %
1991-1992	(managed**) 7,257,428	6,781,321	(Base Year Rate) 1.08	
1991-1992	6,822,890	6,781,321	1.01	
1990-1991	7,161,455	6,632,448	1.08	

*The 1996-1997 and 1999-2000 fiscal years are adjusted by subtracting the tonnage estimated to have been created by Hurricanes Bertha, Fran (1996-1997) and Floyd (1999-2000).

**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 local governments' recycling, composting and mulching efforts in FY 91-92. Recycling, composting and mulching were added to the tons disposed in recognition of the fact that some local governments had begun waste reduction before 1991.

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

Map 2.1 matches primary facilities with the counties that use them. Primary facilities are those that receive 50 percent or more of a county's waste. As noted earlier, wide reliance on regional landfills is a new trend. As facilities close and new ones open, distribution patterns may change significantly.

Map 2.1 MSW Landfills Used by N.C. Counties According to Primary Facilities Used FY 2001-2002

Primary = > 50% of Tons

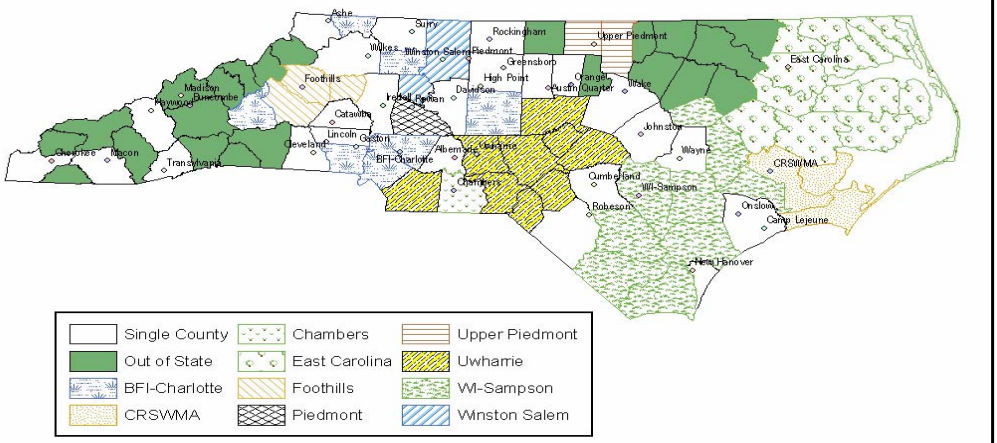
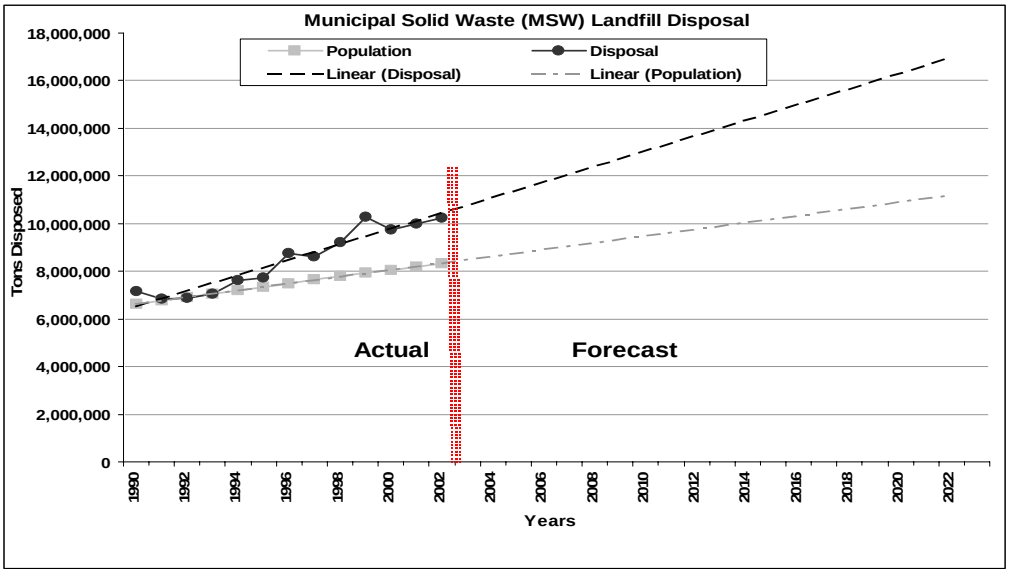
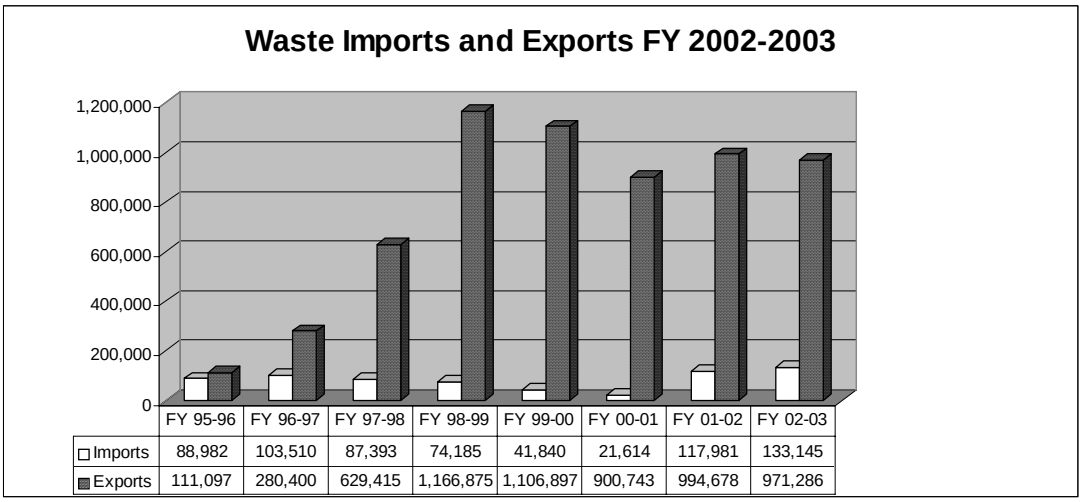


Figure 2.3 shows a projection of disposal trends through 2022. Even if the current per capita disposal rate holds steady, the total of tons requiring disposal will rise. The state disposed of more than 10 million tons of solid waste during the 2002-2003 fiscal year. Current projections place solid waste disposal close to 18 million tons annually in 20 years.

Figure 2.3



Fiscal Year 1998-1999 was the first year North Carolina's waste exports exceeded one million tons. Figure 2.4 shows it was the same year that waste imports declined. If future disposal capacity in adjoining states becomes too scarce or too costly for North Carolina generators or haulers, imports from neighboring states may rise. Although imports declined over the period from 1995-1996 to 2000-2001, imports for Fiscal Year 2002-2003 are the highest in eight years. Imports have continued to increase, partly due to the proximity of North Carolina landfills to state borders. Continual increases in import totals could cause additional stress on North Carolina's disposal capacity.

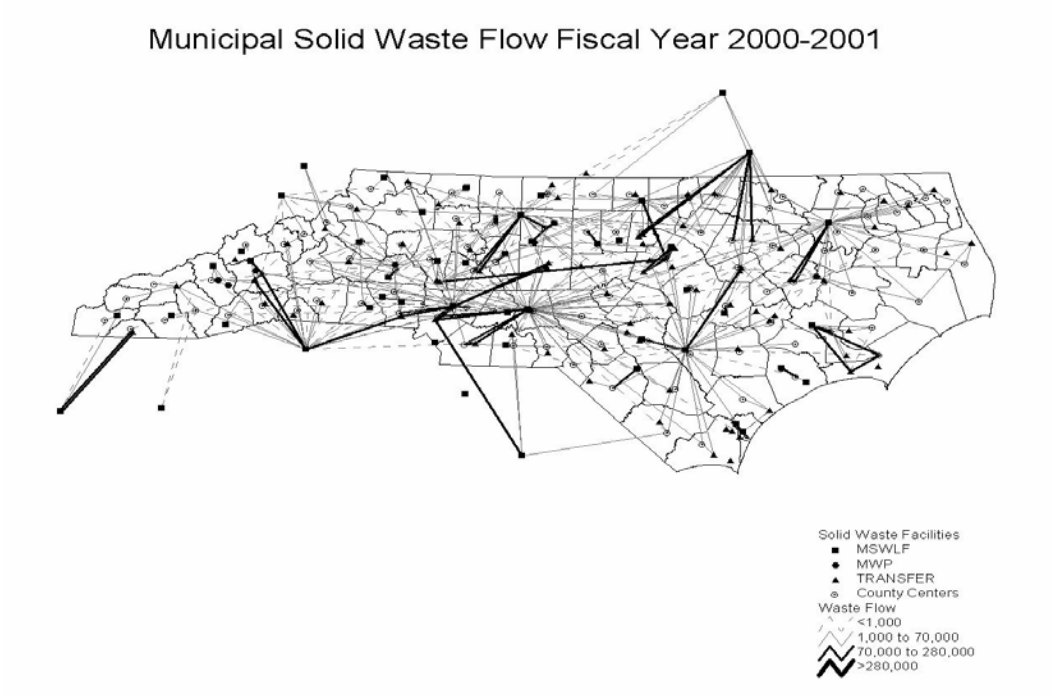


	FY 95-96	FY 96-97	FY 97-98	FY 98-99	FY 99-00	FY 00-01	FY 01-02	FY 02-03
Imports	88,982	103,510	87,393	74,185	41,840	21,614	117,981	133,145
Exports	111,097	280,400	629,415	1,166,875	1,106,897	900,743	994,678	971,286

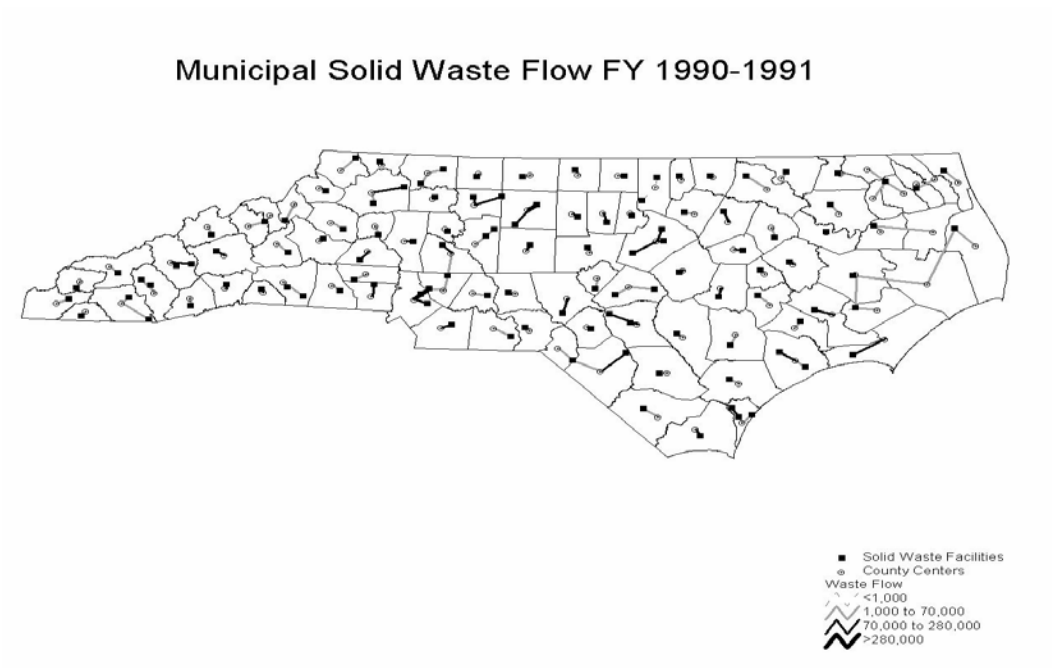
In the past 10 years, North Carolina has changed the way it disposes of waste. The state has moved away from a system where local, government-operated facilities dispose of waste within county boundaries. Large amounts of waste now move through transfer stations to landfills outside the area of its origin.

Map 2.2 indicates the use of in-county facilities, while 2.3 indicates the increased distance and mobility of waste before being disposed.

Map 2.2



Map 2.3



Waste Stream

Significant composition changes have taken place. Construction and demolition debris now constitutes a much larger portion of the waste stream. Materials such as food wastes have also grown in proportion to other materials with higher recycling rates, such as paper. An estimate of the state's waste stream, divided by material, appears in Figure 2.5. The estimate is based on a 1998 market assessment analysis.

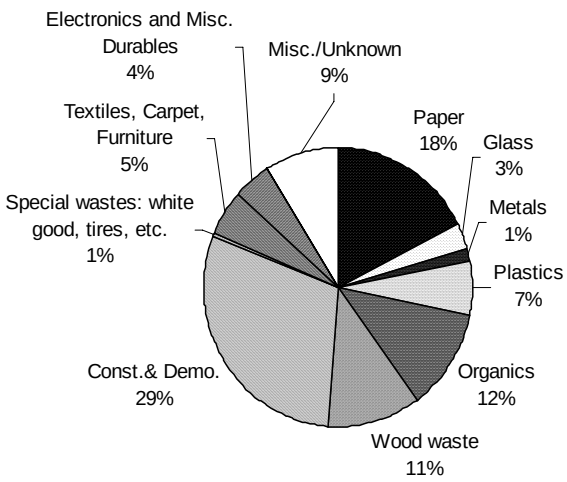


Figure 2.5. Estimated Breakdown of North Carolina's Waste Stream.

Figure 2.6 compares North Carolina's 1991 and 1999 waste streams. The breakdown by source sector shows changes since the state's first State Solid Waste Management Plan in 1991. The share of C&D waste has likely grown by more than 20 percent. The statistical uncertainty is due to the fact that C&D waste was often combined with other waste streams or went undercounted in 1991. At that time, there were very few separate facilities for C&D waste. Counties used to place C&D waste in MSW landfills. Separate C&D facilities were developed in the mid-1990s when unlined MSW landfills closed and were replaced by lined MSW facilities that often charged higher tipping fees. The separate facilities made data collection easier and more accurate. Because the 1991 Plan consultants did not have accurate C&D data, a backward extrapolation was used to create the charts below.

Figure 2.6

WASTE STREAM COMPARISONS

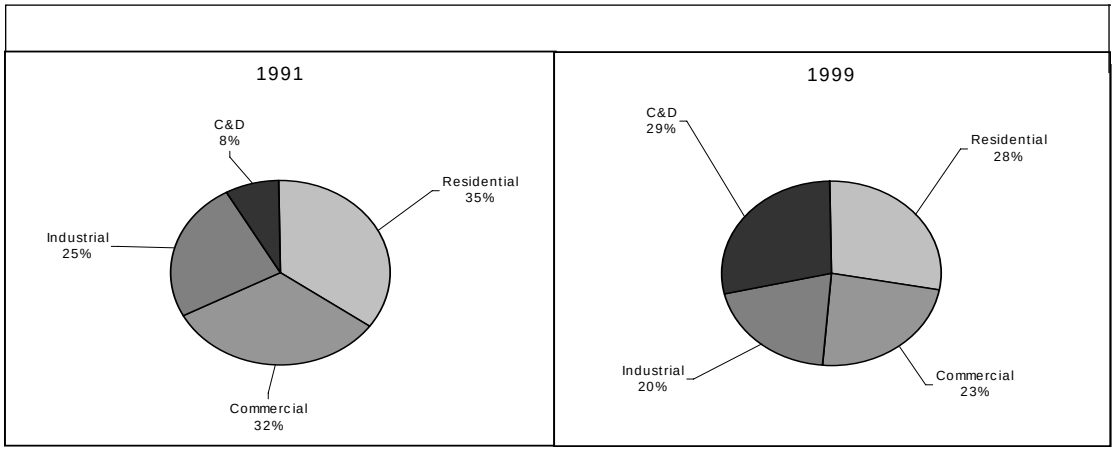


Figure 2.7 provides a more in-depth analysis of the change in county landfill waste composition when separate C&D facilities opened. The comparison shows that MSW portions of county waste decline in association with the rise of tons reported at new C&D landfills.

Figure 2.7. County Landfill Tonnage Samples Before and After C&D Openings.

Facilities	1992-93 tons	1993-94 tons	1994-95 tons	1995-96 tons	% MSW decline when C&Ds open
Iredell Co. MSW landfill	NA	85,180	125,741	103,585	-18%
Iredell Co. C&D unit				24,278	
Rutherford Co. MSW	64,894	77,057	69,039	50,076	-27%
Rutherford Co. C&D				12,104	
Madison Co. MSW	NA	7,411	10,773	9,954	-8%
Madison Co. C&D				1,062	
Orange Co. MSW	125,452	121,345	124,611	*57,889	*-54%
Orange Co. C&D				31,342	
Alamance Co. new MSW	NA	NA	77,253	67,484	-13%
Alamance Co. C&D unit				9,299	
Dare Co. MSWLF/ Transfer	50,101	52,052	40,747	40,633	-22%
Dare Co. C&D			16,649	14,638	

*** 1995-1996 - UNC-CH coal ash was diverted from the local waste stream, further decreasing the total MSW disposed.**

Because C&D debris is a rapidly increasingly waste stream, it needs innovative disposal and reduction strategies. However, other waste streams close in size to C&D also need to be addressed with appropriate programs and policies. Because of their relatively even distribution, North Carolina should apply waste reduction strategies to every sector.

Each source sector has a different waste "profile." As once was the case with C&D, some waste profiles need better documentation. Characterizing waste streams helps target strategies for source reduction and recycling. Here is a general profile for each sector's waste.

- **Residential** – This sector contains common household recyclables and disposables, ranging from newspapers to drink and food containers, food wastes and household hazardous wastes (cleaners, paints, etc.). The vast majority of recyclables collected by local governments come from this waste stream. As an example of this waste stream's profile, an assessment conducted by Wake County in 1998 ranked the largest material categories. At 33.3 percent, paper made up the largest category, followed by food waste (11.6 percent), plastic (10.4 percent) wood (9.5 percent), metal (5.8 percent) and textiles (4.7 percent). Approximately three million households contribute to North Carolina's residential waste stream.
- **Commercial** – Transport packaging, used for retail and wholesale products such as corrugated cardboard, film wrap and pallets, make up the bulk of this sector. Waste streams similar to households (newspaper, drink containers, etc.) and heavy food waste components from restaurants, cafeterias and grocery stores are also included. A large portion of the state's discarded office paper, from places like banks and law and accounting firms, also falls into this sector. The origins for this waste stream range from hundreds of large retail establishments (e.g., malls, shopping centers, grocery stores, etc.) to thousands of small business and office buildings. In 1998, the state Employment Security Commission database listed 59,066 wholesale and retail businesses of all kinds in North Carolina. For example, there are 4,485 grocery stores and 1,478 department and general merchandise stores. There are also 1,829 accounting and bookkeeping offices, 4,503 automotive repair shops, and 1,482 hotels and motels. Other generators include institutions such as state and local governments, hospitals, schools and universities.

- **Industrial** – This sector has three basic categories. The first category is transport packaging wastes (pallets, cardboard, film wrap, drums and barrels) followed by byproduct waste streams, which vary per manufacturing facility, and thirdly general office and administrative wastes (office papers, toner cartridges, etc.). For example, tire manufacturing plants produce rubber, metal and fabric waste streams, including "off-spec" and un-sellable end products. Textile plants create fabric waste streams; furniture plants produce wood wastes, and so on. In 1998, the Employment Security Commission listed 11,604 manufacturing facilities.
- **Construction and Demolition –** Cut-offs, residues and leftover items from residential and commercial construction processes, including entire demolished buildings, make up this sector. Common materials include wood, brick, gypsum wallboard, metal, vinyl siding and shingles. A fair amount of packaging wastes (cardboard boxes and pallets) is also found in this waste stream, as well as potentially toxic materials like leftover paints, glues, caulking and treated lumber. The 1998 North Carolina Recycling Market Assessment report broke down C&D generation into categories. Construction debris, at 18.6 percent, was one of the smaller groups, but renovation discards accounted for 43.5 percent and demolition wastes for 37.9 percent. An estimated breakdown of the overall C&D waste stream yielded these totals: wood (27.5 percent) concrete and brick (23.2 percent), drywall (13.4 percent), roofing (12 percent) and metal (8.8 percent).

Figure 2.8 uses data estimates from the 1998 Recycling Market Assessment to show disposal and recovery rates for the most common materials. The data helps define approaches for waste reduction.

Figure 2.8. - 1998 Estimated Disposal and Recovery Rates *

Material	Recovery Rate %	Estimate Tons Disposed
Construction & Demolition Debris	6	2,672,154
Electronics	0	50,328
Total Glass	16	237,171
Aluminum Cans	49	21,815
Steel Cans	11	69,475
Yard Waste	90	77,535
Food Residuals	2	848,838
Total Paper	35.6	1,394,418
Newsprint	56.5	122,818
Cardboard	49.8	428,314
Office Paper	29.3	132,051
Magazines & Catalogs	11.4	122,363
Mixed Paper	17	563,202
Total Plastics	5	523,049
PETE (#1 plastic)	29	33,691
HDPE (#2 plastic)	6	107,397
PVC (#3 plastic)	5	32,652
LDPE (#4 plastic)	2	137,056
PP (#5 plastic)	0	71,513
PS (#6 plastic)	1	54,950
Other Plastics	1	86,076
Carpet	0	48,447
Post-Consumer Textiles	8.2	159,007
Scrap Tires	45	52,250

White Goods	81	19,075
Total Wood	74	782,004
Pallets	35	282,004
Secondary Mfr. Waste	81	500,000
Other	0	726,246
Diapers	0	83,400
Furniture & Furnishings	0	203,496
Miscellaneous Durables	0	305,522

* From 1998 North Carolina Markets Assessment of the Recycling Industry and Recyclable Materials

The data show North Carolina has far to go before it reaches its maximum potential in the recovery of recyclable materials. Some waste streams would clearly benefit from having recovery efforts developed or enhanced. End-use markets exist for most of the materials, but additional processing capacity needs to be developed for recovery to expand dramatically.

SPECIFIC RESIDENTIAL AND COMMERCIAL WASTE STREAM DATA

In FY 2003 the state disposed of 10,236,960 tons of waste. Using the pie chart factor in Figure 2.6, approximately 2.8 million tons came from residential disposal, making it the state's second largest waste stream. Additional information from annual local government reports can help refine this estimate of the volume of residential waste. The data on residential solid waste collection programs produces an average of .92 tons per year disposed per household. Multiplying this tonnage with the U.S. Census figure of 3,132,013 households in North Carolina yields an annual estimate of 2,891,783 tons of residential waste disposed per year statewide. This estimate falls within three percent of the 2.8 million figure above.

No parallel reporting system is available to estimate the generation of commercial wastes. However, applying the assumed percentage of commercial discards in Figure 2.6 to the state waste stream yields annual tonnage figure of about 2.3 million tons.

Waste stream composition studies from three North Carolina communities and other states illustrate how much recyclable material remains in both residential and commercial waste streams. The three in-state communities were Winston-Salem (2000), Orange County (1995 and 2000) and Wake County (1999). The out-of-state studies came from Iowa (1998), Wisconsin (2002), Minnesota (2000) and Pennsylvania (2002). Both the communities and states have relatively mature public recycling programs. Some have policies that help achieve high recycling rates (e.g., Iowa's bottle bill). Most North Carolina communities and many other states do not enjoy such high recovery levels, and using this set of waste composition studies may actually underestimate the presence of recyclables in the waste stream. However, residential and commercial waste streams do not differ widely across North Carolina and the United States. As the table below shows, commodity estimates are similar across this sample group.

Figure 2.9. Specific Commodities as a Percentage of Disposed Residential Waste									
	Winston-Salem (2000)	**Orange County (2000)**	**Orange County (1995)**	**Wake County (1999)**	**IA 1998**	**WI 2002**	**MN 2000**	**PA 2002**	**Straight Avg.**
Newspaper	5.25	4.80	5.30	7.30	4.20	3.80	5.00	5.20	5.11
Cardboard	4.66	4.70	4.50	3.70	4.10	2.40	3.20	5.30	4.07
Office Papers	0.64	6.50	1.70	2.30	1.80	1.60	1.40	2.20	2.27
Magazines	N/A	4.40	6.10	3.20	3.20	1.90	2.40	2.90	3.44
Paperboard	N/A	5.10	N/A	2.50	N/A	1.40	3.10	N/A	3.03
Mixed Paper	21.99	N/A	N/A*	5.30	6.10	6.70	6.20	4.80	8.51**
Paper Subtotal	32.53	25.5	17.6	24.3	19.4	17.8	21.3	20.4	26.43
Glass (all colors)	6.12	4.20	5.80	3.60	2.10	1.50	2.40	3.20	3.61
Steel cans	1.75	1.80	2.70	1.10	1.30	0.90	0.90	1.40	1.48
Aluminum Cans	0.71	N/A	N/A	0.50	0.30	0.50	0.70	0.60	0.55
PETE	1.66	1.60	1.30	1.00	0.50	0.60	0.90	1.00	1.07
HDPE	1.88	1.30	1.30	1.00	0.90	0.70	0.60	0.90	1.07
Containers Subtotal	12.12	8.9	11.1	7.2	5.1	4.2	5.5	7.9	7.78
Food wastes	28.93	17.80	11.20	11.60	10.80	13.40	12.00	12.20	14.74
Textiles/ Leather	3.01	5.40	3.30	4.70	5.50	3.60	3.50	4.40	4.18

* The 1995 Orange County study assigned 23.9 percent for "other paper," which presumably includes office and mixed papers included in other studies.

** The mixed paper tonnage figures on recoverable materials - e.g., Winston-Salem's high percentage may include some unrecyclable fibers.

A number of conclusions become apparent when examining Figure 2.9:

- Recoverable paper still constitutes between 20 and 25 percent of disposed residential waste. This category includes commonly collected fiber grades, including newspaper and magazines. It also includes grades increasingly accepted by mills, material recovery facilities, and other processing centers. Recyclable residential paper is a decidedly under-recovered commodity.
- Food wastes follow paper as the second largest "untapped" recoverable material in residential waste. Its disposal rate of close to 15 percent exceeds the combined total for newsprint, cardboard and magazines. There is considerable opportunity for recovery, but the infrastructure needed to divert residential food waste is immature. Backyard composting diverts some waste and a few commercial composting facilities are equipped to process the material. At present, North Carolina does not have a single community that actively collects separated food waste.
- Containers (bottles and cans) make up a smaller percentage of disposed waste, but still represent as much as one in 10 pounds of household waste. Container recycling rates have not been optimized.
- Textiles/leather is one waste stream with increased diversion potential if recycling markets stabilize and community textile recycling programs can be redeveloped. Promoting reuse (through charities such as Goodwill and community swap shops) may boost diversion.

Figure 2.10 below shows data from commercial waste composition studies. Many commodities from residential waste streams also appear here.

Figure 2.10 Specific Commodities as a Percentage of Disposed [Residential] Waste								
	Winston-Salem (2000)	**Orange County (2000)**	**Orange County (1995)**	**Wake County (1999)**	**WI 2002**	**MN 2000**	**PA 2002**	**Straight Avg.**
Newspaper	3.39	6.10	4.70	2.20	1.60	2.40	3.00	3.34
Cardboard	19.97	3.50	10.70	8.10	5.70	9.90	11.80	9.95
Office Papers	2.90	5.80	3.30	5.40	1.80	4.30	5.20	4.10
Magazines	N/A	2.50	2.80	1.40	0.90	2.50	2.40	2.08
Papers Subtotal	26.26	17.9	21.5	17.1	10	19.1	22.4	19.47
Glass (all colors)	*2.13*	*3.80*	4.00	*2.00*	0.90	*1.50*	*10.00*	3.48
Steel cans	0.74	1.20	1.60	0.60	0.50	0.60	0.70	0.85
Aluminum Cans	0.39	1.20	0.70	0.40	0.40	0.50	0.40	0.57
PETE	1.23	2.00	1.00	0.40	0.50	0.50	0.90	0.93
HDPE	0.98	1.40	1.20	0.50	0.40	0.40	0.50	0.77
Containers Subtotal	5.47	9.6	8.5	3.9	2.7	3.5	12.5	6.6
Food wastes	26.24	20.40	12.20	10.00	13.20	11.80	11.80	15.09

As with the residential analysis, a number of conclusions become apparent when examining commercial waste stream data.

- Recyclable paper grades make up a large quantity of the commercial waste stream. Cardboard offers a particularly good opportunity for substantial diversion. Office paper makes up twice the total here as in residential waste. The data also show the effectiveness of local cardboard disposal bans. Wake and Orange counties, which have cardboard bans, recover a much greater quantity of material compared to Winston-Salem, which does not ban the material.
- Compared to residential waste, containers make up a smaller percentage of the commercial waste stream. Communities seeking higher commercial diversion levels would be better served by recovering fibers instead of containers.
- Just like residential waste, commercial food waste is the second largest category, although at a slightly higher level. Centralization makes commercial food waste an easier recovery target than residential food waste. A smaller number of generators produce larger amounts, often in concentrated geographic clusters (e.g., restaurants and grocery stores in commercial zones). There are a small but growing number of recovery programs and private recovery services in North Carolina. They offer models for developing additional efforts.

LOCAL GOVERNMENT RECYCLING EFFORTS

Many local governments (counties and municipalities) actively divert waste from landfills and recover recyclable commodities. Figure 2.11 shows that local governments regularly divert around one million tons of material annually. Per capita recovery rates have grown over the last 10 years, but the lackluster ratio of recovery to disposal indicates local recycling efforts have stagnated since FY 1994-1995.

Figure 2.11. Local Government Diversion of Materials from Disposal FY 1992-1993 to FY 2001-2002										
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**	**FY 00-01**	**FY 01-02**
Total Paper	151,676	164,806	185,270	212,577	228,025	216,121	233,339	241,859	263,365	267,840

Total Glass	32,611	37,537	38,088	49,601	44,978	43,449	41,623	41,826	46,936	49,891
Total Plastics	9,264	9,797	12,339	16,253	13,699	14,399	14,835	14,474	15,062	17,269
Total Metal*	44,302	51,468	59,483	65,977	77,252	81,262	77,564	86,480	92,634	114,786
Total Organics**	378,516	350,142	495,034	498,583	640,410	504,554	525,033	638,757	540,582	468,901
Special Wastes***	1,715	2,106	2,466	3,212	3,230	3,527	3,817	4,709	4,947	5,426
C & D Debris	N/A	N/A	N/A	N/A	N/A	N/A	N/A	59,598	15,406	17,648
Other	4,272	16,387	5,987	333	12,762	35,977	63,794	5,329	6,120	5,896
Total	**622,356**	**632,243**	**798,667**	**846,536**	**1,020,356**	**899,290**	**960,005**	**1,093,032**	**985,052**	**947,657**
Per Capita Recovery (lbs.)	**182.17**	**182.00**	**226.19**	**235.59**	**279.19**	**242.03**	**254.40**	**285.61**	**243.66**	**231.47**
Recovery Ratio (Recycling : Disposal)	**0.09**	**0.09**	**0.10**	**0.11**	**0.13**	**0.11**	**0.10**	**0.11**	**0.10**	**0.10**

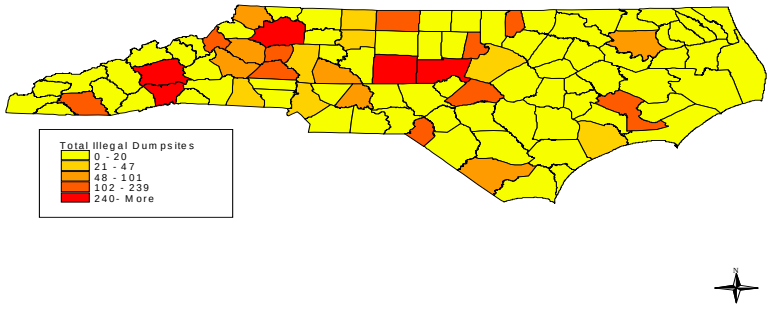
* Includes white goods, aluminum cans, steel cans and other metals.
** Includes yard waste, pallets and wood waste.
*** Includes used oil, oil filters, antifreeze and batteries.

ILLEGAL DISPOSAL AND LITTERING

Illegal dumping and litter place waste in inappropriate and often harmful places. The issues are attracting growing public concern in North Carolina. Misplaced waste affects the appearance of North Carolina's roadsides and communities and negatively impacts wildlife, water and land quality. Anti-littering agencies point out that litter clean-up campaigns costs tax dollars and that litter can sometimes be a factor in traffic accidents.

Illegal dumping haunts North Carolina ravines, farmland, abandoned and unsecured lots, private and public property, country dirt roads, and dead-end roads. Construction, demolition or land-clearing contractors create the vast majority (76 percent) of illegal dumpsites. Illegal dumping affects human and environmental health, aesthetics, tourism, property values and economic development. Clean-up efforts and their attendant costs can be extensive and resource intensive. At a minimum, 960 illegal dumpsites exist in 97 counties, while roughly 3,551 closed[1] dumpsites linger in 90 counties. On average, 45 open and closed sites exist per county.[2] Figure 2.12 graphically depicts these estimates.

Figure 2.12. Estimated Total Number of Illegal Dumpsites in North Carolina
(From Countywide Survey Reports)



The N.C. Department of Transportation is the state's lead agency in addressing litter clean-up on state roadsides. The N.C. DOT reports spending $15.4 million in 2002 to remove litter, a 50 percent increase

[1] Closed dumpsites have acceptable material buried in place and are recorded in the county Register of Deeds office.
[2] This figure is likely an underestimate. Many counties do not actively search for illegal dumpsites, due to a lack of resources, time, desire and/or an environmental enforcement officer.

from the $10 million spent in 2001, and 200 percent over the $6.38 million in 2000. Inmate labor is used to pick up most litter. In 2002, a total of 858,243 hours of inmate labor was used. It would take 412 full-time employees to cover this commitment. N.C. DOT also manages the Adopt-A-Highway volunteer litter clean-up program. In 2002, 150,000 Adopt-A-Highway volunteers devoted 377,576 hours – the equivalent of 181 full-time staff – to clean up 4.2 million pounds of litter. The volunteers saved the state $3.8 million in clean-up costs. The N.C. DOT also conducted fall and spring "Litter Sweep" drives in 2002. Volunteers, inmates, DOT staff and community service workers removed a total 2.6 million pounds of litter[3] in both sweeps.

In 2001, the court system produced 2,219 litter convictions from 4,059 charges. That same year, North Carolina strengthened its litter laws by passing Senate Bill 1014. The legislation was designed to discourage further litter offenses, enhance and streamline litter enforcement, and to require enforcement agencies to improve enforcement tracking.

WASTE DISTRIBUTION

Waste generation is not evenly distributed in North Carolina. In fact, 10 of the state's counties hold 43 percent of the state's population and generate approximately 50 percent of the state's waste stream. See Figure 2.13 below.

Figure 2.13.
Percentage of Contribution of Total N.C. Waste FY 2002-2003 for the 10 highest waste-producing counties

County	Tons Disposed FY 99-00	Tons Disposed FY 00-01	Tons Disposed FY 01-02	Tons Disposed FY 02-03	Percent of NC Waste	Cumulative Percent 02-03	Change from 2001-2002	Percent Change
MECKLENBURG	1,282,196	1,233,824	1,279,090	1,278,129	12.49%	12.49%	(961.16)	-0.1%
WAKE	958,832	926,504	880,136	856,043	8.36%	20.85%	(24,093.20)	-2.8%
GUILFORD	756,755	730,012	758,566	709,579	6.93%	27.78%	(48,986.94)	-6.9%
FORSYTH	422,828	465,134	447,508	501,034	4.89%	32.68%	53,526.58	10.7%
CUMBERLAND	389,287	351,620	403,476	337,375	3.30%	35.97%	(66,101.53)	-19.6%
DURHAM	267,300	238,894	260,680	298,420	2.92%	38.89%	37,740.13	12.6%
BUNCOMBE	247,300	251,472	247,830	255,112	2.49%	41.38%	7,282.25	2.9%
NEW HANOVER	275,930	259,305	241,951	250,327	2.45%	43.83%	8,375.90	3.3%
CABARRUS	160,186	187,508	203,981	250,162	2.44%	46.27%	46,181.50	18.5%
GASTON	260,383	215,226	214,185	216,267	2.11%	48.38%	2,081.99	1.0%

The per capita disposal rate in FY 2002-2003 was 1.45 tons per person for the top 10 counties, approximately 22 percent higher than the rest of the state. Conversely, the per capita rate for the lowest 50 waste-producing counties was .87 tons per person, 36 percent lower than the rest of the state. Figure 2.13 ranks the 10 counties highest in waste disposal for FY 2002-2003. The data suggest North Carolina counties have a wide range of situations to consider when making solid waste management decisions.

[3] North Carolina Department of Transportation, N.C. DOT's Anti-Litter Efforts (2002). < http://www.doh.dot.state.nc.us/operations/dp_chief_eng/roadside/beautification/antiLitter/> [22 August 2003].