Guilford County
Solid Waste Management Plan

Guilford County, North Carolina

June 1997

HDR Engineering, Inc.

TABLE ES-1
GUILFORD COUNTY SOLID WASTE MANAGEMENT PLAN
TECHNICAL COMMITTEE MEMBERS

Guilford County

Jim Elza
Director, Planning and Development

Larry Harvell
Community Services

Ken Carter
Environmental Health

City of Greensboro

Elizabeth Treadway
Director, Environmental Services

Dale James
Solid Waste Management Division

Jeryl Convington
Solid Waste Management Division

City of High Point

Perry Kairis
Director of Public Services

Chris Thompson
Assistant Director of Public Services

Duane Jarman
Solid Waste Manager

Town of Gibsonville

R. Delano Flynn
Town Manager

Town of Jamestown

Winn Underhill
Director of Public Works

Town of Stokesdale

The Honorable Randle L. Jones
Mayor

Town of Summerfield

The Honorable Bill Peterson
Mayor

Town of Whitsett

The Honorable William D. Whitsett
Mayor

BFI

Gary Cunningham
District Vice President

Modern Garbage Service, Inc.

Linda Oldham
Secretary - Treasurer

Waste Industries

Roger Davis
Regional Manager

Waste Management, Inc.

Tom Brown
Regional President

PLAN GOALS AND OBJECTIVES

In developing this Solid Waste Management Plan, the Technical Committee agreed that the goals and objectives of this effort would be to:

- Develop a Solid Waste Management Plan which is in conformance with State requirements and local objectives.

- Identify any deficiencies in existing solid waste management programs and systems which must be addressed in order to meet local needs and protect public health and the environment.

- Develop local reduction goals and programs for Guilford County, and encourage public participation in the planning process.

- Determine the full costs of solid waste management in Guilford County.

WASTE QUANTITIES AND CHARACTERISTICS

- For the purposes of this Plan, Municipal Solid Waste (MSW) is defined as non-hazardous solid waste generated by the Residential, Commercial, and Industrial sectors of the community.

- A review of records for Fiscal Year (FY) 1994-1995 indicates that MSW is being generated at a rate equivalent to 7.35 pounds of waste per person per day within Guilford County.

- On a weight basis, approximately 85% of the MSW generated in Guilford County during FY 1994 - 1995 was managed by means of landfill disposal; with the remaining 15% diverted from landfilling by means of recycling, composting, or other reclamation programs.

- For the purposes of this Plan, Construction and Demolition (C&D) waste is defined as wastes resulting solely from construction, remodeling, repair, or demolition operations on pavement, buildings or other structures. Assuming that the C&D waste generated in Guilford County represents 10% of the County's entire waste stream, it is estimated that 54,950 tons of C&D waste was generated in Guilford County during FY 1996 - 1997.

- Land clearing and inert debris (LCID), which is handled outside of this State reporting process, is defined as "any waste materials produced in the clearing off of property such as stumps, roots, rocks, dirt, gravel, asphalt, bricks and concrete." The management of LCID waste is not addressed in this Plan.

- Guilford County's total waste stream for FY 1996-1997 is shown in Table ES-2:

TABLE ES-2
GUILFORD COUNTY
WASTE ESTIMATES BY SECTOR
FY 1996-1997

Measurement	MSW			Total MSW	C&D Waste	Total Waste Stream
	Residential Waste	Commercial Waste	Industrial Waste			
Percentage	30%	38%	22%	90%	10%	100%
Tonnages	164,860	208,820	120,890	494,570	54,950	549,520

Notes:
1. Sector percentages based on data presented in Guilford County's Solid Waste Management Report for the period July 1, 1995 - June 30, 1996.
2. A per capita generation rate of 7.35 lbs/person/day waste and FY 1996-1997 population estimate of 368,826 used to project MSW tonnages (see Guilford County Solid Waste Management Study).
3. Tonnages rounded to the nearest tenth.

LOCAL WASTE REDUCTION GOALS

- House Bill 859 gives latitude to local governments to set local waste reduction goals which are either higher or lower than the State's forty percent per capita waste reduction goal, as long as a good faith effort is made by local governments to achieve this goal.

- The State goal setting methodology compares the total 1991/1992 annual per capita waste generation rate (including MSW and C&D waste) with annual per capita waste disposal rates realized in subsequent years.

- Data from FY 1994 - 1995 indicate that 14.3% (69,570 tons) of the MSW generated in Guilford County was diverted from landfilling as a result of recycling, reduction, and composting efforts. Of this proportion of diverted materials, it is estimated that Residential waste reduction efforts resulted in 30.13% of all MSW generated within the County being diverted from landfilling; Commercial/Industrial waste reduction efforts resulted in 6.39% of all MSW generated within the County being diverted from landfilling.

- When waste reduction achievements for Guilford County during FY 1994 - 1995, as measured using the State's methodology, are compared to the achievements realized when landfill diversion rates are examined from a tonnage basis for FY 1994 - 1995, it appears that the inclusion of Commercial, Industrial, and C&D waste generation sectors in calculating per capita reduction rates offsets the achievements realized from Residential waste reduction efforts.

- In exercising the right to establish future waste reduction goals which are deemed appropriate for Guilford County, and which will be acceptable to the public, the local governments of Guilford County have decided to set three separate waste reduction goals. Individual goals for diverting generated waste tonnages from landfill disposal were established for the Residential, Commercial/Industrial, and C&D sectors.

- A waste diversion goal of of 32.83% was established for the Residential waste stream for FY 2000 - 2001. This goal will remain constant through the remainder of the planning period.

- For the Commercial/Industrial sector, a waste diversion goal of 8.39% was established for FY 2000 - 2001. A goal of 10.89% was established for FY 2005 - 2006.

- For the C&D sector, a waste diversion goal of 2.00% was established for FY 2000 - 2001. This goal was increased to 4.50% to be achieved by FY 2005 - 2006.

EXISTING SOLID WASTE PROGRAMS AND SERVICES

- Municipal waste collection services within Guilford County include the collection of solid waste, recyclables, yard waste, and white goods/bulky waste. Municipal collection services are provided to generators of Residential and Commercial waste streams.

- The Cities of Greensboro and High Point, and the Towns of Gibsonville and Jamestown provide collection services within their jurisdictions. Guilford County has made arrangements with four private collectors to provide residents living in the unincorporated areas of the County with solid waste and recyclables collection services. The Town of Whitsett provides its constituents with solid waste and recyclables collection services through a contractual arrangement with a private collector. The collection of recyclables, yard waste, and white goods supports the waste reduction/reuse and recycling efforts being undertaken within Guilford County.

- Municipally supported processing services for recyclables within Guilford County are offered by the Cities of Greensboro and High Point. The City of Greensboro contracts its recyclables' processing services to FCR Greensboro, Inc. This materials recovery facility (MRF) serves the recyclables' processing needs of the City of Greensboro, the Town of Gibsonville, and unincorporated areas of the County. The City of High Point owns and operates a MRF. This MRF, which was recently converted from a "dirty MRF" to a "clean MRF", serves the recyclables' processing needs of the City of High Point, the Town of Jamestown, unincorporated areas of the County, and the Cities of Thomasville and Lexington.

- Municipally supported processing services for yard waste within Guilford County are offered by the Cities of Greensboro and High Point. The City of Greensboro contracts its yard waste processing services to Scotts-Hyponex. Under this arrangement, Scotts-Hyponex manages a yard waste processing area set at the City of Greensboro's White Street Sanitary Landfill. This facility serves the yard waste processing needs of the City of Greensboro, the Town of Gibsonville, and unincorporated areas of the County. The City of High Point owns and operates a yard waste processing facility known as the Ingleside Compost Facility. This facility serves the yard waste processing needs of the City of High Point, the Town of Jamestown, and unincorporated areas of the County.

- In addition to FCR Greensboro, Inc., other private processors of recycling materials generated within Guilford County include: Alcoa and Reynolds Aluminum (aluminum is accepted for processing); Paper Stock Dealers and Triad Paper (corrugated cardboard, office paper, newspaper, and mixed paper are accepted for processing); Salvation Army, Goodwill Industries, and a variety of thrift stores and resale shops (household items and clothing are accepted for reuse); and, auto supply centers (used motor oil, lead-acid batteries, and waste tires are accepted from customers for processing).

- Waste incineration is not part of the solid waste management systems currently being implemented in Guilford County.

- At present, there are no waste transfer facilities operating within Guilford County.

- Currently, the majority of MSW generated within the County is disposed of at one of two municipal landfills within the County. The White Street Sanitary Landfill, which is owned and operated by the City of Greensboro, receives approximately 59% of the County's MSW stream. The Kersey Valley Landfill, which is owned and operated by the City of High Point, receives approximately 24% of the County's MSW stream.

- A solid waste disposal agreement has been in effect since 1984 between Guilford County, the City of Greensboro, and the City of High Point, which assures residents living in the unincorporated areas of the County with access to the two municipal landfill facilities through the end of calendar year 1998.

- The Piedmont Landfill, a private landfill located in neighboring Forsyth County and which is owned and operated by Waste Management, Inc., receives approximately 14% of the County's MSW stream. The remainder of the County's MSW is disposed of in other landfill facilities located outside of Guilford County.

- There are currently no landfills solely permitted for C&D in Guilford County. However, a portion of the C&D wastes generated in the County are accepted at the White Street Sanitary Landfill, where it is handled separately from the MSW. The City of Greensboro is in the midst of the permit application process for establishing a C&D waste disposal area at the White Street Sanitary Landfill. The remainder of the C&D waste is either taken to LCID facilities, disposed of outside of the County, or otherwise dumped illegally.

- The disposal of LCID waste is handled by private companies and individuals. There are currently 12 privately-owned permitted LCID landfill facilities in Guilford County.

- Other solid waste services and or programs offered within Guilford County include: the management of special wastes (white goods, waste tires, household hazardous waste); solid waste educational efforts; litter eradication programs (County clean-up of illegal dumps, participation in "Clean-Sweep" programs, and other litter eradication events); and, the implementation of policies adopted by the Cities of Greensboro and High Point which promote waste reduction and recycling all serve to support waste reduction/reuse and recycling efforts within Guilford County.

FULL COSTS OF SOLID WASTE MANAGEMENT

- House Bill 859 prescribes that all local governments put forth a good faith effort to provide a description and assessment of the full cost of solid waste management.

- The median cost for residential solid waste services within the incorporated areas of the County (which include the management of solid waste, recyclables, yard waste and bulky wastes) is $13.73 per household per month. In the unincorporated areas of the County, residential customers are paying $14.50 per household per month for solid waste services (limited to the management of solid waste and recyclables). These costs are presented in Table ES-3.

- The financing methods most commonly used by local governments to fund the provision of these services/programs include Fees (tipping fees, customer service charges), and Property Taxes/General Funds.

- Bulk container solid waste management services are offered to commercial clients, which include both business establishments and multi-family residences, by the City of Greensboro. Clients receive bulk container solid waste collection and disposal services twice a week. Those clients who wish to recycle receive bulk container recycling collection and processing services anywhere from two times to four times a week, depending on the volume of recyclables generated. The cost of the bulk container solid waste collection/disposal services is estimated to be $110.93 per client per month. The cost of the bulk container recyclables collection/processing services (minus revenues generated from the sale of recyclables) is estimated to be $89.84 per client per month. These costs are presented in Table ES-4.

TABLE ES-3 GUILFORD COUNTY ANALYSIS OF COSTS PER HOUSEHOLD PER MONTH[1]			
Jurisdiction ***Service Description***	**Range of Net Program Costs $/Household/Month**		**Median Cost $/Household/Month**
	Low	**High**	
Incorporated Areas			
Solid Waste	$ 4.84	$ 10.82	$ 7.83
Recycling[2]	$ 0.31	$ 5.47	$ 2.89
Yard Waste	$ 1.30	$2.83	$ 2.07
Bulky Waste	$ 0.43	$ 1.44	$ 0.94
TOTAL	**$ 6.88**	**$ 20.56**	**$ 13.73**
Unincorporated Areas[3]			
Solid Waste	$12.50	$12.50	$12.50
Recycling	$2.00	$2.00	$2.00
TOTAL	**$14.50**	**$14.50**	**$14.50**

Notes:
1. Costs reflect net program costs (total program costs minus funds gained from the sale of commodities or from equipment salvage revenues) divided by the number of service recipients. Local governments reported costs for Fiscal Years ranging from FY 1995-1996 through FY 1997-1998. Frequency of service provision varies among local governments (see Table 4-1).
2. Low recycling collection cost reflects costs incurred for drop-off program, all other reported collection costs reflect costs incurred for weekly curbside collection programs (collection container provided).
3. County Board of Commissioners has approved maximum fee of $14.50 to be charged to residential customers living in the unincorporated areas of the County for weekly solid waste collection services and bi-monthly recyclables collection services (containers are not provided to service recipients).

TABLE ES-4 GUILFORD COUNTY ANALYSIS OF COSTS PER COMMERCIAL CLIENT PER MONTH[1]		
Client	**Solid Waste Services $/Client/Month[2]**	**Recycling Services $/Client/Month**
Bulk Container Service Recipient	$110.93	$89.84

Notes:
1. Costs reflect net program costs (total program costs minus funds gained from the sale of commodities or from equipment salvage revenues) for bulk container collection and disposal/processing services provided by the City of Greensboro to Commercial clients divided by the number of clients as reported by City of Greensboro for FY 1995-1996.
2. Average cost based on 2,300 clients receiving solid waste bulk container pick-up services. Costs incurred for collection and disposal are factored into the $/client/month figure.
3. Average cost based on 750 clients receiving recycling bulk container pick-up services. Costs incurred for collection and processing are factored into the $/client/month figure.

RECOMMENDATIONS

The Guilford County Solid Waste Management Plan Technical Committee recommends that existing solid waste management services/programs within Guilford County be modified so as to include the following actions:

Collection Services

- Follow-up on arrangements for the provision of residential collection services in the unincorporated areas of the County to verify that both solid waste and recyclables collection services are being offered.

- Establish standards for the collection and processing of recyclables generated by the commercial sector.
  - To achieve Commercial/Industrial waste reduction goals, corrugated cardboard should be targeted for recycling.

- Consider the establishment of franchises for the provision of weekly solid waste and commingled recyclables collection services for residential areas in the unincorporated areas of the County.

- Cost savings could potentially be realized by the County by franchising the unincorporated areas and soliciting bids from private and/or public haulers to service these areas.
- Progress towards meeting Residential waste reduction goals will be enhanced by offering curbside commingled recycling services to all unincorporated areas of the County on a more frequent and convenient basis.

Waste Reduction/Reuse and Recycling Efforts

- Take actions to facilitate the collection and processing of commingled commercial recyclables.

- Recommend and/or support a State level ban on the disposal of corrugated cardboard.

Composting and Mulching Services

- Encourage residential backyard composting in the unincorporated areas of the County.

- Consider upgrading existing municipal composting services.

Waste Transfer/Disposal Services

- Renegotiate Memorandums of Understanding between the Cities of Greensboro and High Point and Guilford County in order to assure all customers of the unincorporated areas of the County access to the Cities' landfill sites on the same terms and conditions as City customers beyond the end of 1998 (the current agreements expire on December 31, 1998).

- Consider the establishment of a Solid Waste Management Authority for Guilford County.

- Expand the capacity for MSW disposal at existing public landfill facilities:
  - Utilize Phase III of the White Street Sanitary Landfill.
  - Develop Phase III of the Kersey Valley Landfill.

- Expand the capacity for C&D disposal through the development of permitted C&D area at the White Street Sanitary Landfill and a C&D or LCID area at the Kersey Valley Landfill.

- Begin the process of siting and developing a multi-jurisdictional landfill facility to accommodate County-generated MSW.

- Complete the site selection process for a multi-jurisdictional landfill by the end of the planning period.

Other Solid Waste Management Activities

Educational Programs

- Expand existing community education efforts.
  - Distribute literature on a regular basis; give particular emphasis to managing special wastes.
  - Utilize a variety of media/forums for community education.

- Expand existing school education efforts.
  - Consider involving County schools in state Adopt-A-Highway program.
  - Encourage teacher participation in the State's annual Environmental Coordinator's Conference.

Special Waste Management

- Consider using an E-Form in an effort to reduce the number of waste tires from outside the County.

- Increase efforts to educate the public on proper disposal of used oil, lead acid batteries, and tires.

- Develop and distribute educational materials which deal with the management of automotive waste in cooperation with appropriate associations (Service Station Association, Auto Dealers Association, AAA).

Illegal Disposal and Management of Litter

- The County intends to clean-up known illegal dump sites, and to identify additional sites which are in need of clean-up.

- Consider the implementation of a County-wide white goods collection service.
  - Equipment which has been purchased for cleaning up discarded appliances from illegal dumps could be used for a County-wide white goods collection service.

- Continue periodic white goods and waste tire clean-up programs which are offered by the County.

- Continue supporting other litter collection activities.
  - Participation in "Big Sweep" programs to clean-up waterways (Cities of Greensboro and High Point).
  - Glad Bag-Athon day sponsored by the City of Greensboro (general clean-up of public areas).

Purchase of Recycled Materials and Products

- The County and municipalities within the County which have not established a policy regarding the purchase of materials with recycled content may wish to do so in the future.

IMPLEMENTATION SCHEDULE

The solid waste system components which the Guilford County Solid Waste Management Plan Technical Committee have recommended be adopted by the local governments of Guilford County, and which are described in Section 5.2 of the Plan are listed chronologically in the Implementation Schedule presented in Table ES-5.

TABLE ES-5 GUILFORD COUNTY SOLID WASTE MANAGEMENT PLAN IMPLEMENTATION SCHEDULE	
Fiscal Year	**Action**
1997 - 1998	1. Renegotiate Memorandums of Understanding Between the Cities and the County 2. Follow-up on Arrangements for Collection Services for Residences in Unincorporated Areas 3. Encourage Residential Back Yard Composting 4. Clean-Up Illegal Dump Sites 5. Promote Public Support and Participation in Other Litter Prevention Activities 6. Establish Recycling and Waste Reduction Policy 7. Call for Corrugated Cardboard Disposal Ban 8. Re-evaluate Costs of Service in Unincorporated Areas 9. Consider the Implementation of a County-Wide White Goods Collection Service 10. Utilize Phase III of the White Street Sanitary Landfill 11. Establish Standards for Recyclable Commercial Loads 12. Facilitate MRF Processing of Commercial Recyclables
1998 - 1999	1. Consider Increasing MRF Throughput to Reduce Costs of Recyclables Processing 2. Expand C&D Disposal Capacity 3. Expand Existing Community Education Efforts 4. Expand Existing School Education Efforts 5. Consider Using an E-Form for Tire Sales 6. Consider Establishment of Franchised Universal Residential Collection 7. Expand Curbside Recycling Collection Services 8. Consider the Establishment of a Solid Waste Authority for Guilford County 9. Take Actions to Site and Develop a New Multi-Jurisdictional Landfill Facility
1999 - 2000	1. Update Solid Waste Management Plan 2. Revisit Waste Incineration Options 3. Develop Phase III of the Kersey Valley Landfill
2000 - 2001	1. Consider Upgrading Existing Municipal Composting Services
2002 - 2003	1. Complete Process of Charging Full Costs For Bulk Container Solid Waste Collection Services
2003 - 2004	1. Update Solid Waste Management Plan
2006 - 2007	1. Complete the Site Selection Process for the Multi-Jurisdictional Landfill Facility.

LIST OF APPENDICES

Appendix A: Advertised Public Meeting Information

Appendix B: Guilford County Waste Stream Projections & Waste Diversion Goals

Appendix C: Guilford County Waste Stream Projections & Status Quo Waste Diversion Goals

Appendix D: Local Governments' Recycling and Waste Reduction Policies and Procurement Procedures

Appendix E: Local Governments' Resolutions to Approve The Guilford County Solid Waste Management Plan

Appendix F: Guilford County Solid Waste Management Plan Information Sources

Appendix G: Local Governments "full cost analysis" tables for Collection, Disposal and Processing solid waste

Appendix G

Local Governments "full cost analysis" tables for Collection, Disposal and Processing solid waste as appended by the Guilford County Board of Commissioners June 26, 1997

PROGRAM COSTS

In determining solid waste management program costs each of the local governments within Guilford County was contacted and asked to complete a "Full Cost Analysis Budget Form" (see Figure 4-2). This form was developed by HDR Engineering, Inc. of North Carolina in accordance with the full cost analysis and financing guidelines prepared by the Division of Pollution Prevention and Environmental Assistance, and presented in Part III, Chapter 14, Section 1 of the State's Planning Resource Manual. The following presents a summary of the data provided by the individual local governments within Guilford County.

Guilford County

The total expenditures for solid waste services/programs managed by Guilford County during FY 1995-1996 was $618,864. The County expended funds under the General Services Department to cover the costs of waste collection and disposal of waste generated in County buildings (contract with BFI), waste tire processing services (contract with Tires, Inc. of Winston Salem), the purchase of equipment for the illegal dump clean-up program sponsored by the County, the partial funding of the Household Hazardous Waste Program which is managed by the City of Greensboro, and the partial funding of the wages and benefits of one County employee. Revenues totaling $488,230 were received from a Waste Tire Grant from the State, and from Waste Tire and White Goods Tax Revenues received from the State. When these revenues are subtracted out, the net annual costs for solid waste services provided by the County in FY 1995-1996 totaled $130,634; this remaining portion of solid waste service costs was funded via property taxes/general fund.

A summary of the County managed solid waste solid waste services/programs costs are shown in Table 4-5.

TABLE 4-5 GUILFORD COUNTY TOTAL COSTS EXCLUDING REVENUES FY 1995 - 1996					
	Collection	Disposal	Processing	Other	Total
1. Total Program Costs	$0	$0	$0	$618,864	$618,864
2. Revenues*	$0	$0	$0	$0	$0
3. Net Program Cost	$0	$0	$0	$618,864	$618,864
4. Tons	N/A	N/A	N/A	N/A	N/A
5. Net Program Cost/Ton	N/A	N/A	N/A	N/A	N/A

* Revenues excluded are those other than funds gained from the sale of commodities or funds gained from equipment salvage (ie. revenues gained from tipping fees or collection fees are excluded).

City of Greensboro

The total costs for solid waste services/programs managed by the City of Greensboro during FY 1995-1996 was $14,976,780 (see Table 4-6). Of this total, the City's Solid Waste Management Division expended $14,706,563 to cover the costs of Collection Services (solid waste, recycling, yard waste, and bulky waste), Disposal Services (MSW and LCID landfilling services at the White Street Sanitary Landfill), and Processing Services (recyclables processing services under a contract with FCR; yard waste processing services under a contract with Scotts Hyponex). In addition, the City's Technical and Planning Support Division expended $270,217 for the Household Hazardous Waste Program (contract with Eco-Flo).

TABLE 4-6 CITY OF GREENSBORO TOTAL COSTS EXCLUDING REVENUES FY 1995 - 1996					
	Collection	Disposal	Processing	Other*	Total
1. Total Program Costs	$8,422,271	$4,473,267	$1,811,025	$270,217	$14,976,780
2. Revenues**	($128,534)	$0	($563,840)	$0	($692,374)
3. Net Program Cost	$8,293,737	$4,473,267	$1,247,185	$270,217	$14,284,406
4. Tons	172,888	284,828	51,336	150	336,314
5. Net Program Cost/Ton	$48	$16	$24	$1,799	$42

* Other Category shows costs and tonnage data for the HHW Program.

** Revenues excluded are those other than funds gained from the sale of commodities or funds gained from equipment salvage (ie. revenues gained from tipping fees or collection fees are excluded).

As is shown in Table 4-6, program costs (minus revenues received from the sale of equipment and commodities) totaled $14,284,406. Based on the tonnage of materials disposed, processed or managed under the household hazardous waste program, the total cost per ton for solid waste management services in the City of Greensboro during FY 1995-1996 averaged $42 per ton. The Other Category represents the costs of operating the Household Hazardous Waste Management Program.

Revenues gained from the sale of equipment and for the sale of recyclables and compost totaled $692,374.

City of High Point

The total costs estimated for solid waste services/programs to be managed by the City of High Point during FY 1997-1998 are $7,979,386 (see Table 4-7). The City will be expending funds to cover the costs of Collection Services (solid waste, recycling, yard waste, and bulky waste), Disposal Services (MSW landfilling services at the Kersey Valley Landfill), and Processing Services (recyclables processing services at the City owned and operated MRF; and yard waste processing services at the City owned and operated Ingleside Composting Facility).

TABLE 4-7
CITY OF HIGH POINT
TOTAL COSTS EXCLUDING REVENUES
FY 1997 - 1998

	Collection	Disposal	Processing	Other	Total
1. **Total Program Costs**	$2,855,140	$3,150,246	$1,974,000	$0	$7,979,386
2. **Revenues***	($5,000)	$0	($187,000)	$0	($192,000)
3. **Net Program Cost**	$2,850,140	$3,150,246	$1,787,000	$0	$7,787,386
4. **Tons**	38,915	104,550	13,373	0	117,923
5. **Net Program Cost/Ton**	$73	$30	$134	$0	$66

* Revenues excluded are those other than funds gained from the sale of commodities or funds gained from equipment salvage (ie. revenues gained from tipping fees or collection fees are excluded).

As is shown in Table 4-7, program costs (minus revenues received from the sale of commodities) totaled $7,787,386. Based on the tonnage of materials disposed or processed during FY 1995-1996, the total cost per ton for solid waste management services in the City of High Point during FY 1997-1998 is

anticipated to average $66 per ton. The relatively high costs for processing are a result of the drop in the tonnage currently being processed by the City's MRF now that it is in the process of being converted from a "dirty MRF" to a "clean MRF".

Town of Gibsonville

The total costs estimated for solid waste services/programs to be managed by the Town of Gibsonville during FY 1996-1997 is $203,434. The Town will be expending funds to cover the costs of Town-provided Collection Services (solid waste, yard waste, and bulky waste), contracted Collection Services (recyclables' collection services provided under a contract with BFI), and Disposal Services (MSW disposal at the White Street Sanitary Landfill).

Solid waste program costs for the Town of Gibsonville are shown in Table 4-8. As is shown, program costs (no revenues are reflected in program costs) are expected to total $203,434. Based on the tonnage of materials expected to be disposed of during FY 1996-1997, the total cost per ton for solid waste management services in the Town of Gibsonville during FY 1996-1997 is anticipated to average $125 per ton. The relatively high costs for services are a result of relatively low tonnage (estimated 1,300 tons collected for disposal and 325 tons collected for processing) being managed by the Town. The Town does not anticipate receiving any revenues during FY 1996 - 1997 from the rental of equipment, user fees, or sales of commodities.

TABLE 4-8
TOWN OF GIBSONVILLE
TOTAL COSTS EXCLUDING REVENUES
FY 1996 - 1997

	Collection	Disposal	Processing	Other	Total
1. Total Program Costs	$137,140	$66,294	$0	$0	$203,434
2. Revenues*	$0	$0	$0	$0	$0
3. Net Program Cost	$137,140	$66,294	$0	$0	$203,434
4. Tons	1,625	1,300	0	0	1,625
5. Net Program Cost/Ton	$84	$51	$0	$0	$125

* Revenues excluded are those other than funds gained from the sale of commodities or funds gained from equipment salvage (ie. revenues gained from tipping fees or collection fees are excluded).

Town of Jamestown

The total costs estimated for solid waste services/programs to be managed by the Town of Jamestown during FY 1996-1997 is $193,945. The Town will be expending funds to cover the costs of Town-provided Collection Services (solid waste and yard waste), contracted Collection Services (recyclables' collection services provided under a contract with Waste Industries), Disposal Services (MSW disposal at the Kersey Valley Landfill), and Processing Services (yard waste processing services at the Ingleside Compost Facility).

Solid waste program costs for the Town of Jamestown are shown in Table 4-9. As is shown, program costs (minus revenues received from the sale of equipment) are expected to total $193,445. Based on the tonnage of materials expected to be collected and disposed of during FY 1996-1997, the total cost per ton for solid waste management services in the Town of Jamestown during FY 1996-1997 is anticipated to average $110 per ton. The relatively high costs for services are a result of relatively low tonnage of materials being managed by the Town, and extent of services provided by the Town (see Table 4-1). The Town has received revenues totaling $500 during FY 1996 - 1997 from the sale of equipment; no additional revenues are anticipated to be received.

TABLE 4-9
TOWN OF JAMESTOWN
TOTAL COSTS EXCLUDING REVENUES
FY 1996 - 1997

	Collection	Disposal	Processing	Other	Total
1. Total Program Costs	$135,945	$58,000	$0	$0	$193,945
2. Revenues*	($500)	$0	$0	$0	($500)
3. Net Program Cost	$135,445	$58,000	$0	$0	$193,445
4. Tons	1,754	1,498	0	0	1,754
5. Net Program Cost/Ton	$77	$39	$0	$0	$110

* Revenues excluded are those other than funds gained from the sale of commodities or funds gained from equipment salvage (ie. revenues gained from tipping fees or collection fees are excluded).

Towns of Stokesdale and Summerfield

Neither the Towns of Stokesdale nor Summerfield support solid waste

services/programs. Therefore, no cost analyses will be performed for these local governments.

Town of Whitsett

The total costs estimated for solid waste services/programs to be managed by the Town of Whitsett during FY 1996-1997 is $29,928. The Town will be expending funds to cover the costs of contracted Collection Services (solid waste and recyclables' collection services provided under a contract with Alamance Garbage Service).

Solid waste program costs for the Town of Whitsett are shown in Table 4-10. As is shown, program costs (no revenues are reflected in program costs) are expected to total $29,928. The Town contracts out its solid waste and recyclables' collection/ processing/disposal services with Alamance Garbage Service. It is unknown what the tonnage of materials expected to be disposed of will be during FY 1996-1997; therefore, costs per ton are not reflected for the Town of Whitsett. The Town does not anticipate receiving any revenues during FY 1996 - 1997 from the rental of equipment, user fees, or sales of commodities.

TABLE 4-10
TOWN OF WHITSETT
TOTAL COSTS EXCLUDING REVENUES
FY 1996 - 1997

	Collection	Disposal	Processing	Other	Total
1. **Total Program Costs**	$29,928	$0	$0	$0	$29,928
2. **Revenues***	$0	$0	$0	$0	$0
3. **Net Program Cost**	$29,928	$0	$0	$0	$29,928
4. **Tons**	N/A	N/A	N/A	N/A	N/A
5. **Net Program Cost/Ton**	N/A	N/A	N/A	N/A	N/A

* Revenues excluded are those other than funds gained from the sale of commodities or funds gained from equipment salvage (ie. revenues gained from tipping fees or collection fees are excluded).

TABLE 5-1 GUILFORD COUNTY RESIDENTIAL SOLID WASTE MANAGEMENT COSTS ($/HH/MO)						
	Guilford County	City of Greensboro	City of High Point	Town of Gibsonville	Town of Jamestown	Town of Whitsett
Solid Waste						
Collection		$ 4.02	$ 4.64	$ 3.56	$ 6.89	
Disposal		$ 1.00	$ 2.17	$ 3.41	$ 4.30	
Revenues		$ (0.18)	$ (0.02)	$ -	$ (0.37)	
Subtotal		$ 4.84	$ 6.79	$ 6.97	$ 10.82	
Recyclables						
Collection		$ 2.62	$ 1.52	$ 1.94	$ 0.31	
Processing		$ 1.31	$ 4.36	$ -	$ -	
Revenues		$ (0.53)	$ (0.41)	$ -	$ -	
Subtotal		$ 3.40	$ 5.47	$ 1.94	$ 0.31	
Yard Waste						
Collection		$ 1.49	$ 1.02	$ 1.30	$ 2.83	
Processing		$ 0.31	$ 1.09	$ -	$ -	
Revenues		$ (0.01)	$ (0.15)	$ -	$ -	
Subtotal		$ 1.79	$ 1.96	$ 1.30	$ 2.83	
Bulky Waste						
Collection		$ 0.72	$ 1.44	$ 0.43		
Disposal		$ -	$ -	$ -		
Subtotal		$ 0.72	$ 1.44	$ 0.43	$ -	
TOTAL:	$ 3.94	$ 10.74	$ 15.66	$ 10.64	$ 13.96	$ 8.75

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Executive Summary

BACKGROUND

- The North Carolina House Bill 859, passed in the 1996 General Assembly short session, revised the Solid Waste Management Act of 1989 and related statutes.

- The new law requires that local governments, either individually or in cooperation with other units of local government, develop a ten-year comprehensive solid waste management plan to cover the period of July 1, 1997 through June 30, 2007. These plans must be developed with public participation (including, at a minimum, one advertised public meeting), and must be updated at least every three years.

- House Bill 859 also directs local governments to make a "good faith" effort to achieve the overall state per capita waste reduction goal of forty percent and to comply with the State's comprehensive solid waste management plan.

- In December 1996, HDR Engineering, Inc. of North Carolina was retained to assist the local governments of Guilford County (the County, the Cities of Greensboro and High Point, and the Towns of Gibsonville, Jamestown, Stokesdale, Summerfield, and Whitsett) with the development of a county-wide solid waste management plan which would serve to meet the requirements of House Bill 859.

- In January 1997 the first meeting of the Guilford County Solid Waste Management Plan Technical Committee was convened. The Committee met on seven occasions to discuss the content of the Plan and to develop recommendations for future solid waste management systems. During the planning process, an advertised public meeting was held (see Appendix A), as was a final meeting to present the Plan to the local governments and public of Guilford County.

- The Guilford County Solid Waste Management Plan Technical Committee (the Technical Committee) members are presented in Table ES-1:

TABLE ES-1
GUILFORD COUNTY SOLID WASTE MANAGEMENT PLAN
TECHNICAL COMMITTEE MEMBERS

Guilford County

Jim Elza
Director, Planning and Development

Larry Harvell
Community Services

Ken Carter
Environmental Health

City of Greensboro

Elizabeth Treadway
Director, Environmental Services

Dale James
Solid Waste Management Division

Jeryl Convington
Solid Waste Management Division

City of High Point

Perry Kairis
Director of Public Services

Chris Thompson
Assistant Director of Public Services

Duane Jarman
Solid Waste Manager

Town of Gibsonville

R. Delano Flynn
Town Manager

Town of Jamestown

Winn Underhill
Director of Public Works

Town of Stokesdale

The Honorable Randle L. Jones
Mayor

Town of Summerfield

The Honorable Bill Peterson
Mayor

Town of Whitsett

The Honorable William D. Whitsett
Mayor

BFI

Gary Cunningham
District Vice President

Modern Garbage Service, Inc.

Linda Oldham
Secretary - Treasurer

Waste Industries

Roger Davis
Regional Manager

Waste Management, Inc.

Tom Brown
Regional President

PLAN GOALS AND OBJECTIVES

In developing this Solid Waste Management Plan, the Technical Committee agreed that the goals and objectives of this effort would be to:

- Develop a Solid Waste Management Plan which is in conformance with State requirements and local objectives.

- Identify any deficiencies in existing solid waste management programs and systems which must be addressed in order to meet local needs and protect public health and the environment.

- Develop local reduction goals and programs for Guilford County, and encourage public participation in the planning process.

- Determine the full costs of solid waste management in Guilford County.

WASTE QUANTITIES AND CHARACTERISTICS

- For the purposes of this Plan, Municipal Solid Waste (MSW) is defined as non-hazardous solid waste generated by the Residential, Commercial, and Industrial sectors of the community.

- A review of records for Fiscal Year (FY) 1994-1995 indicates that MSW is being generated at a rate equivalent to 7.35 pounds of waste per person per day within Guilford County.

- On a weight basis, approximately 85% of the MSW generated in Guilford County during FY 1994 - 1995 was managed by means of landfill disposal; with the remaining 15% diverted from landfilling by means of recycling, composting, or other reclamation programs.

- For the purposes of this Plan, Construction and Demolition (C&D) waste is defined as wastes resulting solely from construction, remodeling, repair, or demolition operations on pavement, buildings or other structures. Assuming that the C&D waste generated in Guilford County represents 10% of the County's entire waste stream, it is estimated that 54,950 tons of C&D waste was generated in Guilford County during FY 1996 - 1997.

- Land clearing and inert debris (LCID), which is handled outside of this State reporting process, is defined as "any waste materials produced in the clearing off of property such as stumps, roots, rocks, dirt, gravel, asphalt, bricks and concrete." The management of LCID waste is not addressed in this Plan.

- Guilford County's total waste stream for FY 1996-1997 is shown in Table ES-2:

TABLE ES-2
GUILFORD COUNTY
WASTE ESTIMATES BY SECTOR
FY 1996-1997

Measurement	MSW			Total MSW	C&D Waste	Total Waste Stream
	Residential Waste	Commercial Waste	Industrial Waste			
Percentage	30%	38%	22%	90%	10%	100%
Tonnages	164,860	208,820	120,890	494,570	54,950	549,520

Notes:
1. Sector percentages based on data presented in Guilford County's Solid Waste Management Report for the period July 1, 1995 - June 30, 1996.
2. A per capita generation rate of 7.35 lbs/person/day waste and FY 1996-1997 population estimate of 368,826 used to project MSW tonnages (see Guilford County Solid Waste Management Study).
3. Tonnages rounded to the nearest tenth.

LOCAL WASTE REDUCTION GOALS

- House Bill 859 gives latitude to local governments to set local waste reduction goals which are either higher or lower than the State's forty percent per capita waste reduction goal, as long as a good faith effort is made by local governments to achieve this goal.

- The State goal setting methodology compares the total 1991/1992 annual per capita waste generation rate (including MSW and C&D waste) with annual per capita waste disposal rates realized in subsequent years.

- Data from FY 1994 - 1995 indicate that 14.3% (69,570 tons) of the MSW generated in Guilford County was diverted from landfilling as a result of recycling, reduction, and composting efforts. Of this proportion of diverted materials, it is estimated that Residential waste reduction efforts resulted in 30.13% of all MSW generated within the County being diverted from landfilling; Commercial/Industrial waste reduction efforts resulted in 6.39% of all MSW generated within the County being diverted from landfilling.

- When waste reduction achievements for Guilford County during FY 1994 - 1995, as measured using the State's methodology, are compared to the achievements realized when landfill diversion rates are examined from a tonnage basis for FY 1994 - 1995, it appears that the inclusion of Commercial, Industrial, and C&D waste generation sectors in calculating per capita reduction rates offsets the achievements realized from Residential waste reduction efforts.

- In exercising the right to establish future waste reduction goals which are deemed appropriate for Guilford County, and which will be acceptable to the public, the local governments of Guilford County have decided to set three separate waste reduction goals. Individual goals for diverting generated waste tonnages from landfill disposal were established for the Residential, Commercial/Industrial, and C&D sectors.

- A waste diversion goal of of 32.83% was established for the Residential waste stream for FY 2000 - 2001. This goal will remain constant through the remainder of the planning period.

- For the Commercial/Industrial sector, a waste diversion goal of 8.39% was established for FY 2000 - 2001. A goal of 10.89% was established for FY 2005 - 2006.

- For the C&D sector, a waste diversion goal of 2.00% was established for FY 2000 - 2001. This goal was increased to 4.50% to be achieved by FY 2005 - 2006.

EXISTING SOLID WASTE PROGRAMS AND SERVICES

- Municipal waste collection services within Guilford County include the collection of solid waste, recyclables, yard waste, and white goods/bulky waste. Municipal collection services are provided to generators of Residential and Commercial waste streams.

- The Cities of Greensboro and High Point, and the Towns of Gibsonville and Jamestown provide collection services within their jurisdictions. Guilford County has made arrangements with four private collectors to provide residents living in the unincorporated areas of the County with solid waste and recyclables collection services. The Town of Whitsett provides its constituents with solid waste and recyclables collection services through a contractual arrangement with a private collector. The collection of recyclables, yard waste, and white goods supports the waste reduction/reuse and recycling efforts being undertaken within Guilford County.

- Municipally supported processing services for recyclables within Guilford County are offered by the Cities of Greensboro and High Point. The City of Greensboro contracts its recyclables' processing services to FCR Greensboro, Inc. This materials recovery facility (MRF) serves the recyclables' processing needs of the City of Greensboro, the Town of Gibsonville, and unincorporated areas of the County. The City of High Point owns and operates a MRF. This MRF, which was recently converted from a "dirty MRF" to a "clean MRF", serves the recyclables' processing needs of the City of High Point, the Town of Jamestown, unincorporated areas of the County, and the Cities of Thomasville and Lexington.

- Municipally supported processing services for yard waste within Guilford County are offered by the Cities of Greensboro and High Point. The City of Greensboro contracts its yard waste processing services to Scotts-Hyponex. Under this arrangement, Scotts-Hyponex manages a yard waste processing area set at the City of Greensboro's White Street Sanitary Landfill. This facility serves the yard waste processing needs of the City of Greensboro, the Town of Gibsonville, and unincorporated areas of the County. The City of High Point owns and operates a yard waste processing facility known as the Ingleside Compost Facility. This facility serves the yard waste processing needs of the City of High Point, the Town of Jamestown, and unincorporated areas of the County.

- In addition to FCR Greensboro, Inc., other private processors of recycling materials generated within Guilford County include: Alcoa and Reynolds Aluminum (aluminum is accepted for processing); Paper Stock Dealers and Triad Paper (corrugated cardboard, office paper, newspaper, and mixed paper are accepted for processing); Salvation Army, Goodwill Industries, and a variety of thrift stores and resale shops (household items and clothing are accepted for reuse); and, auto supply centers (used motor oil, lead-acid batteries, and waste tires are accepted from customers for processing).

- Waste incineration is not part of the solid waste management systems currently being implemented in Guilford County.

- At present, there are no waste transfer facilities operating within Guilford County.

- Currently, the majority of MSW generated within the County is disposed of at one of two municipal landfills within the County. The White Street Sanitary Landfill, which is owned and operated by the City of Greensboro, receives approximately 59% of the County's MSW stream. The Kersey Valley Landfill, which is owned and operated by the City of High Point, receives approximately 24% of the County's MSW stream.

- A solid waste disposal agreement has been in effect since 1984 between Guilford County, the City of Greensboro, and the City of High Point, which assures residents living in the unincorporated areas of the County with access to the two municipal landfill facilities through the end of calendar year 1998.

- The Piedmont Landfill, a private landfill located in neighboring Forsyth County and which is owned and operated by Waste Management, Inc., receives approximately 14% of the County's MSW stream. The remainder of the County's MSW is disposed of in other landfill facilities located outside of Guilford County.

- There are currently no landfills solely permitted for C&D in Guilford County. However, a portion of the C&D wastes generated in the County are accepted at the White Street Sanitary Landfill, where it is handled separately from the MSW. The City of Greensboro is in the midst of the permit application process for establishing a C&D waste disposal area at the White Street Sanitary Landfill. The remainder of the C&D waste is either taken to LCID facilities, disposed of outside of the County, or otherwise dumped illegally.

- The disposal of LCID waste is handled by private companies and individuals. There are currently 12 privately-owned permitted LCID landfill facilities in Guilford County.

- Other solid waste services and or programs offered within Guilford County include: the management of special wastes (white goods, waste tires, household hazardous waste); solid waste educational efforts; litter eradication programs (County clean-up of illegal dumps, participation in "Clean-Sweep" programs, and other litter eradication events); and, the implementation of policies adopted by the Cities of Greensboro and High Point which promote waste reduction and recycling all serve to support waste reduction/reuse and recycling efforts within Guilford County.

FULL COSTS OF SOLID WASTE MANAGEMENT

- House Bill 859 prescribes that all local governments put forth a good faith effort to provide a description and assessment of the full cost of solid waste management.

- The median cost for residential solid waste services within the incorporated areas of the County (which include the management of solid waste, recyclables, yard waste and bulky wastes) is $13.73 per household per month. In the unincorporated areas of the County, residential customers are paying $14.50 per household per month for solid waste services (limited to the management of solid waste and recyclables). These costs are presented in Table ES-3.

- The financing methods most commonly used by local governments to fund the provision of these services/programs include Fees (tipping fees, customer service charges), and Property Taxes/General Funds.

- Bulk container solid waste management services are offered to commercial clients, which include both business establishments and multi-family residences, by the City of Greensboro. Clients receive bulk container solid waste collection and disposal services twice a week. Those clients who wish to recycle receive bulk container recycling collection and processing services anywhere from two times to four times a week, depending on the volume of recyclables generated. The cost of the bulk container solid waste collection/disposal services is estimated to be $110.93 per client per month. The cost of the bulk container recyclables collection/processing services (minus revenues generated from the sale of recyclables) is estimated to be $89.84 per client per month. These costs are presented in Table ES-4.

Section 1.0
Waste Stream Evaluation

1.1 INTRODUCTION

The purpose of this Section is to present the quantities, characteristics, and projections of municipal solid waste streams that will require management in Guilford County during the 10-year planning period (July 1, 1997 through June 30, 2007). In this Plan, the term "Municipal Solid Waste", or "MSW", is used to describe the wastes which are generated by the Residential, Commercial, and Industrial sectors of Guilford County. The term "Construction and Demolition" debris, or "C&D" waste, is used to describe any waste resulting solely from construction, remodeling, repair, or demolition operations on pavement, buildings, or other structures.

1.2 WASTE GENERATION RATES

1.2.1 MSW Generation Rate

To maintain consistency with previous studies and reports, MSW generation rates which were compiled for the Guilford County Solid Waste Management Study were used as the basis for quantifying both current and future MSW generation rates in Guilford County. In this Study, a per capita generation rate of 7.35 pounds per person per day was estimated for MSW generation. This per capita generation rate was assumed to be constant during the planning period and was multiplied by population projections for the County to estimate future municipal solid waste tonnages that will be generated in the County. Table 1-1 presents current and recent estimated quantities of MSW being generated in Guilford County.

TABLE 1-1 GUILFORD COUNTY CURRENT AND RECENT MSW TONNAGE ESTIMATES		
Year	**Population**	**TPY**
1994-1995	362,710	486,370
1995-1996	365,768	490,470
1996-1997	368,826	494,570

Notes:
1. FY 1994-1995 total MSW tonnage based on waste generation data for Guilford County as reported in the County's Solid Waste Management Annual Report for the period July 1, 1994 - June 30, 1995, constant per capita waste generation rate of 7.35 pounds of MSW per person per day, and 1995 population estimate for Guilford County.
2. MSW tonnage reflects waste generated by the Residential, Commercial, and Industrial sectors of Guilford County; tonnage does not reflect C&D waste generated within the County during FY 1994-1995. Tonnages rounded to the nearest tenth.
3. FY 1994-1995 per capita MSW generation rate of 7.35 pounds per person per day assumed to be constant throughout the planning period.

1.2.2 Construction and Demolition Waste Generation Rate

During the course of the Solid Waste Management Study, efforts were also made to quantify and characterize the Guilford County Construction and Demolition waste stream.

According to the NC DEHNR, Winston-Salem Regional Office, there were no facilities permitted solely as C&D landfills in Guilford County during FY 1994/1995 - FY 1995/1996. However, NC DEHNR officials report that C&D waste is accepted at both the City of Greensboro's White Street Sanitary Landfill and a privately owned facility known as the Wiley Davis Road Landfill, which is located near the Town of Jamestown in Guilford County.

At the White Street Sanitary Landfill, C&D waste is handled separately from what is termed "sanitary fill" or MSW. Scalehouse records document the amount of C&D waste accepted at the White Street Sanitary Landfill. During FY 1994-1995, these records indicated that the White Street Sanitary Landfill accepted 33,450 tons of C&D waste. In addition, a total of 4,230 tons of C&D waste was received at the City of High Point's Materials Recovery Facility during the same time period. Together, these tonnages total 37,680, or 7.2% of the total waste (MSW and C&D waste) reported for Guilford County that year.

It is evident that the 37,680 tons of C&D waste received at the two public landfills was not all of the C&D waste generated in the County for FY 1994-1995. To estimate the quantity of C&D waste being generated in Guilford County at the present time the C&D waste percentage estimate, presented in Guilford County's Solid Waste Management Report for the period July 1, 1995 - June 30, 1996, was used. This C&D waste estimate, which was 10% of the total waste stream, is in line with the reported amounts of C&D waste known to have been disposed of in FY 1994-1995 and was used as the basis for making future C&D waste projections. Table 1-2 presents the estimated quantities of C&D waste being generated in Guilford County at the present time.

TABLE 1-2
GUILFORD COUNTY
CURRENT AND RECENT C&D TONNAGE ESTIMATES

Year	Population	C&D Waste	Total Waste Stream
1994-1995	362,710	54,040	540,410
1995-1996	365,768	54,500	544,970
1996-1997	368,826	54,950	549,520

Notes:
1. A per capita generation rate of 7.35 lbs/person/day waste used to project MSW tonnages throughout the period. Tonnages rounded to the nearest ten tons.
2. C&D waste estimated based on data presented in Guilford County's Solid Waste Management Report for the period July 1, 1995 - June 30, 1996. The County reported that 10% of the total waste stream (MSW and C&D) was C&D waste.

1.2.3 Land Clearing and Inert Debris

A third waste stream which is generated within the County, but which is handled outside of the State of North Carolina reporting process, is "Land Clearing and Inert Debris" (LCID). LCID waste is defined by the State of North Carolina as "any waste materials produced in the clearing off of property such as stumps, roots, rocks, dirt, gravel, asphalt, bricks, and concrete".

At present, there are twelve permitted LCID facilities in Guilford County which are listed by NC DEHNR as being active. These are all privately operated unlined landfill facilities which are not required to maintain detailed records of the LCID materials accepted for disposal. In addition to these permitted facilities, there are other LCID

operations, which due to there size or fill activity, are not subject to LCID permitting requirements. Often LCID is disposed of on site of a land clearing activity; due to the quantities of materials involved, such disposal activities are often not subject to LCID permitting requirements. It is also known that some Land Clearing and Inert Debris is being disposed of at illegal sites in the County.

Given the fact that LCID does not fall under the State's Solid Waste reporting requirements, this waste will not be addressed in this Solid Waste Management Plan.

1.3 CURRENT WASTE STREAM CHARACTERISTICS

1.3.1 Waste Stream Analysis by Sector

The Guilford County Solid Waste Management Study reported that a total of 486,370 tons of MSW was generated in the County in FY 1994-1995 (see Table 1-1). Of this total, approximately 85.7% (on a weight basis) of the material was managed by means of landfill disposal, and the remaining 14.3% was managed via recycling, composting, or other reclamation programs. Of the portion of the waste stream which was landfilled in FY 1994-1995, 83% of the MSW was disposed of in MSW landfills located in Guilford County with the remaining 17% disposed of in MSW landfills located outside of Guilford County.

For the purposes of this plan, the total waste stream in Guilford County have been divided into four sectors based on types of waste generators; namely, the Residential, Commercial, Industrial and C&D sectors. The wastes generated by three of these sectors (Residential, Commercial, and Industrial) constitutes "Municipal Solid Waste", or MSW. Table 1-3 presents the estimated percentages and tonnages of waste estimated to be generated by the four identified sectors for FY 1996-1997.

1.3.2 Waste Stream Composition

The local governments which comprise Guilford County include Guilford County; the Cities of Greensboro and High Point; and, the Towns of Gibsonville, Jamestown, Summerfield, Stokesdale, and Whitsett. At this time, no waste characterization studies have been performed to determine the composition, or makeup, of the waste stream generated by each sector. However, estimates of the waste components found in the

TABLE 1-3 GUILFORD COUNTY WASTE ESTIMATES BY SECTOR FY 1996-1997						
Measurement	MSW			Total MSW	C&D Waste	Total Waste Stream
	Residential Waste	Commercial Waste	Industrial Waste			
Percentage	30%	38%	22%	90%	10%	100%
Tonnages	164,860	208,820	120,890	494,570	54,950	549,520

Notes: 1. Sector percentages based on data presented in Guilford County's Solid Waste Management Report for the period July 1, 1995 - June 30, 1996.
2. A per capita generation rate of 7.35 lbs/person/day waste and FY 1996-1997 population estimate of 368,826 used to project MSW tonnages (see Guilford County Solid Waste Management Study). Tonnages rounded to the nearest tenth.

three sectors comprising the MSW stream in Guilford County have been compiled using statistics presented in Volume I of the North Carolina Recycling and Solid Waste Management Plan.

1.3.2.1 Residential Waste Composition

The State Plan estimates that paper, organics, and plastics are the most prevalent materials found in the Residential waste stream. Using the percentage estimates compiled by the State, and the Residential waste tonnage that is estimated to be generated in Guilford County during the current fiscal year (FY 1996-1997), the amounts of different materials found in this portion of the County's MSW stream have been calculated and are presented in Table 1-4.

TABLE 1-4 GUILFORD COUNTY ESTIMATE OF RESIDENTIAL WASTE COMPOSITION		
Material	**State Estimate (Percent)[1]**	**Estimated Tons[2] Generated (FY 1996 - 1997)**
Paper	31%	57,107
Organics / Yard Waste	24%	39,566
Other[3]	13%	21,432
Plastics	10%	16,486
Glass	8%	13,189
Metals	8%	13,189
Cardboard	6%	9,892
TOTAL	**100%**	**164,860**

Notes:
1. Percentages derived from North Carolina Recycling and Solid Waste Management Plan, 1992, Volume 1, page 6-17. Data is normalized to 100%. Data used to derive percentage estimates comes from a compilation of waste composition studies throughout NC. Since the data above are estimates, they may vary according to geographic region. Cardboard is believed to comprise more than 6% of Guilford County's waste stream by weight. Plastic is believed to comprise less than 10% of Guilford County's waste stream by weight. Metals include aluminum, ferrous metal, and non-ferrous metal. Data collected prior to yard waste and aluminum can bans.
2. Tonnages derived from Guilford County Solid Waste Management Study and data reported in Guilford County's Solid Waste Management Report for the period July 1, 1995 - June 30, 1996.
3. Other includes textiles, wood, and rubble/construction and demolition debris.

1.3.2.2 Commercial Waste Composition

As is shown in Table 1-5, the State Plan showed that the most prevalent materials found in the Commercial waste stream include paper, cardboard, and organics. Using the percentage estimates compiled by the State, and the Commercial waste tonnage that is estimated to be generated in Guilford County during the current fiscal year (FY 1996-1997), the amounts of different materials found in this portion of the County's MSW stream have been calculated and are presented in Table 1-5.

TABLE 1-5 GUILFORD COUNTY ESTIMATE OF COMMERCIAL WASTE COMPOSITION		
Material	**State Estimate (Percent)[1]**	**Estimated Tons[2] Generated (FY 1996 - 1997)**
Paper	26%	54,293
Cardboard	26%	54,293
Organics / Yard Waste	16%	33,411
Other[3]	15%	31,323
Plastics	8%	16,706
Metals	6%	12,529
Glass	3%	6,265
TOTAL	**100%**	**208,820**

Notes:
1. Percentages derived from North Carolina Recycling and Solid Waste Management Plan, 1992, Volume 1, page 6-17. Data is normalized to 100%. Data used to derive percentage estimates comes from a compilation of waste composition studies throughout NC. Since the data above are estimates, they may vary according to geographic region. Cardboard is believed to comprise more than 6% of Guilford County's waste stream by weight. Plastic is believed to comprise less than 10% of Guilford County's waste stream by weight. Metals include aluminum, ferrous metal, and non-ferrous metal. Data collected prior to yard waste and aluminum can bans.
2. Tonnages derived from Guilford County Solid Waste Management Study and data reported in Guilford County's Solid Waste Management Report for the period July 1, 1995 - June 30, 1996.
3. Other includes textiles, wood, and rubble/construction and demolition debris.

1.3.2.3 Industrial Waste Composition

The State Plan showed that the waste materials which were the main components of the Industrial waste stream include paper, cardboard, textiles, plastics and organics. Using the percentage estimates compiled by the State, and the Industrial waste tonnage that is estimated to be generated in Guilford County during the current fiscal year (FY 1996-1997), the amounts of different materials found in this portion of the County's MSW stream have been calculated and are presented in Table 1-6.

TABLE 1-6 GUILFORD COUNTY ESTIMATE OF INDUSTRIAL WASTE COMPOSITION		
Material	**State Estimate (Percent)[1]**	**Estimated Tons[2] Generated (FY 1996 - 1997)**
Paper	26%	31,431
Cardboard	24%	29,014
Other[3]	20%	24,178
Plastics	14%	16,925
Organics / Yard Waste	10%	12,089
Metals	5%	6,045
Glass	1%	1,209
TOTAL	**100%**	**120,890**

Notes:
1. Percentages derived from North Carolina Recycling and Solid Waste Management Plan, 1992, Volume 1, page 6-17. Data is normalized to 100%. Data used to derive percentage estimates comes from a compilation of waste composition studies throughout NC. Since the data above are estimates, they may vary according to geographic region. Cardboard is believed to comprise more than 6% of Guilford County's waste stream by weight. Plastic is believed to comprise less than 10% of Guilford County's waste stream by weight. Metals include aluminum, ferrous metal, and non-ferrous metal. Data collected prior to yard waste and aluminum can bans.
2. Tonnages derived from Guilford County Solid Waste Management Study and data reported in Guilford County's Solid Waste Management Report for the period July 1, 1995 - June 30, 1996.
3. Other includes textiles, wood, and rubble/construction and demolition debris.

1.4 CURRENT STATUS OF WASTE REDUCTION ACHIEVEMENTS

The new legislation adopted by the State of North Carolina which govern the development of Solid Waste Management Plans, namely House Bill 859, directs local governments to make a "good faith" effort to achieve the overall state per capita waste reduction goal of 40 percent by June 30, 2001. However, local governments have the right to set their own waste reduction goals and to design their own programs to reduce the quantities of wastes destined for disposal. The North Carolina statute stipulates that progress toward achieving the overall state goal is to be measured by comparing the per capita waste generation rate determined during the baseline year of July 1, 1991 and June 30, 1992 (based on the total of MSW and C&D waste disposed of in landfills plus waste

tonnage diverted from landfill disposal via recycling, composting, and mulching efforts) with the per capita waste disposal rate realized during a given fiscal year after that period (based only on the MSW and C&D tonnage disposed of in landfills).

Table 1-7 presents the status of waste reduction achievements which have been achieved in Guilford County between the baseline year (FY 1991-1992) and FY 1994-1995. The methodology in determining the progress which has been made in the County to reduce the quantities of wastes destined for disposal is that outlined by the State.

TABLE 1-7
GUILFORD COUNTY
REDUCTION OF LANDFILLED WASTE
FY 1991-1992 -- FY 1994-1995

Year	Population [1]	Solid Waste Landfilled			Per Capita Landfill Rate (lbs/person/day)	Per Capita Percent Reduction
		MSW	C&D [2]	Total		
1991-1992	353,536	471,540	52,390	523,930	8.12	-
1994-1995[3]	362,710	416,805	54,040	470,845	7.11	12.4%

Notes:
1. Population figures based on the Guilford County Solid Waste Management Study, July 1996.
2. Although 1991-1992 solid waste landfilled tonnage includes some C&D waste landfilled at the White Street Sanitary Landfill and Kersey Valley Landfill, those tonnages were minimal. It was assumed that the C&D waste landfilled could be reasonably estimated by assuming it was equal to 10% of the total waste stream (MSW and C&D). Tonnage reported in the North Carolina Solid Waste Management Annual Report, July 1, 1994 - June 30, 1995.
3. 1994-1995 solid waste landfilled MSW tonnage estimates as reported in Table 1-1, Guilford County Solid Waste Management Study, July 1996. C&D waste landfilled estimated by assuming it was equal to 10% of the total waste stream (MSW and C&D).

Materials are being diverted from landfilling in Guilford County through a variety of waste recycling and reduction efforts. At present, all residents within the County's jurisdiction have the opportunity and are encouraged to recycle a variety of materials. Materials which are currently being diverted from landfilling in the County either due to disposal bans or as a result of recycling/reduction efforts include:

- Paper, corrugated cardboard, glass, plastics, metals, and wood
- Leaves, grass clippings, limbs, and brush
- Used oil, used antifreeze, tires, and batteries
- Household hazardous waste

As was stated previously, the results of the Guilford County Solid Waste Management Study showed that of all MSW generated in the County during FY 1994-1995, a total of 14.3% of materials, on a weight basis, were diverted from landfilling as a result of recycling, reduction, and composting efforts. The State solid waste planning guidelines however stipulate that waste reduction achievements be measured by changes in per capita waste landfilling rates since the period of July 1, 1991 - June 30, 1992. Using the State's methodology, Guilford County's achievement of waste reduction was estimated to be 12.4% in FY 1994-1995.

1.5 WASTE STREAM PROJECTIONS FOR GUILFORD COUNTY

1.5.1 Municipal Solid Waste

Municipal solid waste projections which were compiled as part of the Guilford County Solid Waste Management Study, and which cover the planning period of July 1, 1997 through June 30, 2007 are presented in Table 1-8.

It should be noted that throughout the ten-year period covered by this Solid Waste Management Plan, it has been assumed that the per capita solid waste generation rate documented during FY 1994-1995 will remain constant. Likewise, the "sector percentage estimates" presented in Guilford County's Solid Waste Management Report for the period July 1, 1995 - June 30, 1996, have been assumed to be constant and have been used to estimate the quantities of MSW anticipated to be generated by the individual sectors which comprise MSW (Residential, Commercial and Industrial waste).

1.5.2 Construction and Demolition Waste

The C&D waste quantity projections for Guilford County during the planning period of July 1, 1997 through June 30, 2007 are presented in Table 1-9.

These projections have been derived using the MSW tonnage estimates presented in the Guilford County Solid Waste Management Study, along with the C&D waste percentage estimates of the County's entire waste stream identified in Guilford County's Solid Waste Management Report for the period July 1, 1995 - June 30, 1996. It has been assumed that the "sector percentage estimates" for C&D waste (10% by weight of the total waste stream) presented Guilford County's Solid Waste Management Report for the period July 1, 1995 - June 30, 1996 will remain constant throughout the planning period.

TABLE 1-8
GUILFORD COUNTY
FUTURE MSW TONNAGE PROJECTIONS BY SECTOR[1]

Year	Population	Residential Waste[2]	Commercial Waste[3]	Industrial Waste[4]	Total MSW	Total Waste Stream
1997-1998	371,884	166,220	210,550	121,900	498,670	554,080
1998-1999	374,942	167,590	212,280	122,900	502,770	558,630
1999-2000	378,000	168,960	214,010	123,900	506,870	563,190
2000-2001	381,050	170,320	215,740	124,900	510,960	567,730
2001-2002	384,100	171,680	217,470	125,900	515,050	572,280
2002-2003	387,150	173,050	219,190	126,900	519,140	576,820
2003-2004	390,200	174,410	220,920	127,900	523,230	581,370
2004-2005	393,250	175,770	222,650	128,900	527,320	585,910
2005-2006	396,300	177,140	224,370	129,900	531,410	590,460
2006-2007	399,350	178,500	226,100	130,900	535,500	595,000

Notes:
1. A per capita generation rate of 7.35 lbs/person/day waste used to project MSW tonnages throughout the period. Tonnages rounded to the nearest ten tons.
2. The Residential waste was estimated based on data presented in Guilford County's Solid Waste Management Report for the period July 1, 1995 - June 30, 1996. The County reported that 30% of the total waste stream (MSW and C&D) was generated by the Residential Sector.
3. The Commercial waste was estimated based on data presented in Guilford County's Solid Waste Management Report for the period July 1, 1995 - June 30, 1996. The County reported that 38% of the total waste stream (MSW and C&D) was generated by the Commercial Sector.
4. The Industrial waste was estimated based on data presented in Guilford County's Solid Waste Management Report for the period July 1, 1995 - June 30, 1996. The County reported that 22% of the total waste stream (MSW and C&D) was generated by the Industrial Sector.

TABLE 1-9
GUILFORD COUNTY
FUTURE C&D TONNAGE PROJECTIONS

Year	Population	Total MSW[1]	C&D Waste[2]	Total Waste Stream
1997-1998	371,884	498,670	55,410	554,080
1998-1999	374,942	502,770	55,860	558,630
1999-2000	378,000	506,870	56,320	563,190
2000-2001	381,050	510,960	56,770	567,730
2001-2002	384,100	515,050	57,230	572,280
2002-2003	387,150	519,140	57,680	576,820
2003-2004	390,200	523,230	58,140	581,370
2004-2005	393,250	527,320	58,590	585,910
2005-2006	396,300	531,410	59,050	590,460
2006-2007	399,350	535,500	59,500	595,000

Notes:

1. A per capita generation rate of 7.35 lbs/person/day waste and population projections presented in the Guilford County Solid Waste Management Study used to project MSW tonnages throughout the period. Tonnages rounded to the nearest ten tons.
2. The C&D waste estimated based on data presented in Guilford County's Solid Waste Management Report for the period July 1, 1995 - June 30, 1996. The County reported that 10% of the total waste stream (MSW and C&D) was C&D waste.
   To calculate C&D waste tonnages, the following is assumed:
   where X=C&D waste tonnage
   0.10 = X / (X + MSW tonnage)
   The C&D per capita generation rate is calculated to be 0.82 pounds/person/day. This generation rate is assumed to be constant throughout the planning period.

Section 2.0
Development of Waste Reduction Goals

2.1 INTRODUCTION

The purpose of this Section is to determine what waste reduction goals the local governments of Guilford County should strive to achieve during the 10-year planning period (July 1, 1997 through June 30, 2007).

As stated in House Bill 859, which was passed in 1996 by the North Carolina General Assembly, each plan will 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". Local governments submitting plans are encouraged "to make a good-faith effort to achieve the State's forty percent (40%) municipal solid waste reduction goal". However, the statute does give latitude to local governments to set per capita municipal solid waste reduction goals which are either higher or lower than the State's goal. It is up to the local governments to determine what goals are deemed appropriate for their given situation, and to produce a solid waste plan which, when implemented, will serve to meet these goals and will be acceptable to the public.

In Section 1.0, the term "Municipal Solid Waste", or "MSW", was defined as wastes which are generated by the Residential, Commercial, and Industrial sectors of Guilford County. The term "Construction and Demolition" debris, or "C&D" waste, was defined as any waste resulting solely from construction, remodeling, repair, or demolition operations on pavement, buildings, or other structures. Those definitions will continue to be used for the County's planning purposes.

It should be noted that, in House Bill 859, the term municipal solid waste, as it is used in determining reduction goals, is used to describe wastes which are generated by the Residential, Commercial, Industrial, and C&D sectors. The State's definition of

municipal solid waste will be used only for the purpose of establishing the annual per capita reduction goals which the local governments of Guilford County will strive to achieve in support of the State's forty percent (40%) municipal solid waste reduction goal.

2.2 CURRENT WASTE REDUCTION EFFORTS

Within Guilford County there are a variety of efforts being made to divert waste materials from landfill disposal. These efforts include the recycling, composting, and reuse of materials, as well as efforts which are underway to reduce the amount and/or toxicity of waste actually generated (otherwise known as source reduction). Table 2-1 presents an overview of the recycling collection services that are currently provided within Guilford County. In addition to utilizing current collection services, there are a variety of drop-off facilities located in Guilford County which accept materials for recycling/reuse. These facilities include publicly operated recycling facilities and/or collection points, privately operated recycling facilities and/or collection points, charitable organizations, and some commercial and industrial establishments.

2.2.1 Waste Reduction Achievements by Sector

Section 1.0 included an examination of Guilford County's current waste stream characteristics. The results showed that during the period July 1, 1994 and June 30, 1995 (FY 1994-1995) a total of 486,370 tons of MSW was generated in the County (waste generated by the Residential, Commercial, and Industrial sectors). It is estimated that an additional 54,040 tons of waste (10% of all County waste) was generated as a result of construction and demolition activities. Using tonnage data recorded by the County for FY 1994-1995 and estimates made by the County regarding the generation of waste by sectors (Residential, Commercial, Industrial, and C&D), it is estimated that a total of 540,410 tons of waste was generated in the County during FY 1994-1995.

TABLE 2-1
GUILFORD COUNTY
RECYCLING COLLECTION SERVICES

Collection Service Provider	Paper					Plastics				Metal Cans			Glass	Appliances	Yard Waste
	Newspaper	Corrugated Cardboard	Chipboard	Magazines /Catalogs	Office Paper	PETE	HDPE	LDPE	LLDPE	Steel	AL	Aerosol			
City of Greensboro	R, SB, C, I	R, SB, C, I	R, SB, C, I	R, SB, C, I	R, SB, C, I	R, SB, C, I	R, SB, C, I			R, SB, C, I	R, SB, C, I	R, SB, C, I	R, SB	R	R
City of High Point	R, SB	R, SB				R, SB	R, SB			R, SB	R, SB		R, SB	R, SB	R, SB
Modern Garbage Service	R	R	R	R		R	R			R	R	R	R	R	
Rural Garbage Service	R	R		R		R	R			R	R		R		
Jenkins Sanitation	R	R		R		R	R			R	R		R		
J.M. Sanitation	R	R		R		R	R			R	R		R		
BFI															
WM of the Carolinas		C, I	C, I		C, I		C, I	C, I	C, I						
Waste Industries		C, I			C, I						C, I				

Notes:
1. Service recipients as follows: R=Residential; SB=Small Businesses; C=Commercial; I=Industrial
2. A permanent Household Hazardous Waste Collection Center, located in the City of Greensboro, is open to all citizens of Guilford County to dispose of household hazardous waste products.
3. The Town of Jamestown has recycling bins for glass, newspaper and aluminum cans on a year round basis in the parking lot behind the Town Hall. These bins are available for use by residents and small businesses. A dumpster for telephone books is added during the months of Feb. - April. Yard Waste is collected and taken to High Point for processing. Appliances are collected for an additional fee.
4. The Town of Gibsonville contracts with BFI for the provision of collection services.
5. County residents living in unincorporated areas pay additional fee for collection of appliances.
6. County residents living in unincorporated areas can take newspapers to drop-off facilities for recycling collection.

This data was further analyzed to determine the waste diversion achieved as a result of the waste reduction efforts by the waste generators mentioned above. As shown in Table 2-2, it is estimated that, during FY 1994-1995, approximately 13% of all waste generated within Guilford County (MSW and C&D) was diverted from landfill disposal as a result of source reduction, recycling, composting, or reuse activities. If the MSW waste is considered in total, waste diversion efforts appear to have reduced the tonnage of MSW disposed of in landfills by 14%. On a sector basis, it is estimated that a landfill waste diversion rate of 30% was achieved by the Residential sector, with a corresponding rate of 7% achieved by the Commercial/Industrial sector. There were no recorded tonnages reported for the diversion of wastes generated as a result of construction and demolition activities.

2.3 GUILFORD COUNTY'S FUTURE WASTE REDUCTION GOALS

2.3.1 Guilford County's Approach

In exercising the right to establish future waste reduction goals which are deemed appropriate for Guilford County, the local governments of Guilford County have decided to set three separate waste reduction goals for the Residential, Commercial/Industrial, and Construction and Demolition sectors. These individual goals are based on the waste anticipated to be generated during any given year.

It is assumed that by the commencement of the first goal setting period (July 1, 2000), the percentage diversion rates shown in Table 2-2 for the Residential sector will have increased to 32.83%. Due to the high level of waste diversion and recycling currently being achieved for the Residential sector, the Technical Committee decided to keep the waste reduction goal for the Residential sector constant at 32.83% throughout the planning period.

TABLE 2-2
GUILFORD COUNTY
FY 1994-1995
LANDFILL DIVERSION RATES FOR COUNTY GENERATED WASTE

Service Provider	Materials Diverted	MSW						C&D	
		Total MSW Tonnage	% of Total MSW	Residential		Commercial/Industrial		Total C&D Tonnage	% of Total C&D
				Tonnage	%	Tonnage	%		
Guilford County	Waste Tires	5,503	1%	4,953	90%	550	10%		
Guilford County	White Goods	728	<1%	713	98%	15	2%		
Guilford County	Household Hazardous Wastes	91	<1%	91	100%	0	0%		
City of Gibsonville *(BFI)*	Glass, Metal, Paper, Plastic	275	<1%	261	95%	14	5%		
City of Greensboro (*City & Waste Industries*)	Glass, Metal, Paper, Plastic, Other	22,001	5%	17,601	80%	4,400	20%		
City of Greensboro	Mixed Yard Wastes	15,376	3%	14,669	95%	707	5%		
City of High Point	Glass, Metal, Paper, Plastic, Wood, Other	15,104	3%	151	1%	14,953	99%		
City of High Point	Yard Waste	7,547	2%	7,472	99%	75	1%		
Town of Jamestown (*Waste Industries & BFI*)	Glass, Metal, Paper, Plastic	325	<1%	309	95%	16	5%		
Modern Garbage Service	Glass, Metal, Paper, Plastic	2,618	<1%	2,618	100%	0	0%		
	Total Diverted Materials:	**69,568**	**15%**	**48,837**	**70%**	**20,731**	**30%**	**0**	**0%**

Description of Waste Source	Tons Generated	Tons Diverted	% Diversion Based on Specified Waste Source
Total County Municipal Solid Waste:	486,370	69,570	14.30%
Total Residential Waste (30% of all County Waste):	162,120	48,840	30.13%
Total Commercial/Industrial Waste (60% of all County Waste):	324,250	20,730	6.39%
Total C&D Waste (10% of all County Waste):	54,040	0	0%
Total of All County Waste (MSW @ 90% & C&D @ 10%):	*540,410*	*69,570*	*12.87%*

Notes:
1. Source: Guilford County Solid Waste Management Annual Report, for the period July 1, 1994 - June 30, 1995.
2. C&D waste generation estimates based on percentages provided in Guilford County's Solid Waste Management Annual Report for the period July 1, 1995 - June 30, 1996.
3. Percentage estimates for portions of materials diverted which were attributable to Residential and Commercial/Industrial efforts were made by listed Service Providers.
4. Tonnage totals rounded to nearest ten tons
5. During FY 1994-1995 Town of Jamestown also diverted 308 tons of yard waste from landfill disposal. Information provided by Town of Jamestown in March 1997.

For the Commercial/Industrial sector, it is assumed that by the commencement of the first goal setting period (July 1, 2000), the percentage diversion rates shown in Table 2-2 will have increased to 8.39%. By the end of the planning period it is projected that the percentage diversion rates for the Commercial/Industrial sector will have risen to 11.39% if waste reduction goals are met.

For the C&D sector, it is assumed that by the commencement of the first goal setting period (July 1, 2000), the percentage diversion rates shown in Table 2-2 will have increased to 2.00%. By the end of the planning period it is projected that the percentage diversion rates for the C&D sector will have risen to 5.00% if waste reduction goals are met.

The resulting waste reduction goals for managing the waste anticipated to be generated in Guilford County throughout the period July 1, 1997 through June 30, 2007 are shown in Table 2-3.

As shown in Table 2-3, by the end of the planning period (June 30, 2007), the Technical Committee has established a goal of diverting approximately 17% (102,240 tons) of all waste generated within Guilford County (MSW and C&D) from landfill disposal as a result of source reduction, recycling, composting, or reuse activities. On a sector basis, a waste diversion goal of 32.83%, or 58,600 tons of Residential waste has been established for the year 2007. A corresponding goal of 11.39%, or 40,660 tons, has been established for the Commercial/Industrial sector. By 2007, a waste diversion goal of 5.00% of the waste generated, or 2,980 tons, has been established for the C&D sector.

TABLE 2-3
GUILFORD COUNTY
FUTURE WASTE DIVERSION GOALS BY SECTOR

Year	Residential (30%)			Com/Ind (60%)			C&D (10%)			TOTAL		
	TPY Generated	% Diversion	TPY Diverted	TPY Generated	% Diversion	TPY Diverted	TPY Generated	% Diversion	TPY Diverted	TPY Generated	% Diversion	TPY Diverted
94/95	*162,120*	*30.13%*	*48,850*	*324,250*	*6.39%*	*20,720*	*54,040*	*0%*	*0*	*540,410*	*12.87%*	*69,570*
97/98	166,220	30.58%	50,830	332,450	6.89%	22,910	55,410	0.50%	280	554,080	13.22%	73,270
00/01	170,320	32.83%	55,920	340,640	8.39%	28,580	56,770	2.00%	1,140	567,730	15.08%	85,640
05/06	177,140	32.83%	58,160	354,280	10.89%	38,580	59,050	4.50%	2,660	590,460	16.83%	99,400
06/07	178,500	32.83%	58,600	357,000	11.39%	40,660	59,500	5.00%	2,980	595,000	17.18%	102,240

Notes:
1. Sector percentage diversion rates based on data presented in Guilford County's Solid Waste Management Study (see Table 1-1) and estimates made by the providers of recycling/composting/reuse services within Guilford County who reported tonnage data to the County during FY 1994-1995.
2. Total MSW tonnage based on waste generation data for Guilford County as reported in the County's Solid Waste Management Annual Report for the period July 1, 1994 - June 30, 1995, a constant per capita generation rate of 7.35 lbs/person/day, and population estimates based on data provided by the Guilford County Planning and Development Department (straight line interpolation of data was methodology used to determine population during intervening years).
3. Tonnages rounded to the nearest tenth.

2.3.2 Meeting Future Waste Reduction Goals

To achieve the goals described above, existing source reduction, recycling, composting, and reuse programs will be maintained throughout the planning period. In addition, new programs will be implemented as technological and marketing opportunities arise. To achieve the established goals, new initiatives for reducing or diverting Commercial/Industrial waste and C&D waste must be implemented over the next ten years. For all sectors, waste reduction efforts will include the use of educational tools and publicity campaigns to encourage and promote participation in all source reduction, recycling, composting, and reuse opportunities which are available within Guilford County.

2.3.2.1 Residential Waste Reduction Efforts

As shown in Table 2-3, Guilford County's plan targets 55,920 tons in FY 2000-2001 and 58,160 tons in FY 2005-2006 for reduction or diversion of Residential waste from landfill disposal. To achieve these goals, it is recommended that curbside commingled Residential recycling services be provided to all households located within Guilford County.

At present, 24,947 households within the unincorporated areas of Guilford County are offered bi-monthly recycling collection services by four private haulers which service these areas (container for storing recyclables is not provided). Records indicate that 8.5% of the waste generated by these households is now being diverted from landfilling through these recycling services. The State of North Carolina estimates that it is safe to assume that when residential customers are provided with a bin for storing recyclables, and are offered curbside commingled collection services on a weekly basis, a 15% recycling rate can be achieved. If such services were provided to the 24,947 households currently offered bi-monthly recycling services, the potential exists that an additional 4,596 tons of materials could be diverted from landfilling through recycling activities.

There are an estimated 6,187 households within Guilford County which do not receive curbside solid waste or recycling collection services. These households, which are located in the unincorporated areas of the County and the Towns of Stokesdale and Summerfield, have the potential of diverting an

estimated 1,137 tons of Residential waste from landfilling if households were provided with a bin for storing recyclables, and offered curbside commingled collection services on a weekly basis. This tonnage estimate is based on a 15% recycling rate can being achieved.

An additional 2,625 tons of Residential waste is expected to be diverted from landfilling once the City of High Point's curbside recycling program is fully operational and anticipated participation rates are achieved.

The tonnages of recyclables which have the potential for being diverted from landilling through the provision of universal weekly curbside commingled collection services in the unincorporated areas of the County and the Towns of Stokesdale and Summerfield, along with the full realization of recycling recovery rates in the City of High Point (7,221 TPY) when added to the status quo Residential waste reduction rates currently being achieved (30.13%) should enable the County to meet the Residential waste reduction goals which have been set for fiscal years 2000 - 2001 and 2005 - 2006.

2.3.2.2 Commercial/Industrial Waste Reduction Efforts

As shown in Table 2-3, Guilford County's plan targets 28,580 tons in FY 2000-2001 and 38,580 tons in FY 2005-2006 for reduction in Commercial/Industrial sector. To achieve these reduction goals, it is recommended that a waste reduction/recycling program be implemented which target corrugated cardboard generated by the Commercial/Industrial sector. In Section 1.0 it was estimated that corrugated cardboard comprises approximately 26% of all waste generated by the Commercial/Industrial sectors in Guilford County (see Tables 1-5 and 1-6). To achieve the waste reduction goals shown in Table 2-3, programs should be implemented to encourage the recycling of at least 10% of the total corrugated cardboard (see Section 5.0 for intended actions). If such recycling efforts are successful, the waste reduction goals set for the Commercial/Industrial sector during fiscal years 2000 - 2001 and 2005 - 2006 will be achieved.

2.3.2.3 Construction and Demolition Debris Waste Reduction Efforts

As shown in Table 2-3, Guilford County's plan targets 1,140 tons in FY 2000-2001 and 2,660 tons in FY 2005-2006 for reduction or recycling of C&D waste. To achieve these reductions, the operators of public landfill facilities within the County should plan to utilize a portion of the C&D waste received (namely, the concrete fraction of the waste stream) for landfill construction activities and thereby divert these materials from landfill disposal (see Section 5.0 for intended actions). If such diversion efforts are successful, the waste reduction goals set for the C&D sector during fiscal years 2000 - 2001 and 2005 - 2006 will be achieved.

2.3.3 Impact on State Reduction Goals

The State measures waste reduction achievements by determining the reduction in the annual per capita waste disposal rates which have been realized since a fixed base year. Using the State's methodology, the base year per capita generation rate of 8.12 pounds per person per year was determined by dividing the FY 1991-1992 tons managed (total of MSW tonnage disposed of in landfills plus waste tonnage diverted from landfill disposal via recycling, composting, and mulching efforts, plus estimated C&D waste managed) by the County's July 1991 population. To determine the progress being made in achieving the State's 40 percent goal, the base year annual per capita disposal rate is then compared to annual per capita disposal rates realized in subsequent fiscal years. The rates for subsequent fiscal years are calculated by dividing the tonnage of waste disposed in landfills during a given fiscal year (MSW and C&D) by the County's population for the same fiscal year. It should be noted that tonnages of waste managed via recycling, composting, and mulching efforts are only included in the calculation of the base year annual per capita disposal rate.

Table 2-4 presents the projected annual per capita percentage waste reduction goals anticipated to be reached by June 30, 2001 and June 30, 2006 based on waste reduction and recycling goals established for Guilford County as described in this Plan. Using the State's methodology for calculating waste reduction achievements, the County's annual per capita waste reduction goal

for FY 2000-2001 is 14.63%, and increases to an annual per capita waste reduction goal of 16.39% by the end of FY 2005-2006.

2.4 FUTURE LANDFILL DISPOSAL CAPACITY

As was discussed in the Guilford County, North Carolina, Solid Waste Management Study, 1996, which was prepared by HDR Engineering, Inc., it appears that, if the County were to only rely on the public landfill disposal facilities operating in Guilford County, and if all currently-owned and adjacent land at these facilities were developed as Subtitle D landfill, there would be adequate capacity for wastes anticipated to require disposal throughout the planning period. It is estimated that fully developing these facilities will provide an estimated 18,490,000 cubic yards of disposal capacity (with new cell usage commencing in 1998).

Should all waste diversion goals shown in Table 2-3 be met, it is estimated that 11,985,900 cubic yards of disposal capacity will be required for meeting Guilford County's waste disposal needs during the period July 1, 1997 through June 30, 2007 (see Appendix B). This estimate includes both MSW and C&D estimated to require disposal during the planning period. Should the waste diversion achievements realized during FY 1994-1995 remain constant throughout the planning period, the County's waste disposal needs for the period July 1, 1997 through June 30, 2007 are estimated to total 12,355,110 cubic yards of disposal capacity (see Appendix C); a need which will still be able to be met if currently-owned and adjacent land at public facilities within the County are developed as Subtitle D landfill for use during the planning period.

TABLE 2-4
GUILFORD COUNTY
ANNUAL PER CAPITA WASTE REDUCTION GOALS
FISCAL YEARS 2000-2001 AND 2005-2006

Year	Population[3]	Total Waste Managed (TPY)[4]	Annual Per Capita Generation Rate (lbs/person/day)[4]	Per Capita Percent Reduction (%)
91/92[1]	353,536	523,930	8.12	--
00/01[2]	381,050	482,090	6.93	14.63%
05/06[2]	396,300	491,070	6.79	16.39%

Notes:
1. Total Waste Managed during FY 91/92 includes total of waste tonnage disposed of in landfills plus waste tonnage diverted from landfill disposal via recycling, composting, and mulching efforts, plus an estimated 52,390 tons of C&D waste (based on County's estimate that C&D waste comprises 10% of all waste generated within the County). Tonnage (excluding C&D estimate) and population data for FY 91/92 derived from Appendix B of the North Carolina Solid Waste Management Annual Report, July 1, 1994 - June 30, 1995, prepared by the Department of Environment, Health, and Natural Resources.
2. Total tonnage for Total Waste Managed during FY 00/01 and FY 05/06 includes only that waste tonnage estimated to be disposed of in landfills (MSW and C&D). See Table 2-3 for diversion rates used to determine landfilling needs.
3. Population estimates based on data provided by the Guilford County Planning and Development Department (straight line interpolation of data was methodology used to determine population during intervening years).
4. Tonnages are rounded to the nearest tenth.

haulers can charge residential customers; these rates vary depending on the type of service provided. The County requires that all collectors providing services to residents living in unincorporated areas offer customers both solid waste and recyclables collection services. Solid waste collection services are provided on a weekly basis; recycling services are provided on a bi-monthly basis. The arrangements which the County has established with the private collectors are valid for a five-year period of time.

The County has also made contractual arrangements with private firms to manage the collection and processing of used scrap tires, and white goods generated in the County. The arrangement with Tires, Inc. of Winston Salem allows citizens to drop used scrap tires off free of charge for collection and processing at a collection point located on NC 68. Under the contractual arrangements which have been made with DH Griffin, citizens may drop off white goods free of charge for collection and processing at a facility located on Hilltop Road.

For household hazardous waste collection services, the County has an intergovernmental agreement with the City of Greensboro which allows non-City residents to participate in the City's household hazardous waste collection program. Citizens may take materials to a permanent facility, located at 2750 Patterson Ave. Neither commercial nor industrial generated hazardous wastes are accepted at this facility.

3.2.1.2 City of Greensboro

Curbside collection services are offered by the City of Greensboro to single-family households, small multi-family units, and a limited number of small businesses on a weekly basis. Automated trucks are used to collect garbage and recyclables placed in City-provided 90-gallon roll-out containers for the majority of residential single-family units and small business establishments. In areas where the provision of automated collection services is not feasible, rear-end loader trucks are used to collect garbage and recyclables from residential single-family units, small multi-family units, and small business establishments. Yard waste and bulky items placed at the curb are collected separately using rear-end loader trucks. Old appliances are collected by the City on an as-requested basis (customers place a call to the City Solid Waste Division to request appliance collection services). A truck equipped with a hydraulic lift is dispatched by the City when appliance collection requests are received.

The City also provides collection services to commercial customers, which includes both business establishments and multi-family residents. Commercial customers receive garbage collection services twice a week, and recycling collection services anywhere from two times to four times a week, depending on the volume of recyclables generated. The City does not provide commercial customers with bulk refuse/recycling containers; rather, commercial customers most often lease stationary containers and then contract with the City for collection services (six and eight cubic yard stationary containers). The City uses a front end loader to collect materials from these stationary containers.

The City does not offer collection services to the industrial sector in instances where wastes are generated as a result of manufacturing processes. However, waste produced by industries, which includes waste from office administrative activities, floor sweepings, and waste from break rooms and rest rooms, will be collected so long as it is placed in a stationary container for the City's collection.

The City has made a contractual arrangement with Eco-Flo, a private firm, to manage the processing of household hazardous waste. Citizens may take their household hazardous waste to a permanent facility, located at 2750 Patterson Ave., for collection and processing. Under the City's contract, neither commercial nor industrial generated hazardous wastes are accepted at this facility; generators of such waste can deal directly with private hazardous waste material management firms.

No ordinance regarding collection or franchising arrangements exists in the City at this time.

3.2.1.3 City of High Point

The City of High Point provides curbside collection services to single-family households and small businesses on a weekly basis. Semi-automated trucks are used to collect garbage placed in City-approved 90-gallon roll-out containers. Garbage carts are available for purchase by residents for a fee of $49; this fee includes the cost of delivery of the cart to the customer's home. Specially outfitted trucks are used to collect recyclables from 18-gallon bins provided by the City. Larger containers for recyclables are available to residents (a 35-gallon roll-out cart) for a fee of $35; this fee includes the cost of delivery of the cart to the customer's home or small business.

- The Agricultural Extension Service Agency which serves Guilford County has an agent who is available on an as-needed basis to respond to requests placed with the County for solid waste educational services.

- FCR, the MRF operator which serves the City of Greensboro's recyclables processing needs, conducts public tours of the recycling facility and has a fully equipped education center.

- The City of Greensboro has a full time education specialist who is responsible for the coordination of the City's solid waste educational efforts. In addition, the City publishes a quarterly newsletter entitled "One Man's Trash" which is distributed to all residential customers.

- The City of High Point provides tours of the City's MRF and the Ingleside Compost Facility. The City also provides the community with a variety of solid waste educational materials.

3.7.2 Special Waste Management

In Guilford County a variety of programs are being implemented to manage special wastes generated within the County. These programs include:

- Household Hazardous Waste may be dropped off free of charge at a permanent facility, located at 2750 Patterson Ave. The City of Greensboro, has established a contract with Eco-Flo for household hazardous waste collection and processing services. Neither commercial or industrial generated hazardous wastes are accepted at this facility through the City's contract.

- Lead-Acid Batteries are collected at the Household Hazardous Waste facility on Patterson Ave. Residents can also recycle batteries with a number of auto parts dealers. It should be noted that all sellers of batteries are required by law to accept old batteries for recycling. None of the public or private residential collection programs include lead-acid battery collection services.

- Tires can be taken to a County managed designated collection point for waste tires on NC 68. Citizens drop tires off free of charge at this facility; the waste tires are then collected and processed by Tires, Inc. of Winston Salem.

  The County, in cooperation with the Agricultural Extension Service, also sponsors a periodic Farm Clean-Up program. As part of this program, farmers are encouraged to bring waste tires to the County Cooperative Extension Center for recycling.

  Tires may also be taken to the Kersey Valley Landfill where they are stored while awaiting processing. Tires are collected from the facility by Tires, Inc. of Winston Salem on a weekly basis. Residents can also recycle tires with a number of auto parts/tire dealers. None of the public or private residential collection programs include tire collection services.

- White Goods collection services are provided by the Cities of Greensboro and High Point, and the Towns of Gibsonville (special arrangements are made with BFI) and Whitsett (special arrangements are made with Alamance Garbage Service). If not collected by a citizen's provider of collection services, white goods may be dropped off free of charge at a collection point serviced by DH Griffin which is located on Hilltop Road. The white goods are processed by DH Griffin under a contractual arrangement with Guilford County taken to the Kersey Valley Landfill. White goods may also be taken to the Kersey Valley Landfill; white goods are collected from this facility by Stateline Scrap Metal for processing on a weekly basis.

3.7.3 Prevention of Illegal Disposal and Management of Litter

Guilford County currently has a program in place to deal with the illegal dumping. The County has used revenue from the sale of white goods collected in the solid waste program to purchase equipment necessary to clean up discarded appliances from illegal dump sites. Prison laborers are used to clean up the sites, and the program is coordinated through the prison farm and the Guilford County Environmental Health Department. The program has only been in place for a few months; to date, one illegal dump site has been cleaned up.

Guilford County also has a Solid Waste Ordinance that may be enforced within the County by the Sheriff's Department or staff from the Environmental Health Department.

Within the City of Greensboro, the City Department of Transportation's Street Cleaning Division is responsible for litter management.

3.7.4 Purchase of Recycled Materials and Products

Within Guilford County, the City of Greensboro and the City of High Point have an official recycled materials/products purchasing policy. The purpose of these policies is to encourage efforts to reduce the amount of solid waste generated and to recycle materials which are recoverable. Such policies have not yet been enacted by the County nor the other local governments within the County at this time.

All State supported offices, colleges and the schools (including County schools) located in Guilford County are required by legislation and executive order to purchase recycled products equal to a percentage of the total dollar value of paper products purchased. They must report these percentages annually to the Division of Pollution Prevention and Environmental Assistance. During FY 1994-1995 it was reported that 49% of the paper products purchased by local colleges and County schools contained recycled content.

Section 4.0
Full Cost Analysis and Performance Measurement

4.1 INTRODUCTION

The purpose of this Section is to provide information on the costs associated with the collection, processing, and disposal of waste which is managed by Guilford County's local governments. As prescribed by North Carolina House Bill 859 (G.S. 130A-309.09A (b)(7)), a description and assessment of the full cost of solid waste management, including the costs of collection, disposal, waste reduction, and other programs and methods of financing are presented.

4.2 PROGRAM DESCRIPTIONS

4.2.1 Municipal Collection Services

A variety of municipal collection services are provided to generators of residential and commercial wastes within Guilford County. These services include solid waste collection, recyclables collection, yard waste collection, and the periodic collection or receiving of special wastes (including bulky waste, white goods, tires, and household hazardous wastes). Table 4-1 presents a summary of these services.

4.2.2 Municipal Disposal Services

Within Guilford County, municipal disposal services are provided at one of the two publicly owned and operated landfills located within the County. The White Street Sanitary Landfill, which is owned and operated by the City of Greensboro, receives approximately 59% of the County's generated MSW requiring disposal. This landfill serves the disposal needs of the City of Greensboro, the Town of Gibsonville and several of the unincorporated areas of the County. The Kersey

TABLE 4-1 GUILDFORD COUNTY MUNICIPAL COLLECTION SERVICES			
County/Jurisdiction	**Description**	**Service Provider**	**No. Users**
City of Greensboro	Residential Collection (1 x / wk) Commercial Collection (2 x / wk) Yard Waste Collection (1 x / wk) Residential Recycling (1 x / wk) Commercial Recycling (2-4 x / wk) Bulky Waste Collection (1 x / wk)[1] Appliances (upon request)	City of Greensboro City of Greensboro City of Greensboro City of Greensboro City of Greensboro City of Greensboro City of Greensboro	58,500 2,300 58,500 58,500 750 58,500 58,500
Town of Gibsonville	Residential Collection (1 x / wk) Sm. Bus. Collection (1 x / wk) Yard Waste Collection (2 x / mth) Residential Recycling (2 x / mth) Bulky Waste Collection (2 x /mth)	Town of Gibsonville Town of Gibsonville Town of Gibsonville BFI Town of Gibsonville	1,550 68 1,550 1,550 1,550
Guilford County	Set Rate Arrangements with Private Contractors, including Residential Collection (1 x / wk) and Residential Recycling (2 x / mth)	Modern Garbage Service JM Sanitation Rural Garbage Service Jenkins Sanitation	21,104 2,500 85 1,258
City of High Point	Residential & Small Business Collection (1 x / wk) Yard Waste Collection (1 x / wk) Residential Recycling (1 x / wk) Bulky Waste Collection (1 x / wk) White Goods/Tires (1 x / wk)	City of High Point City of High Point City of High Point City of High Point City of High Point	27,586 27,586 27,586 27,586
Town of Jamestown	Residential Collection (2 x / wk) Yard Waste Collection (3 x / wk) Recycling Collection (drop-off) Bulky Waste Collection (1 x / wk) White Goods/Tires (as needed)	Town of Jamestown Town of Jamestown Waste Industries Town of Jamestown Town of Jamestown	1,125 1,125 1,125 1,125
Town of Stokesdale	No Service		
Town of Summerfield	No Service		
Town of Whitsett	Contract(collection/disp./process.) Garbage and Recyclables	Alamance Garbage Svc.	285

Valley Landfill, which is owned and operated by the City of High Point, receives approximately 24% of the County's generated MSW requiring disposal. This landfill serves the disposal needs of the City of High Point, the Town of Jamestown, and unincorporated areas of the County. Table 4-2 presents a summary of these services. The location of these facilities are shown in Figure 4-1.

TABLE 4-2 GUILFORD COUNTY MUNICIPAL DISPOSAL SERVICES		
County/Jurisdiction	**Description**	**Service Provider**
City of Greensboro	White Street Sanitary Landfill Municipal Solid Waste Construction and Demolition	City of Greensboro
City of High Point	Kersey Valley Landfill Municipal Solid Waste	City of High Point

The remainder of the County's municipal solid waste disposal needs are met by private MSW landfill facilities located outside of Guilford County's boundaries. The Piedmont Landfill, a facility located in neighboring Forsyth County which is owned and operated by Waste Management, Inc., receives approximately 14% of the MSW generated in Guilford County. This landfill serves the disposal needs of several of the unincorporated areas of Guilford County.

4.2.3 Municipal Waste Processing Services

For the purposes of this full cost analysis and performance measurement study, the term "Processing Services" within Guilford County has been used to encompass those services which involve waste reduction/reuse and recycling activities.

Within Guilford County, municipally-supported recyclable and yard waste processing services are offered by the City of Greensboro and the City of High Point. Table 4-3 presents a summary of these services.

The City of Greensboro contracts for recyclables processing services with FCR Greensboro, Inc., a private company with a Materials Recovery Facility (MRF), which is located at 706 Patton Avenue. This MRF serves the recyclable processing needs of the City of Greensboro, the Town of Gibsonville (materials are collected and transported to the facility by BFI), and unincorporated areas of the County.

FIGURE 4-1
GUILFORD COUNTY
SOLID WASTE MANAGEMENT FACILITIES

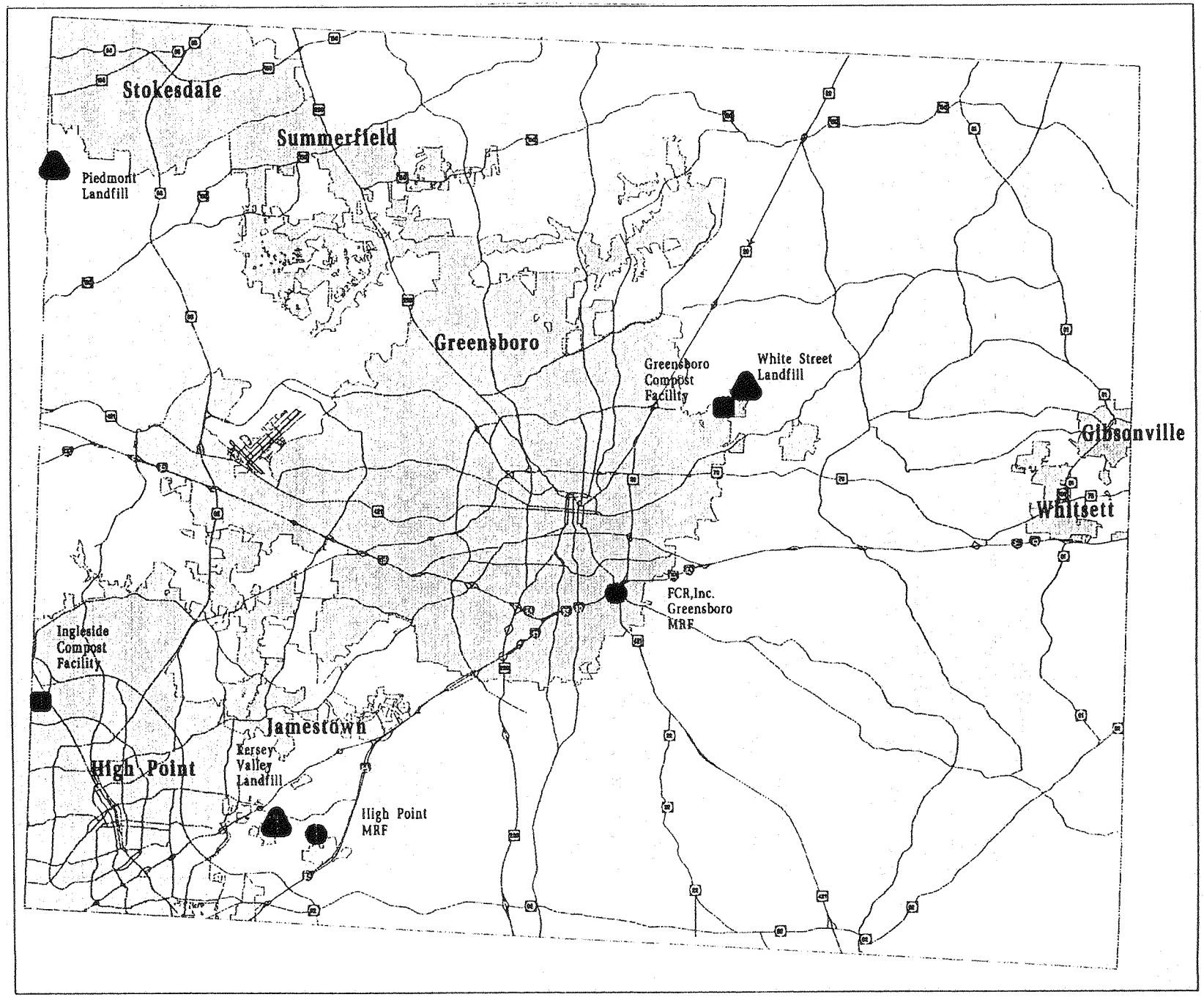

TABLE 4-3 GUILFORD COUNTY MUNICIPAL PROCESSING SERVICES		
County/Jurisdiction	**Description**	**Service Provider**
City of Greensboro	Processing Services of Recycled Materials Processing Services of Yard Waste	FCR, Inc. Scotts-Hyponex
City of High Point	Materials Recovery Facility Ingleside Compost Facility	City of High Point City of High Point

Yard waste processing services are also provided by the City of Greensboro through a contract with Scotts-Hyponex. Under this arrangement, Scotts-Hyponex uses an area set aside at the City of Greensboro's White Street Sanitary Landfill for the processing of pallets, leaves, tree limbs, grass clippings and shrubbery into compost and mulch. The yard waste processing area serves the yard waste composting needs of the City of Greensboro, the Town of Gibsonville, and unincorporated areas of the County.

The City of High Point provides processing services for the management of recyclables and the processing of yard waste. The City both owns and operates a Materials Recovery Facility (MRF). This facility was originally designed to process municipal waste and has been changed over to process source-separated recyclables. Recyclables collected at curbside from households and small businesses are brought to this facility for sorting and processing. This MRF serves the recyclable processing needs of the City of High Point, the Town of Jamestown, unincorporated areas of the County, and the Cities of Thomasville and Lexington.

Yard waste is processed at the City's Ingleside Compost Facility. The bulk of the materials accepted for composting at this facility includes leaves, grass, limbs, brush and wood chips. The Ingleside Compost Facility serves the yard waste processing needs of the City of High Point, the Town of Jamestown, and unincorporated areas of the County.

4.2.4 Other Municipal Solid Waste Services

Other services provided in Guilford County include the management of special waste materials such as white goods, waste tires, and household hazardous waste.

Guilford County has established a contractual arrangement with DH Griffin to process white goods collected within Guilford County. The white goods are processed by DH Griffin at no charge to the County. In turn, the County receives revenues from the State under the White Goods Tax program for the reclamation of white goods. The County has used revenue from the sale of white goods collected in the solid waste program to fund a program which has been established to deal with the illegal dumping of appliances. Funds have been used to purchase equipment necessary to clean up illegal dump sites, and prison laborers are used to clean up the sites.

White goods are also collected for processing by the Cities of Greensboro and High Point, and the Town of Gibsonville. White goods collected by the City of Greensboro are processed by DH Griffin; Stateline Scrap Metal processes the materials collected by the City of High Point; and, Levines Bros. processes' materials collected by the Town of Gibsonville.

The County has also established contractual arrangements for the processing of tires collected within Guilford County. Under this contract, which has been established with Tires, Inc. of Winston Salem, the County pays a fee for the processing of the waste tires. In turn, the County receives revenues from the State under the Waste Tire Tax program for the reclamation of tires. To promote the proper management of waste tires, the County, in cooperation with the Agricultural Extension Service, sponsors a periodic Farm Clean-Up program. As part of this program, farmers are encouraged to bring waste tires to the County Cooperative Extension Center for recycling.

Tires can also be taken to the City of High Point's Kersey Valley Landfill. Tires collected are then turned over to Tires, Inc. of Winston Salem for processing.

The City of Greensboro has established a contractual arrangement with Eco-Flo for household hazardous waste collection and processing services. Neither commercial nor industrial generated hazardous wastes are accepted at this facility

through the City's contract. Household hazardous waste may be dropped off free of charge at a permanent facility, located at 2750 Patterson Ave. Guilford County provides the City with 25% of the funds billed to the City of Greensboro by Eco-Flo for the household hazardous waste collection and processing services. The household hazardous waste program is financed through the City of Greensboro's Technical and Planning Support Division. In addition to the revenues received from Guilford County to fund this program, revenues are also received from a Hazardous Waste Disposal Fee which is charged to all City of Greensboro residents on their quarterly water bill.

Table 4-4 presents a summary of the services which are categorized as "Other Solid Waste Management Programs" under this full cost analysis.

TABLE 4-4
OTHER SOLID WASTE MANAGEMENT SERVICES ANALYZED FOR GUILFORD COUNTY

County/Jurisdiction	Description	Service Provider
Guilford County	White Goods Processing Waste Tire Recycling Portion of Household Hazardous Waste Program	DH Griffin Tires, Inc. Eco-Flo (thru contract with City of Greensboro)
City of Greensboro	Household Hazardous Waste Program White Goods Processing	Eco-Flo DH Griffin
Town of Gibsonville	White Goods Processing	Levines Bros.
City of High Point	White Goods Processing Waste Tire Recycling	Stateline Scrap Metal Tires, Inc.

4.3 PROGRAM COSTS

In determining solid waste management program costs, each of the local governments within Guilford County was contacted and asked to complete a "Full Cost Analysis Budget Form" (see Figure 4-2). This form was developed by HDR Engineering, Inc. of North Carolina in accordance with the full cost analysis and financing guidelines prepared by the Division of Pollution Prevention and Environmental Assistance, and presented in Part III, Chapter 14, Section 1 of the State's Planning Resource Manual. The local governments within Guilford County provided cost information independently

FIGURE 4-2
FULL COST ANALYSIS BUDGET FORM

Fiscal Year:

Name of Local Government:

	Annual Cost of Operations	Total Budget	Program Category												
			Collection					Disposal			Processing				Other
	No. of Employees:		Solid Waste	Recycling	Yard Waste	Bulky Waste	Total	MSW	C&D	Total	MRF	Drop-Off	Yard Waste	Total	Total
1	Wages + Benefits of Employees (FTE)														
2	Local Government Administrative Support														
3	Equipment Operations and Maintenance														
4	General Operations														
5	Educational Materials														
6	Cash Capital Outlays														
7	Lease Payments														
8	Contracted Services (Alamance Garbage Service)														
9	Professional Services														
10	Insurance														
11	Tipping Fees (fees paid if local gov't. does not own landfill)														
12	Other:														
	Sub-Total Costs: (sum lines 1-12)														
	Costs of Large Capital Expenditures														
13	Annualized Large Capital Expenditures														
14	Annualized Landfill Development and Construction Costs														
15	Annualized Landfill Closure Costs														
16	Cost of Debt Service (loan & bond interest)														
17	*Total Annual Costs: (sum lines 1-16)*														
	Revenues														
18	Sales of Recovered Materials														
19	Equipment Salvage														
20	Other Revenue Sources:														
21	*Total Annual Revenues: (sum lines 18-20)*														
22	*Net Annual Costs: (line 17 minus line 21)*														
	Indicators of Efficiency														
23	Tons of Material Managed per Year														
24	No. Households or Clients Served														
25	*Total Cost per Ton: (line 22 divided by line 23)*														
26	*Total Cost per Household: (line 22 divided by line 24)*														
27	*Avg. Cost per Household per Month: (line 26 divided by 12)*														

of one another, and reported costs for varying Fiscal Years (ranging from data for FY 1995 - 1996 to data for FY 1997 - 1998). Given the variance in systems and levels of service provision, methods of financial record keeping, and the different time periods represented in the cost analysis, the costs presented in this Section of the Plan should be used for general guidance purposes only.

Table 4-5 presents a summary of the net program costs being incurred (or anticipated to be incurred) by the local governments of Guilford County to manage each ton of waste generated within the County. It should be noted that costs per ton could only be analyzed for the incorporated areas of the County. The unincorporated areas are served by the private sector; actual program costs and corresponding tonnages of waste managed by the private sector were not available for inclusion in this analysis.

TABLE 4-5
GUILFORD COUNTY
ANALYSIS OF COSTS PER TON[1]

Jurisdiction	Range of Net Program Costs $ / Ton		Median Net Program Costs $ / Ton
	Low	High	
Incorporated Areas			
Collection	$48.00	$84.00	$66.00
Disposal	$16.00	$51.00	$34.50
Processing	$24.00	$134.00	$79.00
Other[2]	$1,799.00	$1,799.00	$1,799.00
Unincorporated Areas	N/A	N/A	N/A

Notes:
1. Net program costs per ton equal total program costs minus revenues (funds gained from the sale of commodities or from equipment salvage revenues) divided by the tonnage of materials managed. Local governments reported costs for Fiscal Years ranging from FY 1995-1996 through FY 1997-1998.
2. Other category reflects costs per ton of household hazardous waste management program.

As is shown, the median cost for collection services within the incorporated areas of the County (including the collection of solid waste, recyclables, yard waste, and bulky waste) is $66.00 per ton. The median cost for disposal services within these same areas (including MSW disposal and LCID/C&D disposal) is $34.50 per ton. Processing services funded by local governments within the County (processing of recyclables and yard waste) are provided for a median cost of $79.00 per ton. The service cost noted under the "Other" category of Table 4-5 represents the median cost of the Household Hazardous Waste Program. As is shown, the cost of this program on a tonnage basis is high (estimated to total $1,799). This reflects the high costs associated with processing and disposing of materials, which due to their hazardous nature, require special handling that varies as the type of material varies.

All of the costs in Table 4-5 are considered "net costs" as they exclude revenues other than those received from the sale of commodities or funds gained from equipment salvage; (they do not include revenues gained from fees charged for service provision).

Table 4-6 presents an analysis of the costs of Residential solid waste management services within Guilford County on a per serviced household basis. The "Cost/HH/Month" category represents the estimated costs of providing residential solid waste management services (includes single family, duplex households and a few small businesses -- see Table 4-1) in both the incorporated and unincorporated areas of the County.

As is shown in Table 4-6, the median cost for residential services (including solid waste, recycling, yard waste, and bulky waste management services) within the incorporated areas of County is $13.73 per household per month. In the unincorporated areas of the County, residential customers are paying $14.50 per household per month for residential services (limited to solid waste and recycling services). The variances in residential service delivery methods and frequency of services are shown in Table 4-1.

TABLE 4-6 GUILFORD COUNTY ANALYSIS OF COSTS PER HOUSEHOLD PER MONTH[1]			
Jurisdiction ***Service Description***	**Range of Net Program Costs $/Household/Month**		**Median Cost $/Household/Month**
	Low	**High**	
Incorporated Areas			
Solid Waste	$ 4.84	$ 10.82	$ 7.83
Recycling[2]	$ 0.31	$ 5.47	$ 2.89
Yard Waste	$ 1.30	$2.83	$ 2.07
Bulky Waste	$ 0.43	$ 1.44	$ 0.94
TOTAL	**$ 6.88**	**$ 20.56**	**$ 13.73**
Unincorporated Areas[3]			
Solid Waste	$12.50	$12.50	$12.50
Recycling	$2.00	$2.00	$2.00
TOTAL	**$14.50**	**$14.50**	**$14.50**

Notes:
1. Costs reflect net program costs (total program costs minus funds gained from the sale of commodities or from equipment salvage revenues) divided by the number of service recipients. Local governments reported costs for Fiscal Years ranging from FY 1995-1996 through FY 1997-1998. Frequency of service provision varies among local governments (see Table 4-1).
2. Low recycling collection cost reflects costs incurred for drop-off program, all other reported collection costs reflect costs incurred for weekly curbside collection programs (collection container provided).
3. County Board of Commissioners has approved maximum fee of $14.50 to be charged to residential customers living in the unincorporated areas of the County for weekly solid waste collection services and bi-monthly recyclables collection services (containers are not provided to service recipients).

Table 4-7 presents an analysis of the average costs of Commercial solid waste management services (bulk container collection) provided by the City of Greensboro. The "Cost/Client/Month" category represents the estimated costs of providing bulk container solid waste services to recipients, who for the most part are classified as commercial customers (see Table 4-1).

TABLE 4-7
GUILFORD COUNTY
ANALYSIS OF COSTS PER COMMERCIAL CLIENT PER MONTH[1]

Client	Solid Waste Services $/Client/Month[2]	Recycling Services $/Client/Month
Bulk Container Service Recipient	$110.93	$89.84

Notes:
1. Costs reflect net program costs (total program costs minus funds gained from the sale of commodities or from equipment salvage revenues) for bulk container collection and disposal/processing services provided by the City of Greensboro to Commercial clients divided by the number of clients as reported by City of Greensboro for FY 1995-1996.
2. Average cost based on 2,300 clients receiving solid waste bulk container pick-up services. Costs incurred for collection and disposal are factored into the $/client/month figure.
3. Average cost based on 750 clients receiving recycling bulk container pick-up services. Costs incurred for collection and processing are factored into the $/client/month figure.

As is shown in Table 4-7, the cost for bulk container solid waste services provided primarily to commercial customers by the City of Greensboro average $110.93 per client per month; 2,300 clients receive this service on a monthly basis. The average cost for bulk container recycling services provided primarily to commercial customers by the City of Greensboro average $89.84 per client per month; 750 clients receive this service on a monthly basis. A description of commercial service delivery methods and frequency of services is provided in Table 4-1.

4.4 PROGRAM FINANCING METHODS

The solid waste services/programs managed by the local governments which comprise Guilford County are funded through a variety of mechanisms, including tip fees, property taxes/general funds, household charges, sale of recyclables and equipment, grants, and Tire and White Good tax revenues. Table 4-8 presents a summary of the financing methods used to fund solid waste services/programs managed by the local governments which comprise Guilford County. As can be seen, the financing methods used most often by local governments within Guilford County include Fees (tipping fees, customer service charges), and Property Taxes/General Funds.

TABLE 4-8
SOLID WASTE FINANCING METHODS USED BY LOCAL GOVERNMENTS WHICH COMPRISE GUILFORD COUNTY

	Total SWM Budget	Fees	Property Taxes/ General Fund	Sale of Recyclables/ Commodities/ Equipment	Grants	Tire & White Goods Tax	Other
Guilford County[1]	$618,864	0.00%	24.85%	0.00%	3.74%	75.15%	0.00%
Greensboro[2]							
SWM Division	$14,706,563	38.29%	57.00%	4.71%	0.00%	0.00%	0.00%
TPS Division[3]	$270,217	120.80%	0.00%	0.00%	0.00%	0.00%	27.77%
High Point[4]	$7,979,386	47.17%	51.11%	1.72%	0.00%	0.00%	0.00%
Gibsonville[5]	$203,434	31.00%	69.00%	0.00%	0.00%	0.00%	0.00%
Jamestown[6]	$193,945	0.00%	100%	0.00%	0.00%	0.00%	0.00%
Whitsett[7]	$29,928	0.00%	0.00%	0.00%	100%	0.00%	0.00%

1. During FY 1995-1996, Guilford County had a surplus in funding received when compared with expenditures (revenue received from Tire and White Goods Tax).
2. Information for the City of Greensboro reflects data reported for FY 1995 - 1996.
3. Technical and Planning Support Division had a surplus in funding received when compared with expenditures (revenue received from HHW Disposal Fee and Guilford County payment). Surplus kept in reserve in event of change in HHW management costs.
4. Information for the City of High Point reflects data reported for FY 1997 - 1998.
5. Information for the Town of Gibsonville reflects data reported for FY 1996 - 1997.
6. Information for the Town of Jamestown reflects data reported for FY 1996 - 1997.
7. Information for the Town of Whitsett reflects data reported for FY 1996 - 1997.

Section 5.0
Recommendations

5.1 INTRODUCTION

This Section presents the recommendations for solid waste system components which the Guilford County Solid Waste Management Plan Technical Committee believes will supplement existing solid waste systems and will best serve the future solid waste management needs of the citizens of Guilford County. The integration of these system components will enhance the capabilities of the local governments of Guilford County to develop environmentally sound and economical SWM systems which meet local waste reduction, recycling, and composting goals, and which utilize, for those wastes which cannot be recovered, public or private landfills within Guilford County which meet all regulatory requirements.

5.2 RECOMMENDED ACTIONS

5.2.1 Collection Services

The Guilford County Solid Waste Management Plan Technical Committee recommends that existing collection services within Guilford County be modified so as to include the following actions:

- Follow-up on Arrangements for Collection Services for Residences in Unincorporated Areas: The current arrangements that the County has with providers of collection services to residents living in the unincorporated areas of the County require that services offered include the weekly collection of solid waste and bi-monthly collection of recyclables. It is recommended that the County take further actions to ensure that each of the providers of collection services in the unincorporated areas are providing, and encouraging customers to utilize the recyclables collection services.

- Establish Universal Franchised Residential Collection: It is recommended that the County consider the establishment of universal collection services which would be provided within the unincorporated areas of the County, and that the Towns of Stokesdale and Summerfield participate in these franchising arrangements. Such services, which would include weekly curbside solid waste and commingled recyclables collection, would be provided through the solicitation of multi-year bids for servicing the franchise areas. It is recommended that bids be solicited from private and/or public haulers to service the unincorporated areas of the County and the Towns of Stokesdale and Summerfield.

  The establishment of residential franchised collection services would potentially yield a cost savings to the County and its constituents. Franchised collection is typically more efficient than free market collection due to the minimization of dead time between collection stops. Universal collection services would help to eradicate some of the illegal dumping problems being experienced within the County.

- Establish Standards for Recyclable Commercial Loads: Both the High Point and Greensboro materials processing facilities currently process recyclables from the residential sector, and to some extent, materials from the commercial sector. Standards could be set for each MRF on what would constitute a commingled recyclables load from commercial sources. Public and private collectors could then use these standards to offer commingled recyclables collection services to a broader spectrum of commercial customers. Such services could be provided at reduced costs due to the market value of the recyclable materials and the avoidance of a landfill tip fee.

5.2.2 Waste Reduction/Reuse and Recycling Activities

The Technical Committee recommends that existing waste reduction/reuse and recycling activities within Guilford County be modified so as to include the following actions:

- Facilitate MRF Processing of Commercial Recyclables: As an adjunct to the concept of offering commingled recyclables collection services to the commercial sector, both the High Point and Greensboro material recovery facilities should be evaluated with respect for their potential for processing commingled commercial recyclables. Based on these evaluations, as described above, standards for

commingled commercial recyclable loads could be established for use by public and private haulers in offering commingled recyclables collection services to commercial and industrial establishments. In the case of the City of Greensboro, an agreement could be established between the City and FCR to allow private contractors to serve as hauling agents for the City to transport commingled commercial recyclables to the MRF.

- Call for Corrugated Cardboard Disposal Ban: To divert corrugated cardboard from being disposed of in landfill facilities, the Technical Committee recommends that the local governments of Guilford County call for a State-wide ban on the disposal of corrugated cardboard. Such a ban will foster progress toward achieving the waste reduction goals which have been established for both the Residential and Commercial/Industrial sectors (see Section 2.0).

- Expand Curbside Recycling Collection Services: This recommendation is made in conjunction with the recommendation that residential franchised collection services be established in all unincorporated areas of the County and the Towns of Stokesdale and Summerfield. It is intended that such services include the provision of weekly curbside commingled Residential recycling services (including the provision of containers to all households for storing recyclables) to all households in the unincorporated areas of the County and the Towns of Stokesdale and Summerfield. Such service delivery will enhance the County's ability to meet the Residential waste reduction goals established in Section 2.0 of this Plan.

5.2.3 Composting and Mulching

The Guilford County Solid Waste Management Plan Technical Committee recommends that existing waste composting and mulching activities within Guilford County be modified so as to include the following actions:

- Encourage Residential Back Yard Composting: To supplement existing municipal composting efforts, and to encourage composting activities in the unincorporated areas of the County, all County residents should be made aware of the benefits of back yard composting through educational programs similar to those offered by the City of Greensboro and by the County Agricultural Extension Service. Suggestions for back yard composting educational efforts include:

- Demonstrate back yard composting techniques at various public sites such as municipal facilities or during public events.
- Create and send out mailers to all Guilford County residents describing backyard composting bin set up and management.
- Set up backyard composting bins at recycling centers and at area schools. Composting programs could be arranged at all schools and daily compostable waste could be gathered, managed and then used for amendments to school ground plantings and landscaping.

- Consider Upgrading Existing Municipal Composting Services: A previous study of the operations of the City of High Point's Ingleside Compost Facility showed that the current site is at or near capacity under the current method of operation. It was recommended in the study that the composting process be shortened by not allowing the compost to cure as long and moving the resulting compost and mulch off-site more quickly. This approach will enable the handling of additional material at the existing site. However, the proximity of new residential housing developments may limit the ability of increasing the amount of material at the existing site due to the potential for an increase in odor control problems.

5.2.4 Waste Incineration

Given the higher costs, required capital investments, changing regulations, and negative public perception associated with waste incineration systems, the Technical Committee does not recommend the incorporation of incineration as a current Plan element. However, the potential of incorporating this option into future solid waste management systems will be revisited at the time of the first update of this Solid Waste Management Plan.

5.2.5 Waste Transfer/Disposal Services

The Technical Committee recommends that existing waste transfer/disposal services within Guilford County be modified so as to include the following actions:

- Renegotiate Memorandums of Understanding Between the Cities and the County: The Memorandums of Understanding between the Cities of Greensboro and High Point and Guilford County which assure all customers of the unincorporated areas of the County access to the landfill sites on the same terms and conditions as City

customers will expire at the end of the second calendar year during the planning period (December 31, 1998). In order to ensure continued access to the landfill sites, the Technical Committee recommends that the process of renegotiating these Memorandums should be undertaken by all parties as soon as possible.

- Further Develop Capacity at Existing Public Disposal Facilities: The Technical Committee recommends that both existing public facilities within Guilford County fully develop all currently-owned land and adjacent land as Subtitle D landfill area. The City of Greensboro is proceeding with the development of Phase III at the White Street Sanitary Landfill, and is scheduled to begin utilizing this area by January 1, 1998. The City of High Point is developing Phase II, and if full development is achieved, eventually will move on to develop Phase III of the Kersey Valley Landfill Facility.

  In the Solid Waste Management Study prepared for Guilford County in July 1996, the Project Advisory Committee included in its recommendations that both the White Street Sanitary Landfill and the Kersey Valley Landfill be developed to greatest extent possible so as to meet future disposal needs. The full development of these facilities was estimated to provide 18,490,000 cubic yards of Subtitle D disposal capacity. This capacity is expected to be adequate to meet Guilford County's MSW disposal needs over the 10-year planning period.

- Consider the Establishment of a Solid Waste Authority for Guilford County: In light of the recommendation for the siting and development of a multi-jurisdictional landfill for Guilford County, the establishment of a Solid Waste Management Authority to manage such a facility should be given consideration for implementation during the 10-year planning period.

- Expand C&D Disposal Capacity: The City of Greensboro is in the processing of permitting and developing an area of the White Street Sanitary Landfill solely for the purpose of C&D disposal. The additional C&D disposal capacity should help to eliminate some of the problems associated with illegal dumping of C&D waste, and will also help to conserve valuable MSW fill area that might otherwise have been used to receive C&D waste. The City of High Point should also consider, if it is feasible, developing a permitted C&D area at the Kersey Valley Landfill; otherwise the development of an LCID disposal area at the Kersey Valley Landfill should be given consideration.

- Take Actions to Site and Develop a New Multi-Jurisdictional Landfill Facility: The Technical Committee recommends that action be taken to begin the process of siting and developing a new multi-jurisdictional landfill facility to accommodate county-generated MSW after the existing public facilities have been filled to capacity. It is recommended that the site selection process for the multi-jurisdictional landfill facility be completed by the end of the 10-year planning period in order to ensure that disposal capacity anticipated being needed after June 30, 2007 will be available within Guilford County.

5.2.6 Other Solid Waste Management Activities

The Technical Committee recommends that other solid waste management activities currently being implemented within Guilford County be modified so as to include the following actions:

5.2.6.1 Educational Programs

- Expand Existing Community Education Efforts: Each of the providers of solid waste collection services within Guilford County (either public or private) may want to consider distributing informational literature and "solid waste management updates" to service recipients on a regular basis. In distributing additional literature, it may be beneficial to give particular emphasis to the proper means of managing special wastes (household hazardous waste, lead acid batteries, tires and white goods).

  Other means of community education should be utilized, such as local radio and television stations, newspaper inserts, and "reminders" enclosed with utility bill mailings. The County may decide it is time to go "on-line" and develop an interactive web site on the Internet to provide residents with information on all the different aspects of solid waste management within Guilford County. The City of Greensboro has established a web site which contains information on solid waste management services offered by the City.

- Expand Existing School Education Efforts: Consideration should be given to encouraging schools throughout the County to participate in the state Adopt-A-Highway program. In addition, teachers should be encouraged

and given the opportunity to participate in the annual environmental educator's conference sponsored by the NC Office of Environmental Education.

5.2.6.2 Special Waste Management

- Institute a Certification Program for Tire Sales: It is recommended that the County consider use of an E-Form in an effort to reduce the number of waste tires from outside the County.

- Expand Existing Public Education Efforts: It is recommended that efforts be increased to educate the public living throughout the County on the proper disposal of used oil, lead-acid batteries, and waste tires. Pamphlets which deal with the management of automotive waste should be developed and distributed in cooperation with appropriate associations (Service Station Association, Auto Dealers Association, AAA).

5.2.6.3 Prevention of Illegal Disposal and Management of Litter

- Clean-Up Illegal Dump Sites: The County Health Department has identified and intends to clean-up known illegal dump sites. A portion of the White Goods Tax Revenues received from the State have been used by Guilford County for the purchase of equipment for cleaning-up discarded appliances from these dump sites; prison labor is scheduled to be used in the implementation of clean-up activities. It is recommended that efforts be continued to identify additional sites for clean-up within the County.

- Consider the Implementation of a County-Wide White Goods Collection Service: As mentioned above, the County has purchased equipment to be used for the clean-up of dicarded appliances from illegal dump sites. To address the problem of illegal white goods disposal, it is recommended that the County consider using this equipment to provide all Guilford County residents with a white goods collection service.

- Promote Public Support and Participation in Other Litter Prevention Activities: County sponsored white goods and scrap tire clean-up programs and efforts made to further encourage the public to take their waste tires and white goods to the collection points maintained by the County should be continued. Participation in other litter collection activities ("Big Sweep" programs sponsored by the Cities of Greensboro and High Point; Glad Bag-Athon day sponsored by the City of Greensboro) should be supported.

5.2.6.4 Purchase of Recycled Materials and Products

- Establish Recycling and Waste Reduction Policy: Consideration should be given by all local governments within Guilford County to establishing a recycling and waste reduction policies or procurement actions similar to those adopted by the Cities of Greensboro and High Point (see Appendix D).

5.2.7 Financing Costs of Solid Waste Management Services

Based on the results of the full cost analysis conducted as part of the development of this Plan (see Section 4.0), the Guilford County Solid Waste Management Plan Technical Committee recommends existing financing mechanisms utilized to fund solid waste management services within Guilford County be modified so as to include the following actions:

- Re-evaluate Costs of Service in Unincorporated Areas - Currently, the County has established a maximum fee of $14.50 per household per month to be charged by private companies for solid waste services provided to residents in the unincorporated areas. These services are to consist of two collection services (weekly solid waste collection and bi-monthly recyclables collection) and disposal/processing services. As indicated in Table 4-6, the median cost of services in the incorporated areas, which include the management of solid waste, recyclables, yard waste, and bulky wastes, is $13.73 per household per month. Based on this information, it appears that the County could save money by franchising the unincorporated areas and soliciting bids from private and/or public haulers to provide weekly collection services to these areas on a franchise basis.

When comparing these costs, it is important to keep in mind that they reflect different types and levels of services provided by each jurisdiction to each resident.

- Consider Increasing MRF Throughput to Reduce Costs of Recyclables Processing: One way to make MRFs more economical and to increase the recycling rate in the County is to process source-separated commercial recyclables at the High Point MRF. It is recommended that the County and the City of High Point pursue the feasibility of processing commercial, source-separated recyclables at the High Point MRF.

- Complete Process of Charging Full Costs For Bulk Container Solid Waste Collection Services: The City of Greensboro is in the process of charging commercial customers the full cost for bulk container solid waste collection services. The Technical Committee endorses the action the City is taking in this regard.

5.3 IMPLEMENTATION SCHEDULE

The solid waste system components which the Guilford County Solid Waste Management Plan Technical Committee has recommended be adopted by the local governments of Guilford County, and which are described in Section 5.2 are listed chronologically in the Implementation Schedule presented in Table 5-1.

TABLE 5-1 GUILFORD COUNTY SOLID WASTE MANAGEMENT PLAN IMPLEMENTATION SCHEDULE	
Fiscal Year	**Action**
1997 - 1998	1. Renegotiate Memorandums of Understanding Between the Cities and the County 2. Follow-up on Arrangements for Collection Services for Residences in Unincorporated Areas 3. Encourage Residential Back Yard Composting 4. Clean-Up Illegal Dump Sites 5. Promote Public Support and Participation in Other Litter Prevention Activities 6. Establish Recycling and Waste Reduction Policy 7. Call for Corrugated Cardboard Disposal Ban 8. Re-evaluate Costs of Service in Unincorporated Areas 9. Consider the Implementation of a County-Wide White Goods Collection Service 10. Utilize Phase III of the White Street Sanitary Landfill 11. Establish Standards for Recyclable Commercial Loads 12. Facilitate MRF Processing of Commercial Recyclables
1998 - 1999	1. Consider Increasing MRF Throughput to Reduce Costs of Recyclables Processing 2. Expand C&D Disposal Capacity 3. Expand Existing Community Education Efforts 4. Expand Existing School Education Efforts 5. Consider Using an E-Form for Tire Sales 6. Consider Establishment of Franchised Universal Residential Collection 7. Expand Curbside Recycling Collection Services 8. Consider the Establishment of a Solid Waste Authority for Guilford County 9. Take Actions to Site and Develop a New Multi-Jurisdictional Landfill Facility
1999 - 2000	1. Update Solid Waste Management Plan 2. Revisit Waste Incineration Options 3. Develop Phase III of the Kersey Valley Landfill
2000 - 2001	1. Consider Upgrading Existing Municipal Composting Services
2002 - 2003	1. Complete Process of Charging Full Costs For Bulk Container Solid Waste Collection Services
2003 - 2004	1. Update Solid Waste Management Plan
2006 - 2007	1. Complete the Site Selection Process for the Multi-Jurisdictional Landfill Facility.

Appendix A

Advertised Public Meeting Information

NEWS & RECORD

Published by
News & Record, Inc.
Greensboro, North Carolina

North Carolina, Guilford County
AFFIDAVIT OF PUBLICATION

Before the undersigned, a Notary Public of said County and State, duly commissioned, qualified and authorized by law to administer oaths, personally appeared Betty Pitchford who being first duly sworn, deposes and says:

1. That she is Inside Sales Manager of the Greensboro News Company, a corporation, engaged in the publication of newspapers known as ``News and Record'', published, issued and entered as second class mail in the City of Greensboro in said County and State;

2. That she is authorized to make this affidavit and sworn statement; that the notice or other legal advertisement, a true copy of which is attached hereto, was published in the
NEWS & RECORD
the following dates:
uary 31, 1997

NOTICE OF PUBLIC MEETING and
ced through GUILFORD COUNTY PLANNING

That the said newspaper (or newspapers) in which such notice, paper, document, or legal advertisement was published was, at the time of each and every such publication, a newspaper meeting all of the requirements and qualifications of Section 1-597 of the General Statutes of North Carolina and was a qualified newspaper within the meaning of Section 1-597 of the General Statutes of North Carolina.

This 31st day of January , 1997

Betty Pitchford
Classified Advertising Manager

Sworn to and subscribed before me, this 31 day of January 1997

T Parrish
Notary Public

My commision expires: April 10, 2001

T. PARRISH
NOTARY PUBLIC
ALAMANCE COUNTY, NC
Commission Expires 4-10-2001

NOTICE OF PUBLIC MEETING

Guilford County Recycling Goals

Guilford County and its municipalities are required by State Law to prepare a "Solid Waste Management Plan." A vital part of a management plan is the setting of RECYCLING GOALS for the next 10 years. Recycling goals must be set for those items that can be REDUCED, REUSED, OR RECYCLED. The County encourages you to attend this meeting and help us set recycling goals for our future.

DATE: February 12, 1997
TIME: 7:00 p.m.
PLACE: Guilford County EMS Facility
1002 Meadowood Road
Greensboro, N.C. 27409

All citizens will be given an opportunity to be heard at this meeting.

James D. Eliza, Jr., AICP
Director, Planning and Development

THE ENVIRONMENTAL RESOURCE CENTER FOR SUSTAINABLE LIVING

February 22, 1997

Mr. Larry Harvell
Guilford County Environmental Services
P.O. Box 3427
Greensboro, NC 27402-3427

Dear Larry,

Enclosed please find our completed comment form regarding Solid Waste Management in Guilford County.

To those comments I would add this:

First, as everybody recognizes, the big question is whether we will adopt a policy of universal, mandatory garbage pick-up. In view of the current, and long-held practices of garbage disposal in Guilford County, we think this is the only means by which we can make substantial progress towards the state-mandated waste reduction goals. But even with mandatory pick-up, we need to recognize that it is necessary to devote serious time and resources to public awareness and consciousness-raising.

As has been pointed out many times, the majority of materials in the county-wide waste stream comes from businesses. The reason we continue to focus attention on residential waste, then, is not only to capture recyclable materials but to raise people's consciousness and re-instill an ethic of conservation of natural resources.

Thank you for your efforts.

Sincerely,

Gary Kenton
1505 Fairmont St.
Greensboro, NC 27403-1203
(910) 272-4020

Guilford County, North Carolina
Solid Waste Management Plan Public Comment Form

How do you think Guilford County should manage its garbage for the next 10 years? Guilford County will be drafting a new Solid Waste Plan during the first quarter of 1997 and wants input from residents and businesses in Guilford County before the new plan is drafted. As mandated under the North Carolina Solid Waste Management Act of 1996, the new plan will go into effect July 1997. Please respond to the following questions:

1. **What waste reduction and recycling programs should be in the plan?**

There are many ways to skin the cat, but other than the long-term option of coordinating/consolidating with the Greensboro Solid Waste Division, there seems little choice but to work with local haulers currently working with the County and move to make programs universal.

2. **Should recycling programs be mandatory or voluntary (currently all recycling is voluntary)?**

Unfortunately, the track record and history in Guilford County suggests that only universal, mandatory programs will be successful

3. **How should programs be funded (taxes, fees, user charges through programs such as pay-as-you-throw, other means)?**

I believe a combination of funding sources can be used, putting the appropriate emphasis on the creators of the waste. In the long run, the City's Solid Waste Division should take over County pick-up.

4. **Should Guilford County retain the state's 40% waste reduction goal or choose a different goal?**

I don't see the exact figure as being as important as the commitment of elected officials and staff (time, energy, $) – but I think 40% is realistic for a goal.

Respondent Information (optional):

Name: Gary Kerton (Environmental Resource Center for Sustainable Living)

Address: 1505 Fairmont St.
Greensboro, NC 27403-1203

Phone #: (Home) 272-4020 (Work) _____

E-mail: _____

Please fax comments to 373-3792, Attn: Larry Harvell, or E-mail to lharvel@co.guilford.nc.us, or mail to Larry Harvell, Director of Environmental Services, Guilford County, #2 Governmental Plaza, P.O. Box 3427, Greensboro, NC 27402.

GUILFORD COUNTY
Board of County Commissioners
P. O. Box 3427
Greensboro, North Carolina 27402
Telephone (910) 373-3351
Fax (910) 373-3209

May 19, 1997

The Honorable Carolyn Allen
Mayor of the City of Greensboro
Post Office Box 3736
Greensboro, N.C. 27402

Subject: Presentation on Guilford County Solid Waste Management Plan
By HDR, Engineering Inc.

Dear Mayor Allen:

You're invited to a briefing for all elected officials of the county, cities, and towns on **June 5, 1997** at the County Board of Commissioners Meeting Room, 2nd Floor, at 201 West Market Street in Greensboro at **5:00 p.m.** The purpose of the meeting is a presentation by our consultant HDR, Engineering Inc., of the **"Solid Waste Management Plan"** which has been prepared for all jurisdictions in Guilford County. There will be a forty-five (45) minute presentation and about forty-five (45) minutes for questions.

The Solid Waste Management Plan is a requirement of G.S. 130A and must be adopted by each jurisdiction before July 1, 1997. This Plan addresses the Solid Waste **Goals** and **Objectives** for our communities for the next ten (10) years and what steps must be taken to obtain them.

It will be most beneficial if our elected officials, town managers, town clerks, and city managers and administrators can be present to hear the consultant's conclusions and recommendations on the Solid Waste Plan This plan deals with the **Solid Waste Management** needs of all our citizens.

The attached letter from the State DEHNR expresses the need for this plan to be adopted and available by the July deadline. Each jurisdiction will need to consider a resolution in support of the plan. A sample resolution from the State is enclosed.

Please mark your calenders for this important meeting on **June 5.**

Sincerely,

Joe Bostic
Chairman
Board of County Commissioners

cc: Mr Ed Kitchen, City Manager
Ms. Elizabeth Treadway, Director of Environmental Services

Appendix B

Guilford County Waste Stream Projections & Waste Diversion Goals

APPENDIX B

Guilford County Waste Stream Projections & Waste Diversion Goals

Reduction Achievements Based on State Methodology (Reduction in Per Capita Generation Rate Since FY '91-'92)

Per Capita MSW Gener. Rate Lbs/Pers/Day	Year	Population	MSW (90%) TPY	C&D Waste (10%) TPY	Total Waste Generated TPY	Residential Waste (30%) TPY	% Div. %	Diverted Res. Waste TPY	Landfilled Res. Waste TPY	Com/Ind Waste (60%) TPY	% Div. %	Diverted Com/Ind Waste TPY	Landfilled Com/Ind Waste TPY	Total Diverted MSW TPY	Total Landfilled MSW TPY	Total Landfilled MSW Cu Yds.	C&D Waste (10%) TPY	% Div. %	Diverted C&D Waste TPY	Total Landfilled C&D Waste TPY	Total Landfilled C&D Waste Cu Yds.	Total Diverted Waste (Resid. + Com/Ind + C&D) TPY	Total Landfilled Waste (Resid. + Com/Ind + C&D) TPY	Total % Div. %	Total Per Capita Landfill Rate lbs/pers/day	Per Capita Percent Reduction (State Methodology) lbs/pers/day
	91/92	353,536																					523,930		8.12	
7.35	94/95	362,710	486,370	54,040	540,410	162,120	30.13%	48,850	113,270	324,250	6.39%	20,720	303,530	69,570	416,800	1,042,000	54,040	0.00%	0	54,040	120,090	69,570	470,840	12.87%	7.11	12.41%
7.35	95/96	365,768	490,470	54,500	544,970	163,490	30.13%	49,260	114,230	326,980	6.39%	20,890	306,090	70,150	420,320	1,050,800	54,500	0.00%	0	54,500	121,110	70,150	474,820	12.87%	7.11	12.40%
7.35	96/97	368,826	494,570	54,950	549,520	164,860	30.13%	49,670	115,190	329,710	6.39%	21,070	308,640	70,740	423,830	1,059,580	54,950	0.00%	0	54,950	122,110	70,740	478,780	12.87%	7.11	12.41%
7.35	97/98	371,884	498,670	55,410	554,080	166,220	30.58%	50,830	115,390	332,450	6.89%	22,910	309,540	73,740	424,930	1,062,330	55,410	0.50%	280	55,130	122,510	74,020	480,060	13.36%	7.07	12.89%
7.35	98/99	374,942	502,770	55,860	558,630	167,590	30.58%	51,250	116,340	335,180	7.39%	24,770	310,410	76,020	426,750	1,066,880	55,860	1.00%	560	55,300	122,890	76,580	482,050	13.71%	7.04	13.25%
7.35	99/00	378,000	506,870	56,320	563,190	168,960	30.58%	51,670	117,290	337,910	7.89%	26,660	311,250	78,330	428,540	1,071,350	56,320	1.50%	840	55,480	123,290	79,170	484,020	14.06%	7.02	13.60%
7.35	00/01	381,050	510,960	56,770	567,730	170,320	31.03%	52,850	117,470	340,640	8.39%	28,580	312,060	81,430	429,530	1,073,830	56,770	2.00%	1,140	55,630	123,620	82,570	485,160	14.54%	6.98	14.09%
7.35	01/02	384,100	515,050	57,230	572,280	171,680	31.03%	53,270	118,410	343,370	8.89%	30,530	312,840	83,800	431,250	1,078,130	57,230	2.50%	1,430	55,800	124,000	85,230	487,050	14.89%	6.95	14.44%
7.35	02/03	387,150	519,140	57,680	576,820	173,050	31.03%	53,700	119,350	346,090	9.39%	32,500	313,590	86,200	432,940	1,082,350	57,680	3.00%	1,730	55,950	124,330	87,930	488,890	15.24%	6.92	14.79%
7.35	03/04	390,200	523,230	58,140	581,370	174,410	31.03%	54,120	120,290	348,820	9.89%	34,500	314,320	88,620	434,610	1,086,530	58,140	3.50%	2,030	56,110	124,690	90,650	490,720	15.59%	6.89	15.14%
7.35	04/05	393,250	527,320	58,590	585,910	175,770	31.03%	54,540	121,230	351,550	10.39%	36,530	315,020	91,070	436,250	1,090,630	58,590	4.00%	2,340	56,250	125,000	93,410	492,500	15.94%	6.86	15.49%
7.35	05/06	396,300	531,410	59,050	590,460	177,140	31.03%	54,970	122,170	354,280	10.89%	38,580	315,700	93,550	437,870	1,094,680	59,050	4.50%	2,660	56,390	125,310	96,210	494,260	16.29%	6.83	15.84%
7.35	06/07	399,350	535,500	59,500	595,000	178,500	31.03%	55,390	123,110	357,000	11.39%	40,660	316,340	96,050	439,450	1,098,630	59,500	5.00%	2,980	56,520	125,600	99,030	495,970	16.64%	6.81	16.20%
Totals			**5,170,920**	**574,550**	**5,745,470**	**1,723,640**		**532,590**	**1,191,050**	**3,447,290**		**316,220**	**3,131,070**	**848,810**	**4,322,120**	**10,805,340**	**574,550**		**15,990**	**558,560**	**1,241,240**	**864,800**	**4,880,680**			

Guilford Co. Population Est.

Year	Population
1990	347,420

Source: US Bureau of the Census

Guilford Co. Pop. Projections -

Year	Population Est.
2000	378,000
2010	408,500

Source: Guilford Co. Planning and Dev. Dept.

Population Interpolations

Year	Population Est.
1991	330,478
1992	333,536
1993	336,594
1994	339,652
1995	342,710

Method: Straight Line Interpolation

Base Year Parameters

Per Capita MSW Gener. Rate	Total County MSW Tons/Year
7.35	486,370

Based on FY 1994-1995 MSW tonnage and 1995 Pop. estimate

1. Base Year (FY 1994-1995) total Res. & Non- Res. waste estimate based on tonnage of County generated MSW waste landfilled (416,800 TPY) plus tonnage of County generated MSW diverted from landfilling (69,570 TPY) reported in Guilford County's Solid Waste Management Annual Report for the period July 1, 1994-June 30, 1995. The base year total MSW waste estimate includes an estimated 52,390 tons of C&D waste (based on County's estimate that C&D waste comprises 10% of all waste generated within the County.
2. Population estimate for calendar year 1995 used to depict population estimate for FY 1994-1995.
3. Per Capita MSW Generation Rate estimate based on population estimate for FY 1994-1995 divided by Base Year MSW waste estimate (lb pounds), divided by 365 days/yr..
4. Future projections based on assumed 0% annual increase in waste generation rate. The 1994 EPA report on MSW generation in the U.S. indicates that waste generation rates are beginning to decline due to backyard composting. As a result of this change in trends, HDR has assumed a 0% increase in per capita MSW generation rates throughout the planning period. Changes in total MSW stream tonnages are based solely upon changes in population estimates
5. Residential waste projections based on percentages reported in Guilford County's Solid Waste Management Report for the period July 1, 1995 - June 30, 1996 (30%)
6. Commercial waste projections based on percentages reported in Guilford County's Solid Waste Management Report for the period July 1, 1995 - June 30, 1996 (38%)
7. Industrial waste projections based on percentages reported in Guilford County's Solid Waste Management Report for the period July 1, 1995 - June 30, 1996 (22%)
8. C&D waste projections based on percentages reported in Guilford County's Solid Waste Management Report for the period July 1, 1995 - June 30, 1996 (10%)
9. Assumed that waste diversion rates realized during FY 1994-1995 will remain constant through the end of FY 1996-1997. FY 1996-1997. Then it is assumed that diversion rates for each waste type (Residential, Commercial/Industrial, and C&D) will increase annually by 0.5% throughout the planning period. Diversion rates for Residential and Commercial/Industrial waste types for FY 1994-1995 based on Guilford County's Solid Waste Management Report for the period July 1, 1994 - June 30, 1995, White Street Sanitary Landfill Scalehouse records, Solid Waste Management Report for the period July 1, 1994 - June 30, 1995, White Street Sanitary Landfill Scalehouse records, and interviews with waste diversion service providers. No C&D diversion rates were reported during FY 1994-1995, so it is assumed that diversion of this type of waste will commence with the start of the planning period.
10. State methodology for determining waste reduction goal achievement progress involved comparing the per capita waste generation rate for the period July 1, 1992 - June 30, 1992 (including waste disposed, composted, recycled, or otherwise diverted from disposal) to the per capita waste disposal rate (only waste landfilled or incinerated) realized during subsequent fiscal years.

Known: Guilford County reported to the State of North Carolina that during FY 95/96, 10% of all waste generated in County was C&D waste. Tonnage of all waste generated in Guilford County during FY 95/96, excluding C&D estimated to be 490,470 tons -- See Guilford County Solid Waste Management Study and assumptions presented in this current table.

Assume: X = C&D waste tonnage during FY 95/96

Therefore:

0.10 = X / (X + 490,470 tons of waste generated in Guilford County during FY 95/96)

X = 0.10X +(0.10 * 490,470)

0.90X = (0.10*490,470)

X = (0.10 * 490,470) / 0.90

X =0.1111111 * 490,470

X =54,496,661

X =54,500 tons C&D waste generated in Guilford County during FY 95/96 (rounded to nearest 10 tons)

MSW Landfill Space Assumptions

Sp. Volume of Landfilled Waste (CY/ton)	2
Waste/(Waste + Daily and Intermediate Cover) Ratio	0.8

C&D Landfill Space Assumptions

Sp. Volume of Landfilled Waste (CY/ton)	2
Waste/(Waste + Daily and Intermediate Cover) Ratio	0.9

Appendix C

Guilford County Waste Stream Projections
&
Status Quo Waste Diversion Goals

APPENDIX C

Guilford County Waste Stream Projections & Status Quo Waste Diversion Goals

Reduction Achievements Based on State Methodology (Reduction in Per Capita Generation Rate Since FY '91-'92)

Per Capita MSW Gener. Rate Lbs/Pers/Day	Year	Population	Total Waste Generated TPY	Residential Waste (30%) TPY	% Div. %	Diverted Res. Waste TPY	Landfilled Res. Waste TPY	Com/Ind Waste (60%) TPY	% Div. %	Diverted Com/Ind Waste TPY	Landfilled Com/Ind Waste TPY	Total Diverted MSW TPY	Total Landfilled MSW TPY	Total Landfilled MSW Cu Yds.	C&D Waste (10%) TPY	% Div. %	Diverted C&D Waste TPY	Total Landfilled C&D Waste TPY	Total Landfilled C&D Waste Cu Yds.	Total Diverted Waste (Resid. + Com/Ind + C&D) TPY	Total Landfilled Waste (Resid. + Com/Ind + C&D) TPY	Total % Div. %	Total Per Capita Landfill Rate lbs/pers/day	Per Capita Percent Reduction (State Methodology) lbs/pers/day
	91/92	353,536																			523,930		8.12	
7.35	94/95	362,710	540,410	162,120	30.13%	48,850	113,270	324,250	6.39%	20,720	303,530	69,570	416,800	1,042,000	54,040	0.00%	0	54,040	120,090	69,570	470,840	12.87%	7.11	12.41%
7.35	95/96	365,768	544,970	163,490	30.13%	49,260	114,230	326,980	6.39%	20,890	306,090	70,150	420,320	1,050,800	54,500	0.00%	0	54,500	121,110	70,150	474,820	12.87%	7.11	12.40%
7.35	96/97	368,826	549,520	164,860	30.13%	49,670	115,190	329,710	6.39%	21,070	308,640	70,740	423,830	1,059,580	54,950	0.00%	0	54,950	122,110	70,740	478,780	12.87%	7.11	12.41%
7.35	97/98	371,884	554,080	166,220	30.13%	50,080	116,140	332,450	6.39%	21,240	311,210	71,320	427,350	1,068,380	55,410	0.00%	0	55,410	123,130	71,320	482,760	12.87%	7.11	12.40%
7.35	98/99	374,942	558,630	167,590	30.13%	50,490	117,100	335,180	6.39%	21,420	313,760	71,910	430,860	1,077,150	55,860	0.00%	0	55,860	124,130	71,910	486,720	12.87%	7.11	12.41%
7.35	99/00	378,000	563,190	168,960	30.13%	50,910	118,050	337,910	6.39%	21,590	316,320	72,500	434,370	1,085,930	56,320	0.00%	0	56,320	125,160	72,500	490,690	12.87%	7.11	12.41%
7.35	00/01	381,050	567,730	170,320	30.13%	51,320	119,000	340,640	6.39%	21,770	318,870	73,090	437,870	1,094,680	56,770	0.00%	0	56,770	126,160	73,090	494,640	12.87%	7.11	12.41%
7.35	01/02	384,100	572,280	171,680	30.13%	51,730	119,950	343,370	6.39%	21,940	321,430	73,670	441,380	1,103,450	57,230	0.00%	0	57,230	127,180	73,670	498,610	12.87%	7.11	12.41%
7.35	02/03	387,150	576,820	173,050	30.13%	52,140	120,910	346,090	6.39%	22,120	323,970	74,260	444,880	1,112,200	57,680	0.00%	0	57,680	128,180	74,260	502,560	12.87%	7.11	12.41%
7.35	03/04	390,200	581,370	174,410	30.13%	52,550	121,860	348,820	6.39%	22,290	326,530	74,840	448,390	1,120,980	58,140	0.00%	0	58,140	129,200	74,840	506,530	12.87%	7.11	12.41%
7.35	04/05	393,250	585,910	175,770	30.13%	52,960	122,810	351,550	6.39%	22,460	329,090	75,420	451,900	1,129,750	58,590	0.00%	0	58,590	130,200	75,420	510,490	12.87%	7.11	12.41%
7.35	05/06	396,300	590,460	177,140	30.13%	53,370	123,770	354,280	6.39%	22,640	331,640	76,010	455,410	1,138,530	59,050	0.00%	0	59,050	131,220	76,010	514,460	12.87%	7.11	12.40%
7.35	06/07	399,350	595,000	178,500	30.13%	53,780	124,720	357,000	6.39%	22,810	334,190	76,590	458,910	1,147,280	59,500	0.00%	0	59,500	132,220	76,590	518,410	12.87%	7.11	12.40%
Totals			5,745,470	1,723,640		519,330	1,204,310	3,447,290		220,280	3,227,010	739,610	4,431,320	11,078,330	574,550		0	574,550	1,276,780	739,610	5,005,870			

Guilford Co. Population Est.

Year	Population
1990	347,420

Source: US Bureau of the Census

Guilford Co. Pop. Projections -

Year	Population Est.
2000	378,000
2010	408,500

Source: Guilford Co. Planning and Dev. Dept.

Population Interpolations

Year	Population Est.
1991	350,478
1992	353,536
1993	356,594
1994	359,652
1995	362,710

Method: Straight Line Interpolation

Base Year Parameters

Per Capita MSW Gener. Rate	Total County MSW Tons/Year
7.35	486,370

Based on FY 1994-1995 MSW tonnage and 1995 Pop. estimate

1. Base Year (FY 1994-1995) total Res. & Non- Res. waste estimate based on tonnage of County generated MSW waste landfilled (416,800 TPY), plus tonnage of County generated MSW diverted from landfilling (69,570 TPY) reported in Guilford County's Solid Waste Management Annual Report for the period July 1, 1994-June 30, 1995. The base year total waste estimate includes an estimated 52,390 tons of C&D waste (based on County's estimate that C&D waste comprises 10% of all waste generated within the County.
2. Population estimate for calendar year 1995 used to depict population estimate for FY 1994-1995.
3. Per Capita MSW Generation Rate estimate based on population estimate for FY 1994-1995 divided by Base Year MSW waste estimate (in pounds), divided by 365 days/yr..
4. Future projections based on assumed 0% annual increase in waste generation rate. The 1994 EPA report on MSW generation in the U.S. indicates that waste generation rates are beginning to decline due to backyard composting. As a result of this change in trends, HDR has assumed a 0% increase in per capita MSW generation rates throughout the planning period. Changes in total MSW stream tonnages are based solely upon changes in population estimates
5. Residential waste projections based on percentages reported in Guilford County's Solid Waste Management Report for the period July 1, 1995 - June 30, 1996 (30%)
6. Commercial waste projections based on percentages reported in Guilford County's Solid Waste Management Report for the period July 1, 1995 - June 30, 1996 (38%)
7. Industrial waste projections based on percentages reported in Guilford County's Solid Waste Management Report for the period July 1, 1995 - June 30, 1996 (22%)
8. C&D waste projections based on percentages reported in Guilford County's Solid Waste Management Report for the period July 1, 1995 - June 30, 1996 (10%)
9. Assumed that waste diversion rates realized during FY 1994-1995 will remain constant throughout the planning period. Diversion rates for Residential and Commercial/Industrial waste types for FY 1994-1995 based on Guilford County's Solid Waste Management Report for the period July 1, 1994 - June 30, 1995, White Street Sanitary Landfill Scalehouse records, Solid Waste Management Report for the period July 1, 1994 - June 30, 1995, White Street Sanitary Landfill Scalehouse records, and interviews with waste diversion service providers. No C&D diversion rates were reported during FY 1994-1995, so it is assumed that diversion of this type of waste will remain at zero throughout the planning period.
10. State methodology for determining waste reduction goal achievement progress involved comparing the per capita waste generation rate for the period July 1, 1992 - June 30, 1992 (including waste disposed, composted, recycled, or otherwise diverted from disposal) to the per capita waste disposal rate (only waste landfilled or incinerated) realized during subsequent fiscal years.

Known: Guilford County reported to the State of North Carolina that during FY 95/96, 10% of all waste generated in County was C&D waste. Tonnage of all waste generated in Guilford County during FY 95/96, excluding C&D estimated to be 490,470 tons -- See Guilford County Solid Waste Management Study and assumptions presented in this current table.

Assume: X = C&D waste tonnage during FY 95/96

Therefore:

$0.10 = X / (X + 490,470$ tons of waste generated in Guilford County during FY 95/96)

$X = 0.10X + (0.10 * 490,470)$

$0.90X = (0.10*490,470)$

$X = (0.10 * 490,470) / 0.90$

$X = 0.1111111 * 490,470$

$X = 54,496.661$

$X = 54,500$ tons C&D waste generated in Guilford County during FY 95/96 (rounded to nearest 10 tons)

MSW Landfill Space Assumptions

Sp. Volume of Landfilled Waste (CY/ton)	2
Waste/(Waste + Daily and Intermediate Cover) Ratio	0.8

C&D Landfill Space Assumptions

Sp. Volume of Landfilled Waste (CY/ton)	2
Waste/(Waste + Daily and Intermediate Cover) Ratio	0.9

Appendix D

Local Governments'
Recycling and Waste Reduction Policies and Procurement Procedures

GREENSBORO

RECYCLING AND WASTE REDUCTION POLICY

In order to show more concern for the environment and to serve as a role model for other businesses in the City of Greensboro, the City hereby establishes a recycling and waste reduction policy.

All City Departments shall maximize opportunities to reduce the amount of solid waste they generate, to recycle materials recoverable from their operations, and to maximize procurement of recycled products. Department Heads shall educate their employees about department recycling and waste reduction efforts and procedures.

Reporting

On at least an annual basis beginning July 1, 1993, the Recycling Advisory Committee shall, with the assistance of the Purchasing Division of the Finance Department, compile a list of recycled products purchased. The Committee shall also report the activities or programs implemented to reduce waste.

Purchasing

The Purchasing Department shall make every effort to identify products made from recycled materials that meet appropriate standards for use by City Departments.

When purchases are necessary, strong consideration shall be given to durable items, items having minimal packaging, and items that are readily recyclable when discarded.

A list of recycled products available on City contract shall be published on an annual basis and distributed to all potential purchasers to increase awareness of opportunities to purchase recycled products.

Recycled Paper

City Departments are directed to purchase and use recycled paper for all reports, memoranda, and other documents whenever possible.

Photocopying

To encourage reduction of waste, all City Departments shall require two-sided copying on all documents whenever feasible. All new photocopy machines leased shall have duplexing capabilities if their capacity is rated at 8,000 copies or more per month. All employees should exercise caution to avoid unnecessary printing or photocopying of printed materials.

Cost

Department Heads are advised that the purchase of some recycled products may exceed the cost of comparable non-recycled products. This factor alone, should not determine whether a recycled product should be purchased although it should be a major factor in the decision. Department Heads should attempt to balance the benefits of recycling with the cost issues to determine which circumstances would best justify purchasing recycled products.

It should be noted that recycled prices continue to come more in line line with virgin prices the more recycled products are purchased.

Generally, if the cost of the recycled product does not exceed the cost of the virgin product by more than 5%–10%, Departments are authorized to request that the recycled product be purchased. (Final approval of purchase orders should be determined by the Purchasing Division.)

Appendix E

Local Governments' Resolutions to Approve The Guilford County Solid Waste Management Plan

TOWN OF GIBSONVILLE

RESOLUTION TO APPROVE THE GUILFORD COUNTY SOLID WASTE PLAN

WHEREAS, better planning for solid waste will help protect public health and the environment, provide for an improved solid waste management system, better utilize our natural resources, control the cost of solid waste management; and

WHEREAS, N.C. General Statute 130A-309.09A(b) requires each unit of local government either individually or in cooperation with other units of local government, to develop a 10 year comprehensive solid waste management plan; and,

WHEREAS, the Town of Gibsonville was represented on the Guilford County Planning Advisory Committee and has been actively involved in the planning process;

NOW, THEREFORE, BE IT RESOLVED that the Board of Aldermen of the Town of Gibsonville hereby approves the Guilford County comprehensive solid waste management plan.

Adopted this the 9th day of June, 1997.

Mayor

Attest:

Town Clerk

120-97
68-

RESOLUTION APPROVING AMENDMENTS TO THE GUILFORD COUNTY SOLID WASTE PLAN

WHEREAS, under N.C. General Statute 130A-309.09A(b), it is required that each unit of local government, either individually or in cooperation with other units of local government, develop a 10-year comprehensive solid waste management plan;

WHEREAS, the City of Greensboro adopted the Urban Area Solid Waste Management Plan of 1990 and has addressed and implemented the recommendations of said Plan, recognizing that a plan is dynamic and requires updating periodically;

WHEREAS, the City of Greensboro, as well as the other incorporated jurisdictions within Guilford County, participated with Guilford County in providing recommendations within the Plan addressing areas of collection, recycling, disposal and other special solid waste management activities;

WHEREAS, it is deemed in the best interest of the City of Greensboro to approve these environmentally critical amendments to the existing Guilford County Solid Waste Management Plan.

NOW, THEREFORE, BE IT RESOLVED THAT THE CITY COUNCIL OF THE CITY OF GREENSBORO:

That the Guilford County Solid Waste Management Plan, dated July, 1997, is hereby approved as the official Solid Waste Management Plan for the City of Greensboro.

APPROVED AS TO
FORM AND LEGALITY
City Attorney

I, NANCY J. McPEAK
CITY CLERK OF THE CITY OF GREENSBORO HEREBY CERTIFY THE FOREGOING TO BE A TRUE AND EXACT COPY OF A RESOLUTION ADOPTED BY THE CITY COUNCIL OF THE CITY OF GREENSBORO AT ITS Regular MEETING HELD ON THE 17 DAY OF June, 1997.

WITNESS MY HAND AND THE CORPORATE SEAL OF THE CITY OF GREENSBORO, THIS THE 23 DAY OF June, 1997.

Nancy J. McPeak
CITY CLERK

RESOLUTION
TO APPROVE THE
GUILFORD COUNTY SOLID WASTE MANAGEMENT PLAN

WHEREAS, better planning for solid waste will help protect public health and the environment, provide for an improved solid waste management system, better utilize our natural resources, control the cost of solid waste management, and,

WHEREAS, NC General Statute 130A-309.09A(b) requires each unit of local government, either individually or in cooperation with other units of local government, to develop a 10 year comprehensive solid waste management plan; and

WHEREAS, Guilford County has taken the lead role in preparing a solid waste management plan, in cooperation with the cities of Greensboro, High Point and the towns of Gibsonville, Jamestown, Stokesdale, Summerfield and Whitsett of which all were involved in the planning process.

NOW, THEREFORE, BE IT RESOLVED that the Guilford County Board of Commissioners hereby approves the Guilford County Comprehensive Solid Waste Management Plan.

BE IT FURTHER RESOLVED that "full cost analysis" tables 5-1 and tables 4-5 thru 4-10 be appended to the plan; and

BE IT FURTHER RESOLVED that it is the intent of the Guilford County Board of Commissioners to examine public and private alternatives to operations of the proposed waste facility.

Adopted this the 26th day of June, 1997

APPROVED BY
BOARD OF COUNTY COMMISSIONERS
OF GUILFORD COUNTY
ON June 26, 1997
BY Jane V. Barr
DEPUTY CLERK TO BOARD

RESOLUTION

of

CITY OF HIGH POINT

WHEREAS, it is the City of High Point's intention to manage its solid waste in a most environmentally responsible manner, and

WHEREAS, the local government jurisdictions within Guilford County have agreed to work in a more unified effort to manage the solid waste in Guilford County, and

WHEREAS, the State Legislature has required a formal Solid Waste Management Plan from local government.

NOW, THEREFORE, BE IT RESOLVED that the High Point Mayor and City Council passes this Resolution to submit High Point's Solid Waste Management Plan in conjunction with Guilford County and the other municipalities within Guilford County, namely; Gibsonville, Greensboro, Jamestown, Stokesdale, Summerfield, and Whitsett.

This the 19th day of June, 1997.

CITY OF HIGH POINT

BY Rebecca R. Smothers

Rebecca R. Smothers
Mayor

TOWN OF JAMESTOWN

Settled in 1752 Chartered in 1816

P.O. Box 848

Jamestown, North Carolina 27282

TOWN OF JAMESTOWN

RESOLUTION TO APPROVE THE GUILFORD COUNTY SOLID WASTE PLAN

WHEREAS, better planning for solid waste will help protect public health and the environment, provide for an improved solid waste management system, better utilize our natural resources, control the cost of solid waste management; and,

WHEREAS, NC General Statute 130A-309.09A(b) requires each unit of local government, either individually or in cooperation with other units of local government, to develop a 10-year comprehensive solid waste management plan; and,

WHEREAS, the Town of Jamestown was represented on the Guilford County Solid Waste Management Committee and has been actively involved in the planning process;

NOW, THEREFORE, BE IT RESOLVED that the Town Council of the Town of Jamestown hereby approves the Guilford County comprehensive solid waste management plan.

Adopted this 20th day of May, 1997.

Thomas C Ragsdale

Mr. Thomas C. Ragsdale, Mayor

Martha Stafford Wolfe

Ms. Martha Stafford Wolfe,
Deputy Clerk

TOWN OF STOKESDALE

RESOLUTION TO APPROVE
THE GUILFORD COUNTY SOLID WASTE PLAN

WHEREAS, better planning for solid waste will help protect public health and the environment, provide for an improved solid waster management system, better utilize our natural resources, control the cost of solid waste management; and,

WHEREAS, NC General Statute 130A-309.09A (b) requires each unit of local government, either individually or in cooperation with other units of local government, to develop a 10 year comprehensive solid waste management plan; and,

WHEREAS, the Town of Stokesdale was represented on the Guilford County Planning Advisory Committee and has been involved in the planning process;

NOW, THEREFORE, BE IT RESOLVED THAT:

The Town Council of Stokesdale hereby approves the Guilford County Solid Waste Management Plan.

Adopted this 18th day of June, 1997.

TOWN OF STOKESDALE SEAL

Randle L. Jones Mayor
Randle L. Jones

ATTEST:

Carolyn L. Joyner Clerk
Carolyn L. Joyner

Town of Summerfield
Resolution to Approve
The Guilford County Solid Waste Plan

WHEREAS, better planning for solid waste will help protect public health and the environment, provide for an improved solid waste management system, better utilize our natural resources, control the cost of solid waste management; and,

WHEREAS, NC General Statute 130A-309.09A (b) requires each unit of local government, either individually or in cooperation with other units of local government, to develop a 10 year comprehensive solid waste management plan; and,

NOW, THEREFORE, BE IT RESOLVED THAT:

The Town Council of Summerfield hereby approves the Guilford County Solid Waste Management Plan.

Adopted this 1st day of July, 1997.

_____ **Mayor**

Town of SEAL Summerfield NC

Rebecca E. Nelson **Clerk**

TOWN OF WHITSETT

RESOLUTION TO APPROVE THE GUILFORD COUNTY
SOLID WASTE MANAGEMENT PLAN

WHEREAS, better planning for solid waste will help protect public health and the environment, provide for an improved solid waste management system, better utilize our natural resources, control the cost of solid waste management; and,

WHEREAS, NC General Statute 130A-309.09A(b)(5) requires each unit of local government, either individually or in cooperation with other units of local government to develop a 10-year comprehensive solid waste management plan; and

WHEREAS, the Town of Whitsett was represented on the Guilford County, North Carolina Solid Waste Management Plan and has been involved in the planning process.

NOW, THEREFORE, BE IT RESOLVED that the Town Council of The Town of Whitsett hereby approves the Guilford County comprehensive Solid Waste Management Plan.

Adopted this 19th day of June, 1997.

William D. Whitsett
William D. Whitsett, Mayor

Kay Willoughby
Kay Willoughby, Town Clerk

TOWN OF WHITSETT

RESOLUTION TO APPROVE THE GUILFORD COUNTY
SOLID WASTE MANAGEMENT PLAN

WHEREAS, better planning for solid waste will help protect public health and the environment, provide for an improved solid waste management system, better utilize our natural resources, control the cost of solid waste management; and,

WHEREAS, NC General Statute 130A-309.09A(b)(5) requires each unit of local government, either individually or in cooperation with other units of local government to develop a 10-year comprehensive solid waste management plan; and

WHEREAS, the Town of Whitsett was represented on the Guilford County, North Carolina Solid Waste Management Plan and has been involved in the planning process.

NOW, THEREFORE, BE IT RESOLVED that the Town Council of The Town of Whitsett hereby approves the Guilford County comprehensive Solid Waste Management Plan.

Adopted this 19th day of June, 1997.

William D. Whitsett, Mayor

Kay Willoughby, Town Clerk

Andy D. Brown
6/19/97
Council Member

TOWN OF WHITSETT

RESOLUTION TO APPROVE THE GUILFORD COUNTY
SOLID WASTE MANAGEMENT PLAN

WHEREAS, better planning for solid waste will help protect public health and the environment, provide for an improved solid waste management system, better utilize our natural resources, control the cost of solid waste management; and,

WHEREAS, NC General Statute 130A-309.09A(b)(5) requires each unit of local government, either individually or in cooperation with other units of local government to develop a 10-year comprehensive solid waste management plan; and

WHEREAS, the Town of Whitsett was represented on the Guilford County, North Carolina Solid Waste Management Plan and has been involved in the planning process.

NOW, THEREFORE, BE IT RESOLVED that the Town Council of The Town of Whitsett hereby approves the Guilford County comprehensive Solid Waste Management Plan.

Adopted this 19th day of June, 1997.

William D. Whitsett, Mayor

Kay Willoughby, Town Clerk

Council Member

TOWN OF WHITSETT

RESOLUTION TO APPROVE THE GUILFORD COUNTY
SOLID WASTE MANAGEMENT PLAN

WHEREAS, better planning for solid waste will help protect public health and the environment, provide for an improved solid waste management system, better utilize our natural resources, control the cost of solid waste management; and,

WHEREAS, NC General Statute 130A-309.09A(b)(5) requires each unit of local government, either individually or in cooperation with other units of local government to develop a 10-year comprehensive solid waste management plan; and

WHEREAS, the Town of Whitsett was represented on the Guilford County, North Carolina Solid Waste Management Plan and has been involved in the planning process.

NOW, THEREFORE, BE IT RESOLVED that the Town Council of The Town of Whitsett hereby approves the Guilford County comprehensive Solid Waste Management Plan.

Adopted this 19th day of June, 1997.

William D. Whitsett, Mayor

J B Ingle 6/19/97
Council Member

Kay Willoughby
Kay Willoughby, Town Clerk

TOWN OF WHITSETT

RESOLUTION TO APPROVE THE GUILFORD COUNTY
SOLID WASTE MANAGEMENT PLAN

WHEREAS, better planning for solid waste will help protect public health and the environment, provide for an improved solid waste management system, better utilize our natural resources, control the cost of solid waste management; and,

WHEREAS, NC General Statute 130A-309.09A(b)(5) requires each unit of local government, either individually or in cooperation with other units of local government to develop a 10-year comprehensive solid waste management plan; and

WHEREAS, the Town of Whitsett was represented on the Guilford County, North Carolina Solid Waste Management Plan and has been involved in the planning process.

NOW, THEREFORE, BE IT RESOLVED that the Town Council of The Town of Whitsett hereby approves the Guilford County comprehensive Solid Waste Management Plan.

Adopted this 17th day of June, 1997.

William D. Whitsett, Mayor

Kay Willoughby, Town Clerk

Jerry D'Rice 6-17-97
Council Member

Appendix F

Guilford County Solid Waste Management Plan
Information Sources

References

In compiling this Plan, information has been gathered from the following documents:

- Guilford County's Solid Waste Management Annual Report for the period July 1, 1995 -- June 30, 1996, as submitted to NC DEHNR.

- *Example Format*, Solid Waste Management Plan, Foscue Planning Area, July 1, 1996 - July 1, 2006, prepared by the Department of Environment, Health, and Natural Resources, November, 1996.

- Guilford County, North Carolina, Solid Waste Management Study, 1996, prepared by HDR Engineering, Inc.

- Guilford County's Solid Waste Management Annual Report for the period July 1, 1995 -- June 30, 1996, as submitted to NC DEHNR.

- Guilford County, North Carolina, Solid Waste Management Study, 1996, prepared by HDR Engineering, Inc.

- North Carolina Recycling and Solid Waste Management Plan, 1992, prepared by the Department of Environment, Health, and Natural Resources.

- North Carolina Chapter 594, House Bill 859, ratified by the North Carolina General Assembly on June 20, 1996; effective October 1, 1996.

- North Carolina Solid Waste Management Annual Report, July 1, 1994 - June 30, 1995, prepared by the Department of Environment, Health, and Natural Resources.

- North Carolina Chapter 594, House Bill 859, ratified by the North Carolina General Assembly on June 20, 1996; effective October 1, 1996.

- Planning Resource Manual, prepared by the Department of Environment, Health, and Natural Resources, Division of Pollution Prevention and Environmental Assistance, December, 1996.

- Private Entities -- Browning Ferris Industries (BFI) Inc.; Modern Garbage Service, Inc; Waste Industries, Inc.; and, Waste Management, Inc.

- Public Entities -- Guilford County; the Cities of Greensboro and High Point; and, the Towns of Gibsonville, Jamestown, Stokesdale, Summerfield, and Whitsett; and, the NC Division of Pollution Prevention and Environmental Assistance.