

**WILLIAMSON COUNTY
MUNICIPAL SOLID WASTE PLAN**

**FOR
WILLIAMSON COUNTY
MUNICIPAL SOLID WASTE BOARD**

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County Executive*

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Prepared By



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June 24, 1994

PART I
EXECUTIVE SUMMARY

EXECUTIVE SUMMARY

REGION DEFINITION

The Williamson County Municipal Solid Waste Board was established by the Williamson County Board of Commissioners to develop a ten year solid waste regional plan in accordance with Tennessee's "Solid Waste Management Act of 1991". The planning region consists of Williamson County, including the incorporated municipalities of Franklin, Brentwood, Fairview, Thompson Station, and a portion of Spring Hill.

Williamson County has been actively planning for, and providing solid waste management services to its citizens for several years. The County Board of Commissioners determined that the continued progress and continuity of the existing and planned solid waste management programs established for its residents could best be achieved by acting as a single county planning region.

SUMMARY OF REGIONAL NEEDS

As mentioned above, Williamson County has been actively addressing solid waste issues facing the county. The county began an aggressive, all voluntary recycling program in 1989. The recycling program now consists of fourteen (14) drop-off sites throughout the county for residents to deposit recyclables and the Williamson County Recycling Center for the business and industrial sectors to bring their recyclables. The Recycling Center also features a buy back center for individuals and organizations who wish to be paid for their recyclables.

In 1993, the Williamson County Recycling Center received 2,985 tons (12 tons/day based on a 5 day work week) from the county maintained drop-off sites. The recycling Center's buy back center received an additional 1,459 tons (6 tons/day based on a 5 day work week) from business, industry, and other organizations.

Williamson County established Williamson Recycles, a county agency devoted to educating all citizens, businesses, industries, and institutions in the county to reduce waste at the source and recycle the remaining waste as much as possible. The Williamson Recycles Coordinator provides educational materials to each public and private school in the county, including those schools in Franklin Special School District. The recycling coordinator also encourages all individuals in the private, business, and industrial sectors to recycle by granting radio interviews, giving speeches at business and group functions, organizing recycling projects such as the phone book collection, Christmas tree collection and Environmental Awareness Award, and providing recycling information to all interested parties.

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Williamson County began replacing the old roadside "green box" collection system in 1988. The county currently operates nine (9) manned and access controlled refuse collection sites for citizens to deposit their solid waste. One "green box" collection site is still utilized serving approximately fifty residents in the Greenbrier community. The household refuse drop-off sites, or convenience centers, serve approximately 11,445 households throughout the County.

In addition to the collection centers provided by the county, each household in the county has access to private door-to-door collection service. Citizens who prefer household collection services can contract that service through private haulers. In 1990, there were fifteen (15) private haulers providing collection service to approximately 9,700 households and 600 businesses throughout the county.

The City of Franklin is the only incorporated municipality that provides collection and transportation services for its citizens. The city collects from over 7,000 households and 500 businesses. Waste is collected once per week and taken to the city's transfer station, then hauled to the landfill. The city does not collect industrial wastes generated by the city's industries.

Williamson County has operated a sanitary landfill for the disposal of solid waste since the early 1970's. In 1990, new solid waste regulations became effective which require more stringent design, construction, and operation procedures for sanitary landfills. The new requirements were to become effective in 1994. At that time, the existing landfill had sufficient capacity to remain open until 1997.

Realizing the need to redesign the remaining disposal area and the increased cost in future operations, the county elected to re-evaluate the entire site and determine if additional areas would be suitable for disposal and if more innovative design and operations could be used to help increase capacity and provide better utilization of the site. In 1993, revised design and operations plans were submitted to the Tennessee Division of Solid Waste Management for approval of the re-design of approximately thirty-five (35) acres of existing permitted area and approval for disposal in approximately fifty-five (55) acres of additional area, allowing for approximately thirty (30) years of disposal capacity.

The landfill receives all the municipal solid waste disposed of in the county. This includes domestic, commercial, institutional, municipal, industrial, farming, construction and demolition, and landscaping and land clearing waste. Approximately 53,700 tons (147 tons/day) of solid waste was disposed of in the landfill in 1993.

The county's solid waste needs identified during development of the plan include a twenty-five per cent (25%) reduction in the amount

of solid waste disposed of in the county's Class I landfill on a per capita basis. This means that although the quantity of waste to be disposed of in the county will continue to increase as the county continues to grow, the quantity of waste per person must decrease by 25%.

The short term goal to achieve this reduction includes a continued effort to educate citizens and promote source reduction and recycling activities and the development of an alternate disposal area for the diversion of construction and demolition waste and yard waste and lawn clippings from disposal in the Class I sanitary landfill. The long term goal is to increase source reduction and recycling to the greatest extent possible and to provide alternatives to the disposal of yard waste and lawn clippings.

Other needs identified include the establishment of a collection site, or sites, for used tires, automobile fluids and used motor oil, and lead acid batteries and the continuation of the annual household hazardous waste (HHW) collection events.

GOALS AND OBJECTIVES

The Solid Waste Management Act 1991 establishes specific goals and mandates that certain solid waste management practices be initiated by specified dates. It is the goal of the Williamson County Municipal Solid Waste Board to not only meet the State mandated requirements, but to exceed the requirements wherever possible to provide the citizens of Williamson County a comprehensive, cost effective, and environmentally sound solid waste management system.

Specific goals of the Board are to:

- 1) reduce, reuse, and/or recycle as much of the county's solid waste as practical
- 2) dispose of the remaining solid waste in an environmentally safe and economically feasible manner
- 3) provide adequate collection services to all citizens in the county
- 4) educate all citizens in the county about reduction, recycling, collection, and disposal of solid waste
- 5) make the county's citizens, commercial establishments, businesses, industries, and institutions active participating partners in the ongoing implementation of the solid waste management plan.

In order to realize and maintain these goals, the objectives of the Solid Waste Board are to:

- 1) present information concerning the plan and the goals established to the citizens of the county
- 2) educate adult and children as to the importance of source reduction, reuse, recycling, and the environmentally safe management of solid waste
- 3) assist businesses, industries, and institutions to reduce, reuse, and/or recycle as much waste as practical
- 4) encourage and promote backyard composting and the "leave-it-on-the-lawn" concept of lawn care
- 5) investigate and evaluate acceptable alternatives for the disposal of compostable wastes.

SYSTEM ELEMENTS

A comprehensive solid waste management system consists of several elements. Several existing elements of Williamson County's solid waste management system have been briefly described in the previous section. Following is a list of existing and proposed system elements included in the solid waste plan.

EXISTING ELEMENTS:

- 1) Waste Collection - The county currently operates 10 collection centers throughout the county that serve approximately 11,445 households. Private collectors serve another 9,700 households and the City of Franklin provides collection service to over 7,000 households and 500 businesses within their corporate boundaries.
- 2) Recycling Program - Fourteen recycling drop-off centers are provided in the county for residents to deposit recyclables. The Williamson County Recycling Center and buy-back center offer recycling opportunities to business and industry and those individuals and groups wishing to be paid for their recyclables. In 1993, a total of 4,444 tons were recycled through these facilities.
- 3) Disposal Facilities - The Williamson County Class I Sanitary Landfill has been re-designed to conform to new, more stringent disposal requirements. The landfill has ample capacity to service the county's disposal needs in excess of the ten year planning period.
- 4) Public Information and Education Programs - Each school in the county has been provided source reduction, recycling and other

solid waste management education guidance manuals. The Williamson County Recycling Coordinator provides information and educational materials to businesses, industries, institutions, civic groups, private citizens, and all other interested parties concerning solid waste matters.

- 5) Household Hazardous Waste Collection - The county has conducted one HHW collection event. The events will be held on an annual basis as long as the need exists.

PROPOSED SYSTEM ELEMENTS:

- 1) Class III/IV Disposal Site - An area to dispose of construction/demolition debris yard waste and lawn clippings is currently being developed to divert these wastes from disposal in the Class I facility.
- 2) Alternative Processing - The Solid Waste Board will continue to evaluate and pursue acceptable alternatives to the landfilling of compostable waste.
- 3) Problem Waste Collection - The county will establish collection and storage sites for tires, used automobile fluids and waste oil, and lead acid batteries.

All new programs, services, and facilities will be coordinated with the existing system. The Solid Waste Board will continue to monitor the existing system elements for effectiveness and evaluate legitimate alternatives to better the overall system.

The responsibility to implement the solid waste plan and provide solid waste services falls upon the county. The municipalities and the private sector will continue to be called upon to help promote recycling and source reduction activities. It is believed that a joint effort between the county and all of the municipalities, citizens, businesses, and industries will enable the county to reach and exceed the goals established in the plan.

Table ES-1 is an implementation schedule depicting the major milestones to be accomplished during the 10-year planning period.

Table ES-2 is the projected cost of the integrated solid waste system for the 10-year planning period.

STATE MANDATED DEADLINES

July 1, 1994	Municipal Solid Waste Regional Plan due
December 31, 1994	Whole tires, lead acid batteries, used oil no longer accepted for landfilling
January 1, 1995	Site to accept and store whole waste tires, used automotive fluids/oils, and lead acid batteries must be established
January 1, 1995	Solid Waste collection and disposal system must be available in each county
December 31, 1995	25% waste reduction requirement becomes effective
December 31, 1995	State assisted Household Hazardous Waste (HHW) Collection expires
January 1, 1995	Collection site for recyclable materials must be established
October 9, 1996	New landfill design standards become effective
October 9, 1996	Landfill operator must be certified
June 30, 1996	Tipping fee surcharge expires

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**Table ES-1
Implementation Schedule**

Williamson County Solid Waste Plan

Task	1994	1995	1996	1997	1998	1999	2000	2001	2002	2003
Submit Solid Waste Plan	X									
Develop Compost Demonstration Site		X								
Develop Class III/IV Landfill	X									
Develop Tire Storage Area	X									
Establish Problem Waste Collection Site	X									
First Cell of Subtitle D Landfill Opens	X									
Place Cardboard Compactor at Schools	X	X	X	X						
Study & Select Compost Alternative	X	X	X							
Collection of Household Hazardous Waste	X	X	X	X	X	X	X	X	X	X
Education Programs	X	X	X	X	X	X	X	X	X	X
Waste Reduction & Recycling	X	X	X	X	X	X	X	X	X	X
Major Plan Update					X					

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Table ES-2
Estimated Funding Requirements
Williamson County

	Williamson County			City of Franklin Collection
	Collection	Landfill	Recycling	
1994	657,277	929,753	131,197	1,047,444
1995	690,141	976,241	137,757	1,378,550
1996	724,648	1,300,053	144,645	1,447,480
1997	760,880	1,176,305	151,877	1,519,855
1998	798,924	1,235,120	159,471	1,595,850
1999	838,871	1,296,876	167,444	1,675,640
2000	880,814	1,361,720	175,817	1,759,420
2001	924,855	1,429,806	184,607	1,847,390
2002	971,097	1,501,300	193,838	1,939,760
2003	1,019,652	1,576,360	203,530	2,036,750
Total	8,267,159	11,783,534	1,650,182	16,248,139

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PART II
MUNICIPAL SOLID WASTE PLAN

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CHAPTER I

DESCRIPTION OF THE MUNICIPAL SOLID WASTE REGION

GENERAL DESCRIPTION

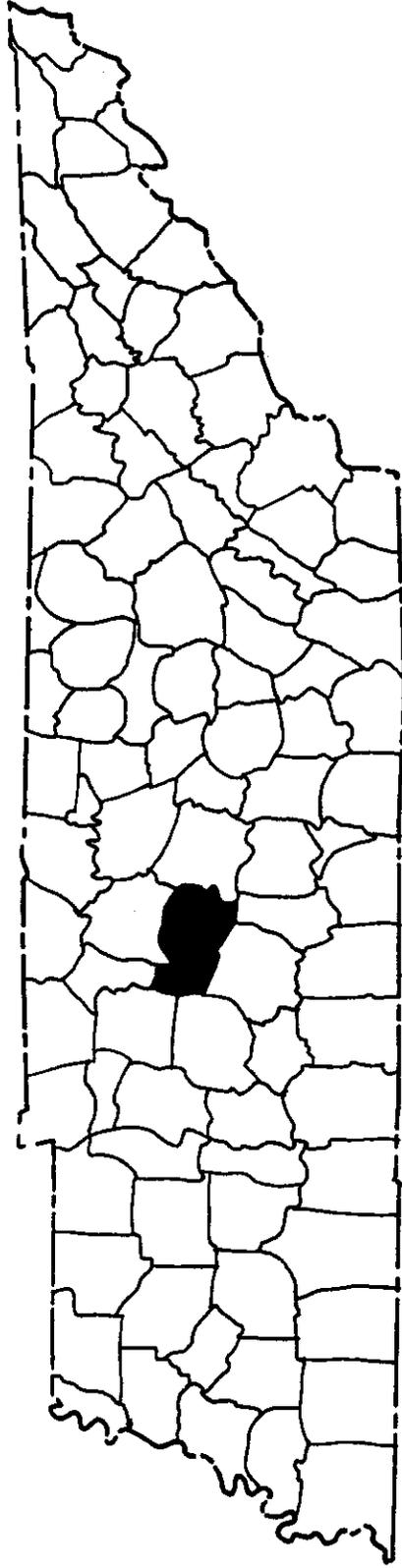
In October, 1992 the Williamson County Board of Commissioners established the Williamson County Municipal Solid Waste Board to provide a municipal solid waste region plan in accordance with Tennessee's "Solid Waste Management Act of 1991". The Board of Commissioners also resolved at that time to establish a single County municipal solid waste region. The solid waste region consists of Williamson County, including the incorporated municipalities of Franklin, Brentwood, Fairview, Thompson Station, and a portion of Spring Hill.

Williamson County was established on October 26, 1799, and was named for General Hugh Williamson, a Revolutionary War Patriot, from North Carolina. The county is located in central middle Tennessee immediately adjacent to and south of Davidson County, which contains the State Capitol of Nashville (See Figure I-1). The county comprises approximately 584 square miles with the western portion being situated in the Highland Rim along the western flank of the Nashville Dome. This area is characterized by numerous, generally flat topped ridges dissected by stream valleys of varying steepness. The eastern portion of the region is characterized mostly by gently rolling hills. The Harpeth River flows through the county in a northeasterly direction and through the City of Franklin. Figure I-2 is a base map for the Williamson County Region, indicating the political boundaries, major roads, and major waterways.

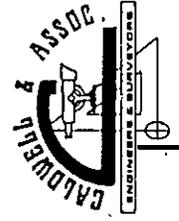
RATIONALE FOR REGION FORMATION

The Williamson County Municipal Solid Waste Board was established to produce a regional solid waste plan. It will be evidenced during the following chapters that Williamson County has been actively planning for and providing solid waste management services to its citizens for several years. It was determined by the County Board of Commissioners that the continued progress and continuity of the existing and planned solid waste management programs established for the residents of Williamson County could best be achieved by acting as a single county planning region.

TENNESSEE



LOCATION MAP



125 NORTH CHURCH STREET
MURFREESBORO, TENN. 37130
615-898-1006

FIGURE I-1

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INSTITUTIONAL STRUCTURE

The Williamson County Municipal Solid Waste Board is comprised of five (5) members. Three (3) of the Board members are also members of the Board of County Commissioners, one (1) member was a County Commissioner at the time the Board was established, and one (1) member is a representative from the City of Franklin. The City of Franklin is the only municipality in the planning region to provide solid waste collection services. Other municipalities in the region will be provided a position on the Board if they begin to provide solid waste collection services. Board members representing the county were appointed by the County Executive and approved by the Board of County Commissioners. The Franklin representative was nominated by the Mayor and approved by the Board of Mayor and Alderman. A list of members, officers, terms of office, and the resolutions establishing the Solid Waste Board, and its authority and duties are provided in Appendix "A".

All Solid Waste Board meetings are publicized and are open for the public to participate in. In addition, a public hearing has been held to get further public input. A description of meetings and the hearing held during the planning process are provided in Appendix "C".

ADVISORY COMMITTEE

A Williamson County Solid Waste Advisory Committee was established by the Solid Waste Board. The Committee includes twenty (20) members which were chosen by the Board to provide a wide range of expertise concerning all aspects of solid waste management. Positions for the Committee represent both technical expertise and expertise on how the solid waste plan might affect government entities, the business, industrial, and educational communities, and private citizens.

When establishing the Advisory Committee, the Solid Waste Board defined its role to be twofold:

- 1) To help the Board educate the community concerning solid waste management and its role in meeting the goals as set out in the plan, and
- 2) To provide feedback to the Solid Waste Planning Board as to the effectiveness of the plan and suggestions as to where and how improvements might occur.

A list of Committee members and the positions they represent are included in Appendix "A".

DEMOGRAPHICS

Population projections used to develop this solid waste management plan were provided in the "Solid Waste Needs Assessment" prepared by the Greater Nashville Regional Council. The region population projection for 1993 is 88,953. Table I-1 indicates the county's average density.

Table I-1

Population and Population Density

Area (Sq. Mile)	Population (1993 Projection)	Average Density (Population/Sq. Mile)
584	88,953	152.32

Until the late 1960's and early 1970's, Williamson County was considered a rural county. With the completion of Interstate 65 in the early 1960's, providing better access to Nashville, and the establishment of the City of Brentwood in 1969, the county has become more urbanized. Data based on the 1990 Census provided by the Greater Nashville Regional Council, indicate that of the 81,021 total residents, 42,165 (52%) lived in the four incorporated municipalities and 38,856 (48%) lived in the unincorporated areas of the county. Of the 42,165 people living in the incorporated areas, 36,490 people (87%) lived in the cities of Franklin and Brentwood. Table I-2, based on the 1993 projection, helps illustrate this trend.

Table I-2

Regional Population By Urban And Rural Areas (1993 Projection.)

Total Population	Percent	Urban Population	Percent	Rural Population	Percent
88,953	100	46,256	52	42,697	48

Tables I-3 through I-6 on the following pages provide other demographic information about the Williamson County Solid Waste Region.

Table I-3

**Distribution of Population by Sex and Age
 (1990)**

Age	Total	Male	%	Female	%
0 - 4	6,033	3,076	50.99	2,957	49.01
5 - 17	17,525	8,992	51.31	8,533	48.70
18 - 44	34,440	16,669	48.40	17,771	51.60
45 - 64	16,336	8,265	50.59	8,071	49.41
65 +	6,687	2,815	42.10	3,872	57.90
Regional Total	81,021	39,817		41,204	

Table I-4

**Distribution of Population By Education
 Persons Aged 25 and Over
 (1990)**

	Number	Percent
Less than 8th grade	4,223	11.64
Grade 8	2,483	6.84
High School (1-4)	11,902	32.79
College (1-4)	12,109	33.36
Post Graduate/Professional (4)	5,574	15.36
Regional Total	36,291	99.99

Table I-5

**Distribution of Housing By Type and Occupancy
 (1990)**

Single Family

	Total Units	Occupied	Owned	Rented
1, Detached	22,801	21,723	19,710	2,013
1, Attached	1,196	1,105	812	293

Multi-Family

2	706	620	127	493
3-4	413	385	52	333
5-9	1,069	896	54	842
10-19	938	803	33	770
20-49	431	344	4	340
50 or More	199	122	0	122
Institutional	713	0	0	0
Mobile/Home/Trailer	1,900	1,765	1,307	458
Other	177	165	111	54
Regional Total	30,588	27,928	22,210	5,718

Table I-6

Regional Population Projections

1994	1995	1996	1997	1998
91,756	94,648	97,631	100,708	103,881

1999	2000	2001	2002	2003
107,155	110,498	113,464	116,505	119,627

ECONOMIC ACTIVITY

Williamson County enjoys one of the most stable economic environments in Tennessee. The county consistently maintains the State's highest per-capita income and lowest unemployment rate. Economic activity and growth, especially in the Franklin and Brentwood areas along the Interstate 65 corridor, have transformed the county from a "bedroom community" of Davidson County to a county competing with Davidson County for commercial and industrial development. The City of Fairview has developed the Evergreen Industrial Park located approximately three-fourths mile from Interstate 40 in the northwest portion of the county. County officials intend to utilize Fairview's close proximity to the Interstate and the City of Nashville to recruit light manufacturing industries to Fairview.

The county has also established an Office of Economic Development to recruit environmentally-conscientious industry, large-scale corporations and small commercial and business establishments. Helping existing industries expand is also a focus of the office of Economic Development. Economic growth in the county is expected to continue to increase as the entire middle Tennessee area, especially those counties contiguous to Davidson County, continues to grow.

Tables I-7 through I-13, on the following pages, show the major economic characteristics of the county for 1990 as recorded in the District Needs Assessment compiled by the Greater Nashville Regional Council, unless otherwise noted.

Table I-7

Basic Economic Information

Population	MSA County (yes/no)	Total Employment	Total Earnings x 1000	Per Capita Income	% Population Below Poverty Line
81,021	Yes	41,071	\$2,132,003	\$25,089	5.8

Source: Bureau of Economic Analysis (1991)

Table I-8

Employment

Manufacturing	Construction	Trade	Finance
6,782	2,950	8,856	3,911
16.5%	7.2%	21.6%	9.5%

Service	Government	Transportation Public Utilities	Agriculture	Total
13,088	1,334	2,999	1,151	41,071
31.9%	3.2%	7.3%	2.8%	100%

Table I-9

Major Waste Generators

Screening Criteria Applied	Number of Generators	Estimated Annual Waste
> 50 employees	110	25,500 tons

Table I-10

Institutions Housing More Than 100 Persons

Total Number of Institutions	Total Number of Students Prisoners/Residents	Estimated Quantity of Generated Waste
(1) - Jail	211	416 Tons

Table I-11

Major Health Care Facilities

Number of Facilities	Number of Beds	Infectious Waste Management		Estimated Quantity of Solid Waste Generated
		Onsite/Offsite	Type Treatment	
4	474	Offsite	Incineration	N/A

Table I-12

**Local Revenue Sources
(1993)**

Property Tax	Local Sales Tax	Wheel Tax	Local Waste Collection Fee	User Fee / Tipping Fee	Other
2.91	2.25	25.00	0	28.00/Ton	0

Source: Williamson County

Table I-13

**Tax Revenue Data
(1993)**

Property Tax	Local Sales Tax	Wheel Tax	Waste Collection Fee	User / Tipping Fee
38,946,241	8,140,923	1,921,170	0	344,298

Source: Williamson County

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CHAPTER II

ANALYSIS OF THE CURRENT REGIONAL SOLID WASTE MANAGEMENT SYSTEM

WASTE STREAM CHARACTERIZATION

The District Needs Assessment has established that in 1991, approximately 51,000 tons of solid waste was disposed of in the Williamson County Class I landfill. Table II-1 illustrates the estimated quantity disposed in 1991, the projected population, and waste disposed per capita. As will be discussed in Chapter IV, waste transported out of the county was not considered in the waste quantity received for disposal in 1991, nor in the projections for future years. The waste quantity Tables have therefore been adjusted to reflect these estimates.

Table II-1

Quantity of Solid Waste Received for Disposal/Incineration

Tons Disposed (1991)	Population (1991)	Waste Disposed Per Person
60,000	83,600	0.72 Tons

Table II-2 depicts the origin of solid waste in 1991 and Table II-3 depicts established quantities of waste accepted in 1991 which could be recycled, composted, or diverted to a Class III (yard waste) or Class IV (construction and demolition debris) landfill.

Table II-2

Origin of Solid Waste (Tons - %)

Residential	Institutional / Commercial	Non-Hazardous Industrial	Special	Other
39,000 - 65%	19,200 - 32%	1,800 - 3%	0	0

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Table II-3
Acceptance of Certain Categories of Solid Waste For Disposal
(Tons)

Yard Waste (Chippings - Leaves- Grass)		Sewer Sludge		Construction Demolition		Tires		White Goods	
Y/N	Qty.	Y/N	Qty.	Y/N	Qty.	Y/N	Qty.	Y/N	Qty.
Y	4,000	N	0	Y	10,000	Y	25	N	0

The characterization of the waste stream has been established using the national waste characterization percentages. Table II-4 provides the estimated tons of materials by type. The economic conditions and other activities in an area can have significant effects on that area's waste stream; for example, Williamson County experienced a significant increase in construction/demolition waste in 1991, due to the construction of Cool Springs Galleria, a regional shopping mall, and related surrounding commercial and business establishments.

While factors such as these may affect the composition of the waste stream, Williamson County's waste is not expected to vary significantly from the national characterization percentages.

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Table II-4
Description of Waste Stream By Materials

Waste Category	National Percent	Calculated Regional Tons
Paper & Paperboard	40.0	24,000
Glass	7.0	4,200
Ferrous Metals	6.5	3,900
Aluminum	1.4	840
Other Non-Ferrous Metals	0.6	360
Plastic	8.0	4,800
Rubber & Leather	2.5	1,500
Textiles	2.1	1,260
Wood	3.6	2,160
Food Waste	7.4	4,440
Yard Waste	17.6	10,560
Miscellaneous Inorganic Waste	1.5	900
Other	1.7	1,020
TOTAL: MUNICIPAL SOLID WASTE	99.9	59,940

The District Needs Assessment has also calculated a potential maximum solid waste generation. This quantity theoretically represents those wastes that are "outside" the collection system such as those materials in roadside dumps, litter, etc. Table II-5 illustrates the potential waste generation and unmanaged waste in the county in 1991.

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Table II-5
Unmanaged Waste
(Tons per Year)

Potential Waste Generation 1991	Actual Waste Disposed 1991	Unmanaged Waste 1991 (potential / actual)	Percent of Potential Total
91,542	60,000	31,542	34.46%

It should be noted that the potential waste generation rate was calculated by multiplying the projected 1991 population by the average quantity of solid waste generated in Tennessee per person per day. The quantity used for this calculation was six (6) pounds per/day as reported in the University of Tennessee Waste Management Research and Education Institute's publication "Managing Our Waste: Solid Waste Planning For Tennessee" published in February 1991.

In Williamson County the litter pick-up program and illegal dump investigations are managed by the County Sheriff's Department. According to information obtained from the Sheriff's Department, approximately 36 to 48 tons of solid waste per year are collected from these sources.

WASTE COLLECTION AND TRANSPORTATION SYSTEMS

Williamson County does not provide individual household waste collection and transportation services. There are however approximately fifteen (15) private waste haulers who offer door-to-door pick-up service. In 1991, these haulers served approximately 9,700 households and 600 businesses throughout the county.

The City of Franklin is the only incorporated municipality that provides collection and transportation services for its citizens. The city collects from approximately 7,000 households and 500 businesses. Waste is collected once per week, taken to the city's transfer station, and then hauled to the landfill. The city does not collect industrial wastes generated by the city's industries.

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For those residents outside the City of Franklin who choose not to utilize private haulers, the county has provided convenience centers and green box collection sites. The Tennessee Department of Environment and Conservation's Solid Waste Management Regulations require that a minimum level of service be provided for residents to have access to household collection. Each county must provide at least one convenience center unless a higher level of service exists. Williamson County's convenience center system exceeds the current state requirements.

The waste collection and transportation systems will be discussed in more detail in Chapter V.

SOURCE REDUCTION AND RECYCLING SYSTEMS

In July, 1989, Williamson County established Williamson Recycles, a county-sponsored program to promote source reduction and recycling in the county. Many industries and businesses have source reduction programs not only due to environmental awareness, but to help reduce costs in purchasing of raw products and waste management. Educational programs available to all schools in the county also address source reduction. The Williamson County Recycling coordinator is available to provide information, speak to civic, church and neighborhood groups, and aid in the organization and start-up of source reduction programs.

The county has had an active recycling program since 1989. The recycling coordinator is a full-time county employee, responsible for overseeing the county's waste reduction and recycling efforts. Williamson Recycles is a comprehensive program that promotes programs including source reduction, recycling, litter clean-up, solid waste management education programs, backyard composting programs, and problem waste disposal alternatives.

The following is an overview of some of the programs undertaken by Williamson Recycles:

- 1) **Adopt A Road Program:** Patterned after the state Adopt a Highway Program, groups, organizations, and individuals are encouraged to choose a portion of a county road and be responsible for picking up trash and litter along that section of road on a regular basis. A sign with the name of each organization is placed at the beginning and end of the section of road each group has "adopted" to identify who is responsible for cleaning up that portion of the road. Each group, organization, or individual wishing to adopt a road must first attend a safety program and make one pick up before a sign is erected

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designating that they have adopted that section of the county road. All clean-up events are scheduled through the Williamson Recycles coordinator and groups are encouraged to separate recyclable materials from the other litter.

- 2) **Chipping of the Green:** Each year since 1992, citizens have been encouraged to deposit their Christmas trees at locations throughout the county; collection points include convenience centers, schools and parks. The trees are then chipped and spread on walking trails in the county parks. Middle Tennessee Electric Corporation provides the chippers and manpower for this activity.
- 3) **Telephone Book Collection Program:** This program began in 1992 and is conducted while new phone books are being delivered to area residents. Phone books are collected at designated collection sites then baled at the Williamson County Recycling Center. They are then sent to Bowater Pulp and Paper Mill where they are blended with recycled newsprint to create new newsprint. In 1993, Williamson Recycles sponsored a contest with public and private schools competing for cash prizes for collecting the most phone books per student. Prizes awarded were \$1,000 for first place, \$500 for second place, and \$250 for third place. The prize money was donated by the Kroger Company and South Central Bell Real Yellow Pages.
- 4) **Education Programs:** Each of the thirty-one (31) schools in the county have available to them educational programs that cover a range of topics and activities for grades K-12. Each school has a teacher who coordinates the environmental education programs. Also, six (6) of the high schools have a county environmental club which participates in and encourages recycling activities as well as other environmental projects. These clubs meet with the recycling coordinator on a monthly basis to discuss environment issues. Two of the county high schools also offer classes in ecology.
- 5) **Williamson County Environmental Awareness Award:** This program was started in 1993, and replaced the schools showcase competition which had been hosted by Williamson Recycles the three previous years. The environmental awareness awards recognizes and honors students' and individuals' initiatives which are extraordinarily innovative in addressing environmental issues facing the county. In 1993, awards were given to citizens, teachers, parents, and students in the county. Winners in each category received a \$100 savings bond provided by First Tennessee Bank.

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- 6) **Available Speakers:** The recycling coordinator is available to provide recycling and waste management information to the public that includes classroom, community, civic, and commercial presentations. The coordinator also coordinates and conducts field trips for civic groups to the recycling center and landfill.

- 7) **Commercial Recycling and Waste Reduction Program:** The coordinator is available to provide the business and industrial community with current information about recycling and waste reduction options. Available information includes lists of recycling services available and information regarding materials that businesses may want to recycle. A commercial packet which summarizes source reduction and recycling options and services is available to all businesses in the county. The coordinator also provides on-site assistance to help industries and businesses establish recycling programs.

- 8) **Drop-off Recycling Collection Program:** Williamson County currently maintains fourteen (14) drop-off collection sites throughout the County and the drop-off/buy back center. Five (5) of the sites are available to the public 24 hours per day, seven days per week. The other nine (9) sites are located at the convenience centers and are accessible to the public 72 hours per week. The sites have compartmentalized roll-off containers to keep the recyclable materials separated. The containers are hauled to the Williamson County Recycling Center by county employees on an as-needed basis.

Commodities collected in the compartmentalized roll-off containers include corrugated cardboard, aluminum cans, newspapers, bi-metal cans, brown/blue/green/clear glass, and HDPE and PET bottles. A portion of the proceeds from the sale of materials go to area schools and local civic groups. A strong public/private/non-profit relationship exists between the Kroger Company and Williamson Recycles. Kroger food stores provide space in their customer parking areas for recycling collection bins and donate money for environmental contest prizes, printing of educational materials, etc. In 1993 approximately 2,985 tons of residential recyclables were collected from

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the drop-off sites. The collected materials for calendar year 1993 were:

MATERIAL COLLECTED	TONS
Paper	1983.56
Plastic	140.12
Glass	536.99
Aluminum	71.61
Tin	92.39
Ferrous Metals	160.00
TOTAL	2,984.67

- 9) **Williamson County Recycling Center:** Williamson County entered into a unique public/private agreement with Waste Management, Inc. (WMI) in 1989. Williamson County financed the construction of a recycling center as well as much of the equipment in the facility. The county funded the construction through county bonds, and WMI signed a five year lease with options to renew for twenty (20) years. WMI will pay the county back the principal on the bonds for the facility in twenty (20) years and pay for the equipment in ten years. WMI is in charge of operating the facility and pays all the operating costs with no additional cost to the county.

The recycling center opened in 1992 and accepts the recyclable materials from the county drop-off sites plus materials brought to the center by individuals, civic groups, businesses, industries, and other government entities both inside and outside Williamson County. The center currently processes approximately 90 tons/weekday of recyclable material. Approximately 12 tons/weekday are collected at the county drop-off sites. Materials brought to the facility's buy-back center by Williamson County businesses, industries, groups, and individuals account for another 4 tons/weekday.

- 10) **Household Hazardous Waste Collection Program:** In December, 1993, the county held its first household hazardous waste collection event. With the aid of the Tennessee Department of Environment and Conservation, Division of Solid Waste Assistance, a receiving area was set up at the Williamson County Administrative Complex. Pamphlets

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distributed throughout the county identified those items considered to be household hazardous waste and encouraged residents to bring those items to the Complex for collection and disposal. Materials brought for disposal included automotive batteries, paints, cleaners, herbicides and pesticides, and automotive fluids. Volunteers from the school environmental groups had each participant complete a questionnaire regarding the materials the individual brought, distance traveled, how the individual heard of the program, and his/her willingness to pay for such services. The questionnaires will be evaluated to determine how to improve the program. Approximately sixty (60) households participated in the first event.

- 11) **Backyard Composting Demonstration Site:** The county is in the process of developing a demonstration compost site in order to encourage and train citizens to compost leaves and yard waste in their backyard and to understand the importance of composting. The demonstration site will be located on park property adjacent to a county school and will be used as an educational tool for county residents. The site is expected to be operational in the spring of 1995. The individual responsible for these activities is:

Williamson County Recycling Coordinator
1320 West Main Street
Franklin, Tennessee 37064
Telephone: 615-790-5848

Other resource reduction and recycling efforts ongoing in the county include:

WHITE GOODS COLLECTION PROGRAM: Metal appliances and other recyclable metal materials can be dropped off by citizens at the convenience centers. These items include washing and drying machines, refrigerators, water heaters, air conditioners, stoves, metal wire, swing sets, etc. These items are also removed from the waste stream at the landfill and are stockpiled on a closed portion of the site. The materials are periodically hauled off-site for reprocessing by scrap metal dealers.

CITY OF FRANKLIN CARDBOARD COLLECTION: The Franklin Sanitation Department offers pickup and transportation service for businesses inside the City Limits for the recycling of cardboard, which is taken to the Williamson County Recycling Center. In 1993, approximately 185 tons of cardboard from over 100 businesses were collected and recycled.

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PRIVATE FOR-PROFIT RECYCLING COLLECTION: Several private for-profit recycling collection programs are in existence throughout the county. Most programs offer curbside service to businesses; one company offers curbside service to residents. Of the approximately 2,000 residents this company serves, about 400 households (20%) participate in the curbside recycling program. Many of the other customers prefer to utilize the county-maintained drop-off sites because the money received from the sale of materials is returned to the local schools and other community programs.

INDUSTRIAL AND COMMERCIAL SOLID WASTE SURVEY: The Williamson County Solid Waste Board has developed a survey to be used to collect information concerning industrial and business practices with respect to the type and amount of waste generated, methods of disposal, and recycling and source reduction activities. In 1993, approximately 1,000 surveys were sent to county industry and business owners. Williamson Recycles personnel have identified those persons who would like assistance in developing recycling and source reduction programs. The survey mail outs will continue periodically as part of the county's solid waste plan.

YARD WASTE CHIPPER SERVICE: The incorporated municipalities of Franklin, Brentwood, and Fairview offer yard waste chipper service to city residents. Yard waste is placed next to the curb for easy access to the chipper. The chipped material is offered back to the resident for soil conditioning or gardening purposes. If a resident does not wish to keep the material, it is used on park trails.

WASTE PROCESSING, COMPOSTING AND WASTE-TO-ENERGY / INCINERATION SYSTEMS

The Tennessee Department of Environment and Conservation's Solid Waste Regulations define a processing facility as "a combination of structures, machinery or devices utilized to perform solid waste processing, including other storage and processing areas. The term does not include collection vehicles". The regulations define solid waste processing as "an operation for the purpose of modifying the characteristic or properties of solid waste to facilitate transportation or disposal of solid waste including but not limited to, incineration, composting, separation, grinding, shredding, and volume reduction."

The county's Solid Waste Management facilities which meet the definition of a processing facility include the planned composting project, the Williamson County Recycling Center, and the City of Franklin transfer station. Also included are all convenience centers which provide compaction of waste prior to being

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transported to the landfill.

Following is a description of these facilities:

CONVENIENCE CENTERS: The county maintains ten (10) locations for residents to deposit solid waste. Of the ten (10) sites, eight (8) meet the definition of a convenience center. The remaining sites are one (1) unmanned green box collection site and the manned green box collection center in the Grassland community. As per recently enacted regulations, the County is currently in the process of obtaining permits-by-rule for each convenience center. The individual responsible for the convenience centers and collection sites is:

Landfill Director
Williamson County Landfill
5750 Pinewood Road
Franklin, Tennessee 37064
Telephone: 615-790-0742

COMPOSTING: Williamson County currently does not operate a composting facility, nor are there any known permitted commercial or private sites operating in the county. As mentioned in the previous section, a home composting demonstration facility is planned to open in the spring of 1995. The compost site will be located on county-owned property adjacent to Grassland Elementary School in the northern portion of the county. The facility will be used to teach county residents what type materials can be composted and about the different methods of composting and the different types of equipment that are available.

WILLIAMSON COUNTY RECYCLING CENTER: This facility separates and bales recyclable materials for shipment to off-site recyclers. The facility began operation in the spring of 1992 and processes approximately 90 tons/day of materials. The facility was issued permit SWP 94-102-1086. In 1993, the facility received approximately 2,985 tons of recyclables from the county drop-off sites and approximately 1,460 tons at the facility's buy-back center which were generated in Williamson County. The contact person and facility location are:

Facility Director
Waste Management, Inc.
420 Century Court
Franklin, Tennessee 37064
Telephone: 615-791-1502

CITY OF FRANKLIN TRANSFER STATION: Solid waste collected by the City of Franklin Department of Sanitation employees is brought to the transfer station and transferred to 40-cubic-yard compactor trucks prior to being transported to the Williamson County Landfill. The

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facility began operation in 1972 under permit SWP 94-102-0190 and currently processes approximately 50 tons/day (70 tons/operating day). The person responsible for the facility and the facility location is:

Superintendent of Sanitation
Franklin Sanitation Department
405 Hillsboro Road
Franklin, Tennessee 37064
Telephone: 615-794-1516

WASTE TO ENERGY/INCINERATION: Williamson County does not operate either a waste-to-energy or an incineration facility. At this time, the county does not plan to construct or operate either type of facility over the next ten year period. The County's Class I landfill does operate a waste oil boiler. The boiler utilizes waste oil from the landfill equipment to heat the landfill maintenance shop.

OTHER PROCESSING FACILITIES

GENERAL SMELTING AND REFINING, INC.: This is a privately-owned facility which receives automobile, truck, and industrial batteries from off-site suppliers. The lead plates are removed and resmelted into lead ingots for use in new batteries and other products. The facility has been in operation since the mid-1950's and holds permit TNHW-081A for battery storage. The contact person for this facility is:

President
General Smelting & Refining, Inc.
P.O. Box 37
U.S. Highway 31A
College Grove, Tennessee 37130

DISPOSAL FACILITIES

Tennessee's solid waste regulations provide for four classifications of landfills. The classifications and definitions as taken from the regulations are:

Class I Disposal Facility refers to a sanitary landfill which serves a municipal, institutional and/or rural population, and is used or to be used for disposal of domestic wastes, commercial wastes, institutional wastes, municipal wastes, bulky wastes, landscaping and land clearing wastes, industrial wastes, construction/demolition wastes, farming wastes, discarded automotive tires, and dead animals.

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Class II Disposal Facility refers to a landfill which receives waste which is generated by one or more industrial or manufacturing plants and is used or to be used for the disposal of solid waste generated by such plants, which may include industrial wastes, commercial wastes, institutional wastes, farming wastes, bulky wastes, landscaping and land clearing wastes, construction/demolition wastes, discarded automotive tires, and dead animals. Additionally a Class II disposal facility may also serve as a monofill for ash disposal from the incineration of municipal solid waste.

Class III Disposal Facility refers to a landfill which is used or to be used for the disposal of farming wastes, landscaping and land clearing wastes, and/or certain special wastes, having similar characteristics.

Class IV Disposal Facility refers to a landfill which is used or to be used for disposal of demolition/construction wastes, certain special wastes having similar characteristics and waste tires.

There is only one permitted landfill currently in operation in Williamson County. The landfill is described as follows:

WILLIAMSON COUNTY SANITARY LANDFILL: The Williamson County Sanitary Landfill is owned and operated by the county. The landfill is situated on approximately 379 acres of land on the north side of Pinewood Road (State Route 46) approximately twelve (12) miles west of Franklin (See Figure II-1).

The landfill began operations in the 1970's and operates under permit SNL 94-102-0057 EXT. In 1993, the remaining permitted area was re-designed in order for the facility to be in compliance with new solid waste facility design and operation requirements which become effective in 1996. Final approval for approximately ninety (90) acres of disposal area was granted in June, 1994. With the approval of the re-designed disposal area, the landfill is estimated to have capacity to serve the County's needs for approximately thirty (30) years.

The landfill is considered a Class I facility. It currently accepts waste (i.e. construction/demolition materials, yard waste) that could be diverted to facilities which require less stringent and costly construction and operational procedures. An estimated 51,000 tons (140 tons/day) were disposed of in 1991. In October 1993, truck scales were installed at the facility and data collected since that time indicate an estimated 53,700 tons (147 tons/day) were disposed of in 1993. Of the 51,000 tons disposed in 1991, it

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was estimated that approximately 14,025 tons (28%) were materials which could have been diverted to other facilities (See Table II-3). Current data indicates that approximately 24 tons/day (16%) is waste which could be diverted.

The facility is open seven days per week from 7:00 am to 3:30 pm. There is no tipping fee for county residents or private haulers bringing waste collected from county residents. A \$29.50 per ton fee is charged to haulers bringing commercial and industrial waste. Approximately 10% of the landfill operating cost is derived from tipping fees. The individual responsible for the landfill is:

Landfill Director
Williamson County Landfill
5750 Pinewood Road
Franklin, Tennessee 37064
Telephone: 615-790-0742

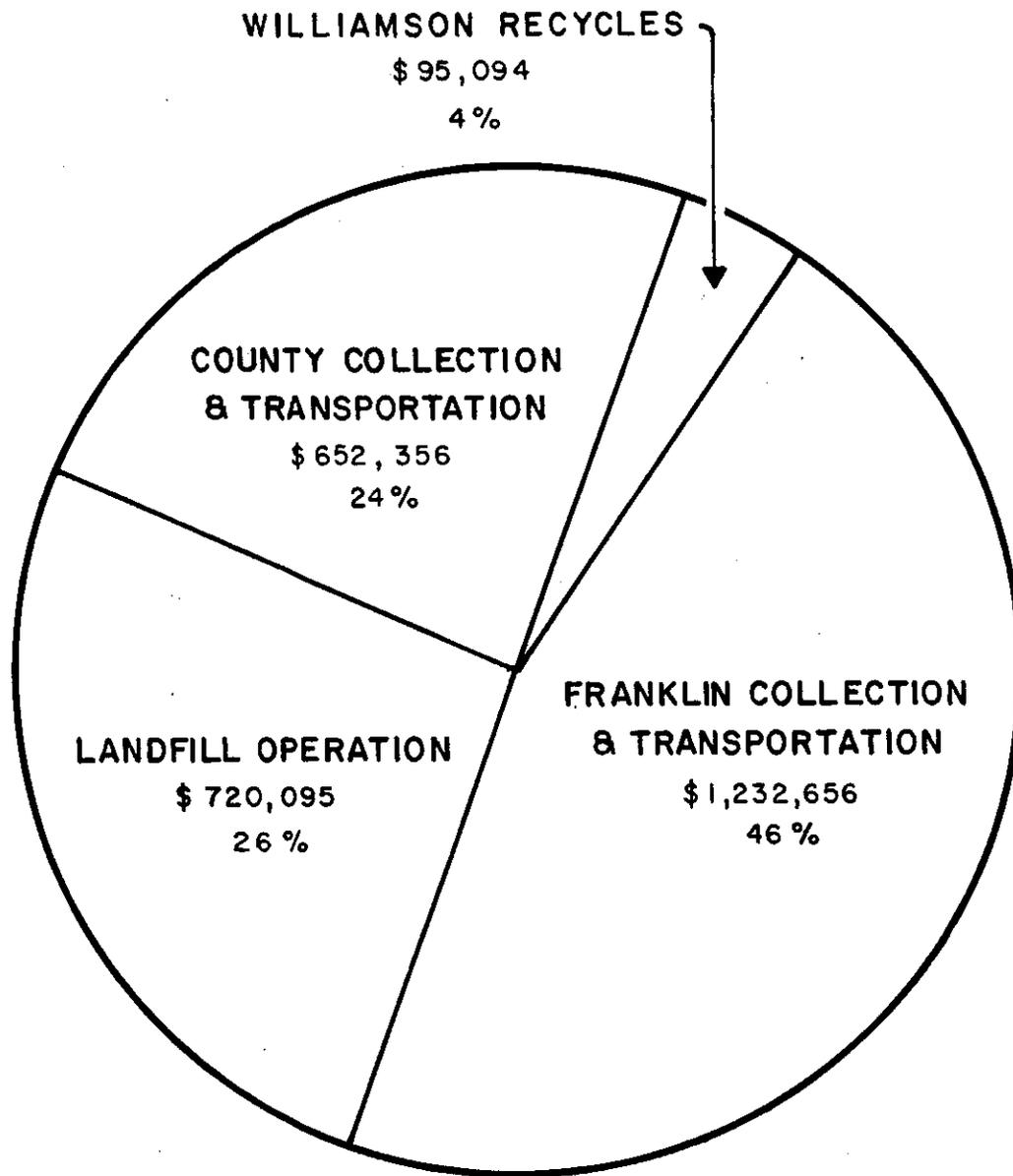
Tables II-1 through II-5 indicate the estimated quantity of waste disposed of in 1991, the origin of waste by generator in 1991, waste which could be diverted to other facilities, waste stream description, and estimated potential waste generation.

COST OF THE CURRENT SYSTEM

Total cost incurred by the county and the City of Franklin in fiscal 1993 was \$2,700,201. Table II-6 provides costs per category of the services provided. Figure II-4 provides a graphic illustration of these costs.

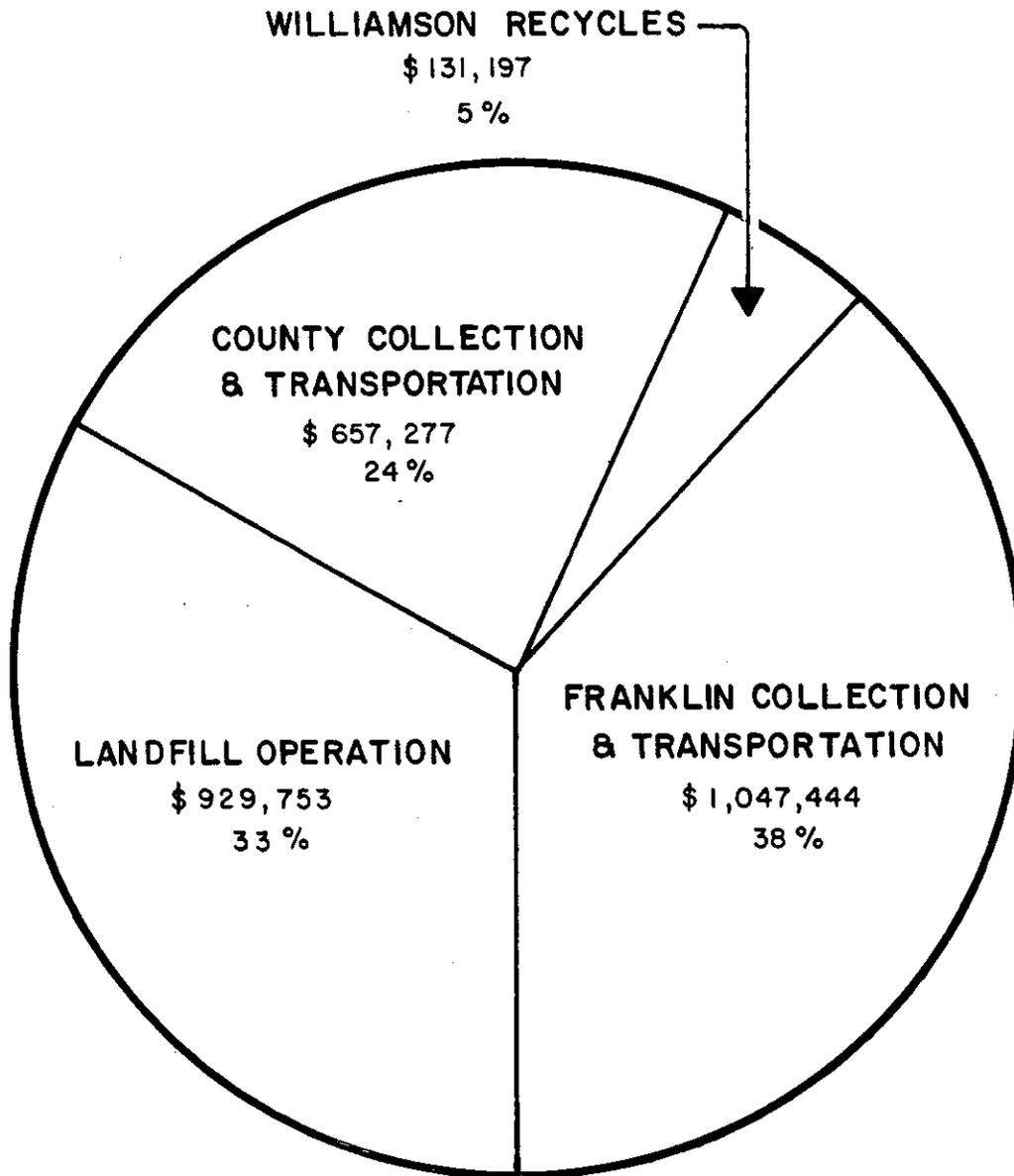
Table II-6
Cost of Current System Fiscal Year 1993

Category	Cost
County Collection & Transportation	\$652,356
Franklin Collection & Transportation	\$1,232,656
Williamson Recycles	\$95,094
Landfill Operations	\$720,095
TOTAL	\$2,700,201



**COST OF CURRENT SYSTEM
FISCAL YEAR 1993**

FIGURE II-4



**COST OF CURRENT SYSTEM
FISCAL YEAR 1994**

FIGURE II-5

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REVENUES

Table II-7 provides information concerning sources of revenue for the county. Although the county receives revenue from several sources, funds allocated to solid waste services come from property taxes and landfill fees. The county collects taxes from all property in the county including those properties which lie inside municipal boundaries. In fiscal 1993, \$0.08 of each \$1.00 collected was allocated to solid waste services.

The City of Franklin also receives revenues from several sources with sales taxes and property taxes accounting for approximately 72% of revenue collected. Solid waste services are appropriated from the General Fund. Table II- 8 provides information concerning sources of revenue for the city.

PUBLIC INFORMATION AND EDUCATION PROGRAMS

Solid waste public information and education programs are administered by the Williamson Recycles Coordinator. The coordinator provides each public and private school in the county with educational materials including recycling curriculum guides for grades K-12 which contain classroom activities and other resources. The coordinator distributes pamphlets, brochures, videos, and other materials addressing source reduction, recycling, and composting to schools, civic groups, businesses and industries. Kroger Company stores have provided both donations for environmental awards presented by Williamson Recycles and space in their parking areas for recycling bins. Several other businesses have also been active in providing donations for awards and financing of educational materials.

Local radio stations, newspapers, and the local access television station are utilized by the coordinator and the Solid Waste Board to promote educational programs, special events such as the Christmas tree, phone book, and household hazardous waste collection programs, and other related solid waste activities. Public information and education programs are discussed in greater detail in Chapter IX.

PROBLEM WASTES

The Solid Waste Management Act of 1991 considers household hazardous waste, tires, automotive fluids, and lead acid batteries to be problem wastes. The Act also requires each county in the state to provide at least one site for the collection of problem waste and a storage area for tires by January 1, 1995. Collection and management of problem wastes will be discussed in greater detail in Chapter X.

Table II-7

**Sources of Revenue
 Williamson County
 (1993)**

Property Tax	Local Sales Tax	Wheel Tax	User/Tipping Fee
\$38,946,241	\$8,140,923	\$921,170	\$34,298

Table II-8

**Sources of Revenue (Estimated)
 City of Franklin
 (1993)**

Local Sales Tax	\$4,500,000
Property Tax & penalties	\$3,603,000
State Sales Tax	\$775,000
Beer, Liquor, & Mixed Drink Taxes	\$678,000
Licenses & Permits	\$523,500
State Income Tax	\$340,000
Interest Income	\$200,000
Other	\$604,562
TOTAL	\$11,224,062

SYSTEM MAP FOR BASE YEAR (1993)

Figures II-1 through II-3, provide the locations of existing solid waste collection sites, recycling collection and processing facilities, and locations which provide education programs.

STRENGTHS AND WEAKNESSES OF EXISTING SYSTEM

Several years ago, Williamson County officials began to address solid waste issues facing the county. The convenience center collection system began replacing the old road side green box system in 1988. The County now has ten (10) sites to serve 585 square miles, or approximately 66,700 persons. This includes residents of Brentwood, Fairview, Thompson Station and the Williamson County portion of Spring Hill. Private haulers serve the entire county for those residents who prefer household pick-up. The county began recycling efforts in 1989 and entered into a public/private partnership in 1990 which provides the county financially feasible and realistic recycling opportunities. The private partner is responsible for processing, marketing, and administering the program, thus allowing the county to devote more resources to educational programs, composting, source reduction, and other solid waste issues.

A strong commitment to solid waste issues from the County Executive's office and strong financial support from the County Board of Commissioners have ensured that the county has adequate disposal capacity for approximately 30 years. This commitment and support also allows the county to operate properly maintained and managed facilities in compliance with State and Federal environmental regulations.

An obvious weakness in the existing system is the lack of disposal capacity or other alternative processes for waste that could be diverted from disposal in the Class I landfill. The county is in the process of developing construction and operation plans for a Class III/IV landfill to accept yard/grass clipping waste, construction/demolition waste, tires, and other waste fitting these categories. Also, present recycling activities in the county are conducted on a voluntary basis. Although the county maintains an active recycling education and promotion program, and provides readily accessible and convenient drop-off sites, there are no county mandates, regulatory bans, or economic incentives or disincentives currently in place to ensure that maximum participation is achieved.

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Growth Trends, Waste Projections, And Preliminary System Structure

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CHAPTER III

GROWTH TRENDS, WASTE PROJECTIONS, AND PRELIMINARY SYSTEM STRUCTURE

GENERAL

Solid Waste generation for the next ten years has been projected considering population, economic growth, and source reduction and recycling goals. Population increases, along with business and industrial growth, will obviously increase the total amount of solid waste to be disposed of. Concentrated efforts for source reduction and recycling however, should limit, if not lower, the per capita generation rate.

Estimated solid waste quantities generated and projected population for fiscal year 1993 provided by Greater Nashville Regional Council are presented in Table III-1. As noted in Chapter II, waste projections have been adjusted to include estimated waste transported out of the county for disposal.

Table III-1

Per Capita Solid Waste Generation Rates Fiscal Year 1993

Total Waste Projected	Projected Population	Annual Per Capita Generation Tons/Per /Year
64,046	88,953	0.72

Table III-2 estimates the quantity of solid waste to be generated in the county through the year 2003, based on population increases as established by Greater Nashville Regional Council and presented in Chapter I.

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Table III-2

Quantity of Solid Waste Requiring Disposal

1994	1995	1996	1997	1998
66,064	68,147	70,294	72,510	74,794

1999	2000	2001	2002	2003
77,152	79,559	81,694	83,884	86,131

Table III-3 estimates the quantity of solid waste to be disposed of adjusted for population increases and economic growth.

Table III-3

Quantity of Solid Waste Requiring Disposal

1994	1995	1996	1997	1998
68,109	70,257	72,472	74,757	77,113

1999	2000	2001	2002	2003
79,546	82,029	84,243	86,515	88,846

Table III-4 estimates the quantity of solid waste to be disposed of adjusted for population increases, economic growth, source reduction and recycling.

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Table III-4

**Quantity of Waste Requiring Disposal Adjusted for Population Changes, Economic Growth, and Waste Reduction and Recycling
(Tons)**

1994	1995	1996	1997	1998
59,453	58,998	60,805	62,722	64,699

1999	2000	2001	2002	2003
66,740	68,825	70,681	72,673	74,631

Projected solid waste generation rates were calculated using the population projections displayed in Chapter I along with an annual per capita generation rate of 0.61 tons per person per year. This generation rate was derived by dividing the estimated quantity of waste disposed of in 1991 (51,000 tons) by the projected 1991 population (83,600). The waste generation rate attributable to economic growth was calculated using the University of Tennessee Center for Business and Economic Research's forecast of 3.2% compound annual growth rate for the State between 1990 and 1999. The estimated rate reduction due to reuse and recycling was calculated based on a percentage of waste which would reasonably be expected to be removed from the waste stream under existing recycling and source reduction efforts.

PRELIMINARY SYSTEM DESIGN

It has been demonstrated that the Williamson County Solid Waste Region has sufficient disposal capacity to serve the county's needs through the year 2003 and beyond. Also a strong public/private partnership to provide recycling services has been established, and educational programs to promote source reduction and recycling are on-going. It is evident that the lack of facilities to which waste could be diverted from the waste stream being disposed of in a Class I landfill is the current system's biggest weakness.

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Several alternatives for diverting, processing, and disposing of solid waste were evaluated for consideration by the Solid Waste Board.

Alternatives considered by the Board included:

Incineration (Mass Burn System)- Mass burning involves the combustion of solid waste usually for the purpose of providing heat recovery. In a mass burn incinerator, refuse received from the collection vehicle is placed directly into a combustion furnace. The heat generated from the combustion process is recovered as steam by waterwall boilers. The steam is then sold directly to a customer or converted to electricity using a turbine-generator and then sold, usually to a large utility.

Mass burn incinerators are utilized primarily for waste volumes in the 500 to 3000 tons/day range. Although these units have experienced mechanical and air emission problems in the past, improved design and operating practices have corrected these problems, and the facilities have continued to operate.

Advantages and disadvantages of such systems include:

Advantages:

- Up to 90% volume reduction of waste stream
- Create energy for resale

Disadvantages:

- High initial and maintenance cost
- Ash disposal sometimes difficult
- Changes in air pollution regulations

Incineration (Modular Combustion)- Modular combustion units are a prefabricated version of the mass burn system. These "off-the-shelf" units are available in a wide range of small-scale sizes from 10 to 200 tpd. These systems differ from the mass burn system in that they have a standardized design and are largely shop-assembled to minimize the subsequent field erection work. Modular combustion units sometimes use refractory furnaces and waste heat boilers as opposed to waterwall furnaces and generally produce steam at temperatures and pressures lower than conventional mass burn units.

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Advantages and disadvantages of these systems include:

Advantages:

- Lower initial capital cost than mass burn system
- Successful and reliable technology

Disadvantages:

- Frequent furnace overhauls are required
- Lower energy recovery efficiency
- Ash disposal
- Air pollution requirements

Co-Composting- Co-composting is the practice of composting refuse and sludge together. Refuse processing is required to achieve a particle size suitable for microbial attack during the compost process. Processing includes air classification and screening to separate heavy materials from light materials and inorganic materials from organic. Ferrous metals are also removed from the waste stream. The amount of processing and associated expense is usually a function of the product characteristics required by the marketplace.

In-vessel composting involves the use of a confining structure which biologically stabilizes waste under aerobic conditions. In-vessel composting of municipal solid waste is always co-composted with municipal wastewater treatment sludge. The basic steps for in-vessel composting are considered to be similar to those in static-pile systems: mixing sludge and refuse with a bulking agent, aerating to promote decomposition and pathogen kill, and curing to achieve additional stabilization.

Advantages and Disadvantages of this type system are:

Advantages:

- Provides a combined disposal system for wastewater treatment sludge and solid waste
- Allows decomposition of materials at a higher rate where mixing, aeration, and moisture content can be strictly controlled
- Requires less land and is not as affected by weather conditions as are static-pile systems

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Disadvantages:

- High initial investment
- Subject to breakdowns
- Not a proven technology
- Difficulty in financing the system
- Difficulty in acquiring and maintaining markets

Composting (Yard/Wood Waste)- Composting is the processing of organic matter by natural or mechanical means to aid in the microbial decomposition of the organic matter. Processing may include simple exposure resulting in a natural decay, or physically turning, windrowing, aerating or other mechanical reduction of organic matter.

The most common type of composting system used for composting yard and wood waste is the static-pile compost system. With this system, the organic material is piled outdoors for several weeks in long windrows which are agitated either manually or mechanically. The material is then allowed to "cure" for an additional two to three weeks to further stabilize the composted material. Yard and wood waste may be composted using static-pile techniques if source separation collection methods are used. Woody wastes require chipping prior to being mixed with other yard waste, or the chips can be used alone for landscaping. Yard and wood waste typically comprise approximately 20 percent of the total solid waste stream. Seasonal variations affect the amount of leaf and yard waste entering the solid waste stream.

Advantages and disadvantages of this system include:

Advantages:

- Relatively simple mechanical operation
- Operator can visually inspect the operation during entire process
- It removes waste from the waste stream
- Produces useful product

Disadvantages:

- Relatively large land area is required
- Labor intensive
- Can produce odor nuisance

Chipping- Chipping is the process of reducing the particle size of arboreal (wood) waste by grinding, or shredding the materials. The cities of Brentwood, Fairview, and Franklin provide chipper service for residential yard waste and the Christmas Trees collected each year.

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These chippers are not heavy enough or large enough to handle tree and stump waste from land clearing or wooden demolition materials. By providing a large chipper at the landfill, or in a central location in the county, these type wastes could be chipped and be added to other compostable materials or used as mulch or as a soil additive.

Advantages and disadvantages of this system include:

Advantages:

- Removes waste from waste system
- Produces usable material at reasonable operating cost
- Can provide bulking material for yard waste composting

Disadvantages:

- Can only chip arboreal wastes without enhanced equipment

Shredding- Shredding of solid waste involves mechanically grounding, or pulverizing the waste to a smaller size. Shredding operations may serve as an independent waste reduction system or may be combined with other waste handling systems, such as a chipper system to provide compostable material.

Shredders can be used to shred larger wood waste prior to chipping or to shred large bulky items such as tires and furniture prior to placement in the landfill areas. Shredded materials can increase the landfill life by providing a denser material for compacting.

Advantages and disadvantages of this system include:

Advantages:

- Shredded materials, especially tires, provide a less attractive environment for vermin, fly eggs, and larvae
- Can increase landfill life by providing more manageable material for disposal

Disadvantages:

- Can have relatively high initial cost depending on type and size
- Has relatively high operational and maintenance costs primarily due to frequency of blade replacement (especially if used to shred tires)
- Does not reduce the amount of material being landfilled

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Class III/IV Landfill- Class III/IV landfills are disposal units utilized to dispose of inert materials, such as construction debris, and yard and wood wastes. Class III/IV landfill design and operation requirements are less expensive than Class I residential and commercial sites since they do not require liners and leachate collection systems, nor daily cover.

Class III/IV landfills are a cost-effective means to dispose of materials that do not need to be disposed of in the Class I landfill as well as waste that other systems are unable to handle, such as asphalt, concrete block, shredded tires. etc.

Advantages and disadvantages associated with this alternative include:

Advantages:

- Removes waste from Class I disposal facility
- Low initial and operational costs
- Can accept wastes other alternatives cannot

Disadvantages:

- Does not prevent waste from being disposed of in the environment
- Can be unsightly if not well operated

Class I Sanitary Landfill- Class I sanitary landfills are the most common and overall cost-effective disposal alternatives available. Class I landfills are utilized to dispose of domestic, commercial, institutional, municipal, bulky, landscaping and land clearing, industrial, construction/demolition, and farming waste, plus automobile tires and dead animals.

Williamson County currently has permitted Class I landfill capacity to serve the county's needs for approximately thirty (30) years. The landfill design includes the provision of liners and a leachate collection system, as well as an extensive groundwater monitoring system.

Advantages and disadvantages of this alternative include:

Advantages:

- Proven technology
- Economically feasible
- Better control over operation

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Disadvantages:

- Allows disposal of waste in the environment
- Utilizes land
- Must remove and treat leachate

EVALUATION CRITERIA FOR THE REGION

Each component of a comprehensive solid waste management system must be evaluated for economic feasibility, compatibility with other system components, and desirability. Williamson County has evaluated each alternative for economic feasibility with respect to capital cost, operating cost, and desired results. The compatibility evaluation included an analysis of those components which could complement or even replace some existing systems. Table III-5 is a compilation of estimated costs for the alternatives considered.

After a review of the alternatives, the Williamson County Municipal Solid Waste Board has elected to continue to develop a comprehensive solid waste management system consisting of source reduction, recycling, a Class III/IV landfill, problem waste diversion, a Class I landfill, and yard and wood waste processing. All of these components, with the exception of a Class III/IV landfill and yard and wood waste processing, are currently in place. The Class III/IV landfill is currently being pursued. The yard and wood waste alternatives will continue to be evaluated during the first two years of the plan to determine the most effective and feasible option for the county to pursue.

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Table III-5
Estimated Cost of Alternatives

Alternative	Estimated Initial Cost	Estimated Operating Cost (Ton)
Incineration (Mass Burn)	>\$20 Million	\$35.00-\$40.00
Incineration (Modular Combustion)	\$10-\$15 Million	\$30.00-\$35.00
Composting	\$75,000-\$300,000	\$12.00-\$15.00
Co-Composting	\$10 Million	\$30.00-\$60.00
Chipping/Grinding	\$50,000-\$270,000	\$6.00- \$8.00
Shredding	\$150,000-\$275,000	\$10.00-\$40.00
Class III/IV Disposal	\$35,000-\$40,000	\$10.00-\$12.00
Class I Sanitary Landfill	\$250,000-\$300,000/Acre	\$25.00-\$30.00

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Waste Reduction

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CHAPTER IV

WASTE REDUCTION

ESTABLISHMENT OF BASE YEAR QUANTITY

One of the goals outlined in the Solid Waste Management Act of 1991 is "to reduce by twenty-five percent (25%) the amount of solid waste disposed of at municipal solid waste disposal facilities and incinerators, measured on a per capita basis within Tennessee by weight, by December 31, 1995." In order to establish a quantity which represents a 25% reduction, a base quantity, or beginning point, must be established. In February 1992, Waste Management Research and Education Institute of the University of Tennessee published a report regarding solid waste management and planning in Tennessee. In this report, an estimate of the amount of solid waste disposed of in each county in the state in 1989 was developed, based on available information from disposal facility records. Although the information may be the best that was available at the time, the state will recognize other baseline data if the county can show that it has better data than was available at the time.

Research conducted during development of this plan indicated that one of the largest private haulers operating in the county does not transport waste to the county landfill. Although the quantity of waste disposed of at the landfill appears to be accurate, the 1989 per capita disposal rate does not accurately reflect the true generation rate for the citizens of Williamson County. Therefore, a request for revising the estimate was made to the State Planning Office which agreed with the Williamson County Solid Waste Board. Documentation for approval of the base year estimate change is provided in Appendix "B".

Table IV-1 provides the estimated 1989 base year generation for Williamson County. This amount represents the total quantity of waste which must be reduced 25% per capita by December 31, 1995.

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**Table IV-1
Base Year Disposal
(1989)**

Population	Total Waste Disposed	Tons Per Person Per Year
80,850	64,224	0.80

The per capita waste disposal rate for the base year 1989 is calculated as follows:

$$\frac{64,224 \text{ tons}}{80,850} = 0.80 \text{ tons/person}$$

Using the above quantity as a basis, the target per capita reduction in the quantity of waste to be disposed of is 0.80 tons/person/year x 25% = 0.2 tons/person/year.

Therefore, in order to meet the waste reduction goals by December 31, 1995, Williamson County citizens must reduce waste generation by 0.2 tons per person per year, or 18,930 tons per year.

Documentation of waste reduction efforts will be records from the Class I facility and annual reports submitted to the State Division of Solid Waste Management by private haulers hauling waste to other facilities. Annual reports submitted by Williamson Recycles and documentation from industries and businesses utilizing markets other than the Williamson County Recycling center will also be considered in the determination.

MEETING THE WASTE REDUCTION GOAL

It is the short term goal (by December 31, 1995) of the Williamson County Solid Waste Board to reduce by 25% the quantity of waste being disposed of in the Class I sanitary landfill. This will be accomplished by the continued distribution of resource reduction and recycling information and education programs, continued promotion and support of existing recycling programs, diversion of problem waste, and the development of a Class III/IV disposal site to divert construction and demolition debris and yard waste from the Class I facility. The long term goal is to continue to reduce the amount of solid waste generated within the county to be disposed of and to initiate alternatives for the disposal of that waste diverted to the Class III/IV facility.

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Table IV-2 indicates the amount of waste targeted for reduction by 1995 by type material.

Table IV-2
Waste Reduction Goals By Material Type 1995

Material	1995 Reduction Goal (Tons)
Glass	1,740
Paper	6,075
Plastic	470
Metals (Aluminum, Tin, Ferrow)	845
Yard Waste	3,135
Demolition Waste	6,665
TOTAL	18,930

Table IV-3 indicates the waste reduction goal for 1995 by economic sector.

Table IV-3
Waste Reduction Goals By Economic Sector For 1995

Economic Sector	Waste Reduction Goal (Tons)
Residential	12,305
Commercial	1,705
Institutional	1,135
Industrial	3,785
TOTAL	18,930

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STRATEGY FOR MEETING THE WASTE REDUCTION GOAL

Williamson County has been actively pursuing waste reduction and recycling opportunities since 1989. The county currently operates one of the most successful all voluntary recycling programs in the State of Tennessee. The county has been and will continue to be committed to reducing the solid waste generated in the county by as much as is economically and practically feasible. It is the Williamson County Solid Waste Board's goal to not only meet the State mandated reduction goals, but also to provide an environmentally safe and economically responsible solid waste management system for its citizens.

Table IV-4 at the end of this chapter presents the estimated quantities of waste removed or diverted from the waste stream by year.

Methods and strategies which will be utilized by the Solid Waste Board to achieve both the short-term and long-term waste reduction goals include:

SOURCE REDUCTION

Source reduction eliminates waste before it enters the waste stream, thereby extending landfill disposal capacity and eliminating the need to place certain types of waste in the environment. Source reduction will be a primary focus of the Solid Waste Board through the Williamson Recycles coordinator. Williamson Recycles will continue to include source reduction in its public information and education programs. The business, commercial, and industrial sectors are provided information regarding methods to save waste management costs through source reduction. The residential sector will continue to receive source reduction information through the school education programs and pamphlets, brochures, and speaking engagements by the coordinator. Source reduction methods promoted to the residential sector include backyard composting, purchase of recycled and reusable materials and purchase of non-toxic household cleaners. Government agencies will also be encouraged to reduce the volume of waste generated by buying recycled and reusable products when feasible. Although the results of source reduction efforts are difficult to quantify on a short-term basis, the long-term impacts will be more evident.

RECYCLING

Williamson County has been actively recycling since 1989. The program is entirely voluntary and has enjoyed increased participation each year since its beginning. The current program consists of fourteen (14) drop-off centers located throughout the county, a processing facility which processes and markets the

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materials at no cost to the county, and a buy back center for those persons wishing to be paid for their recyclables. In 1989, the county established Williamson Recycles and employed a full-time recycling coordinator. The coordinator provides recycling information and education programs to the school system and interested individuals, promotes special recycling events throughout the year and solicits business and industrial sponsorship for recycling activities. In 1993, recycling efforts removed approximately 4,500 tons of materials from the waste stream.

This total represents recyclables received at the Williamson County Recycling Center and does not reflect the quantity of materials that were taken directly to other recycling markets by business and industry in the county. The Solid Waste Board will continue to identify and quantify these materials for inclusion in the reduction efforts.

In order to help achieve the 25% waste reduction goal, the Williamson Recycles coordinator will continue to encourage and promote recycling activities, provide information to interested parties, and give presentations regarding the importance of recycling. For the business, commercial, and industrial sector, Williamson Recycles has developed a "Commercial Recycling Packet". The packet includes tips on beginning recycling programs and on waste reduction methods. The packet also provides a list of companies which provide recycling services.

The business, commercial, and industrial sector will be encouraged by the county to begin new recycling programs, expand existing programs and to participate in the public programs sponsored by Williamson Recycles.

The Williamson County Board of Education has committed to placing recycling collection bins at all county schools and compactors for cardboard recycling at each school with an enrollment of 1,000 students. The Board of Education also intends to place compactors at all schools that attain an enrollment of 1,000 students in the future. The collection of cardboard and other recyclables at the county schools should create an immediate increase in the reduction of waste being disposed of in the landfill.

Although recycling efforts alone are not expected to achieve a 25% reduction in the quantity of waste to be disposed, it is believed that a 15% - 20% reduction is a realistic long-term goal.

DIVERSION TO CLASS III/IV DISPOSAL FACILITY

With the implementation of new, more stringent requirements for the design and operation of Class I landfills, Class III and IV disposal facilities become an even more important component in the

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comprehensive solid waste management plan. These facilities provide environmentally safe and economically feasible alternatives for the disposal of yard waste, wood waste, demolition materials, and other waste which does not need to be disposed of in the more expensive Class I facility.

The county is in the process of developing construction and operation plans for a Class III/IV landfill to be located on the existing landfill property north of the Class I disposal operations. The landfill should be in operation in early 1995.

According to data collected from the Class I landfill since scales were installed, approximately 16% of waste currently being disposed of in the facility is waste which could be diverted to the Class III/IV facility. It should be noted that this data was collected from the months of October through February and would not reflect yard waste and grass clippings. It is believed that 20-25% of waste received on an annual basis could be diverted. This, along with materials being recycled, should achieve the Solid Waste Board's short term goal.

DIVERSION OF PROBLEM WASTE

The Solid Waste Act requires each county to provide for the collection of problem wastes (tires, lead-acid batteries, automobile fluids) by January 1, 1995. Williamson County already provides collection of lead-acid batteries. A collection and storage program for tires will be in place by the deadline.

The county will also continue the household hazardous waste collection programs to divert those wastes from the Class I landfill. Diversion of these wastes will not only count toward the reduction goal, but will also reduce the introduction of hazardous materials into the landfill.

COMPOSTING

The Williamson County Solid Waste Board has adopted a policy to encourage and promote backyard composting as much as possible. The county has committed to the development of the composting pilot project to teach residents about the importance and techniques of backyard composting. This effort could result in a substantial reduction in yard waste being disposed of in the Class III/IV facility, however, this will depend on the success of the public education and compost pilot programs.

Composting as a county-operated program is still being considered by the Solid Waste Board. When the Class III/IV landfill begins operation, waste being diverted to the facility will be evaluated

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by type and quantity. The type and quantity of compostable waste generated in the county will determine the most feasible composting technique for the county to pursue. Composting alternatives are discussed in greater detail in Chapter VIII.

WOOD WASTE MULCHING

As explained in Chapter II, Williamson County provides collection points for residents to bring Christmas trees then chips the trees after each Christmas season. In 1994, the county chipped trees for mulch to be placed on park trails. Also, the incorporated Cities of Brentwood, Fairview, and Franklin provide chipper services for their residents. Mulch from these operations is either given back to the homeowners or used on park trails.

As with the compost option, waste diverted to the Class III/IV landfill will be evaluated to determine the feasibility and effectiveness of mulching, or grinding, other wood waste such as wooden pallets, construction lumber, tree stumps, etc. Mulching of wood waste such as wooden pallets and construction lumber is not only dependent on quantity but also on the quality of the material. Such waste would require careful screening to prevent contamination of the mulch from paint and other liquids used to treat the wood and to protect the mulching from nails and other metals.

IMPLEMENTATION RESPONSIBILITY

As with the recycling program, source reduction activities will be implemented by the Solid Waste Board through the Williamson Recycles office. Reduction efforts will be coordinated by the recycling coordinator with staff and funds allocated to the recycling program.

WASTE REDUCTION INCENTIVES AND DISINCENTIVES

As mentioned in Chapter II, the county currently does not invoke any economic incentives or disincentives for source reduction or recycling efforts. The Solid Waste Board will monitor reduction efforts and if additional efforts are warranted, measures such as banning certain wastes from the landfill, increasing disposal fees for certain wastes, or other regulatory actions will be initiated.

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Table IV-4
Estimated Quantities of Waste
Recycled or Diverted from the Waste Stream
(Tons Per Year)

Year	Reductions from Pre-1985 Programs or Manufacturing	Recycled & Composted Post-1985 Programs	Diverted to Alternative Disposal	Economic Incentives by Government	TOTAL Post-1985 Reduction
1990	0	0	0	0	0
1991	0	0	0	0	0
1992	0	2,718	0	0	2,718
1993	0	4,445	0	0	4,445
1994	0	8,656	0	0	8,656
1995	0	9,130	11,240	0	20,370
Subtotal		24,949	11,240	0	36,189
1996	0	11,667	11,595	0	23,262
1997	0	18,690	5,980	0	24,670
1998	0	19,278	6,170	0	25,448
1999	0	19,886	6,364	0	26,250
2000	0	20,507	6,562	0	27,069
2001	0	21,060	6,740	0	27,800
2002	0	21,630	6,921	0	28,551
2003	0	22,211	7,108	0	29,319
TOTAL		179,878	68,680	0	248,558

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Waste Collection And Transportation

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CHAPTER V

WASTE COLLECTION AND TRANSPORTATION

EXISTING COLLECTION SYSTEM

The existing collection system for Williamson County is comprised of several elements. The county is responsible for solid waste collection and disposal; this includes households located within boundaries of incorporated municipalities. The City of Franklin is the only municipality in the county which has chosen to provide door-to-door collection services to its citizens and businesses. In lieu of door-to-door collection, the county elected to provide drop-off points for citizens to bring their waste.

The county has upgraded the roadside "green box" collection system and currently has ten (10) collection centers throughout the county. Eight of the ten centers meet the definition, as established by Tennessee Solid Waste Management Regulations, of a convenience center. One center, in the Grassland community, provides access control and is manned during operating hours but does not meet all of the conditions required to be considered a convenience center. The collection center in the Greenbrier community is unmanned and accessible 24 hours per day. It was the intent of the county, when establishing the collection system, for no resident to have to travel in excess of five (5) miles to discard their waste.

In addition to the collection centers provided by the county, each household in the county has access to private door-to-door collection service. Citizens who prefer household collection services can contract that service through private haulers. In 1990, there were fifteen (15) private haulers providing collection service to approximately 9700 households and 600 businesses throughout the county. Table V-1 illustrates the collection services and customers served.

COLLECTION STANDARDS

Tennessee Solid Waste Regulations have established a minimum level of service which each county must provide in order to assure that all residents are provided with collection and disposal services. Minimum level of service is considered to have been met if:

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Table V-1
Collection Services And Customers Served
(1990)

Hauler	Households Served	Businesses Served
City of Franklin	6,800	500
Waste Management	100	80
Clean Earth	1,650	1
Jenkins	800	0
Hassell	650	0
Floyd Sullivan	300	0
Southern Sanitation	620	0
Brentwood	600	5
Music City	885	1
Johnson	279	3
Dixieland	470	1
A-1	500	1
A-Plus	650	1
Valentine	918	102
Private Hauler	0	110
BFI	1,261	288
TOTAL	16,483	1,093

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1) at least ninety percent (90%) of all residents have access to household collection, or (2) a minimum number of convenience centers are provided. Each county must have at least one convenience center unless a higher level of service is provided.

As mentioned earlier, all households in the county have access to household collection, if they choose to solicit that service. Table V-2 depicts the number of households in the county, the number and percentage served by the City of Franklin, the number and percentage utilizing private service, and the number and percentage served by the county collection centers.

TABLE V-2
Households in Collection System

Households in County		City of Franklin		Private Haulers		Convenience Center	
No.	Percent	No.	Percent	No.	Percent	No.	Percent
27,928	100	6,800	24	9,683	35	11,445	41

The number of convenience centers required is determined by the service area in square miles or by the population served. The service area is defined as the number of square miles in the county minus federal/state lands and reservations, forestry reserves held by the wood processing industry, federally managed water bodies or rivers, and municipal corporations served by mandatory collection.

The population is defined as the population as certified by the most recent census as per the U.S. Bureau of Census, less the population served by mandatory collection service.

The minimum number of centers required is determined by dividing the service area square miles by one hundred eighty square miles or by dividing the population by twelve thousand.

Based on these equations, the number of centers the county must have to establish a minimum level of service is five (5). With the ten (10) collection centers in existence and access to private collection service available to all households in the county, the county, along with the City of Franklin, provides a much higher level of service than is required by regulation.

Since the county already provides more than adequate collection service to all residents, no new collection sites are required at this time. The Grassland collection center, although not fulfilling

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all requirements of a convenience center, is manned and does provide access control. The property the center is located on is not owned by the county; therefore, upgrading the center to meet convenience center standards is not in the best interest of the county. When the landowner wishes to utilize the property for other purposes, the center will be relocated to county property and registered as a convenience center.

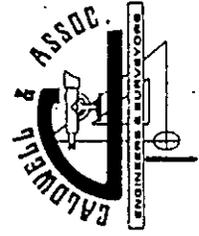
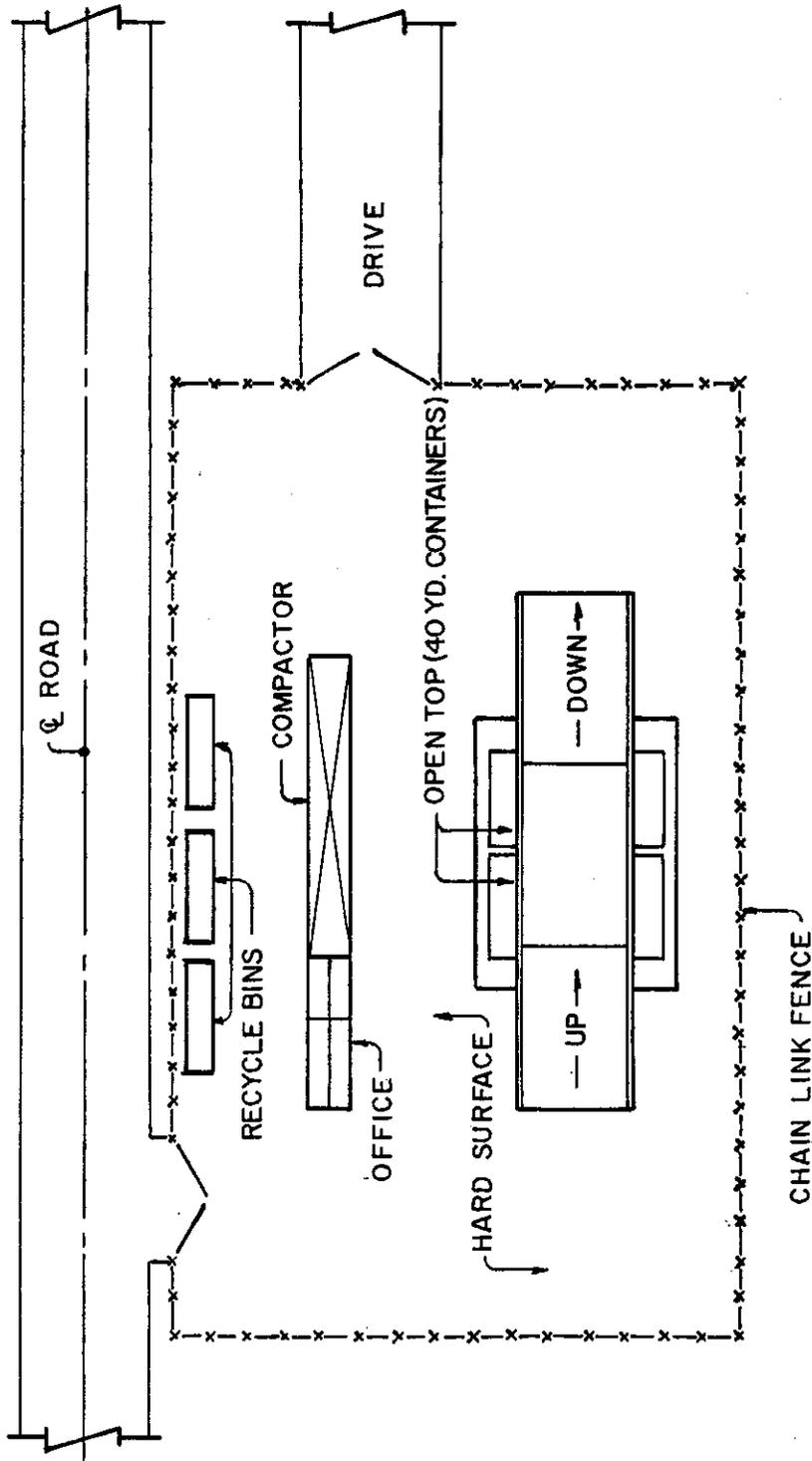
One additional collection center is being considered by the Solid Waste Board to provide increased coverage in the Goose Creek/Interstate 65 portion of the county.

The "green box" collection center in the Greenbrier community serves approximately 50 residents. Although the site is unmanned, the site is fenced for access control. The center has three (3) six (6)-cubic-yard collection boxes and three recycling bins. Since this center serves such a small populous and is in close proximity to the landfill (approximately 5 miles), there are no plans for upgrade during the next 10 years. The Board however, is considering the possibility of manning this center.

Waste deposited at the centers is transported to the landfill by county employees using county vehicles. Each convenience center is equipped with a compaction unit and 40 cubic yard roll-off container. A typical convenience/recycle center layout is shown on Figure V-1. All centers are contacted in the mornings and a collection schedule is developed for the day. All centers are serviced on an as needed basis.

STAFFING

All convenience centers and the Grassland collection center are manned by three (3) part time employees. Operating hours and attendants' schedules have been developed so that each center is open to the public seventy-two (72) hours per week (10 hours per day weekdays and 11 hours per day weekends). Two full-time drivers are assigned to haul from the center to the landfill. One supervisor is responsible for managing the twenty-seven (27) part time employees, developing the daily pick-up schedule, and overseeing the overall maintenance and operation of the centers. Training of convenience center employees is conducted by the supervisor and director of the Sanitation Department. Personnel are trained in identifying unacceptable materials, emergency procedures, and general site maintenance. The only increase in staff anticipated over the ten (10) year planning period would be the possible addition of part time employees to man the Greenbrier center.



TYPICAL CONVENIENCE/RECYCLE CENTER
 NOT TO SCALE

FIGURE V-1

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Recycling

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CHAPTER VI

RECYCLING

GENERAL

Williamson County has had an active recycling program in place since 1989, and continues to grow and add programs each year. The recycling success achieved thus far has been done with a completely voluntary system. The county provides recycling drop-off sites throughout the county for citizens to deposit their recyclables. Most drop-off sites are located at the manned convenience centers where residential solid waste is dropped-off. The county also provides, through the joint venture with Waste Management Incorporated (WMI), a buy-back center for businesses, industries, and other groups and individuals in the county.

The efforts of the Williamson Recycles Coordinator initially was to provide recycling education and promote recycling and other environmental activities to school-age children. Recycling is widely accepted by the general public and environmental groups as "the right thing to do", and the education of school children tends to lead to the education of parents and other adults. The recycling coordinator also encourages all citizens, businesses, and industries to recycle by granting radio interviews, giving speeches at business and group functions, organizing recycling projects such as the phone book collection, Christmas tree collection and the Environmental Awareness Award, and providing recycling information to interested parties. Through the combined efforts of the recycling coordinator, the Williamson County Recycling Center, the county administration, the incorporated municipalities, local businesses and industries, and school children and other interested citizens, Williamson County is currently recycling through the Williamson Recycles program approximately 10% of the solid waste generated in the county. It should be noted that these quantities reflect only those recyclables processed at the recycling center and does not include recyclables processed elsewhere.

REGIONAL NEEDS

The Solid Waste Act of 1991 requires each county to reduce by 25% the amount of solid waste being disposed of in a Class I sanitary landfill or incinerated. Although recycling is not required to achieve the entire 25%, it is expected to be a significant part of this reduction. Based on the current rate of recycling and the quantity of materials that will be diverted to a Class III/IV landfill, combined with other reduction efforts, it is expected that the 25% reduction goal will be met if not exceeded by December 31, 1995.

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Continued efforts by the Williamson County Solid Waste Board and the county administration have resulted in the approval by the Williamson County School Board to install cardboard compactors at each school with an enrollment of over 1,000 students, increased the quantity of phone books collected annually by four times, and doubled the amount of Christmas trees collected in 1993. The City of Franklin has increased its cardboard collection route to include over sixty (60) businesses not previously involved. In addition, over 100 businesses requesting assistance to initiate source reduction and recycling, responded to the questionnaire distributed by the Solid Waste Board.

It is projected that these continued efforts and the initiation of other programs as they become available will increase recycling rates to 15% by 1995. As with the other aspects of the solid waste plan, recycling efforts will be re-evaluated and adjusted during implementation of the plan. Increased record keeping and reporting by businesses and industries should also indicate an increase in the recycling rate.

REGIONAL GOALS AND OBJECTIVES

The goal of the Williamson County Solid Waste Board is to reduce the solid waste generated in the county by as much as is economically and practically feasible. The county will continue to promote, encourage, and provide educational opportunities for solid waste management activities utilizing existing resources and the current recycling program to achieve even greater recycling efforts.

The objectives and strategies the Board will continue to pursue to achieve the 25% waste reduction goal include:

- 1) providing educational programs for all school children, grades K-12
- 2) linking public education and promotional resources for most efficient use
- 3) providing public information and education through use of radio interviews, press releases, etc.
- 4) encouraging use of drop-off sites and the buy-back center
- 5) encouraging and promoting back yard composting
- 6) providing information and educational materials to the public through the Williamson Recycles coordinator

Strategies to increase recycling efforts from the business, industrial, and institutional communities include:

- 1) sending mail outs to business and industry to determine waste management practices and recycling efforts.

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- 2) targeting select businesses for waste management and recycling audits
- 3) developing waste reduction strategies for select businesses
- 4) distributing commercial and business packets to interested and other select businesses and industries
- 5) continuing working with Chambers of Commerce, civic groups, and business associations to encourage reduction and recycling

Williamson County currently provides fourteen (14) drop-off sites for recyclable materials throughout the county. Nine (9) of the 14 drop-off sites are located at the same location as the household waste drop-off sites (convenience centers). The other five are located in commercial center parking lots or other areas convenient and accessible to the public. The Williamson County Recycling Center also provides a buy-back center for the groups, businesses, and individuals who prefer to receive payment for their recyclables.

The 14 public drop-off center locations were selected, along with the convenience centers, to provide easy access to all residents in the county. The nine sites located at convenience centers are located at major community intersections or along major highways which residents travel on a regular basis. The five sites located at commercial centers are located at shopping centers patronized by most, if not all, county residents.

The drop-off centers have been located in an effort to effectively serve all of the approximately 27,928 households in the county. Private haulers provide service to businesses in the county as well as those located inside municipal boundaries. The Franklin Sanitation Department provides cardboard collection for business and industry inside the Franklin City Limits.

Although the county-operated drop-off centers along with the Williamson County Recycling Center buy-back center are considered successful, several alternatives were considered by the Solid Waste Board to complement the existing system.

DESCRIPTION OF SOURCE SEPARATION/RECYCLING METHODS

The method of collecting and processing recyclable materials may directly impact the participation rates and revenues achieved by recycling programs. The recycling alternative chosen must be compatible with the conditions found in each community. For example, a curbside recycling program that is successful in a densely-populated area may not be appropriate in rural areas. This section briefly describes several source separation/recycling methods that may be used individually or in combination.

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CURBSIDE COLLECTION: Curbside recycling is the term used for source separation programs in which recyclables are collected at the curbside. Residents are required to separate recyclable materials at the source of their generation (in the home) and place them at the curb for collection. Collection and hauling is usually provided by compartmentalized vehicles operated by municipal or private haulers. The recyclables are then transported to a facility for further processing or sold directly to a market.

The most common advantages and disadvantages which have been attributed to curbside recycling are:

Advantages:

- Convenient to homeowner
- High recovery rates
- Potential for integration into existing solid waste collection system

Disadvantages:

- Higher equipment and operating cost
- Complex nature of program

DROP-OFF CENTERS: Drop-off centers rely upon residents to haul collected recyclables to the center and to contribute the materials without payments. The centers range from unsupervised, small-scale, drop-off centers to supervised central processing facilities which are equipped to receive, process, and store the recycled materials for shipment to the markets. Drop-off center locations may include shopping centers, fire stations, schools, transfer stations, and/or landfills. Small-scale drop-off centers may be linked to facilities where processing and marketing takes place. A wide range of drop-off box containers is available, including "igloo" bins and compartmentalized, covered green boxes.

Manned drop-off centers do not necessarily process recyclables. Both manned and unmanned drop-off centers manifest some advantages such as low capital costs, and easy collection of multi-materials.

Some of the advantages and disadvantages associated with manned drop-off centers are:

Advantages:

- Staffed facilities usually produce clean, market-ready materials
- Staffed facilities experience less vandalism and theft than unmanned facilities
- Environmentally cleaner

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Disadvantages:

Staffed facilities may experience lower participation rates due to limited drop-off hours
The cost of maintaining a facility with paid staff is higher than the cost of an unmanned center

Advantages and disadvantages exhibited by unmanned facilities include:

Advantages:

Unmanned facilities incur no labor costs
Unmanned facilities can be available 24 hours per day

Disadvantages:

Recyclables may be contaminated due to lack of supervision during drop-off
Unsupervised facilities are more susceptible to vandalism and theft
Not as environmentally compatible

BUY-BACK CENTERS: Buy-back centers are similar to drop-off centers, however buy-back centers pay the consumer for materials accepted at the facility site. Participation in recycling is enhanced by the economic incentive provided to the customer. Buy-back centers may be run by governments, secondary materials dealers, beverage container manufacturers, and other private or non-profit operators. They may also serve as processing centers for a network of collection systems before shipment to market.

ON-CALL COLLECTION: On-call collection is usually achieved by placing storage containers at multi-family dwellings, commercial establishments, restaurants, industrial facilities, and other facilities. Recovered materials vary by program. The containers are collected by private or municipal haulers when called by the person responsible for the site. On-call collection is viable for commercial establishments that do not generate large volumes of waste on a regular basis. Examples include collection of corrugated paper at commercial/retail establishments, and glass and aluminum containers from restaurants.

COMMERCIAL RECYCLING: High-volume recycling is practiced by commercial establishments, restaurants, office buildings, government complexes, and other high-volume generators. Depending on the volume generated, high

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volume recycling operates as an on-call or regularly scheduled collection program through which bins are collected by local private recyclers or through a community collection system. The materials collected primarily include high-grade office papers, corrugated paper, aluminum, and glass. Businesses provide a source of potentially contaminant-free materials which require minimal processing before shipment to market and, therefore, command high market prices. Additionally, an incentive is available to these establishments in the form of avoided disposal fees and/or sales proceeds for the recycled materials.

COMPOSTING YARD WASTE: Yard waste composting is a process used to decompose vegetation (including grass clippings and leaves) to yield a material commonly used either as a soil amendment or for landscaping purposes. With leaf and yard waste composting programs, the material may be collected from the source, or residents may carry it to a drop-off center. The amount of yard waste entering the solid waste stream is affected by seasonal variations, and the nature of the community (urban versus rural). Woody waste can be chipped and mixed with other yard wastes, or can be used alone for landscaping. Many municipalities throughout the country have ongoing yard waste composting programs.

MANDATORY VERSUS VOLUNTARY PROGRAMS

There are two aspects of mandatory recycling: mandatory source separation ordinances enacted at the local level, and mandatory recycling program implementation legislation imposed by state statutes.

Local government recycling ordinances may take the form of mandatory separation ordinances and may include anti-scavenging ordinances. Local mandatory separation ordinances require that certain types of recyclable materials generated by residential or commercial sources be separated from other solid wastes. For example, a mandatory newspaper separation ordinance could require each household in a municipality to separate its newspapers from the mixed wastes that are placed at the curb for collection and final disposal. Mandatory separation ordinances may be applied to any specific type of materials such as paper, glass, metals, and/or yard wastes, and require that the resident place separated materials at the curb for collection by municipal crews or private contractors. Anti-scavenging ordinances declaring municipal ownership of all separated materials left at the curb and

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prohibiting the collection of these materials by anyone except designated municipal agents may also be enacted along with the mandatory separation ordinance. However, the anti-scavenging ordinance can also be used to support voluntary recycling activities by making theft of recyclables a punishable offense.

PROPOSED SYSTEM COMPONENTS

After reviewing the alternatives and comparing possible advantages and costs, the Solid Waste Board has decided to utilize an integrated recycling collection system consisting of the existing drop-off collection sites, the Williamson County Recycling Center buy-back center, City of Franklin collection services, and collection services provided by private haulers.

All of these systems are in place and are fully funded by the county, the City of Franklin, Waste Management Incorporated, and customers of the private haulers. The drop-off collection sites, with the encouragement and promotion by Williamson Recycles, accounts for approximately 7% of the solid waste stream being recycled. The buy-back center, which includes materials collected by the City of Franklin and private haulers, accounts for approximately 3% of the waste stream.

In October, 1993, scales were installed at the Williamson County landfill to weigh the waste being disposed. Waste is categorized as Class 1 (Residential), Class 2 (Construction), Class 3 (Demolition), and Class 4 (Yard waste). Waste classified as Class 2, 3, and 4 are wastes which can be diverted to a Class III/IV Landfill. Data collected by the landfill since the scales became operational indicate that approximately 16% (23 tons per day) is waste which fits this category.

As mentioned earlier, the Williamson County School Board has committed to reduce the amount of refuse from all schools by providing recycling bins to divert recyclables from the waste stream and providing self-contained compactors to compact trash.

This program will provide for each Williamson County school to have a self-contained compactor for trash collection, and a divided bin for recyclables. Each school will be collecting cardboard, tin cans, aluminum cans and paper. Any school that has over 1,000 students will also have a compactor for cardboard. At each school, a concrete pad will be laid for all the bins to be placed and wiring for electrical hook up will be installed. The program will be phased in over the next four (4) years.

It is anticipated that an integrated reduction system consisting of

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the above components will allow Williamson County to achieve a 25% reduction in waste being disposed of in the Class I landfill by December 31, 1995.

WILLIAMSON COUNTY RECYCLING CENTER

As discussed in Chapter II, Williamson County has a unique agreement with Waste Management Inc. (WMI) to provide recycling services to the county. The county provided funding for the construction of the recycling facility as well as much of the equipment. WMI signed a five year lease to operate the facility with options to renew for an additional twenty years. WMI is in charge of operating the facility and pays all operating costs. The facility began operating in the spring of 1992 and is located west of Columbia Highway (U.S. Highway 31) on Century Court, approximately two (2) miles south of the downtown Franklin area. The recycling center is a regional facility receiving materials from throughout Middle Tennessee.

Materials currently accepted include aluminum, cardboard, brown, green, clear, and co-mixed glass, computer print out paper, mixed office paper, newsprint, tin cans, white ledger paper, and plastic, including milk jugs, soft drink bottles, and laundry and bleach bottles.

WMI pays for some materials, accepts some materials at no charge, and charges for some materials. Financial arrangements are made on a case-by-case basis and are normally dependant on marketability and the level of services required by each customer. As part of the agreement between WMI and the county, WMI processes all of the recyclables brought to the center from the county drop-off sites at no charge to the county. WMI also pays the county a percentage of the receipts from sales of the materials. In 1993, the county received approximately \$26,000 from the sale of their recyclables. This money is distributed to the local schools and other community programs through the Williamson Recycles coordinator.

Most materials brought to the center are pre-sorted prior to arrival and are stored in segregated storage areas. This minimizes other handling prior to the baling and shipment off-site for recycling. This also provides for a cleaner, more marketable stream of recoverable material. Under the terms of the agreement, WMI is responsible for marketing materials processed at the center.

The relationship between Williamson County and Waste Management Inc. provides a win/win situation for both the public and private

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sectors. WMI was able to site, construct, and operate a recycling facility utilizing low cost financing and Williamson County can rely on having a market for their recyclables without the cost of operations or the uncertainty of fluctuating market conditions.

COORDINATION OF PUBLIC AND PRIVATE EFFORTS

Williamson County Government is ultimately responsible for ensuring that the county reaches the mandated reduction goal. The County Board of Commissioners has given the Solid Waste Board authority to establish programs, goals, and means to accomplish them. This may include imposing bans on materials allowed for disposal at the landfill, establishing fees, budgets, funding plans, and personnel adjustments.

Williamson County will encourage recycling through its education and information programs. These programs will target households, schools, businesses, industry, the media, and government officials, and will emphasize the need to purchase recycled products and increase the demand for recyclable materials. Efforts will include coordination with the State Office of Cooperative Marketing, WMI, the University of Tennessee and other agencies to assist business and industry in determining how they can participate and market materials to reduce waste disposal costs and become positively involved in the community's waste reduction efforts.

Williamson County Government has already established a purchasing and procurement policy to purchase materials manufactured from recycled products whenever they are available and meet required specifications. The Williamson Recycles coordinator has worked with one of the largest private office complexes in the county to establish a similar program. The Williamson County Adult Vocational Education (WAVES) program is currently working with the recycling coordinator to establish paper and aluminum can collection programs for other businesses in the county. The coordinator will continue to promote and assist organizations in establishing such programs along with other source reduction and recycling efforts.

STAFFING

Current staffing for recycling activities is limited to the Williamson Recycles Coordinator and two part-time employees to "police" the unmanned collection sites and answer citizen's questions. Two truck drivers are assigned to the drop-off sites to transport materials to the recycling center, however, they do not participate in the public information, education, or other programs conducted by the coordinator. Administrative personnel assigned to other programs provide administrative support as needed and

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volunteers from the school environmental clubs provide support primarily during special recycling events. Increased demands on the coordinator to conduct tours of the recycling center, give presentations, promote special events, and coordinate other on-going programs and the increased efforts in recycling throughout the county indicate that public awareness is increasing and the coordinator's efforts are "paying off". The implementation of the solid waste plan is expected to further increase public awareness and create even greater demands on the coordinator.

The Solid Waste Board is currently evaluating staff requirements with respect to job requirements, abilities, etc. One additional staff member to assist the coordinator has been approved by the Board for fiscal 1995.

FUTURE FUNDING AND BUDGET

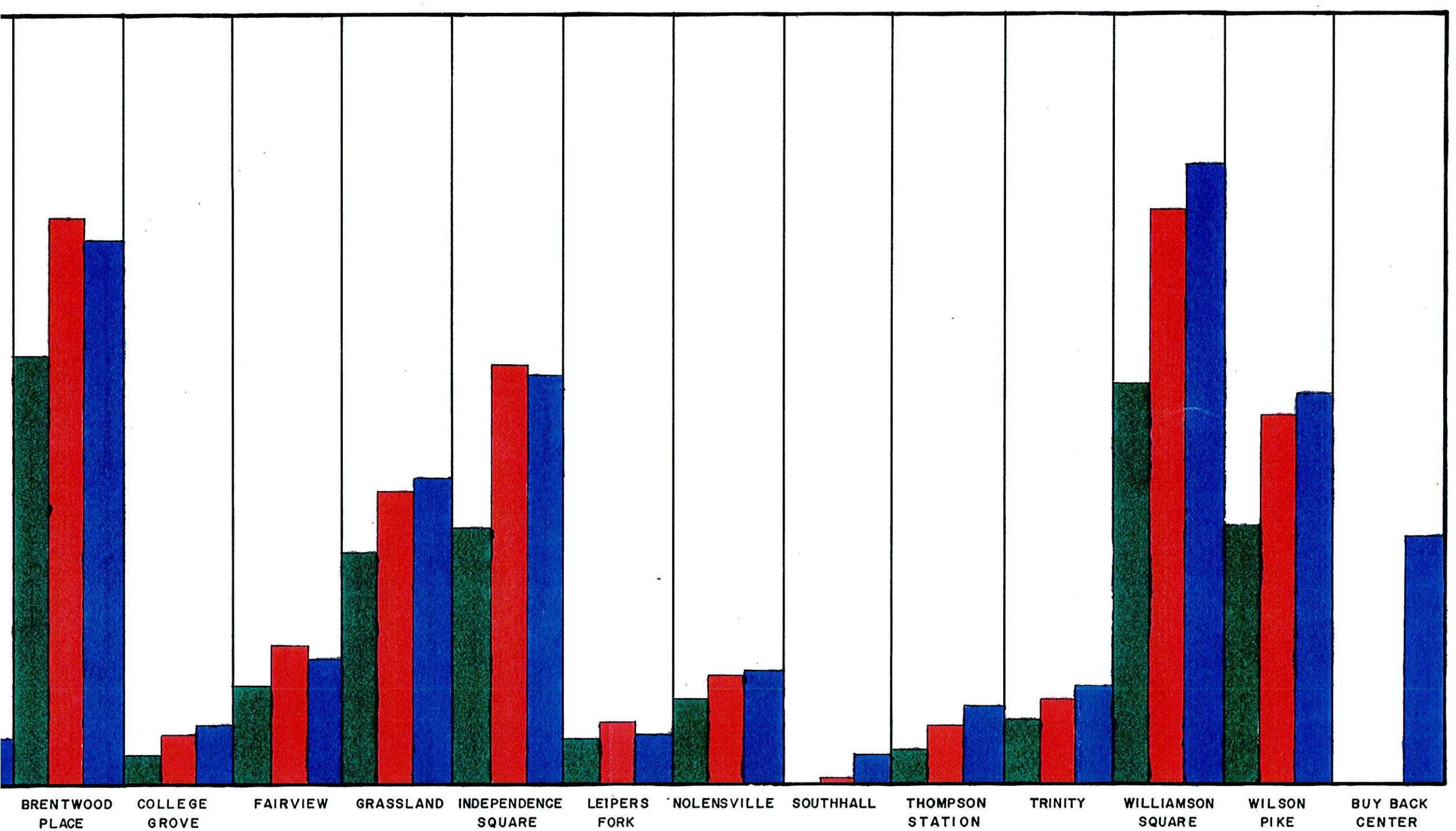
As with the landfill and solid waste collection system, the recycling program is funded by the county's general fund with monies collected from property taxes. Salaries, office supplies, advertising, training, and other routine expenditures are paid from the county solid waste sanitation fund. Grant monies received are considered extra funds and are applied to the specific programs for which the grant was received. The fiscal 1993 budget for the recycling program was \$95,094.

PROGRAM IMPLEMENTATION RESPONSIBILITY

All waste reduction and recycling programs are administered by the Williamson Recycles office. The recycling coordinator will continue to solicit support and resources from the private and non-profit organizations in the county to provide a county-wide comprehensive solid waste program based on county involvement.

The Williamson Recycles Office will provide oversight of the programs to ensure that they are efficient and provide adequate service. The office will also coordinate solid waste education programs (see Chapter IX).

Quarterly reports coupled with an annual summary will be provided to keep the state updated on the progress toward the 25% reduction goal. Required data on recycling and recovered materials will be collected as part of this reporting activity and submitted to the State annually.



RECYCLING COLLECTION POINTS

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CHAPTER VII

COMPOSTING, SOLID WASTE PROCESSING, WASTE-TO-ENERGY AND INCINERATOR CAPACITY

QUANTITATIVE NEEDS

As discussed in Chapter II, it was estimated that in 1991, approximately 14,025 tons per year of waste was generated in the county which could have been diverted from the Class I disposal facility but were not acceptable for processing at the Williamson County Recycling Center. These wastes included primarily wood waste, yard waste/clippings, leaves, construction/demolition debris, and waste tires. Alternatives discussed in Chapter III were evaluated during the development of this plan and none, with the exception of composting yard and or wood waste, and development of a Class III/IV landfill, were found to be economically feasible nor technically desirable for the county to pursue during the ten (10) year planning period based on the quantity of waste generated and the effectiveness of the desired results.

GOALS AND OBJECTIVES

It is the goal of the Solid Waste Board to divert as much waste as is economically and technically feasible from disposal in the Class I landfill to meet the 25% waste reduction goal and to preserve expensive landfill capacity. The alternatives discussed in Chapter III were further evaluated to determine which alternative or combination of alternatives would best accomplish this goal. The Board also investigated the use of wood chipping and composting by visiting other facilities. The Solid Waste Board feels the application of this technology offers an opportunity for joint venture with one or more cities in the county and is a potential solution for the need for topsoil at Williamson County's solid waste landfill.

After further evaluation, it is the Board's immediate objective to promote and encourage backyard composting of yard waste and to develop a Class III/IV landfill. However, it is the Board's desire to more extensively investigate the integration of a wood chipping and composting facility into the County's solid waste disposal operation. A more detailed discussion of the alternatives follows:

COMPOSTING

All of the composting methods described in Chapter III, with the exception of yard waste/grass clippings/leaves, require some degree

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of processing prior to the composting process. The particle size of the compostable material must be reduced to allow enough surface area for composting to occur. This would involve a chipping, grinding, and/or shredding process. Processing of tree limbs, wooden construction debris, wooden pallets, etc. could be processed for composting. Processing of construction waste and wooden pallets would require further processing to remove metals, such as nails, metal bands, etc.

As discussed in Chapter II, The Cities of Brentwood, Fairview, and Franklin each provide chipper service for city residents. The chipper services have been on-going for several years and not only keep this waste out of the landfill but also provide mulch for park trails. The county, in cooperation with the cities, provides collection sites for Christmas trees to be chipped. The Christmas tree collection program has been conducted for the past three (3) years and has proven to be quite successful. Information obtained from the District Needs Assessment indicated that approximately 10,000 tons per year of construction/demolition waste is disposed of at the landfill. Also, it was estimated that approximately 4,000 tons per year of yard waste, grass clippings, and leaves are disposed of at the landfill.

The installation of scales at the landfill now provides the county with a better method of determining quantities of waste received. In addition, personnel at the landfill utilize a computer base to log information about its waste stream. Data collected during the winter months of 1993 and 1994 indicate that approximately 16% of the waste received at the landfill is waste that could be diverted. It is anticipated that this will increase to 20%-25% during the summer months. In addition, the development of a Class III/IV landfill will allow the county to better identify the type of materials available for composting. The short term goal of the county is to divert all acceptable waste to the proposed Class III/IV facility. This will enable the county to achieve a 25% reduction in waste disposed of in the landfill.

The long-term goal is to provide an alternative method to process Class III/IV materials to remove as much waste as possible from disposal in the landfill. The alternative, or combination of alternatives selected will be dependent on the need for processing of wood waste at other locations prior to transporting, on the quantity and quality of available compostable materials, and the possibility of utilizing compost as a topsoil supplement at the landfill. The Solid Waste Board will monitor the materials diverted to the Class III/IV facility while continuing to evaluate all of the wood waste processing alternatives to provide the most effective method for the county. The Board intends to evaluate the waste stream through 1995 and select an appropriate alternative by January, 1996.

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WASTE PROCESSING FACILITIES

The Williamson County Solid Waste Region currently has two (2) publicly-owned processing facilities. The City of Franklin operates a transfer station to transfer waste from small collection vehicles to larger compactor vehicles for transportation to the landfill. The transfer station currently processes approximately 70 tons/week day. Since there are no stationary on-site compactors, capacity is relevant to the quantity of waste requiring processing on any given day.

The Williamson County Recycling Center processes approximately 90 tons per day of recyclables. Approximately 18 tons per week day are generated from residents, businesses, and industries within Williamson County. That capacity is not anticipated to be exceeded during the ten (10) year planning period.

Chapter III indicates that future waste generation rates or current needs will not change to support another facility in the county. Therefore, due to the cost incurred from the establishing of such and the lack of quantitative need, no other facility is planned in the future.

WASTE-TO-ENERGY/INCINERATION

The county has no county-owned or operated waste-to-energy or incineration facilities. Also, no such privately-owned facilities exist. Chapter III indicates that the county has no quantitative need for such facilities. There is no indication that future generation rates or current needs will change sufficiently to support such facilities. Also due to the sociological and environmental problems and high cost associated with waste-to-energy facilities, such a facility is not feasible for the region.

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CHAPTER VIII

DISPOSAL CAPACITY

CLASS I DISPOSAL FACILITIES

Chapter II described the only existing Class I disposal facility in operation in the county. The facility is located on approximately 379 acres of land on the north side of Pinewood Road (State Route 46) approximately twelve (12) miles west of the City of Franklin (See Figure II-1). The landfill began operation in the early 1970's. In 1990, new solid waste regulations became effective which require more stringent design, construction, and operation procedures for sanitary landfills. The new requirements were to become effective in 1994. At that time, the existing landfill had sufficient capacity to remain open until 1997.

Realizing the need to redesign the remaining disposal area and the increased cost in future operations, the county elected to re-evaluate the entire site and determine if additional areas would be suitable for disposal and if more innovative design considerations could be used to help increase capacity and provide better utilization of the site. In 1993, revised design and operations plans were submitted to the Tennessee Division of Solid Waste Management for approval of the re-design of approximately thirty-five (35) acres of existing permitted area and approval for disposal in approximately fifty-five (55) acres of additional area, allowing for approximately thirty (30) years of disposal capacity. It is the Solid Waste Board's goal not only to provide disposal capacity for the county, but to do so in a manner that will not adversely impact area residents.

DISPOSAL CAPACITY DEMAND

With approximately thirty (30) years of permitted Class I disposal capacity available, the county does not plan for the development of additional capacity during this ten (10) year planning period.

Table VIII-1 indicates the projected quantity of waste requiring disposal through the year 2003, existing capacity, and surplus capacity.

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Table VIII-1
Projected Demand & Supply
(Tons Per Year)

Year	Demand: 1) Tons of Waste Requiring Disposal	Supply: Existing & Planned Capacity	Surplus (Plus)	Shortfall (Minus)
1993	50,350	205,386	155,036	
1994	49,052	2,121,972	2,072,920	
1995	48,270	2,072,920	2,072,273	
1996	49,739	2,028,273	1,982,218	
1997	51,307	1,982,218	1,936,712	
1998	52,925	1,934,712	1,885,708	
1999	54,594	1,885,708	1,835,158	
2000	56,298	1,835,158	1,783,030	
2001	57,818	1,783,030	1,729,495	
2002	59,376	1,729,495	1,674,517	
2003	60,977	1,674,517	1,618,057	

1) Quantity does not include waste disposed of outside Williamson County.

Remaining landfill capacity is re-evaluated every year.

EXCESS CAPACITY

As mentioned earlier, projected waste quantities and engineering estimates indicate an available Class I disposal capacity to serve the county in excess of thirty (30) years. Yearly re-evaluations of remaining capacity are conducted to assist in the preparation of yearly operating budgets and to adjust projections when necessary. Since Williamson County owns and operates the landfill, the county has the authority to approve the acceptance of waste for disposal. Any proposal to import waste generated from sources outside the county would require approval by the Solid Waste Board. Any proposal brought before the Board will be considered based not only on the impact to remaining capacity but also on environmental and economic factors.

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IMPLEMENTATION SCHEDULE

Since the county has documented available capacity to exceed the ten (10) year planning period, an implementation schedule is not applicable at this time. Yearly capacity re-evaluations, changes in processing and disposal technologies, changes in disposal regulations, and effective resource reduction and recycling programs will all effect future disposal projections. The annual review and five (5) year update of the solid waste plan will keep the Solid Waste Board apprised of any potential shortfalls in time to adjust future goals and ensure the continued availability of disposal capacity.

COST

Since land acquisition, site-testing, engineering design, and permitting costs to develop adequate disposal capacity have already been incurred, annual costs will consist of operation and maintenance costs and the cost to construct new lined disposal areas when necessary. The annual re-evaluation will identify when these costs will occur. Construction of new disposal areas is considered an operations item and is included in the annual operating budget.

STAFFING

Staff responsible for the existing landfill operations includes a Director, three (3) supervisors, one (1) clerical position and ten (10) full time positions including heavy equipment operators, truck drivers, and vehicle maintenance workers. Also included under the supervision of the Director are the twenty-seven (27) part-time employees which man the collection centers. As is the case with the collection center personnel, landfill personnel are trained by the Director and the appropriate supervisor to perform tasks relevant to their position (i.e. proper waste compaction techniques, equipment maintenance, identification of unacceptable waste, etc.). The Director and the landfill operations supervisor will be required to have obtained a landfill operator's certification by October, 1996. It is not anticipated that the landfill staffing requirements will increase significantly over the next ten (10) years. Existing staff is adequate to operate the landfill seven days per week. Additional waste anticipated by projected growth and the development of a Class III/IV disposal area is not expected to warrant the demand for additional staff.

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CHAPTER IX

PUBLIC INFORMATION AND EDUCATION

REGIONAL NEEDS

As discussed in Chapter II, Williamson County has an active and comprehensive solid waste information and education program. Williamson Recycles provides educational materials to all schools in the county, promotes special activities such as the phone book and Christmas tree collection programs and environmental awareness awards, disseminates resource reduction and recycling information to businesses and civic groups, and coordinates the household hazardous waste collection program. The Williamson Recycles coordinator issues press releases and public service announcements informing the public of upcoming programs and activities sponsored by the county. With increased public awareness of problems associated with the mismanagement of solid waste, it is important that the public be provided with reliable and sound information. Inaccurate or misleading information regarding solid waste management can lead to misguided concerns and unfounded opposition to proposed recycling, collection, processing, and disposal activities. Public awareness and acceptance of solid waste management activities is critical in maintaining a high level of public participation in the programs. The county will continue to provide and expand its public information and education programs to promote and encourage a sense of responsibility and willingness to contribute to responsible solid waste management activities.

REGIONAL GOALS AND OBJECTIVES

Thus far Williamson County's success with its solid waste management programs has been primarily a result of its public information and education efforts. The county's citizens and businesses have shown a desire and a willingness to participate in the recycling activities and other solid waste programs sponsored by the county. Public support and cooperation is vital to the success of the solid waste plan. Voluntary response and involvement is more desirable and effective than imposing governmental regulations. Individuals are more willing to participate in government sponsored programs if they understand and agree with the goals and objectives.

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Voluntary participation helps instill a sense of accomplishment and pride in the community as opposed to an antagonistic response to forced compliance. It also allows the county to utilize funds for the enhancement of these programs instead of enforcement activities.

It is the goal of the Williamson County Solid Waste Board to provide the opportunity for all citizens in the county to have an increased opportunity to learn about solid waste management practices and programs. It is its objective to have the county's citizens, schools, businesses, industries, institutions, and civic groups as active and participating partners in the reduction, reuse, recycling, collection, and disposal of the county's solid waste.

Schools, civic groups, business organizations, chambers of commerce, and other interested parties have had access to educational materials since the Williamson Recycles program was established. Groups and organizations targeted to continue to receive information and educational materials and opportunities include:

Public and Private Schools
Local Officials
Brentwood Chamber of Commerce
Downtown Franklin Association
Fairview Chamber of Commerce
Williamson County Chamber of Commerce
Downtown Franklin Association
Heritage Foundation
Civic Groups
Rotary Club
Lions Club
Civitans Club
Kiwanis Club
American Legion
Other Civic Clubs
Community Clubs
Garden Clubs
Home Demonstration Clubs
Boy Scouts
Girl Scouts
Newspapers
Radio Stations
Local Access Television
Churches

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The county, through Williamson Recycles, employs several methods to distribute educational information and materials. Some of these methods are:

School Based Instruction - All of the thirty-one (31) schools in the county have been provided with curriculum resource guides which contain lesson plans and activities to promote source reduction and recycling as well as other solid waste issues such as disposal practices, composting, and household hazardous waste identification. The recycling coordinator is also available to provide classroom talks and demonstrations concerning environmental activities. Lesson plans are provided for all grades K-12. A Resource Guide listing available books, videos, speakers, tours, etc. will be available to all teachers by the 1994 fall semester. Exhibit IX-A is a list of all existing schools in the county along with the address and phone number. Exhibits IX-B and IX-C are two examples of the lesson plans available.

Workshops, Conferences, Training Courses - Workshops and training courses are provided to interested teachers in the school system as part of the school instruction program. Similar workshops regarding recycling, resource reduction and composting are available to civic groups and other organizations through the Williamson Recycles coordinator.

Audio-Visual Materials, Slides, and Videos - The Williamson Recycles coordinator maintains an inventory of slides, videos and other materials available for loans to civic, business and industrial groups.

Publications - Williamson Recycles publishes pamphlets, brochures, leaflets and other printed materials promoting recycling and other solid waste management activities. A pamphlet promoting the Williamson County Recycling Center has been published informing citizens what type materials can be recycled, proper preparation of the materials and locations of drop-off sites and the recycling center. The pamphlets have been distributed to each school as well as civic and community groups. Leaflets promoting the phone book and Christmas tree collection programs are distributed throughout the county and publications promoting recycling, composting, source reduction and other activities published by organizations such as the U.S. Environmental Protection Agency, Tennessee Department of Environment and Conservation, and University of Tennessee.

Contests and Awards - Williamson Recycles sponsors several contests each year. The Williamson County Environmental Awareness Award is awarded to students, teachers, and citizens who show creativity, imagination, and initiative in addressing

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environmental issues in the county. Categories for the competition include Student Grades K-3, 4-5, 6-8, and 9-12, individual resident, teacher, and parent. Entries are judged on the originality and creativity of the project/activity, significance or impact of the activity, and the results of the individual's efforts. The finalists in each category are invited to a dinner and the winners receive a \$100 savings bond and plaque. All finalists also receive a certificate for their efforts. A sample certificate is shown as Figure IX-1. Williamson Recycles also sponsors the phone book collection contest for schools that collect the most phone books. Cash prizes are awarded for first (\$1000), second (\$500), and third (\$250) place based on the number of books collected per student.

In addition to these programs, Williamson Recycles also sponsors, promotes and coordinates contests within the schools by providing ideas, materials, and awards such as tee-shirts, caps, drink cups, etc.

Exhibits and Demonstrations - The backyard composting demonstration project will be used to encourage and train citizens to compost leaves and yard waste. The demonstration site will have exhibits and equipment to show citizens different types and methods of composting. An instructor will be available during the composting season to conduct classes, offer suggestions and answer questions. In addition to the composting demonstrations, a nature trail constructed of chips from the Christmas Tree collection program is currently being built to provide access to other natural areas of the site. The recycling coordinator also maintains exhibits and other information available on loan to any interested group or organization. The coordinator has developed an exhibit promoting recycling and the recycling center. The exhibit is on display and manned by the coordinator and volunteers during the Franklin Mainstreet Festival, the Italian Street Fair and other community events.

Speakers Bureau - The Williamson Recycles coordinator is available to present information to civic groups, community clubs, and business and industrial organizations. These presentations are provided on an as-requested basis. In calendar year 1993, the coordinator made presentations to such groups concerning source reduction, recycling, composting, and other environmental topics. The coordinator was also a featured speaker at the 1993 Tennessee Solid Waste Conference and Exposition in Gatlinburg, Tennessee. The conference is an annual event sponsored by the Tennessee Division of Solid Waste Management and the University of Tennessee Center for Government Training.

Williamson County Environmental Awareness Award

Presented to

For Exceptional Commitment
to the Environment
and
Outstanding Environmental Awareness

This certificate awarded by



COUNTY EXECUTIVE

FIGURE IX-1

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Press Releases and Public Service Announcements - Local newspapers and public access television are utilized on a regular basis to disseminate information concerning the county's recycling efforts, upcoming programs and events, and other information regarding solid waste activities. The recycling coordinator is also a regular bi-weekly guest on local radio programs promoting the county's activities.

Mailings - The Solid Waste Board sent out over 1,000 Commercial and Industrial waste surveys in 1993. The survey asked, among other things, if businesses were already recycling and if they would like assistance to reduce their waste. Businesses and industries targeted for the first mailing were those which would be expected to generate recyclable materials, special waste, large quantities of waste, or otherwise difficult to manage waste. Over 100 businesses requested assistance. These mailings will continue on a periodic basis.

A Commercial Packet has been developed to assist businesses on how and where they can recycle, and reduce their waste. Williamson Recycles is sending these packets to any business that requests one, and meeting with those businesses requesting additional assistance. Packets are also sent to those businesses and industries the coordinator feels would benefit from the information.

STAFF AND BUDGET NEEDS

All of the above programs and activities are on-going and have been developed and improved upon since the creation of the Williamson Recycles program in 1989. Williamson County will continue to provide public information regarding solid waste management, waste reduction, and recycling activities throughout the county. This information will continue to be disseminated by the recycling coordinator, newspapers, radio, public access television, local Chambers of Commerce publications, and volunteers from environmental groups.

Educational materials will continue to be provided to all public and private schools in the county. The relationships already established between the Williamson Recycles office and local businesses will be maintained and strengthened to continue to provide information and educational materials to the general public through sponsorship of recycling activities and events. Continued efforts will be made to work with local interest groups, schools, Federal, State, and local governments and agencies, the University of Tennessee, and business and industry groups to develop and provide educational materials to the public.

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FUNDING

Funding for public information and education programs is provided by the Williamson County Board of Commissioners. Proposed budget requests are presented to the Solid Waste Board and the Budget Committee prior to being presented to the County Board of Commissioners. Funding and staffing for public information and education programs is included in the Williamson Recycles budget discussed in Chapter VI.

EVALUATING AND REPORTING

Each year a report is prepared by the recycling coordinator detailing the activities that were conducted during the year. The report contains a description of and the status of each activity and the accomplishments achieved during the year. Each activity is evaluated for its effectiveness and the overall program is evaluated for means to improve and provide more activities and incentives for the public to participate in.

IMPLEMENTATION SCHEDULE

Williamson County has been providing educational materials and promoting source reduction, recycling, composting, and other solid waste management activities since 1989. The county will continue to actively pursue effective recycling programs to encourage an increased voluntary effort by all citizens, businesses, and industries in the county. Programs and activities will be added or expanded as new materials and techniques become available.

June 24, 1994

ALL SCHOOLS WITHIN WILLIAMSON COUNTY
(See Figure II-3 for Schools Locations)

- | | |
|---|--|
| 1. Bethesda Elementary
4909 Bethesda Road
Franklin, Tennessee 37064
791-4892 | 2. Brentwood High
5304 Murray Lane
Brentwood, Tennessee 37027
373-8237 |
| 3. Brentwood Middle
5324 Murray Lane
Brentwood, Tennessee 37027
373-3232 | 4. College Grove Elementary
8607 Horton Highway
College Grove, Tennessee 37046
368-7632 |
| 5. Crockett Elementary
9019 Crockett Rd.
Brentwood, Tn. 37027
370-5909 | 6. Fairview Elementary
Highway 100
Fairview, Tennessee 37062
799-2348 |
| 7. Fairview High
1601 Fairview Boulevard West
Fairview, Tennessee 37062
799-2614 | 8. Fairview Middle
7200 Crow Cut Road Southwest
Fairview, Tennessee 37062
799-9720 |
| 9. Franklin High
810 Hillsboro Road
Franklin Tennessee 37064
794-3736 | 10. Grassland Elementary
Manly Lane
Franklin, Tennessee 37064
794-3082 |
| 11. Grassland Middle
2390 Hillsboro Road
Franklin, Tennessee 37064
373-8669 | 12. Hillsboro Elementary/Middle
5412 Pinewood Road
Franklin, Tennessee 37064
791-0130 |
| 13. Lipscomb Elementary
8011 Concord Road
Franklin Tennessee 37064
371-0400 | 14. Nolensville Elementary
7250 Nolensville Road
Nolensville, Tennessee 37135
776-2119 |

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- | | |
|--|---|
| 15. Page High
6281 Arno Road
Franklin Tennessee 37064
794-6385 | 16. Page Middle
6262 Arno Road
Franklin, Tennessee 37064
791-0152 |
| 17. Pinewood Elementary
Pinewood Highway
Fairview Tennessee 37062
799-2717 | 18. Scales Elementary
6430 Murray Lane
Brentwood, Tennessee 37027
373-9690 |
| 19. Trinity Elementary
4410 Murfreesboro Road
Franklin Tennessee 37064
794-2966 | 20. Walnut Grove Elementary
326 Stable Road
Franklin, Tennessee 37064
790-3596 |
| 21. Oak View Elementary
2390 Henpeck Lane
Franklin, Tennessee 37064
794-8727 | 22. Brentwood Elementary
219 Granny White Pike
Brentwood, Tennessee 37027
373-0611 |
| 23. Willow Hall
4092 Carters Creek pike
Franklin, Tennessee 37064
790-1975 | 24. Harpeth Academy
150 Franklin Road
Franklin, Tennessee 37064
794-8436 |
| 25. Franklin Junior High
New Highway 96 West
Franklin, Tennessee 37064
794-0987 | 26. Franklin Elementary
1187 Cannon Street
Franklin, Tennessee 37064
794-1187 |
| 27. Battle Ground Academy
1314 Columbia Pike
Franklin Tennessee 37064
794-3501 | 28. Liberty Elementary
600 Liberty Pike
Franklin, Tennessee 37064
790-0892 |
| 29. Moore Elementary
1061 Lewisburg Pike
Franklin, Tennessee 37064
790-4700 | 30. Johnson Elementary
815 Glass Lane
Franklin, Tennessee 37064
794-4837 |

THIRD GRADE: LESSON TWO

"WHAT'S REALLY IN THIS PACKAGE, ANYWAY?"

OBJECTIVE: The learner will demonstrate the ability to:

1. State three purposes of packaging.
2. Give five examples of wasteful packaging.
3. Name two alternatives to present methods of packaging.
4. Recognize three characteristics of recycled packaging materials.

SET: Ask the students to tell about times when they have received a gift in the mail at Christmas or for a birthday or for some other occasion. Have them describe their feelings about getting such a gift. Then ask if they ever had any difficulty getting into the package itself. Why? Today we're going to talk about the reasons for some of the packaging.

INSTRUCTION:

1. Unwrap a prepackaged gift item that may have come from a relative at Christmas, collecting all the packaging materials in a separate place to be used later for illustration and discussion. For example, a toy truck from Aunt Susie might have the wrapping for mailing, decorative holiday wrapping inside, complete with ribbons and bows. Inside that there could be a box with the toy truck securely wrapped in tough plastic for holding it in place. Together with the truck would be instructions, parts lists, warranties, and postcards identifying additional accessories for your Christmas truck tucked into a clear plastic envelope. To attach to the truck would be tires and other parts packaged in separate plastic envelopes, etc.
2. At each step of the way, ask why that particular layer of packaging was necessary or desirable. Write on the board the reasons given, stressing those that are necessary.
3. Ask if there are any layers or levels of packaging that we could just as well do without. Would the students be happy to see those levels go? Why or why not? Elicit from them examples they have seen of unnecessary packaging. Write those on the board. This part of the lesson should bring out how very visible packaging is in the trash can. One-third (1/3) of the solid waste in our county landfill is food packaging.
4. We need packaging, but at the same time we need to design packaging that will reduce that part of our garbage. Draw from the students themselves alternative ways of packaging different items. And talk about why certain products must have variations in their packaging. For example, medicines and foods may require more (or different) kinds of packaging than toys.

THIRD GRADE: LESSON TWO

(cont.)

5. Show the students some packaging that is made from recycled materials, and point out some characteristics of that. Write those on the board.

CLOSURE: Calling attention to the lists you've made on the board, review the categories. Have the students verbalize the learning. Ask them to name the items in your instructional objectives.

Methods of Solid Waste Disposal In Our Ecosystem - Grade 7

OBJECTIVES:

Each student will be able to identify at least 4 methods of solid waste disposal.
Each student will be able to briefly describe each type of waste disposal.
Each student will fill out an environmental check-list.

SET:

The teacher will start the lesson by telling the students that the City Council met and decided the best way to handle solid waste disposal would be to charge each household for the amount of trash they set out in front of their house. The waste truck will weigh each households trash and they are going to charge each home \$5.00 per pound. the teacher will say they heard the news and are in favor of it. Each student must also take home their wastes from school (paper, lunch, etc.) What do you think? Are you in favor of the action or do you disagree. What are your opinions for limiting your fees? What options do you have?

INSTRUCTIONAL PLAN AND CONTENT:

The term used today when speaking about garbage produced by communities is municipal solid waste (MSW). It includes garbage from households, corporations, schools, businesses, and small quantities of special waste from hospitals and laboratories. Efficient disposal of our solid wastes requires a combination of some or all of the alternatives.

The following alternatives exist for solid waste disposal:

A) Source Reduction

The first key to solving our problem is to reduce wastes. Companies and individuals alike have responsibilities for waste reduction. Conservation is a key. Using both sides of paper, buying cokes in large containers, and wearing clothes longer are a few ways students can reduce wastes.

B) Composting

Composting is the biological decomposition of organic waste materials. Oxygen must be present for the process. The process releases carbon dioxide, water vapor and heat. If the soil is not turned occasionally, odors will develop. Solid waste composting results in organic matter that resembles soil. It is not a fertilizer, but improves the physical properties of the soil. Composting accelerates the natural process that occurs when organic materials decompose. A common method of composting is to choose a place in the yard away from the house. (Never put it next to a wooden building because the wood will decompose through time.) Layer plant wastes such as leaves, grass clippings, and vegetable scraps. Add layers of soil and sprinkle with water. The compost will be ready in about 3 months.

Activity 1: Demonstrating Home Composting

Methods of Solid Waste Disposal - Grade 7 (continued)

C) Recycling

Saving raw materials and reducing the amount of wastes to landfills is the goal of recycling. One of the main concerns is having manufacturers willing to buy used materials as a source of new products. Many towns are having problems finding markets for collected materials. Paper (mixed and newspaper) is one such material. Materials presently being recycled are aluminum, glass, paper, plastic, scrap tires, steel, and used oil. Every citizen must be trained in the proper procedure for preparing materials for recycling. Loads of recycled materials are contaminated by improper separation. This results in loads being taken to landfills. So each person has a responsibility to find out current procedures in their area.

Activity 2: Modeling the Economics of Paper Recycling

D) Incineration

The main process in an incinerator is burning. Trash is either burned in the condition it is delivered in or is processed to a uniform size to be burned. It is burned to generate steam or electricity. Each plant is equipped with emission controls to remove air particles which may be harmful to us. The ash which remains also contains harmful substances. It is extremely important to evaluate the ash disposal methods to protect leakage into our ground water.

Activity 3: Understanding Waste To Energy

E) Sanitary Landfill

Most adults associate the burying of wastes in a land area as a dump. New strict environmental regulations have caused most dumps to close and highly regulated and monitored landfills have taken their place. The bottom and sides of a landfill are lined with layers of compacted clay and/or plastic liners. This holds liquids (rain, snow, waste) that entered the landfill to stay within the confined area. A network of perforated drains collect the liquid (leachate) which is contained within the landfill and carries it to points where it is collected for treatment. A landfill is simply a final resting place for most solid and non-hazardous industrial and residential wastes. The sanitary landfill is not designed for degradation to take place.

Activity 4: Making A Model Landfill

CLOSURE:

Each student will fill out an environmental check list. Have them take it home to figure out a few responses.

Activity 1

Demonstrating Home Composting

Student Concept: Create a miniature backyard compost pile in a classroom setting.

Objective: To increase the students' understanding of proper backyard composting for replication at home.

Materials needed: Small metal or plastic garbage can with holes drilled in the bottom. Organic matter such as: grass clippings, leaves, twigs, peanut shells, bark, ashes.

What is Composting?

Composting is a biological process during which organic materials such as grass and leaves are broken down into a soil like product. It is a form of recycling, a natural way of returning nutrients to the soil.

Why Compost?

By composting yard waste and other organic material at home, you can create a soil additive and conserve valuable landfill space normally used to dispose of this material.

How to Compost Properly

1. In this classroom activity, consider the garbage can as the site. At home, students should choose a spot that receives equal amounts of sunlight and shade during the day. Following are different methods that can be used to prepare a compost pile:
 - Use no enclosure at all. Simply pile the materials up, keeping them in a fairly dense heap.
 - Assemble wooden stakes and chicken wire into a simple round enclosure for the pile.
 - Construct a wooden compost bin (use old lumber, if you have any).
 - Make holes in the sides and bottom of a garbage can, use it to contain the pile.
 - Fashion a three-sided enclosure by placing cinder blocks on top of each other. Leave the front open.

2. Select the proper materials: Some things belong in a compost pile and some do not. In general, do not compost materials containing animal fats.

Do compost:

Leaves and grass
Small garden clippings
Wood ashes
Bark
Peanut & nut shells
Weeds

Do not compost:

Meat
Fish
Bones
Dairy products
Vegetable oils
Fat
Poultry
Plastics or synthetic fibers

3. Prepare the compost materials: Begin by cutting or shredding the ingredients into small bits and pieces. Then:
 - Add enough water to keep the compost heap moist, but not soggy.
 - Provide adequate ventilation. To increase air circulation, turn the compost at least once a week. You can also push rods or poles through the heap and then remove them, leaving channels through which air can pass.
 - During rainy weather, cover the pile with a plastic sheet, wood or some other waterproof material to keep it from becoming too wet.
 - As the compost materials decompose, they create heat. This is natural, and when the pile is turned, you will be able to feel the heat. If your compost pile is properly prepared, contains no animal fats, and is turned regularly, it will not attract pests or create odors.
4. Test whether the compost is ready: Decomposition will begin in about two to three weeks, depending on the materials in the pile, the size of the pile and how often it is turned. The compost is ready for use when it is dark red, brown or black, and when the materials have broken down into small or fine particles.
5. Use the compost: Sift through the compost and set aside the decomposed materials, returning the rest to the pile. Apply the decomposed matter to your garden in a layer about one to three inches thick. As you apply the compost, turn and mix it with the soil. It is best to apply no more than one pound of compost per square foot of soil.

NOTE:

In the classroom exercise, the teacher will have students identify the materials as they add them to the garbage can. Add a small amount of water for demonstration purposes and discuss steps 3-5. Dispose of the model at the end of the day.

*For more composting activities, contact:
National Gardening Association, Charles Scott, President,
180 Flynn Ave., Burlington, VT 05401, (802) 863-1308*

Activity 2

Modeling the Economics of Paper Recycling

Student Concept: Creating a model is a useful tool for developing an actual recycling program.

Objective: Students will become familiar with models to describe the economics of paper recycling.

A model is any representation of an actual system or process and may be:

- verbal (words, descriptions)
- physical (a scale model of a paper recycling plant)
- graphic or schematic (charts, diagrams, sketch)
- mathematical (compiled data and equations)

Develop a model to determine how to recycle computer and office paper in your school. Divide class into committees to research:

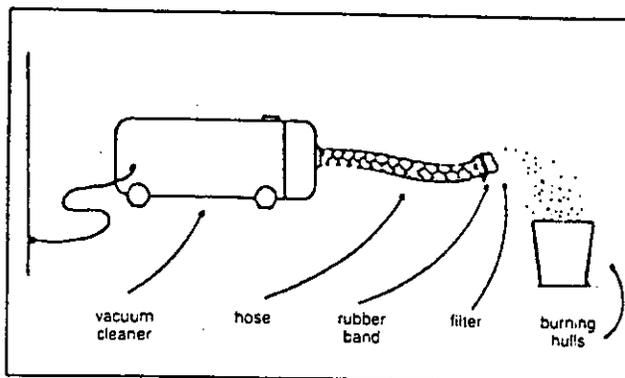
1. The history of how paper is made. What is needed for a paper mill and/or a recycled paper mill to operate (land, equipment, chemicals, water, etc.).
2. How much office and computer paper in your school is being thrown away per month? Of all the garbage that your school produces, how much of it is paper? Is there enough to recycle?
3. Is there a recycler (or scrap dealer) in your community who will buy large amounts of paper? What are the conditions? Can your school meet the requirements?
4. How much time, money, and manpower is needed to set up and operate a paper recycling program in your school? What equipment (i.e. collection bins) needs to be purchased? How long will it take to earn a profit?
5. Collection should be limited to high grade paper (white & computer printout). Look closely at the paper to be recycled. What gets attached to paper that is not recyclable? (i.e., staples, gummed notes, glue, paper clips, etc.) Create posters listing what kinds of paper can be recycled and what to remove before putting it in the collection bin.

Each group reports their findings. Have the class create a model demonstrating how their paper recycling program will operate. Include where collection bins will be stationed, and on what days. Based on the information presented, the class should vote on whether to launch a paper recycling program in the school. Select a student committee who will educate the other classes on how to recycle.

*For further information contact: The Paper Recycling Committee, American Paper Institute,
260 Madison Ave., New York, NY 10016*

Activity 3

Understanding Waste-To-Energy



Student Concept: Energy is neither created nor destroyed, but is transformed into other forms.

Objective: Students will be able to distinguish between renewable and non-renewable resources. Identify how solid waste can cause pollution and identify some uses of solid waste.

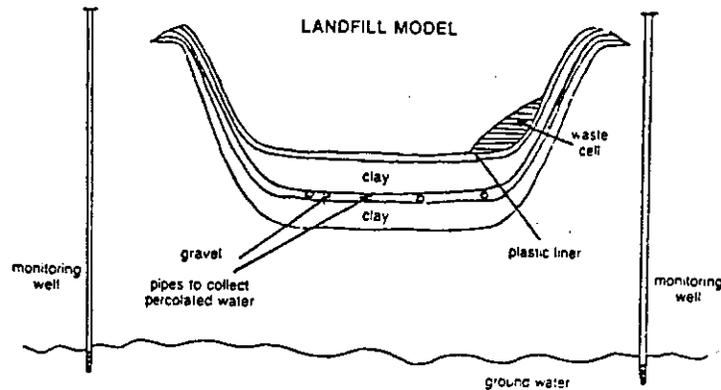
Materials: Vacuum cleaner with hose, coffee filters, strong rubber band, peanut hulls, matches, metal bucket or other fire resistant container.

1. Place the coffee filter over the open end of the vacuum cleaner hose and secure it with a rubber band.
2. Ignite the peanut hulls in the bucket.
3. Place the end of the vacuum hose in or near the smoke from the burning hulls. Turn on the vacuum for 5-7 seconds, turn off and extinguish the fire.
4. Compare the used filter to a clean filter. Explain that the filter has trapped particulates produced by burning the hulls. Remind the students that burning (or other methods of disposing of) solid waste does not make it "disappear."
5. Speak to the students about how waste today cannot be openly burned. Talk about the methods for reducing air pollutants listed in Alternative Four: Waste-to-Energy.
6. After burning the hulls, place some of the ashes in water and stir the mixture. Check the mixture's consistency, pH content and describe odor.
7. Discuss with the students some alternative uses of solid waste. Using the hulls as an example, list some alternatives to burning or burying them. For example, the hulls can also be used to make paper, be ground up and used as compost or as a livestock feed additive.

Home assignment: What are some of the things students and families burn at home in their fireplace or by the campfire? (Christmas wrapping paper, magazines, or other common waste products that are ignitable.) Research what these materials are made of and what happens when they are burned.

Activity 4

Making a Model Landfill



Student Concept: Think of a sanitary landfill as a giant plastic container in the earth.

Objective: To create a visual model representing the amount of waste a local community disposes of annually.

Materials: Rectangular plastic storage container with lid (18" × 24" × 10" or as big as you can find), black magic marker, ruler, graph paper (6 or 8 boxes per inch).

DEFINITIONS:

Each person's annual trash = two cubic yards of landfill space

Graph paper; each box represents one cubic yard of waste.

Weight per cubic yard = 1000 pounds

4,840 square yards per acre

Cubic yard = 27 cubic feet ($3 \times 3 \times 3 = 27$)

640 acres per square mile

Use the above information to determine:

1. How many cubic yards of waste does your local community dispose of each year? (multiply population × 2)
2. The plastic storage container serves as a model landfill. Using a ruler, measure the number of inches that make up the surface area of the model landfill (length × width). Using graph paper (1 box = 1 square yard), determine how many square yards are represented in the model. How many acres are there?
3. Measure the number of inches that make up the total volume of the model landfill (length × width × depth). How many cubic yards of waste are represented in this landfill?
4. Using the above data, how many years will it take a community with a population of 52,000 to fill up the model landfill?
5. Have students research the average number of acres in a real landfill. Call the public works department to find the nearest landfill in your area. Have students reconstruct how a landfill operates based on the information they gather. Suggested materials include: rubber cement, construction paper, sand paper and pieces of gravel. Use straws to represent drainage pipes within the bottom of the landfill.
6. What are landfills used for after they are filled up? Have students create a baseball park or other recreational facility on top of the plastic container lid. Include several spots for ground monitoring wells for ongoing supervision. Use materials suggested above as well as landscaping materials such as lichen.

NAME _____ DATE _____

AN ENVIRONMENTAL CHECK LIST

This is a check list about family waste disposal and other environmental attitudes. Take the sheet home, answer the questions, and bring the sheet to the next class session.

1. Count the number of beverage (soda and milk) containers in your home. What percentage of these are reusable? _____
2. What kind of containers does your milk come in? Are these containers reusable? _____

3. What happens to your old newspapers? _____
4. Do you use paper napkins and paper towels? If you do, about how many packages of each does your family use each month? _____
5. Do you use paper or plastic cups? If you do, about how many packages of each does your family use each month? _____
6. How many aerosol containers are there in your home? _____
7. How many pieces of "junk" mail does your family receive in one week? _____
8. Does your father or mother commute work? If they do, by what means of transportation? _____

9. How many dripping faucets are there in your home? _____
10. How many electrical appliances are there in your home? _____
11. For one week, count the number of lights left on when not in use in your home. _____
12. What are the day and night settings of the thermostat in your home?
_____ day _____ night
13. Where is the nearest recycling center to your home? _____
14. What are the names and addresses of your United States representative and senators?

15. Have you or any member of your family ever written to your congressman or senator about environmental legislation? _____
16. Based on the above check list, list on a separate sheet of paper some things you can do to show your concern about environmental problems.

Glossary

aerobic — able to live and grow only in the presence of oxygen.

anaerobic — able to live and grow without oxygen.

bacteria — single-celled living organisms; some types can break down solid waste.

biodegradable — material that can be broken down into simpler units by organisms such as bacteria and fungi.

commercial solid waste — solid waste produced by business and industry.

decompose — to break down a material into its basic parts.

degrade — to convert an organic compound into a simpler compound.

Environmental Protection Agency (EPA) — the federal agency that is responsible for protecting the environment.

groundwater — water below the surface of the Earth that flows in porous rocks and soils, supplying water to wells and springs.

impermeable — not permitting passage through its substance.

inorganic — having to do with nonliving things.

integrated waste management — coordinated use of a variety of solid waste management strategies.

leachate — contaminant liquid that drains out of landfills.

liner — a protective layer made of plastic or clay that is placed on the bottom and sides of a landfill to prevent the leachate from flowing into the groundwater.

methane — an odorless, colorless, explosive gas that is often produced during the decomposition of solid wastes under anaerobic conditions.

municipal solid waste (MSW) — solid waste that comes from homes and institutions in communities of all sizes.

NIMBY (Not In My Backyard) — a syndrome of negative attitudes about the building of prisons, airports, landfills, waste-to-energy plants, and even recycling centers in or near a given community.

organic — having to do with living things.

photodegradable — material that breaks down when exposed to ultraviolet light from the sun, which breaks the chemical bonds that hold the material together, weakening them until the material breaks up into smaller and smaller pieces.

sanitary landfill — a site for the disposal of solid waste. Today, landfill sites are selected based on soil type and permeability; clay and/or plastic liners are installed to protect groundwater by preventing leaching; leachate is collected and treated; garbage is spread in layers and covered with soil daily to control biodegradation by reducing moisture and oxygen; methane gas may be collected and burned to produce electricity.

solid waste — materials used by people and thrown away, also known as garbage, trash, and rubbish, including food waste, old clothes, worn-out tires, broken toys, empty bottles and cans, grass clippings, leaves, newspapers, out-of-date telephone books, and so on.

solid waste management — strategies developed by communities for disposing of municipal solid waste, including the following: **waste-to-energy incineration** (process by which wastes are burned under controlled conditions to produce energy), **landfilling** (dumping solid waste into a large hole in the ground, spreading it in layers, and covering it with soil), **recycling** (collecting certain components of municipal solid waste, such as glass, paper, metals, and plastics, and processing them into new forms that can be reused as raw materials for new products), and **source reduction** (consumer behavior to deliberately reduce the amount of solid waste that goes into the waste stream).

solid waste stream — an imaginary flow of solid waste that is made up of four product categories: **containers/packaging** (cans, bottles, boxes, and packaging materials), **durable goods** (furniture, large appliances, tires, and miscellaneous items), **non-durable goods** (paper products, clothing, footwear, and small plastic products), and **other wastes** (food and yard wastes, and inorganic wastes).

tipping fee — amount of money charged for a truck, town, or individual to dump solid waste at a landfill or incinerator.

waste-to-energy — another name for an incinerator that burns solid waste to produce electricity.

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Chapter X

Problem Waste

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CHAPTER X

PROBLEM WASTES

GENERAL

The Tennessee Solid Waste Management Act specifically addresses four problem wastes. These wastes are scrap tires, batteries, waste oil, and household hazardous waste. The Act also requires that landfills not accept for disposal any whole tires, lead acid batteries, or used oil effective January 1, 1995, and that by January 1, 1995, each county provide at least one (1) site to receive and store these wastes for ultimate recycling and disposal. In addition, each county must provide a site for the collection and a plan for the disposal of household hazardous waste.

HOUSEHOLD HAZARDOUS WASTE (HHW)

Household hazardous wastes (HHW) are those wastes discarded from homes which are listed by the U.S. Environmental Protection Agency (EPA) as being hazardous or displaying hazardous characteristics established by EPA. Examples of HHW include paints, aerosol sprays, herbicides, pesticides, some cleaning solutions, medicines, etc. Although each household generates small amounts of these wastes, collectively HHW generated throughout the County could pose environmental problems if not managed properly.

In the past, Williamson County has not provided HHW collection services. The county has, through Williamson Recycles, distributed brochures and pamphlets informing citizens what household hazardous wastes are and encouraging them to purchase alternative products when possible.

It is the goal of the Solid Waste Board to reduce by as much as possible the generation of HHW in the county while also providing collection services for those wastes which are generated. The objectives are to educate the public about HHW generation and the available alternatives.

To help in the proper disposal of HHW and to help educate the public about its importance, the State of Tennessee has established a mobile collection and disposal program. This program allows each county to schedule a HHW collection event at which the collection

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contractor will accept these wastes for transportation and disposal at a licensed hazardous waste facility. The county's responsibility is to secure a site for the event, provide the advertising and at least one county employee to help with security, traffic control, and emergency response.

Williamson County has already taken advantage of this program by scheduling one HHW collection event in 1993. The collection event was held at the Williamson County Administrative Complex on December 11, 1993. Due to extremely cold weather and a conflict with the City of Franklin's annual Christmas Parade, participation was lower than anticipated. Approximately sixty (60) residents however, did participate. Volunteers from the high school environmental groups asked each participant to complete a questionnaire indicating the type of materials the individuals brought, the distance they traveled, how they heard about the program, and their willingness to pay for such services. The HHW collection program is funded by money collected from a surcharge on each ton of waste disposed of in sanitary landfills in the State and by taxes collected by tire sales. The program is administered by the Division of Solid Waste Assistance. The only expense to the county is the cost of advertising and the cost associated with operating the site for one day, i.e. electricity, employee salaries, etc.

It is anticipated that the need for this type of program will diminish over time as the public information and education programs begin to change individual's attitudes and habits regarding product uses. The county will continue to take advantage of the state-sponsored program and provide the necessary support services. Volunteers will continue to gather data by use of questionnaires. After each collection event, information obtained by the volunteers and the number of households participating will be evaluated to help determine the frequency and location of future events. When the state-sponsored program is terminated, the HHW collection program will be re-evaluated and continued as needed. If the need to continue the program is justified, the Board will incorporate the cost and required staffing into the annual budget. The estimated cost to the county for each event is approximately \$2500. This does not include disposal costs of the materials collected. The Board will monitor these costs after each collection event, along with the quantities collected, to better identify the county's responsibility in providing this service.

WASTE TIRES

The Act requires that whole tires not be disposed of in a Class I landfill beginning January 1, 1995. The Act also requires the county to provide at least one (1) site for the collection of waste

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tires by January 1, 1995. The county does not currently provide waste tire collection services. Waste tires have been managed by the commercial tire dealers in the county. Waste tires have been banned from the county landfill since 1992, and past generation rates and ultimate disposal of waste tires in the county is unknown.

The county intends to develop a waste tire storage area before January 1, 1995. Although a site location has not been finalized, an area on the existing landfill property appears to be the most feasible. Adequate acreage is available at the landfill to provide storage areas as necessary based on demand. According to Tennessee Department of Revenue records, 49,172 tires were sold in Williamson County in fiscal 1992-1993. With the storage area being located at the landfill, existing personnel can operate and monitor the site.

As with the household hazardous waste collection program, the county will utilize the state sponsored tire shredding program. The landfill operator will coordinate shredding events with the state and provide support services. If the storage area is located at the existing landfill, the shredded tires will be placed directly in the proposed Class III/IV landfill. If the storage site is located elsewhere, the shredded tires will be transported to the landfill for disposal. Since waste tire collection and disposal is currently being managed by the private sector, it is not known what demand or to what extent a county-operated storage and disposal site would be utilized. During the first five (5) years of the Solid Waste Plan implementation, waste tire generation and disposal capacity needs will be evaluated and a more detailed plan will be developed for the five (5) year plan update. Also during this evaluation period, alternative uses for waste tires will be evaluated as new alternatives develop.

WASTE OIL

Waste oil generated in the county is currently being managed by both the county and the private sector. The county maintains an above-ground 250 gallon waste oil tank at the Class I landfill. Residents are allowed to bring their waste oil to the landfill and deposit it in this tank during the hours of 7:00 am - 4:00 pm seven days per week. It is estimated that approximately 1500 gallons of waste oil was collected in the tank at the landfill during 1993.

Service stations, garages and "quick" oil change facilities in the county have been contacted by Williamson Recycles to solicit their assistance in accepting waste oil from "do-it-yourselfers". Twelve

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(12) privately-owned service stations and oil change establishments have offered to accept motor oil from individuals (See Exhibit X-A). Williamson Recycles distributes this information on a regular basis. It is anticipated that this system will enhance the used oil recycling efforts by promoting more available attended collection sites.

The Solid Waste Management Act requires that each county provide at least one collection site for used oil and other automotive fluids by January 1, 1995, "if adequate sites are not otherwise available for the use of the residents of the county". Williamson County intends to continue with its current system of managing used oil. The county will continue to provide information and education to encourage the public's participation in the program. Waste oil tanks with proper secondary containment will also be placed at selected convenience centers as demand in a particular area is identified. Collection of other automotive fluids such as transmission fluids and anti-freeze will be conducted during household hazardous waste events.

LEAD ACID BATTERIES

Lead acid batteries are not currently managed as a separate item by the county. Lead acid batteries found in municipal solid waste are those used in automobiles, trucks, tractors, motorcycles, boats, etc. Tennessee State law requires that any commercial establishment which sells lead acid batteries must accept one battery in exchange for every battery sold. Most commercial establishments return the used batteries to their supplier for recycling. Most establishments will accept small amounts of additional batteries based on the capabilities of their supplier to handle them. Williamson Recycles maintains a list (Exhibit "X-A") of local companies which will accept batteries from the public.

Lead acid batteries may no longer be disposed of in the Class I landfill effective January 1, 1995. Lead acid batteries being brought to the landfill have not been a problem in recent years, and it is assumed that batteries are traded-in when new batteries are purchased, sold for scrap, or are being stored in garages and basements. A small amount are being discarded with other household waste. The convenience center attendants check loads brought to the centers and pull out batteries that are brought in. The landfill operators also check for batteries mixed with loads brought to the landfill. Williamson County will continue to support and encourage the collection and recycling of lead acid batteries by commercial establishments in the county. More visible collection and storage areas at the convenience centers will also be provided. The county will also encourage citizens to bring in

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batteries as part of the household hazardous waste collection events.

Exhibit X-A lists those establishments in the county which accept batteries as well as waste oil.

LITTER

The Tennessee Department of Transportation provides funds to assist Counties in the clean up of litter along highways through the Clean Tennessee Program. A percentage of the grant must be spent on education; targeting students, adults, media, government and businesses. The education portion of the fund is utilized primarily for educational and promotional materials such as videos, newsletters, bumper stickers, coffee mugs, etc. These materials are distributed by the Williamson Recycles coordinator in conjunction with the programs discussed in Chapter II.

The litter clean-up program is overseen by the Williamson County Sheriff's Department. This program provides inmate labor to collect litter along county roads. The service is provided Monday through Friday, weather permitting. Litter is collected and stored with recyclable materials being taken to the recycling center and non-recyclable waste being taken to the landfill. The county receives \$39,532 per year to help fund the program. Additional funds to provide salaries and benefits for three (3) full-time Sheriff's Department employees, supplies, etc. are provided by the county.

As discussed in Chapter II, Williamson Recycles also sponsors the Adopt A Road program in which groups, organizations, and individuals are encouraged to choose a portion of a county road and be responsible for picking up trash and litter along that section of road. As recognition, a sign is placed at the beginning and end of the road section indicated that the organization has "adopted" that portion of highway to keep clean.

The Sheriff's Department is also responsible for investigating illegal dumps reported in the county. Sheriff's deputies search for evidence and issue citations to those persons who can be identified from address labels or other evidence. Individuals can be ordered to clean up the dump and/or fined in court for the illegal activity.

The litter programs have been successful and will continue as is. However, the Solid Waste Board intends to research other litter programs to provide the most effective means for the county to control litter. It is estimated that approximately 36 to 48 tons of litter are collected per year through these programs with approximately five (5) tons being recyclable.

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OTHER PROBLEM WASTE

Other problem waste generated includes white goods, wooden pallets, and bulky items such as furniture, carpet, bicycles, etc. As discussed in Chapter IV, each convenience center has space available for storage of white goods and bulky items. Wooden pallets can be taken directly to the landfill. White goods and other recyclable metal items are stored separately on site for later collection by metal recyclers. Wooden pallets are currently being disposed of along with other solid waste but will be disposed of in the Class III/IV landfill when it becomes permitted. Furniture, carpet and other non-recyclable bulky items are disposed of with the other solid waste.

PROBLEM WASTE SUMMARY

Problem waste as identified in this chapter has not created a significant problem for the county during the past few years. Ample collection points have been provided throughout the county for the collection of waste oil, automobile batteries, white goods and other items. Waste tires and lead acid batteries are being sufficiently managed by the private sector. A household hazardous waste collection program was initiated in 1993 and collection events will continue to be scheduled through the State sponsored program and beyond. Road side litter, illegal dumping and illegal waste tire piles are being managed by the County Sheriff's Department and citizen participation.

All of these programs are currently on-going and are serving the county's needs well. The programs utilize existing staff and funding has been and will continue to be provided through grants and the county's solid waste fund. Management of these wastes, especially household hazardous waste, waste tires, used oil, and lead acid batteries will be closely evaluated during the first five (5) years of the plan implementation and will be adjusted as necessary.

BATTERY & OIL RECYCLING

		BATTERY	OIL
1.	Franklin Iron & Metal 242 2nd Ave. North Franklin, TN 790-7205	X	
*2.	Pep Boys Corner of Nolensville & Old Hickory Blvd. Nashville, TN 333-1275	X	
3.	Target - Cool Springs Galleria Franklin, TN 771-2093	X	
4.	Walmart 350 Williamson Square Franklin, TN 791-6751	X	X
*5.	Kmart 104 Watson Glen Franklin, TN 7791-0049	X	
6.	Sears - Cool Springs Galleria Franklin, TN 771-2293	X	
7.	Kirbys Texaco 2199 Hillsboro Road Franklin, TN 791-1425	X	
8.	Moore's Lane Shell 8007 Moore's Lane Brentwood, TN 370-3130	X	X
9.	Thomas Brothers Auto 2005 Johnson Industrial Blvd. Nolensville, TN 776-2121	X	X
10.	Fairview Amoco - Hwy. 100 Fairview, TN 7799-9316	X	X
11.	Fairview Shell - Hwy. 100 Fairview, TN 799-0985	X	X

		BATTERY	OIL
12.	Tidwells Garage 1011 Fairview Blvd. Fairview, TN 799-8293	X	X
13.	Potts Auto Garage 7743 Shoal Branch Road Fairview, TN 799-2970	X	
14.	Caldwell Shell 1605 Columbia Ave. Franklin, TN 794-2355	X	
15.	Bobs Texaco 1029 Columbia Ave. Franklin, TN 790-7686	X	X
16.	Williamson County Landfill Pinewood Road 790-0742		X
17.	Tractor Supply Company 1101 Hillview Lane Franklin, TN 791-0791		X
18.	Warehouse Tire 708 Columbia Ave. Franklin, TN 791-8300		X
19.	Express Lube 149 Pewitt Drive Brentwood, TN 370-0878		X
20.	Valvoline Instant Oil 120 Franklin Road Brentwood, TN 371-5371		X

* On exchange only

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Chapter XI

Implementation: Schedule, Staffing, and Funding

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CHAPTER XI

IMPLEMENTATION : SCHEDULE, STAFFING, AND FUNDING

SYSTEM DEFINITION

Williamson County government has strived since the middle 1980's to provide its citizens with a comprehensive and efficient solid waste management collection and disposal system. The county has provided solid waste collection sites conveniently located throughout the county for citizens to deposit their refuse without having to travel a great distance. Door-to-door collection services are also available to those citizens who wish to contract for that service. The City of Franklin provides door-to-door collection for all of its residents and businesses.

Williamson County has established one of the most successful voluntary recycling programs in Tennessee. Along with the refuse collection centers, the county has provided convenient drop-off collection sites, as well as a buy-back center, for citizens to deposit their recyclable materials. An active public education program has been instrumental in the success the recycling program has achieved.

The county has developed disposal capacity to serve the county's needs in excess of the required ten year planning period. In addition, the county is developing disposal capacity for the diversion from the waste stream of those wastes which do not require disposal in a Class I facility.

GOALS

The Solid Waste Management Act of 1991 establishes specific goals and mandates that certain solid waste management practices be initiated by specified dates. It is the goal of the Williamson County Municipal Solid Waste Board to not only meet the state-mandated requirements, but to exceed the requirements wherever possible to provide the citizens of Williamson County with a comprehensive, cost effective, and environmentally sound solid waste management system.

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Specific goals of the Board are to :

- 1) reduce, reuse, and/or recycle as much of the county's solid waste as practical
- 2) dispose of the remaining solid waste in an environmentally safe and economically feasible manner
- 3) provide adequate collection services to all citizens in the county
- 4) educate all citizens in the county about reduction, recycling, collection, and disposal of solid waste
- 5) make the county's citizens, commercial establishments, businesses, industries, and institutions active participating partners in the ongoing implementation of the solid waste management plan.

In order to realize and maintain these goals, the objectives of the Solid Waste Board are to:

- 1) present information concerning the plan and the established goals to the citizens of the county
- 2) educate adults and children as to the importance of source reduction, reuseage, recycling, and the environmentally safe management of solid waste
- 3) assist businesses, industries, and institutions in reducing, reusing, and/or recycling as much waste as is practical
- 4) encourage and promote backyard composting and the "leave-it-on-the-lawn" concept of lawn care
- 5) investigate and evaluate acceptable alternatives for the disposal of compostable wastes

The Williamson County Municipal Solid Waste Board will continue to support and encourage an effective education system to secure the increased voluntary participation in the reduction, reuse, and recycling programs. The Board will strive to insure that recycling and solid waste collection services are operated in a cost effective and citizen responsive manner.

The Board will continue to explore and evaluate alternative disposal and processing options. For that waste which does require disposal, the Board will make a concentrated effort to insure that disposal operations are conducted in an environmentally safe and prudent manner so as to create the least possible disturbance to area residents and land owners.

Table XI-1 indicates the amount of waste to be collected and managed during the planning period.

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TABLE XI-I

**Solid Waste to be Collected & Managed After 25% Reduction
(Tons)**

1994	1995	1996	1997	1998
51,081	52,693	54,354	56,068	57,835

1999	2000	2001	2002	2003
59,660	61,522	63,182	64,886	66,635

IMPLEMENTATION SCHEDULE AND MILESTONES

State Mandated Deadlines

July 1, 1994	Municipal Solid Waste Regional Plan due
December 31, 1994	Whole tires, lead acid batteries, used oil no longer accepted for landfilling
January 1, 1995	Site to accept and store whole waste tires, used automotive fluids/oils, and lead acid batteries must be established
January 1, 1995	Solid Waste collection and disposal system must be available in each county
December 31, 1995	25% waste reduction requirement becomes effective
January 1, 1996	Collection site for recyclable materials must be established
June 30, 1996	State assisted Household Hazardous Waste (HHW) Collection expires
October 9, 1996	New landfill design standards become effective
October 9, 1996	Landfill operator must be certified
June 30, 1996	Tipping fee surcharge expires

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County Implementation Schedule and Milestones

1994

- July 1 Submit Municipal Solid Waste Plan
- July-December Backyard composting demonstration site opens
- Class III/IV landfill begins operation
- First cell of re-designed landfill opens
- Waste tire storage area developed
- Establish waste oil, lead acid battery storage site
- Continue to study composting alternatives
- Continue education programs/recycling efforts
- Installation of compactors at schools

1995

- HHW Waste Collection events
- Continue to study composting alternatives
- Installation of compactors at schools
- Education Programs
- Recycling Efforts

1996

- Determine if waste reduction goal for previous year was met
- Develop county sponsored HHW Collection
- Choose and develop composting alternative, if any
- Installation of compactors at schools
- Education Programs
- Recycling Efforts

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1997

Determine if waste reduction goal for previous year was met

HHW Collection

Installation of compactors at schools

Education Programs

Recycling Efforts

1998

Determine if waste reduction goal for previous year was met

HHW Collection

Education Programs

Recycling Efforts

Major Update of Solid Waste Plan

1999-2003

Determine if waste reduction goal for previous year was met

Education Programs

Recycling efforts

HHW Collection

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Table XI-2
Implementation Schedule
Williamson County Solid Waste Plan

Task	1994	1995	1996	1997	1998	1999	2000	2001	2002	2003
Submit Solid Waste Plan	X									
Develop Compost Demonstration Site		X								
Develop Class III/IV Landfill	X									
Develop Tire Storage Area	X									
Establish Problem Waste Collection Site	X									
First Cell of Subtitle D Landfill Opens	X									
Place Cardboard Compactor at Schools	X	X	X	X						
Study & Select Compost Alternative	X	X	X							
Collection of Household Hazardous Waste	X	X	X	X	X	X	X	X	X	X
Education Programs	X	X	X	X	X	X	X	X	X	X
Waste Reduction & Recycling	X	X	X	X	X	X	X	X	X	X
Major Plan Update					X					

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STAFFING AND TRAINING REQUIREMENTS

Williamson County currently employs seventeen (17) full-time and twenty-seven (27) part-time employees. The full-time employees are responsible for the transportation of waste from the collection centers to the landfill, disposal operations and related activities at the landfill, and the recycling programs. The part-time positions are assigned to the individuals who man the collection centers.

The City of Franklin Sanitation Department employs thirty-one (31) full-time people to collect and manage residential and commercial waste generated within the city. This includes both the collection of waste and the transfer station operation.

All personnel are trained by the appropriate Director and supervisors in the performance of their duties, safety procedures, employment police, etc. The only special training that has been identified is for the landfill Director and disposal operations supervisor. These individuals must be trained in the disposal of waste in lined facilities and obtain a State Certification by October 9, 1996.

It is anticipated that the current staffing will be adequate to properly maintain and operate the existing system. Existing landfill personnel will be utilized to operate the proposed Class III/IV landfill. One or two additional operators may be required to operate the wood waste processing operation depending on the process selected and the location of the facility. Implementation of this system component is scheduled for 1996. Also, one additional staff member has been approved for 1995 to assist the recycling coordinator. Table XI-3 illustrates the staffing requirements through 1998. Required staffing for the remainder of the planning period will be evaluated during the five-year plan update.

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Table XI-3
Staffing Requirements
(1994-1998)

	1994	1995	1996	1997	1998
Williamson County Landfill					
Director (1)	X				
Supervisors (3)	X				
Clerical (1)	X				
Operators (3)	X				
Mechanics (1)	X				
Drivers (6)	X				
Class III/IV Landfill					
Supervisor		X			
Operators		X			
Wood Waste Processing					
Supervisor			#		
Operator			#		
Collection Center					
Supervisor (1)	X				
Operator (27)	X				
Recycling					
Coordinator (1)	X				
Assistant (1)		#			
Drivers (2)	X				

Existing X Additional #

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Table XI-3
Staffing Requirements
1994-1998
(Cont'd)

	1994	1995	1996	1997	1998
City of Franklin Collection					
Director (1)	X				
Secretary (1)	X				
Route Supervisors (2)	X				
Drivers/Route Persons (21)	X	#			
Shop Foreman (1)	X				
Mechanics (2)	X				
Transfer Station					
Foreman (1)	X				
Operator (2)	X				

Existing X Additional #

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FUNDING

As discussed in previous chapters, funding for the county collection, disposal, and recycling efforts are provided by county property taxes and landfill fees. The current allocation for solid waste services is \$0.08 from every \$1.00 collected. The money collected is transferred from the general fund to the three separate solid waste management budgets. Funding for the City of Franklin collection services is appropriated from the city's general fund. Table XI-4 indicates the estimated funding requirements through 2003.

Table XI-4
Estimated Funding Requirements
Williamson County

	Williamson County			City of Franklin Collection
	Collection	Landfill	Recycling	
1994	657,277	929,753	131,197	1,047,444
1995	690,141	976,241	137,757	1,378,550
1996	724,648	1,300,053	144,645	1,447,480
1997	760,880	1,176,305	151,877	1,519,855
1998	798,924	1,235,120	159,471	1,595,850
1999	838,871	1,296,876	167,444	1,675,640
2000	880,814	1,361,720	175,817	1,759,420
2001	924,855	1,429,806	184,607	1,847,390
2002	971,097	1,501,300	193,838	1,939,760
2003	1,019,652	1,576,360	203,530	2,036,750
Total	8,267,159	11,783,534	1,650,182	16,248,139

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Chapter XII

Allocation of Implementation Responsibilities Plan Adoption and Submission

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CHAPTER XII

ALLOCATION OF IMPLEMENTATION RESPONSIBILITIES: PLAN ADOPTION AND SUBMISSION

IMPLEMENTATION RESPONSIBILITIES

Since Williamson County is a single-county solid waste region, responsibility for implementing the plan resides with the county. The implementation and oversight of the plan will be under the direction of the Solid Waste Board as appointed by the Board of County Commissioners. The plan was formally adopted by the Williamson County Solid Waste Board on June 23, 1994. A copy of the resolution adopting the plan is included as Exhibit XII-1. The Solid Waste Board will not only oversee implementation of the plan, but will also continue to evaluate the county's solid waste management system. It is the Board's intent to insure that the county meets or exceeds all state mandates while providing the citizens with cost effective and environmentally sound solid waste services.

The plan was presented to the Board of County Commissioners on June 13, 1994 for consideration. The Solid Waste Board anticipates the plan will be adopted at the July 11, 1994 Commission meeting.

SOLID WASTE AUTHORITY

Williamson County has no plans at this time to form a single-county solid waste regional authority.

LOCAL PLANNING COMMISSION REVIEW

The Williamson County Planning Commission will be presented the solid waste plan at its July 21, 1994 meeting.

**MINUTES OF THE WILLIAMSON COUNTY MUNICIPAL SOLID WASTE BOARD
MEETING, June 23, 1994**

The Williamson County Municipal Solid Waste Board met June 23, 1994, in the Auditorium of the Administrative Complex. Board members present were Chairperson Judy Hayes, Commissioner James Anglin, Tom Murdic, and Clyde Barnhill. Also present were Advisory Committee members County Executive Robert A. Ring, Amy Depp, Drew Wilson, and Lee Sanders, Bob Caldwell and Jim Spicer, Caldwell & Associates, and other interested and concerned individuals.

Chairperson Hayes called the meeting to order at 5:04 p.m. Ms. Depp presented two letters received from Valentine Disposal asking for suggestions regarding disposal of grass clippings, leaves, tree limbs, etc. Chairperson Hayes said she and Ms. Depp responded by letter encouraging the Valentine's customers to separate grass, etc. and consider composting as an alternative.

Solid Waste Advisory Committee member, Pam Bowker, arrived at 5:07 p.m.

Mr. Spicer distributed tables which will be added to the Plan.

Commissioner Wherley arrived at 5:10 p.m.

Mr. Murdic made a motion to adopt the Williamson County Municipal Solid Waste Plan as presented. Commissioner Anglin seconded the motion. Chairperson Hayes said we will keep working—we will not stop just because the Plan is submitted.

The motion passed by unanimous voice vote, 5-0.

Chairperson Hayes said the Plan will be presented to the County Commission at the July 11, 1994, meeting and will also be presented to the Planning Commission for review.

In response to the question regarding notice of the Plan's review by the State, Mr. Spicer said according to State law the Plan will be reviewed within 90 days.

Mr. Caldwell asked if there will be a need for approved copies of the Plan to be available in a special cover for distribution to industries considering Williamson County as a site. County Executive Ring responded that the County will develop a brochure that will be part of the Economic Development recruiting plan, and it will have a reference to the Solid Waste Plan.

Mr. Caldwell said that companies such as Moody's which rate counties are beginning to look at waste disposal in the counties.

Mr. Barnhill said a very condensed reference to the Plan will be needed.

Ms. Bowker asked the time frame for the development at Grassland. She was told the parks referendum delayed the work. County Executive Ring reported that Thomas-Miller has been hired to begin work on Hunterwood.

There being no further business, the meeting adjourned at 5:20 p.m.

/jhw

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Chapter XIII

Flow Control and Permit Application Review

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CHAPTER XIII

FLOW CONTROL AND PERMIT APPLICATION REVIEW

GENERAL

The Solid Waste Management Act of 1991 authorizes planning regions with approved plans to exercise certain flow control powers. The Act permits regions to exercise two (2) types of flow control: (1) out-of-region waste ban; and (2) intra-region flow control. The Act does not allow planning regions to impair the obligations of contracts entered into before the date of approval of the region's plan nor may the region restrict the movement of recovered material into, out of, or within the region.

OUT-OF-REGION BAN

Out-of-region bans are bans that prohibit waste generated in other counties from being transported into or disposed of in a particular county. These bans are permitted in order to allow a region to carefully monitor the capacity of its solid waste management facilities. Williamson County owns its solid waste disposal facility and therefore has the authority to accept or reject any waste brought to the facility. It is currently the policy of the county not to accept waste generated from outside the county. The Solid Waste Board has reviewed this policy and recommends that it remain in effect.

INTRA-REGION FLOW CONTROL

Intra-region-flow control is the control of waste which may be transported out of the county for disposal. The Solid Waste Act of 1991 permits intra-region flow control in order to address public health, safety, and transportation management concerns in a coordinated manner, and to permit regions to guarantee a flow of waste as a revenue stream for financing bonds for municipal solid waste management facilities. Williamson County has not imposed intra-region flow control on solid waste generated in the county. The county does reserve the right to modify this position in the future.

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PLANS REVIEW FOR NEW SOLID WASTE FACILITIES

The Solid Waste Act requires a planning region with an approved plan to approve any application for a permit for a solid waste disposal facility or incinerator within the region. The purpose is to determine if the facility is consistent with the region's disposal needs before a permit is issued by the commissioner of the Tennessee Department of Environment & Conservation.

An applicant for a permit for construction of a solid waste disposal facility or incinerator in the county will be required to submit a complete copy of the application to the chairperson of the Solid Waste Board at the time the application is submitted to the commissioner. A complete permit application consists of a Part I (general information) and a Part II (hydrogeologic report, construction plans, and operations manual) application.

The chairperson will call a meeting of the Solid Waste Board within thirty (30) days of receipt of the copy of the application and set a date for a public hearing. The public hearing will be held within sixty (60) days after receipt of the copy of the application (either Part I or Part II). The hearing will be held in accordance with established Williamson County public participation procedures.

Within ninety (90) days of receipt of a complete Part II application, the Solid Waste Board will determine if the facility is consistent with the county's solid waste plan. The Board will immediately notify the commissioner of its acceptance or rejection documenting in writing the specific grounds on which any application is considered to be inconsistent with the plan.

Appeal of final actions of the Board shall be taken by an aggrieved person within thirty (30) days to the Davidson County Chancery Court. In accordance with the solid waste Act, an aggrieved person is limited to persons applying for permits, persons who own property or live within a three (3) mile radius of the facility or site that is proposed for permitting, or cities and counties in which the proposed facility is located.

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APPENDIX A

**LEGAL DOCUMENTATION AND ORGANIZATION
OF THE REGION**

June 24, 1994

**WILLIAMSON COUNTY
MUNICIPAL SOLID WASTE BOARD**

Member	Jurisdiction	Term of Office
Ms. Judy Hayes 1)	Williamson County	6 Years
Mr. Steve Wherley	Williamson County	4 Years
Mr. James Anglin 2)	Williamson County	2 Years
Mr. Tom Murdic	Williamson County	2 Years
Mr. Clyde Barnhill 3)	City of Franklin	2 years

1) Chairperson

2) Replaced Daryl Demonbreum 10/93

3) Replaced Al Gregory 12/93

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WILLIAMSON COUNTY SOLID WASTE ADVISORY COMMITTEE

The Williamson County Solid Waste Advisory Committee includes twenty (20) members which were chosen by the Solid Waste Board to provide a wide range of expertise concerning all aspects of solid waste management. Positions for the Committee represent both technical expertise and expertise on how the solid waste plan affects government entities, the business, industrial, and educational communities, and private citizens. Following is a list of members and the interest they represent. No term limit for members was established by the Board.

Member	Position - Interest
Mr. Robert Ring	County Executive
Mr. Jay Johnson	City Manager - City of Franklin
Mr. Asa Stewart	City Manager - City of Fairview
Mr. Louis Baltz	Assist. City Manager - City of Brentwood
Ms. Amy Depp	Recycling Coordinator
Mr. Clay Byrd	Landfill Director
Mr. Spence Culberson	Sanitation Director - Franklin
Mr. Billy Hyden	Waste Management, Inc.
Mr Phil Armor	Greater Nashville Regional Council
Mr. Charlie Watts	Williamson County Schools
Ms. Janice Shelby	Franklin Special Schools District
Mr. Dewayne Perry	UT Agricultural Extension Service

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Member	Position - Interest
Mr. Terry O Donnell	Business - Franklin Kubota
Mr. George Fehrmann	Large Business/Industry - APCOM, Inc.
Mr. Lee Sanders	Community Development
Mr. Raymond Vaughn	Private Waste Hauler
Ms. Pam Braun	Landfill Area Citizen
Ms. Nancy Irwin	Landfill Area citizen
Ms. Pamela Bowker	Citizen - Parent
Mr. Drew Wilson	Youth Environmental

When establishing the Advisory Committee, the Solid Waste Board defined its role to be twofold:

- 1) To help the Board educate the community concerning solid waste management and its role in meeting the goals as set out in the plan, and
- 2) To provide feedback to the Solid Waste Planning Board as to the effectiveness of the plan and suggestions as to where and how improvements might occur.

Each member of the Advisory Committee was provided a copy of the draft solid waste plan for review and comment. The committee met on five (5) occasions to discuss and review the plan. The committee concurred with the concepts presented in the plan and offered suggestions to the Solid Waste Board for the final draft. The Committee also submitted suggestions concerning specific issues the Board should address during implementation of the plan to assure that the county's solid waste management system provides the best service possible to its citizens.

It is anticipated that the Advisory Committee will help the Solid Waste Board promote the plan in areas of their interest and expertise, and will continue to provide the Board with suggestions on how to upgrade and improve the system.

STATE OF TENNESSEE, WILLIAMSON COUNTY

I, Charlie Fox, Jr, County Clerk of Williamson County, do hereby certify that the foregoing is a true and perfect copy of A Resolution Creating Williamson County's Municipal Solid Waste Planning Region.

as the same appears of record in Minute Book 15

Page 399 on file in my office at Franklin.

Witness my hand and seal, at office, this 23rd day of August, 1993.

Charlie Fox, Jr., Clerk.

By N. C. Hale, D. C.

RESOLUTION NO. 10-92-7

**Resolution Creating Williamson County's
Municipal Solid Waste Planning Region**

WHEREAS, the adoption of the Subtitle D landfill regulations by the United States Environmental Protection Agency and companion regulations adopted by the Tennessee Solid Waste Control Board will impact on both the cost and method of disposal of municipal solid waste; and,

WHEREAS, at the urging and support of a coalition of local government, environmental, and industrial leaders, the 97th Tennessee General Assembly enacted T.C.A. 68-211-801 et seq., titled "Solid Waste Management Act of 1991", and;

WHEREAS, with the view that better planning for solid waste will help control the additional costs that will be imposed by the new landfill regulations, help protect the environment, provide an improved solid waste management system, better utilize our natural resources, and promote the education of the citizens of Tennessee in the areas of solid waste management, including the need for and desirability of reduction and minimization of solid waste, local governments in Tennessee supported and worked for the passage of this Act; and,

WHEREAS, one of the stated public policies of this Act is to institute and maintain a comprehensive, integrated, statewide program for solid waste management; and,

WHEREAS, as per T.C.A. 68-211-811, the nine (9) development districts in the State of Tennessee have completed a district needs assessment which are inventories of the solid waste systems of Tennessee; and,

WHEREAS, Williamson County's Board of Commissioners has given consideration to the needs assessment prepared by the Greater Nashville Regional Council (GNRC) development district; and,

WHEREAS, T.C.A. 68-211-813 requires that counties in the State of Tennessee form municipal solid waste regions no later than December 12, 1992; and,

WHEREAS, the Act's stated preference is the formation of multi-county regions with counties having the option of forming single or multi-county municipal solid waste regions; and,

WHEREAS, the State of Tennessee will provide grant monies of varying amounts to single county, two county, and three or more county municipal solid waste regions to assist these regions on developing their municipal solid waste region plans; and,

WHEREAS, the primary and prevailing purpose of the municipal solid waste regions is the preparation of municipal solid waste regional plans which, among other requirements, must identify how each region will reduce its solid waste disposal per capita by twenty-five percent (25%) by December 31, 1995, and a planned capacity assurance of its disposal needs for a ten (10) year period; and,

WHEREAS, the development of a municipal solid waste regional plan that results in the most cost effective and efficient management of municipal solid waste is in the best interest of the citizens of Williamson County;

NOW, THEREFORE, BE IT RESOLVED, by the Board of County Commissioners of Williamson County, Tennessee, acting pursuant to T.C.A. 68-211-801, et seq., that there is hereby established a Municipal Solid Waste Region for and by Williamson County, Tennessee; and,

BE IT FURTHER RESOLVED that, pursuant to T.C.A. 68-211-813(a)(2) et seq., the Board of County Commissioners of Williamson County, Tennessee, finds and determines that Williamson County shall be and shall constitute a single county Municipal Solid Waste Region to comply with T.C.A. 68-211-861 and 68-211-815(b)(6); and,

BE IT FURTHER RESOLVED that, pursuant to T.C.A. 68-211-813(b)(1), a Municipal Solid Waste Region Board is hereby established to administer the activities of this Region; and,

BE IT FURTHER RESOLVED, that this Municipal Solid Waste Region Board shall be composed of five (5) members; and,

BE IT FURTHER RESOLVED that, pursuant to T.C.A. 68-211-813(b)(1), four (4) members shall be appointed by the County Executive and approved by this Board of Commissioners and, due to the fact that the City of Franklin collects or provides disposal services through its own initiative or by contract, the City of Franklin shall have a board member appointed by the Mayor of Franklin and approved by the City of Franklin's Board of Aldermen; and,

BE IT FURTHER RESOLVED, that members of the Board of the Municipal Solid Waste Region shall serve a six (6) year term except that one member appointed by the County Executive shall have a two (2) year term, that two (2) members appointed by the County Executive shall have a four (4) year term, that one member appointed by the County Executive shall have a six (6) year term, that one member appointed by the Mayor of Franklin shall have a () year term; and,

BE IT FURTHER RESOLVED, that this Municipal Solid Waste Region Board shall have all powers and duties as granted it by T.C.A. 68-211-813 et seq., and in addition, in the performance of its duty to produce a municipal solid waste region plan, it shall be empowered to utilize existing Williamson County governmental personnel, to employ or to contract with persons, private consulting firms, and/or governmental, quasi-governmental, and public entities and agencies and to utilize Williamson County's services, facilities and records in completing this task; and,

BE IT FURTHER RESOLVED, that at the Municipal Solid Waste Region Board's initial organization meeting, it shall select from its members a chair, a vice-chair and secretary and shall cause the establishment of a municipal solid waste advisory committee whose membership shall be chosen by the Board and whose duties are to assist and advise the Board; and,

BE IT FURTHER RESOLVED, that the Municipal Solid Waste Region Board, in furtherance of its duty to produce a municipal solid waste region plan, is authorized to apply for and receive funds from the State of Tennessee, the federal government, Williamson County, the City of Franklin, and donations and grants from private corporations and foundations; and,

BE IT FURTHER RESOLVED, that Williamson County shall receive, disburse and act as the fiscal agent for the administration of the funds of the Municipal Solid Waste Region and the Region's Board; and,

BE IT FURTHER RESOLVED, that upon the passage of this resolution and at no later date than December 31, 1992, the County Clerk of Williamson County shall transmit a copy of this Resolution to the Tennessee State Planning office;

RESOLVED BY THE BOARD OF COUNTY COMMISSIONERS OF WILLIAMSON COUNTY, TENNESSEE, this the 12th day of October, 1992, the welfare of the citizens of Williamson County requiring it.

Bob E. Winder
County Commissioner

COMMITTEES REFERRED TO & ACTION TAKEN:

<u>Property & Sanitation Comm.</u>	For <u>6</u>	Against <u>0</u>
_____	For _____	Against _____
_____	For _____	Against _____

Commission Action Taken: For 17 Against _____ Pass _____ Out 4

Charlie Fox, Jr.
Charlie Fox, Jr., County Clerk

John Hedge, Commission Chairman

Robert A. Ring
Robert A. Ring-County Executive

10/16/92
Date

STATE OF TENNESSEE, WILLIAMSON COUNTY

I, Charlie Fox, Jr, County Clerk of Williamson County, do hereby certify that the foregoing is a true and perfect copy of A Resolution Appointing Members to the Williamson County Municipal Solid Waste Regional Board.

as the same appears of record in ... Minute Book 15

Page 403 on file in my office at Franklin.

Witness my hand and seal, at office, this 23rd day of August, 1993

Charlie Fox, Jr., Clerk.

By F.C. Hale, D. C.

RESOLUTION NO. 10-92-8

**Resolution Appointing Members to the
Williamson County Municipal Solid Waste Regional Board**

WHEREAS, T.C.A. 68-211-813(b)(1) provides for the appointment of a Municipal Solid Waste Regional Board and establishes their terms of office; and,

WHEREAS, four (4) members of this board are to be appointed by the County Executive and approved by the Board of County Commissioners;

NOW, THEREFORE, BE IT RESOLVED, that the following members of the Williamson County Municipal Solid Waste Regional board are hereby appointed by Williamson County:

- 1) Judy Hayes - 6 years;
- 2) Steve Wherley - 4 years;
- 3) Daryl Demonbreun - 4 years; and,
- 4) Tom Murdic - 2 years;

AND, BE IT FURTHER RESOLVED, that these appointments are hereby made and shall be in accordance with the provisions of T.C.A. 68-211-801, et. seq., the "Solid Waste Management Act of 1991".

Tom E. Murdic
County Commissioner

COMMITTEES REFERRED TO & ACTION TAKEN:

<u>Property & Sanitation Comm.</u>	For <u>6</u>	Against <u>0</u>
_____	For _____	Against _____
_____	For _____	Against _____

Commission Action Taken: Passed by unanimous voice vote.
For _____ Against _____ Pass _____

Charlie Fox, Jr.
Charlie Fox, Jr., County Clerk

John Hedge, Commission Chairman

Robert A. Ring
Robert A. Ring-County Executive

10/16/92
Date

STATE OF TENNESSEE, WILLIAMSON COUNTY

I, Charlie Fox, Jr, County Clerk of Williamson County, do hereby certify that the foregoing is a true and perfect copy of A Resolution Amending Resolution No. 10-92-8 to Establish the Membership for the City of Franklin.

as the same appears of record in ... Minute Book 15

Page ... 617 ... on file in my office at Franklin.

Witness my hand and seal, at office, this ... 23rd ... day of ... August ... , 1993

... Charlie Fox, Jr. ... , Clerk.

By ... N. C. Hale ... , D. C.

RESOLUTION AMENDING RESOLUTION NO. 10-92-8
TO ESTABLISH THE MEMBERSHIP FOR THE
CITY OF FRANKLIN

WHEREAS, the Williamson County Board of Commissioners, meeting in regular session on the 12th day of October, 1992, approved Resolution No. 10-92-8, which established the membership and terms of the Williamson County Municipal Solid Waste Board; and,

WHEREAS, at that time, the City of Franklin had not yet made an appointment for their representation on that board; and,

WHEREAS, the State Planning Office requires the establishment and term of a City of Franklin representative prior to its approval of the Williamson County Municipal Solid Waste Board; and,

WHEREAS, the City of Franklin appointed Mr. Al Gregory in November, 1992, for a two (2) year term to the Municipal Solid Waste Board;

NOW, THEREFORE, BE IT RESOLVED, that the Williamson County Board of Commissioners, meeting in regular session this the 10th day of May, 1993, hereby amends Resolution No. 10-92-8 to include the representation of the City of Franklin.

Lucy D. Hayes
County Commissioner

COMMITTEES REFERRED TO & ACTION TAKEN:

Municipal Solid Waste Board	For <u>4</u>	Against <u>0</u>
_____	For _____	Against _____
_____	For _____	Against _____

Commission Action Taken: Passed by unanimous voice vote.
For _____ Against _____ Pass _____

Charlie Fox, Jr.
Charlie Fox, Jr., County Clerk

John Hedge
John Hedge, Commission Chairman

Robert A. Ring
Robert A. Ring-County Executive

5/12/93
Date

June 24, 1994

APPENDIX B

**DOCUMENTATION FOR ADJUSTMENTS TO THE
BASE YEAR GENERATION**

Williamson County Municipal Solid Waste Board

Board Members

Judy Hayes, Chairperson
Tom Murdic, Vice-Chairperson
James Anglin
Clyde Barnhill
Stephen D. Wherley



1320 W. Main, Suite 414
Franklin, Tennessee 37064
TEL (615) 790-5848 • FAX (615) 790-5818

June 21, 1994

Mr. Paul Evan Davis, Director
Tennessee Department of Environment & Conservation
Division of Solid Waste Assistance
14th Floor, L & C Tower
401 Church Street
Nashville, Tennessee 37243-0455

Re: Williamson County Base Year Adjustment

Dear Mr. Davis:

This letter is written to request an adjustment in the 1989 base year waste quantity reported for Williamson County. The Waste Management Research and Education Institute's publication "Managing Our Waste: Solid Waste Planning for Tennessee" indicated a 1989 generation rate of 55,224 tons for the county. Although the estimate does reflect an accurate estimate of waste received at the landfill, it does not include waste transported out of the county for disposal.

Browning-Ferris Industries (BFI) has transported waste collected from their Williamson County customers to their Rutherford County disposal site since it opened in 1988. BFI has estimated that in 1989, approximately 9000 tons of waste generated in Williamson County was received at their facility. We have therefore adjusted our base year generation rate to 64,224 tons. I have attached a letter from Mr. Rob Owen, BFI Market Development, indicating this quantity.

I trust this information is adequate to justify our base year adjustment. The Williamson County Municipal Solid Waste Board thanks you in advance for your cooperation in this matter.

Sincerely,

Judy Hayes
Chairperson
Williamson County Municipal Solid Waste Board



Middle Point Sanitary Landfill

May 10, 1994

Mr. Jim Spicer
Caldwell & Assoc.
125 N. Church Street
Murfreesboro, TN 37130

RE: Williamson County Waste Generation Rate

Dear Mr. Spicer,

As per your request, I have reviewed our records to determine the quantity of solid waste received for disposal at our Middle Point facility from Williamson County customers. The specific information you requested was for the year 1989. After a review of our records, I have determined that the quantity of waste we received from Williamson County in 1989 was approximately 9,000 tons.

I hope this information satisfies your needs. If I can be of further assistance, please feel free to call.

Sincerely,



Rob Owen
Market Development
Middle Point Landfill

June 24, 1994

APPENDIX C
PUBLIC PARTICIPATION ACTIVITIES

June 24, 1994

On June 23, 1994, a Public Hearing has held to solicit public comment about the solid waste plan. The hearing was held at 5:00 p.m. in the Auditorium of the Williamson County Administrative Complex. Present for the hearing were:

Ms. Judy Hayes, Chairperson, Solid Waste Board
Mr. James Anglin, Solid Waste Board Member
Mr. Tom Murdic, Solid Waste Board Member
Mr. Clyde Barnhill, Solid Waste Board Member
Mr. Robert Ring, Solid Waste Advisory Committee
Ms. Amy Depp, Solid Waste Advisory Committee
Mr. Lee Sanders, Solid Waste Advisory Committee
Mr. Drew Wilson, Solid Waste Advisory Committee
Mr. Bob Caldwell, Caldwell & Assoc.
Mr. James Spicer, Caldwell & Assoc.

No members of the public were in attendance. No comments were received and the hearing was adjourned at 5:04 p.m.

**MINUTES OF THE WILLIAMSON COUNTY MUNICIPAL SOLID WASTE BOARD
PUBLIC HEARING, June 23, 1994**

Commissioner Judy Hayes, Chairperson of the Williamson County Municipal Solid Waste Board, opened the Public Hearing at 5 p.m. in the Auditorium of the Administrative Complex. Board members present in addition to Chairperson Hayes were James Anglin, Tom Murdic, and Clyde Barnhill. Solid Waste Advisory Committee members present were County Executive Robert Ring, Amy Depp, Drew Wilson, and Lee Sanders. Also present were Bob Caldwell and Jim Spicer, Caldwell & Associates.

There being no members of the public present, the public hearing closed at 5:04 p.m.

/jhw

June 24, 1994

APPENDIX D

**REVIEW BY THE APPROPRIATE MUNICIPAL OR
REGIONAL PLANNING COMMISSION**



CIVIL & ENVIRONMENTAL ENGINEERS

July 21, 1994

Ms. Geneil Hailey - Dillehay, Deputy Director
Division of Solid Waste Assistance
Tennessee Department of Environment & Conservation
14th Floor, L & C Tower
401 Church Street
Nashville, Tennessee 37243

Re: Williamson County Municipal Solid Waste Plan
File No. 93331

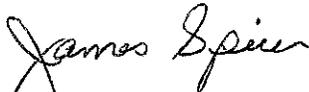
Dear Ms. Hailey - Dillehay:

Attached are ten (10) copies each of the following:

- 1) the base year adjustment approval letter
- 2) Williamson County Commission Resolution No. 7-94-19 adopting the solid waste plan
- 3) a Memorandum For the Record from the Williamson County Regional Planning Commission endorsing the plan.

Please attach the documents to the Williamson County Municipal Solid Waste Plan submitted July 1, 1994. We thank you for your cooperation in this matter.

Sincerely,


James Spicer
Caldwell & Assoc.

cc: Mr. Robert Ring, County Executive
Ms. Judy Hayes, Chairperson, Williamson County Municipal Solid Waste Board



RECEIVED JUL 7 6 1994

STATE OF TENNESSEE
DEPARTMENT OF ENVIRONMENT AND CONSERVATION

401 Church Street
Nashville, Tennessee 37243

RECEIVED

JUL 8 1994

WILLIAMSON CO.
EXECUTIVE'S OFFICE

July 5, 1994

Ms. Judy Hayes, Chair
Williamson County Municipal Solid Waste Board
1320 West Main, suite 414
Franklin, TN 37064

Dear Ms. Hayes:

We have received and reviewed your request for a base year adjustment of Williamson County's annual disposal rate 55,224 tons (the rate published in the 1989 U.T. survey) to 64,224 tons. It appears that you have a valid concern for correction of your base year data. Therefore, Williamson County's base year data is approved to reflect an adjusted annual disposal rate 64224 tons. This will change your base year annual per capita disposal rate from 0.683 to 0.79 tons per person per year.

Should you require any further assistance on this or other matters, please do not hesitate to contact us.

Sincerely,

Paul Evan Davis
Director
Division of Solid Waste Assistance

PED:GHD:dhm

STATE OF TENNESSEE, WILLIAMSON COUNTY

I, Charlie Fox, Jr, County Clerk of Williamson County, do hereby certify that the foregoing is a true and perfect copy of A Resolution Adopting the Williamson County Municipal... Solid Waste Plan.

as the same appears of record in Minute Book 16

Page 436 on file in my office at Franklin.

Witness my hand and seal, at office, this 15th day of July, 1994.

Charlie Fox, Jr., Clerk.

By N.C. Hale, D.C.

Resolution No. 7-94-19

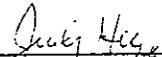
**RESOLUTION ADOPTING THE WILLIAMSON COUNTY
MUNICIPAL SOLID WASTE PLAN**

WHEREAS, the Solid Waste Management Act of 1991 required each county to adopt a municipal solid waste plan; and

WHEREAS, the Williamson County Municipal Solid Waste board was established by the Williamson County Board of Commissioners to develop a 10 year solid waste regional plan; and

WHEREAS, that plan has been developed and adopted by the Williamson County Municipal Solid Waste Board;

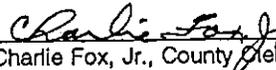
NOW, THEREFORE, BE IT RESOLVED by the County Board of Commissioners of Williamson County that the Williamson County Solid Waste Plan be adopted this 11th day of July, 1994.



Judy Hayes, Commissioner

Committee Referred to and Action Taken:

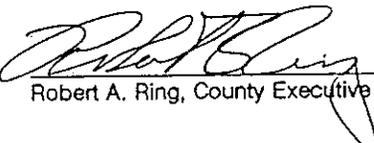
Municipal Solid Waste Board For 5 Against 0
Passed by unanimous voice vote.
Commission Action Taken: For Against Pass Out



Charlie Fox, Jr., County Clerk



John Hedge, Commission Chairman



Robert A. Ring, County Executive

7/15/94
Date



WILLIAMSON COUNTY
Planning Commission
1320 West Main St., Suite 400
Franklin, Tennessee 37064
615-790-5725

MEMORANDUM FOR THE RECORD

RE: Solid Waste Plan

The Regional Planning Commission reviewed the Williamson County Solid Waste Plan during their regular meeting on 14 July 1994.

Following the presentation and review, the Commission voted unanimously to endorse the Plan and reaffirm their support for the County's recycling efforts.

Sincerely,

Joe Horne
Secretary, Regional Planning Commission

JH/jg

copy: Mrs. Judy Hayes
County Commissioner

