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DESCRIPTION OF AND RATIONALE FOR THE REGION

The Solid Waste Planning Region consists of Grainger County and City of Blaine. The County encompasses 280.4 square miles in central northeast Tennessee bordering Claiborne, Hawkins, Hamblen, Jefferson, Knox and Union Counties. The 1990 Census population of the County was 17,095, with a population density of 61.3 people per square mile. The County is classified as 100 percent rural.

Grainger County elected to plan as a single county region. Initial contact with neighboring counties indicated a lack of interest or willingness to plan or join with Grainger County as a multi-county region. Grainger County has complex topography and geology. Mountains and rivers divide the County making management of waste in a multi-county operation very difficult.

SOLID WASTE PLANNING BOARD

The Solid Waste Planning Board is a seven member board which was approved by commission resolution in December 1992. Six (6) members represent the County and one (1) member is represented by the City of Blaine. Blaine is the only incorporated city which provides solid waste collection services to its citizens.

SOLID WASTE PLANNING BOARD

Doug Beeler, Chairman, County
Stanley Roach, Vice-Chairman, County
Vickie Vineyard, Secretary, Blaine
J. C. Williams, County
Buel Roach, County
Raymond Scarce, County
Michael K. Hammer, County

IDENTIFIED GOALS AND OBJECTIVES

The responsibility of the SWPB was to analyze current solid waste management operations in the Region, identify deficiencies and needs and to develop a comprehensive 10-Year Solid Waste Management Plan. The Plan was submitted to the Tennessee Department of Environment and Conservation by July 1, 1994.

REGIONAL NEEDS

- Develop a plan which will meet regulations and provide needed services at the least cost possible.
- Develop and install a regional recycling infrastructure.
- Expanded solid waste education program.
- Assure disposal capacity.
- Analyze operations for cost effectiveness.
- Combine fragmented solid waste services under one oversight group.

GOAL

Comprehensive and integrated solid waste management in Grainger County which is environmentally and financially sound, meets long-term needs of development and is in the best interest of citizens.

OBJECTIVES

- Develop an implementation plan which meets state regulations, serves the best interests of citizens, is practical and financially responsible.
- Plan for 10-Year disposal (landfill) capacity to serve Grainger Countians and provide for economic growth and expansions.
- Reduce waste by 25% by December 31, 1995 through recycling, waste reduction, reuse and responsibility.
- Educate children, adults, business, industry, and government sectors on proper solid waste management including financial and environmental impacts.

SYSTEM ELEMENTS

Collection and Transportation

Analysis of the current collection system indicates that all citizens are adequately served with six (6) County owned and operated convenience centers and one (1) convenience center owned and operated by the City of Blaine. All centers are staffed, fenced and open on various days and hours of the week. Centers will need to be upgraded to meet State regulations.

Waste Reduction

The strategy for reaching waste reduction goals has already been set in motion. Commercial/industrial businesses have collected and distributed for market 1,392 tons of recyclables in 1994. Recycling drop-off containers are planned for four (4) convenience center sites to collect glass, plastics, steel cans, aluminum cans, newspaper and waste oil. The County plans to construct and operate a processing center for recyclable materials collected in the Region by the public and private sectors. Operation for the processing center is proposed for 1994/95.

The County will join the Recycling Marketing Cooperative for East Tennessee for additional marketing of collected materials.

A Class IV facility is also planned to divert wood waste and construction/demolition waste. Support and encouragement will play an important part in increasing waste reduction in the commercial, industrial and institutional sector. An aggressive education program is critical to the success of the waste reduction plan and is discussed in Chapter IX. The school system is targeted for an aggressive campaign for waste reduction.

Whole tires and batteries will be banned from the landfill. Whole tires are currently and will be periodically shredded. The planning board is in support and in dialogue with surrounding Counties concerning the potential of attracting an end user for tires. Batteries will be collected and disposed during the Region's scheduled Household Hazardous Waste event.

There are no current or planned economic incentives or disincentives in the Region.

Source reduction, especially precycling, has been discussed and is a focus area in education programs. Quantifying this waste reduction component is difficult. The Region will prepare and seek approval of resolutions and ordinances by County and City governments to adopt recycled content resolutions for purchase of supplies.

Residential Recycling - The current level (1993) of residential recycling is unknown. The projected level of residential recycling in 1995 is 1,122 tpy and in 2003 is 1,108 tpy.

Commercial/Industrial Recycling - Current (1993) commercial and industrial recycling totals approximately 1,392 tpy. This is projected to increase to 2,178 tpy in 1995 and 2,248 tpy in 2003.

Diversion - Grainger County will permit a Class IV landfill for the disposal of construction and demolition waste. The projected level of waste diverted from the Class I to the Class IV landfill is 2,505 tpy in 1996, and in 2003 is 2,531 tpy.

Disposal

Careful analysis of the disposal situation anticipates the planned design and installation of a new Class I facility in Grainger County. The design plan calls for the initial construction of a one to one and one-half acre cell projected to serve the waste stream of the Region for two years. The waste stream for the Region of Grainger County is approximately 53 tpd.

If, for some unforeseen reason, the demand for more capacity arises, the site is more than adequate to accommodate the additional tonnage with construction of additional or larger Class I cells. The permitted site will be 25 - 30 acres when approved the Tennessee Department of Environment and Conservation, Division of Solid Waste Management.

A Class IV facility will be planned for construction and operation in 1996 to accept construction and demolition waste.

Education

A comprehensive, integrated information, education and publicity program which targets all sectors of the community including adults, children, government, business and industry and the general public has been designed with leadership given to Partners for Clean Communities Keep America Beautiful System (a division of Clinch-Powell RC&D Council). Goals will be pursued through many focused activities, projects, publicity and education campaigns designed to increase understanding and participation.

The primary methods to be used are school based instruction, workshops and training, audio-visual materials, slides and videos, publications, contests and awards, exhibits and demonstrations, and a speaker's bureau.

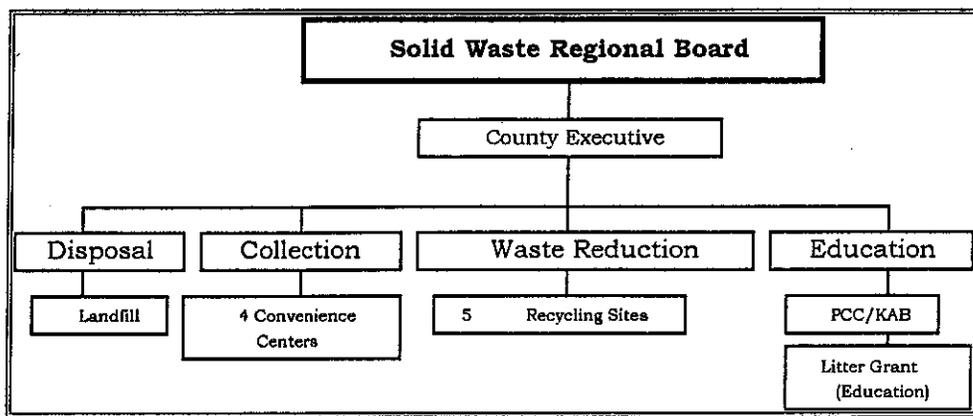
HOW NEW PROGRAMS, SERVICES AND FACILITIES WILL BE COORDINATED WITH THE EXISTING SYSTEM

The current system in the Grainger County region is not integrated. The County oversees the landfill and convenience centers. The County Executive oversees the litter grant program. Partners for Clean Communities oversees the education program. There is currently no publicly supported recycling program in the county.

Implementation of this Plan including new programs, services and facilities will require coordination, oversight, monitoring, supervision and integration with the existing systems. Stringent regulations will require trained staff, experienced in working with details, engineering plans, mandates, and complex issues. It will require coordination of collection, transportation, disposal, recycling, reduction and education programs. It will require completion of frequent detailed reports on every component of the plan and an annual report of implementation and revision.

Mandates will best be met and costs controlled by reorganization of the current and planned system into an organization structured to carry out the required Ten Year Solid Waste management Plan in the most cost effective and efficient manner.

INSTITUTIONAL STRUCTURE



IMPLEMENTATION SCHEDULE

Ten-Year Timetable for Collection and Transportation

Program	1994	1995	1996	1997	1998	1999	2000	2001	2002	2003
Upgrading Existing Centers		X								
Train Staff		X								
Data Collection/Annual Reports		X								
Purchase Truck					X					
Plan Updates						X				
Integrate Recycling Services		X								

X - when implementation begins. Shading indicates annual or on-going activity.

Ten-Year Timetable for Waste Reduction Program

Program	Responsible Organ.*	1994	1995	1996	1997	1998	1999	2000	2001	2002	2003
Buy recycled campaign	PCC		X	X	X						
Promote waste audits	SWB		X	X	X						
Establish 4 recycling sites	County/City		X	X							
Establish processing center	County		X								
Schools recycling program	PCC/County/Schools		X	X							
Research waste exchange	RM CET/PCC				X	X					

X - when implementation begins. Shading indicates annual or on-going activity.

* Responsible Organization: PCC - Partners for Clean Communities Keep America Beautiful System; SWB - Grainger County Regional Solid Waste Planning Board; Schools - Grainger County Schools; RM CET - Recycling Marketing Cooperative for East Tennessee; City - Blaine.

Ten-Year Timetable for Disposal Capacity

Program	1994	1995	1996	1997	1998	1999	2000	2001	2002	2003
Complete new Class I facility design		X								
Close out old facility			X							
Carry out post closure plan				X						
Complete permit process		X								
Review tipping fee	X	X	X	X	X	X	X	X	X	X
Begin Class IV facility permit process & design		X								
Train & certify landfill manager			X							
Begin construction of new Class I cell			X							
Begin construction on Class IV cell			X							

X - When program begins. Shading indicates annual or on-going activity.

Ten-Year Timetable for Education Program

Program	1994	1995	1996	1997	1998	1999	2000	2001	2002	2003
School-based instruction	X									
Workshops	X									
AV/Slides		X								
Publications	X									
Awards			X							
Exhibits	X									
Speakers Bureau	X									

X - When program begins. Shading indicates annual or on-going activity.

Ten-Year Timetable for Problem Waste Collection

Program	1994	1995	1996	1997	1998	1999	2000	2001	2002	2003
Household Hazardous Waste: Identify Potential Site Location Advertisement and Education Identify Site Representative Scheduled Collection Event		X								
Oil and Battery Collection*	X									
Waste Tire Collection*	X									
Litter Collection*	X									

X - when implementation begins. Shading indicates annual or on-going activity.

* Waste tire, litter and oil collection programs began before 1994, and will continue throughout the 10-year planning period.

STAFFING AND TRAINING REQUIREMENTS

Current Staffing (1993)

Landfill Manager (1)*
 Landfill Operators (2)
 Truck Drivers (1)
 County Convenience Center Attendants (6)*
 City Convenience Center Attendant (1)*

* Denotes employees required to be trained and certified under the Solid Waste Management of 1991. Training will be sought when guidelines are issued from the State.

Future Staffing (1995 - 2003)

Overall management and oversight will be handled by the Solid Waste Board and County Executive. Solid waste education responsibilities will fall to PCC/KAB.

Disposal

Landfill Manager (1)*
 Landfill Operators (5)

Collection and Transportation

Truck Driver (1)
 County Convenience Center Operators (3)*
 City Convenience Center Operators (1)*
 Green Box Center Attendants (3)

Waste Reduction

Recycling Coordinator (1)
 Recycling Assistant (1) (part-time)

* Denotes employees required to be trained and certified under the Solid Waste Management Act of 1991. Training will be sought when guidelines are issued from the State. Specifics on anticipated hiring and training in matrix format can viewed in Section of this Chapter.

ESTIMATED TEN-YEAR SYSTEM COSTS

Ten-Year Collection and Transportation Budget

Year	Capital Costs	County Annual Costs	Blaine	Total
1994		\$ 99,000	\$ 8,245	\$107,245
1995	\$38,000	\$105,358	\$ 8,509	\$151,867
1996		\$111,609	\$ 8,781	\$120,390
1997		\$118,060	\$ 9,061	\$127,121
1998	\$125,000*	\$124,717	\$ 9,350	\$259,067
1999		\$131,587	\$ 9,649	\$141,236
2000		\$138,677	\$ 9,957	\$148,634
2001		\$145,994	\$10,275	\$156,269
2002		\$153,545	\$10,603	\$164,148
2003		\$161,338	\$10,942	\$172,280

* Replacement truck.

Ten-Year Waste Reduction Budget

Year	Capital Outlay	Annual Costs
1994	\$34,400	\$33,780
1995	\$21,000	\$39,990
1996	\$14,000	\$43,382
1997		\$44,770
1998		\$46,203
1999		\$47,681
2000		\$49,207
2001		\$50,782
2002		\$52,407
2003		\$54,084

Note: Annual operating costs dependent on continuing TDOT Litter Grant Program.

Ten-Year Public Education Budget

Program	1994	1995	1996	1997	1998	1999	2000	2001	2002	2003
PCC-KAB	\$12,100	\$12,500	\$12,500	\$6,000	\$6,200	\$6,400	\$6,600	\$6,800	\$7,000	\$7,200

Ten-Year Disposal Capacity Budget

Program	1994	1995	1996	1997	1998	1999	2000	2001	2002	2003
Landfill Operations & Maintenance	\$208,500	\$304,100	\$313,831	\$323,874	\$334,238	\$344,933	\$355,971	\$367,362	\$379,118	\$391,250

The new Class I facility will have 25-30 permitted acres. The property adjoins the existing landfill property. The final design will be completed in 1995. Projected Subtitle D Class I landfill costs are provided in the table on the following page.

Projected Subtitle D Class I Landfill Costs (1995)

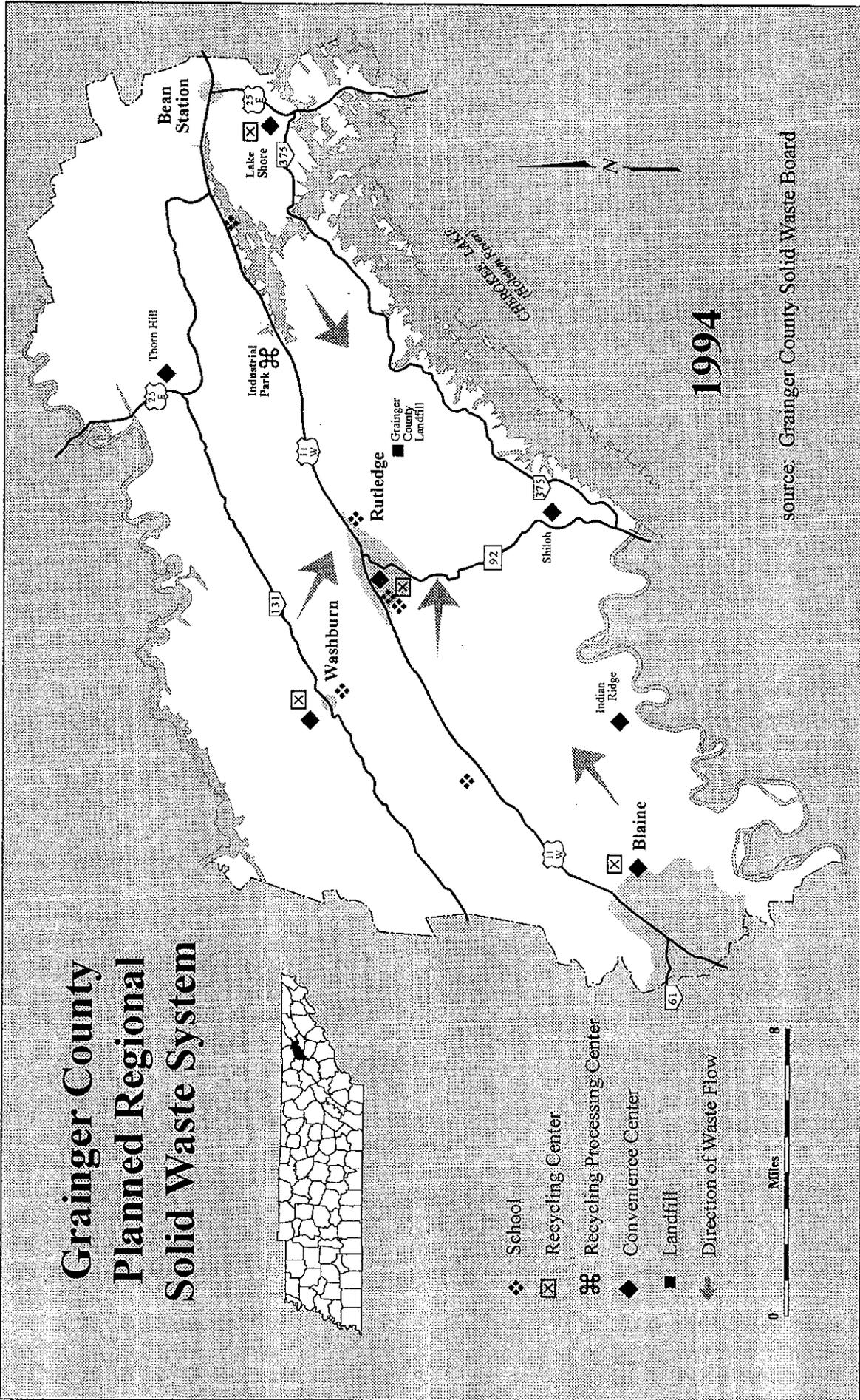
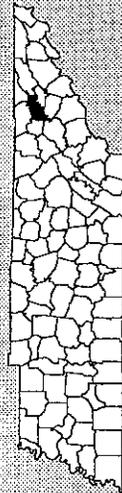
ITEM	EXISTING FACILITY	NEW SUBTITLE D
PRE-DEVELOPMENT COSTS		
Geotechnical Investigations		\$ 60,000
Site Mapping		\$ 5,000
Engineering Design (Class I & IV)		\$125,000
Permit Application		\$ 10,000
Monitoring Wells		\$ 18,000
(a) TOTAL PRE-DEVELOPMENT		\$218,000
INITIAL CONSTRUCTION COSTS		
Erosion & Sediment Facilities (pond and drainage ditches)		\$125,000
Liners, liner cushion system & internal leachate control (1 acre cell)		\$125,000
Main leachate collection lines and gas venting system		\$ 60,000
Weighing Scales	\$ 35,000	
Scalehouse and Office	\$ 8,000	
Tire Storage Area	\$ 10,000	
Construction engineering & quality control testing		\$ 30,000
(b) TOTAL INITIAL CONSTRUCTION	\$ 53,000	\$340,000
ANNUAL OPERATIONAL COSTS		
Salaries/Employee Costs		\$129,000
Board expenses		\$ 500
Communication		\$ 600
Engineering		\$ 6,000
Evaluation and testing		\$ 9,000
Maintenance and repair		\$ 12,000
Travel		\$ 600
Crushed stone		\$ 5,000
Diesel fuel/Gasoline		\$ 12,500
Electricity		\$ 2,400
Erosion Control		\$ 0
Lubricants, Tires & Tubes		\$ 3,500
Office Supplies		\$ 500
Trustee's Commission		\$ 2,500
Equipment Insurance		\$ 2,500
Surcharge		\$ 12,500
Other Equipment		\$ 5,000
Equipment payments		\$ 65,000
(c) TOTAL ANNUAL OPERATIONAL COSTS		\$269,100
CLOSURE & POST-CLOSURE		
	\$250,000	\$ 15,000 (old)
		\$ 20,000 (new)
(d) TOTAL CLOSURE/POST-CLOSURE		\$ 35,000
SUMMARY COSTS		
Capital costs (a + b)	\$ 53,000	\$558,000
Annual Operating Costs (c)		\$269,100
Annualized Closure/Post-Closure Costs (d)		\$ 35,000
Annual Tons/Year		16,536

Note: Costs projected from engineering estimates, local experience and historical costs.

ALLOCATION OF RESPONSIBILITIES AMONG LOCAL GOVERNMENTS AND PRIVATE SECTOR

Primary responsibility for implementation of the Plan lies with Grainger County. Residential collection of solid waste in Blaine remains with the City. Disposal capacity, County residential collection, transportation and recycling will be the responsibility of Partners for Clean Communities Keep America Beautiful System under the direction of the Clinch-Powell Resource Conservation and Development Council.

Granger County Planned Regional Solid Waste System



- ◆ School
- ☒ Recycling Center
- ♁♁ Recycling Processing Center
- ◆ Convenience Center
- Landfill
- ➔ Direction of Waste Flow

0 8
Miles

1994

source: Grainger County Solid Waste Board

**PART II
INTRODUCTION**

MUNICIPAL SOLID WASTE REGIONAL PLAN

The Solid Waste Management Act of 1991 required the formation of municipal solid waste planning regions, based on the recommendations of a District Needs Assessment prepared under the leadership of the state's nine Development Districts. The planning regions were formed by the end of December 1992.

The purpose of the District Needs Assessment was threefold: (1) to carry out an inventory and analysis of the existing solid waste management system; (2) to define needs for additional services and facilities for the next ten years; and (3) to recommend rational waste disposal areas, which would provide the nucleus for a municipal solid waste planning region.

The purpose of the regional plan is to set forth how planning regions will meet these needs. The regional plan is based on the inventory of facilities, services and programs provided in the District Needs Assessments. The planning region defines its specific needs--quantitatively.

It was only necessary to revise the data collected in the District Needs Assessment when there was a significant change in waste generation or management capacity, in the intervening year, which was not projected in the Assessment (for example, the sudden closure of a major industry, or construction of a new processing facility). The regional plan utilizes Tables from the District Needs Assessments, where appropriate.

The regional plan is more specific and more detailed than the District Needs Assessment. The regional plan addresses all required plan elements and follows the organization format set forth in the Guidelines for Preparation of a Municipal Solid Waste Regional Plan, prepared by The Tennessee State Planning Office. Much of the plan consists of narrative and may be supported by tables, figures, and maps prepared by the Region. The planning horizon is 1994-2003.

The plan consists of three parts: (1) an Executive Summary; (2) a detailed plan; and (3) Appendices.

The plan was submitted to the State Planning Office by July 1, 1994, after a public hearing had been conducted in the Region.

The Statutory Authority requiring preparation of the plan and describing its content is found in the following sections of the Tennessee Code Annotated: T.C.A. Sections 68-211-813(c); 68-211-814(a); 68-211-814(b)(6); 68-211-815; 68-31-851(b); 68-211-861(f); 68-211-842; 68-211-871(a) and (b); and indirectly, in 68-211-866(b); and 49-7-121.

**DESCRIPTION OF THE
MUNICIPAL SOLID WASTE REGION**

A. GENERAL DESCRIPTION

The Solid Waste Planning Region consists of Grainger County and the City of Blaine. The County encompasses 280.4 square miles in central northeast Tennessee bordering Claiborne, Hawkins, Hamblen, Jefferson, Knox and Union Counties. The 1990 Census population of the County was 17,095, with a population density of 61.3 people per square mile. The County is classified as 100 percent rural.

B. RATIONALE FOR REGION FORMATION

Grainger County elected to plan as a single county region. Initial contact with neighboring counties indicated a lack of interest or willingness to plan or join with Grainger County as a multi-county region. Grainger County has complex topography and geology. Mountains and rivers divide the County making management of waste in a multi-county operation very difficult.

C. INSTITUTIONAL STRUCTURE

The County and the City of Blaine offer collection for their citizens through a network of convenience centers. The County owns and operates the Class 1 Sanitary Landfill located east of Rutledge.

The Grainger County Litter Grant Fund is handled out of the County Executive's office. Education is handled by Partners for Clean Communities Keep America Beautiful System (part of a five county organization). Recycling and waste reduction efforts are practiced by the commercial/industrial sector, as well as by the residential population. Individual operators working at the convenience centers scavenge recyclable materials from the dumpsters.

The Municipal Solid Waste Planning Board is responsible for preparing a 10-year Municipal Solid Waste Regional Plan, as required by The Solid Waste Management Act of 1991. The Board was formed by resolution adopted by the County Commission in December 1992, as required by the Act. There are seven (7) members on the Planning Board. Six are representatives of the County. One member represents the City of Blaine. County and City members were appointed by the County Executive and Mayor, and approved by the County Commission and City Council, respectively.

The Planning Board members, their representation and term of office are listed as follows:

<u>Member</u>	<u>Representation</u>	<u>Term of Office</u>
Stanley Roach	County	6 years (Vice-Chair)
J.C. Williams	County	6 years
Buel Roach	County	4 years
Raymond Scarce	County	4 years
Doug Beeler	County	2 years (Chair)
Michael K. Hammer	County	2 years
Vickie Vineyard	Blaine	2 years (Secretary)

The terms of office for officers are one (1) year. Three consecutive absences is grounds for replacement. Replacements are made by the entities being represented.

The Planning Board appointed an Advisory Board. The following people were chosen to serve on the Advisory Board: Albert Scarce, Donna Barnard, Donna Kitts, Cindy Collins, Hal Stansberry, Lindy Turner and Chris Garkovich. The role of the Advisory Board is to provide feedback and serve as a sounding board in the development and implementation of the plan. The Advisory Board is consulted on an individual basis, and as a group, and serves as one way to involve the public an integrated solid waste management system. The public was invited to comment at a public hearing prior to the final plan submission. Presentations were made to the County Commission on matters relating to setting up the solid waste management infrastructure and plan development.

D. DEMOGRAPHICS

The current population for the Region, according to U.S. Census Bureau projections, is noted below. The following Tables also feature data on average population density, population distribution, housing occupancy, and projected populations.

Name of Region: Grainger County

Regional Population: 17,200 (1993)

Regional Area: 280.4 square miles

Table I-1

Average Population Density

Grainger County	Area (Sq. Miles)	1993 Population	Avg. Density Population/sq.miles
Regional Total	280.4	17,200	61.3

Table I-2

Distribution of the Total Regional Population by Urban and Rural Areas (1993 Projection)

	Urban		Rural	
Grainger County	Population	%	Population	%
Regional Total	0	0	17,200	100

Table I-3

Distribution of Total Regional 1990 Population by Sex and Age

Age	Total	Male	%	Female	%
0 - 4	1,028	554	53.9	474	46.1
5 - 17	3,143	1,646	52.4	1,497	47.6
18 - 44	6,962	3,482	50.0	3,480	50.0
45 - 64	3,756	1,865	49.7	1,891	50.3
65 +	2,206	926	42.0	1,280	58.0
REGIONAL TOTAL	17,095	8,473	49.2	8,622	50.4

Source: 1990 Census

Table I-4

Distribution of Regional 1990 Population by Education (Age ≥ 25)

Grainger County	Number	%
Less than 9th Grade	3,886	34.9
9th-12th Grade, no diploma	2,089	18.8
High School Graduate	3,433	30.9
Some College, no degree	985	8.9
College (1-4)	543	4.9
Post Graduate/Professional Degree	192	1.7
REGIONAL TOTAL	11,128	100.0

Source: 1990 Census

Table I-5

Distribution of Region by Type of Housing and Occupancy in 1990

	Total Persons	Occupied	Owner	Rented
Single Family				
1, Detached	12,431	25	3,968	724
1, Attached	106	39	29	10
Multi-Family				
2	59	25	7	18
3-4	33	72	6	66
5-9	37	19	1	18
10-19	24	17	1	16
20-49	0	0	0	0
50 or more	0	0	0	0
Institutional	183	NA	NA	NA
Mobile Home/Trailer	3,936	1,457	1,201	256
Other	186	73	58	15
REGIONAL TOTAL	16,995	6,394	5,271	1,123

Source: 1990 Census

Note: Total Number of Households in Region: 6,515 (1993 Estimate).

Table I-6

Regional Population Projections 1994 - 2003

Projection Year

Grainger County	1994	1995	1996	1997	1998	1999	2000	2001	2002	2003
Regional Total	17,233	17,283	17,301	17,338	17,369	17,404	17,439	17,441	17,443	17,443

Source: University of Tennessee, Department of Sociology, November 17, 1992.

Note: Regional Population 1993: 17,200.

Projected regional population data does not suggest any significant trends which would affect waste generation rates in the Region. Planned system components will be adequate to manage population increases significantly higher than projected.

E. ECONOMIC ACTIVITY

The following information relates to basic economic activity in Grainger County. The following Tables include data on agricultural and non-agricultural employment, employers by industry, health care facilities, local revenue sources, assessed property values, property tax revenue, local sales and sales tax revenues, and number of registered of vehicles.

Table I-7

Basic Economic Information for the Region of Grainger County

Grainger County	1993 Population ¹	MSA County (yes/no)	Total Employment ²	Total Earnings ²	Per Capita Income ²	% Population Below the Poverty Line ³
Regional Total	17,200	No	5,898	\$187,122,000	\$10,700	20.5%

Source: ¹ University of Tennessee, Department of Sociology, November, 1992

² Bureau of Economic Analysis, U.S. Department of Commerce, 1991

³ 1990 Census

Table I-8

Total Non-agricultural Employment by Sector and % of Total Employment

Grainger County	Manufacturing	Construction	Trade	Finance	Service	Govt.	Transportation Pub. Utilities
Regional Total	1,464	304	628	159	767	716	224
%	24.8	5.2	10.6	2.7	13.0	12.4	3.8

Source: Bureau of Economic Analysis, U.S. Department of Commerce, 1991

Note: Number of people in non-agricultural employment in 1991: 4,307.

Table I-9

Agricultural Employees

Grainger County	Employment
Regional Total	1,591

Note: Total Agricultural Employment in 1991: 1,591.

Table I-10

Employers by Industry in the Region of Grainger County

FIRMS BY EMPLOYMENT SIZE CLASS										
Industry	All Firms	1-4	5-9	10-19	20-49	50-99	100-249	250-499	500-999	1000 +
Total	174	2	0	0	0	0	0	0	0	0
Ag. Services, Forestry, Fisheries	2	1	0	0	0	0	0	0	0	0
Mining	1	1	0	0	0	0	0	0	0	0
Construction	13	11	2	0	0	0	0	0	0	0
Manufacturing	27	11	4	3	2	1	6	0	0	0
Transportation, Communication, Utilities	13	11	2	0	0	0	0	0	0	0
Wholesale Trade	11	6	2	2	1	0	0	0	0	0
Retail Trade	50	31	8	7	3	1	0	0	0	0
Finance, Insurance, Real Estate	4	3	0	0	0	0	0	0	0	0
Services	49	39	6	1	2	0	1	0	0	0

Source: U.S. Department of Commerce, County Business Patterns, 1990, Tennessee

* Includes both private and public entities in 1990.

Table I-11

Regional Summary of Institutions Housing More than 100 Persons

Grainger County	Total Number of Institutions	Total Number of Students Prisoners/Residents	Estimated Quantity of Waste Generated*
Regional Total	0	0	0

* Estimated from Waste Management, Inc. (5 lbs./person/day)

Table I-12

**Summary Data on Major Health Care Facilities (larger than 50 beds)
(hospitals, nursing homes) in the Region of Grainger County**

Grainger County	No. of Facilities	No. of Beds	Infectious Waste Management		Est. Quantity of Solid Waste Generated*
			On Site/Offsite	Type Treatment	
Regional Total	1	132	onsite	double bagged & hauled to landfill	120 tpy

* Estimates from Waste Management, Inc. (16 lbs./person/day for hospitals, and 5 lbs./person/day for nursing homes)

Table I-13

Sources of Local Revenue Utilized in the Region of Grainger County

Grainger County	Property Tax	Local Sales Tax	Wheel Tax	Local Waste Collection Fee	User Fee/Tipping Fee	Other
Regional Total	X	X			X	see above

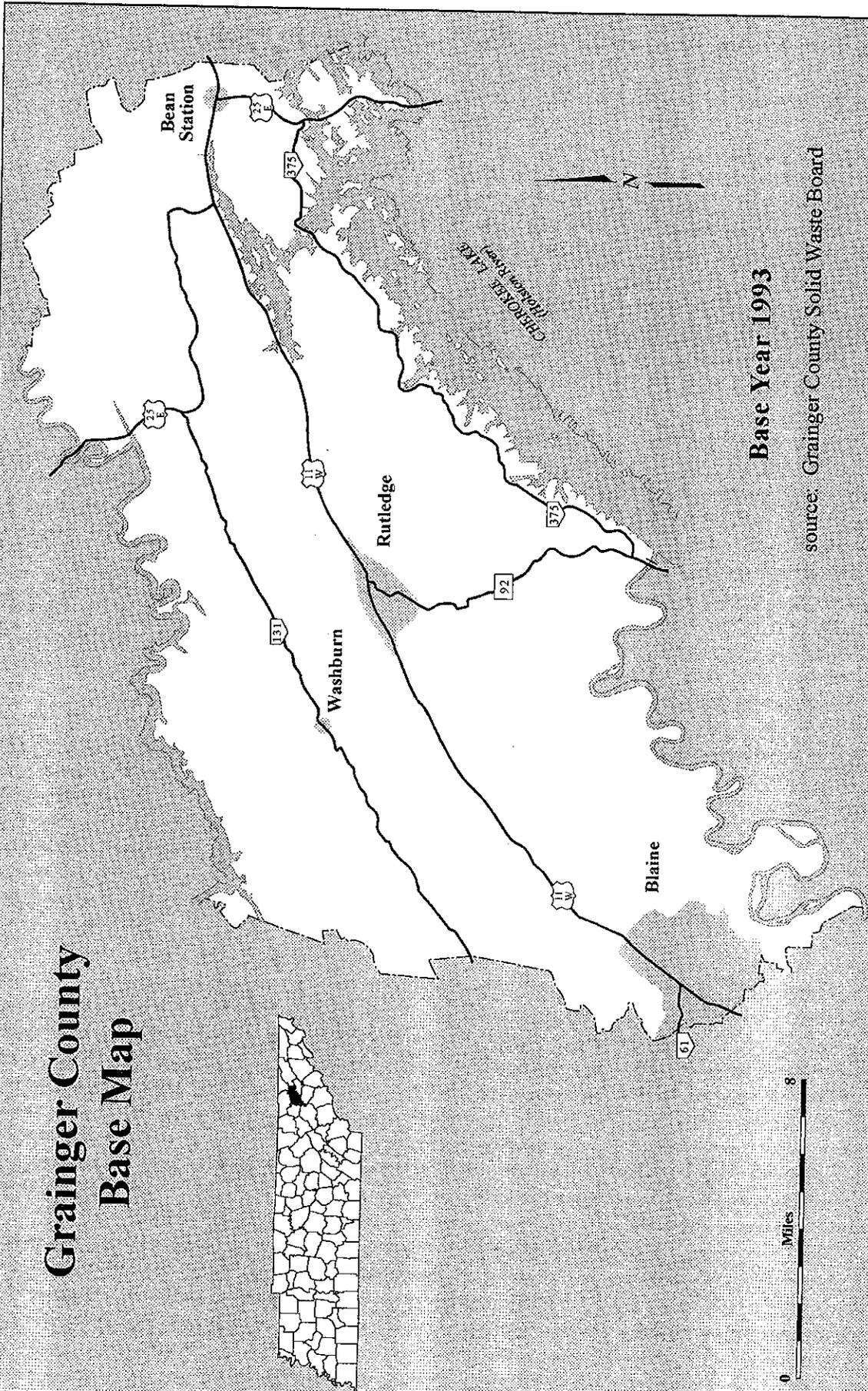
Table I-14

Summary of Assessed Property Values, Property Tax Revenue, Local Sales and Sales Tax Revenues, and Number of Registered Vehicles

Grainger County	1992 Total Assessed Property Value	1992 Total Property Tax Revenue	1992 Total Sales Subject to Local Sales Tax ¹	1992 Total Local Sales Tax Revenue	1992 # Registered Vehicles	1992 Total Wheel Tax Revenue
Regional Total	\$78,715,000	\$2,375,000	\$31,000,000	\$2,180,544	14,500	NA

Source: ¹ According to Stan Chervin, Director of Research, Tennessee Department of Revenue.

Grainger County Base Map



Base Year 1993

source: Grainger County Solid Waste Board

CHAPTER II.

**ANALYSIS OF THE CURRENT SOLID WASTE
MANAGEMENT SYSTEM FOR THE REGION**

Statutory Requirements:

"...(E)ach plan submitted by a municipal solid waste region shall include the following:... (2) a current system analysis of: (A) waste streams, including data concerning types and amounts generated; (B) collection capability, including data detailing the different types of collection systems and the populations and areas which receive and do not receive such services; (C) disposal capability, including an analysis of the remaining life expectancy of landfills or other disposal facilities; (D) costs, using a full-cost accounting model developed by the State Planning Office; including costs of collection disposal, maintenance, contracts, and other costs; and (E) revenues, including cost reimbursement fees, appropriations, and other revenue sources." [T.C.A. Section 68-211-815 (b)(2)]

Data supporting this chapter is displayed in the Grainger County Needs Assessment prepared for the County as a part of the District Needs Assessments.

A. WASTE STREAM CHARACTERIZATION

There has never been a detailed solid waste characterization study conducted in Grainger County, although the rural nature of the area makes it certain that yard waste comprises much less than the 17.6% indicated in the national figures. However, without supporting data the characterization of the Grainger County waste stream is calculated as instructed according to national figures.

Table II-1

Quantity of Solid Waste Received for Disposal/Incineration in Calendar 1991

Grainger County	Tons Disposed	Population (1991)	Waste Disposed Per Capita
Regional Total	16,536	17,130	.97

Table II-2

Origin of Regional solid Waste disposed in 1993
Tons Per Year

Grainger County	Residential	Institutional/ Commercial	Non-Hazardous Industrial	Special	Other
Regional Total	8,103	1,058	7,375	1	NA

Origin of Solid Waste Disposed in 1993
Grainger County

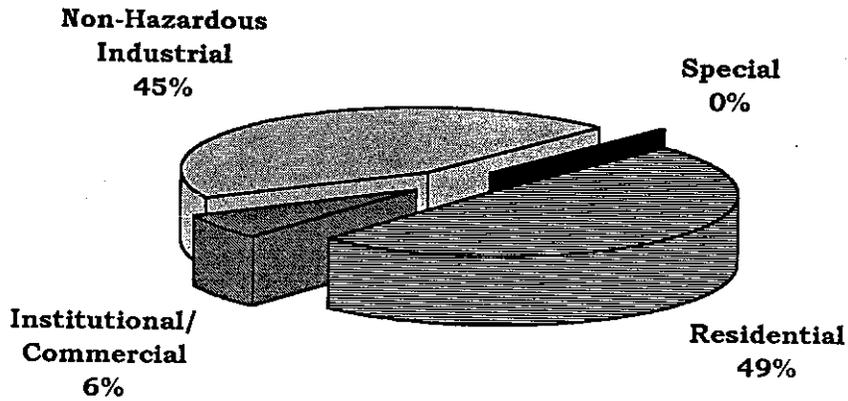


Table II-3

Acceptance of Certain Categories of Solid Waste for Disposal or Incineration (tons)

Grainger County/ Facility	Yard Waste (Clippings leaves-grass)		Sewage Sludge		Construction Demolition		Tires		White Goods	
	Y/N	Qty	Y/N	Qty	Y/N	Qty	Y/N	Qty	Y/N	Qty
Regional Total	Y	160	N	---	Y	330	Y	100	Y	1

* White Goods - discarded major appliances, such as refrigerators, ranges, etc.

Table II-4

Description of the Waste Stream By Materials*

<u>Waste Category</u>	<u>National %</u>	<u>Calculated Regional Tons</u>
Paper & paperboard	40.0	6,615
Glass	7.1	1,160
Ferrous Metals	6.5	1,075
Aluminum	1.4	232
Other Non-Ferrous Metals	0.6	100
Plastics	8.0	1,325
Rubber & Leather	2.5	415
Textiles	2.1	350
Wood	3.6	596
Food Waste	7.4	1,225
Yard Waste	17.6	2,911
Misc. Inorganic Waste	1.5	250
Other	<u>1.7</u>	<u>284</u>
TOTAL MUNICIPAL SOLID WASTE	100.0	16,536

* Based on EPA default percentages.

There has never been a detailed solid waste characterization study conducted in Grainger County, although the rural nature of the area makes it certain that yard waste comprises much less than the 17.6% indicated in the national figures. However, without supporting data, the characterization of the Grainger County waste stream is calculated as instructed according to national figures.

Table II-5
Unmanaged Waste*

Grainger County	Potential Waste Generation 1991 tpy	Actual Waste Disposed 1991 tpy	Unmanaged Waste 1991 (potential/actual) tpy	Percent of Potential Total
Regional Total	18,757	16,536	2,221	12

* Wastes that are "outside" the collection system such as materials in roadside dumps, litter, etc.

Potential waste is calculated based on 4.5 lbs. per person per day generation, as outlined in the UT Report - Managing Our Solid Waste. Illegal dumping is a problem. A study is currently underway by the Clinch-Powell Resource Conservation and Development Council which will catalogue dumps by location, size and age, and then analyze through use of a Geographic Information System. A UT Geography graduate student is conducting the study. Results will help the Region to manage and combat illegal dumping.

There are no special conditions that are expected to affect the composition of the solid waste stream in the Region during the 10-year planning horizon.

B. WASTE COLLECTION AND TRANSPORTATION SYSTEMS

The City of Blaine currently offers residential solid waste collection at the city-owned convenience center. Solid waste collected at the convenience center is transported by a County front-end loader to the County landfill. The County currently operates six (6) convenience centers. The County also hauls solid waste from the convenience centers to the County landfill. Detailed information on the existing collection services and facilities can be found in the County Profile of the District Needs Assessment, Chapter V. A.1-18.

There are no unserved or underserved areas in the County or City of Blaine.

The convenience centers are staffed, fenced and open on various days and hours of the week. Attendants are contracted by the County. Centers will not meet new state mandated requirements without additional construction and modification.

C. SOURCE REDUCTION AND RECYCLING SYSTEMS

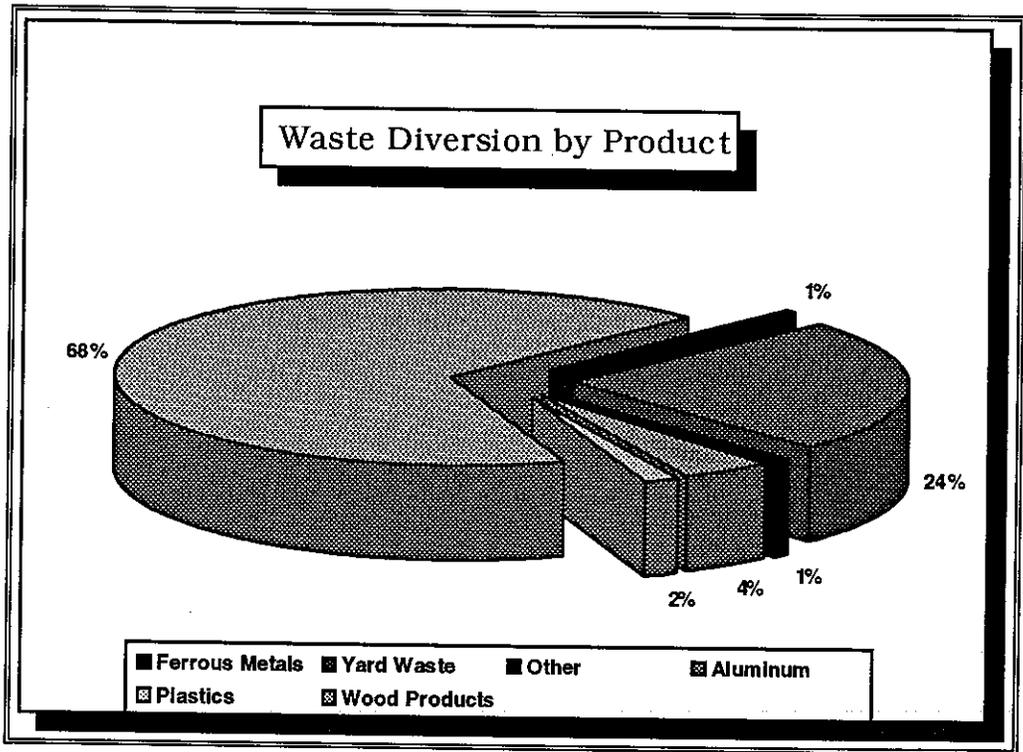
There are no current County programs for waste reduction or recycling at the present time. Existing recycling efforts in the Region have been fragmented between the local

schools, businesses and County government. Bean Station Elementary recycles cardboard, aluminum and steel cans, newspaper and catalogs. Alice Moody, the librarian at the school, personally transports these items to Lakeway Recycling in New Market (Jefferson County). Estimated amounts collected are unknown. In addition, four area businesses collect recyclable materials from their in-house operations, and market them. Approximately, 100 tons of material were collected and distributed for market by these businesses in 1991.

The operation of the six (6) County convenience center sites is contracted with individual operators. Individual site operators collect certain materials from the convenience center waste stream for their personal recycling purposes. Amounts of collected materials by convenience center workers are also unknown at this time.

From January 1981 until July 1991, Grainger County operated a Recycling Buy-Back Center in Rutledge. In 1991, the County collected and marketed 20 tons of recyclable materials before closing operations in June 1991. The facility where the Center was housed, however, was an inadequate structure for the heavy merchandise collected, such as glass. The facility was an old school building which had been abandoned for several years. The glass collected and stored in one section of the school building, caused the floor to weaken. Eventually, the entire structure had to be condemned, and the Recycling Center ceased to operate because there were no other available structures in the County to continue operations.

Currently, there are several commercial and industrial businesses diverting recyclables from the regional waste stream. A comprehensive questionnaire/survey of businesses and industries in the County, administered by the Partners for Clean Communities, documented approximately 1,392 tons of recyclables being diverted from the County landfill through reuse and recycling. A summary of this survey is found in the graph on the following page.



*Note: Percentages displayed reflect total of 1,392 tpy diverted.
Other category includes oil, glass and textiles.*

**Waste Diversion By Product
1994 (TPY)**

Wood Products	Yard Waste	Aluminum	Plastics	Ferrous Metals	Other
68%	24%	4%	2%	1%	1%

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

There are no existing waste processing, composting, and waste-to-energy or incineration facilities in the Region of Grainger County.

E. DISPOSAL FACILITIES - LANDFILLS AND BALEFILLS

The only significant changes to the information contained in Chapter VI of the Needs Assessment are the installation of scales at the current sanitary landfill owned and operated by the County. The County will continue to maintain the facility throughout the 10-year planning horizon.

Tables II-6 through II-9, on the following pages, present specific data on the landfill capacity available in Grainger County.

Table II-6

Existing Municipal Solid Waste Landfills in the Region

Grainger County	Name of Landfill	Location	Permitted Capacity (Acres)	Current Rate of Waste Accepted (tons/day)	Remaining Capacity (tons)*
Regional Total	Grainger County Sanitary Landfill	Knob Road	35	53	37,206

* Assumes capacity from July 1994 until October 1996.

Table II-7

Existing Landfills Expected to Close Before 2003

Grainger County	Location	Current Use (Tons/Day)	Current Annual Use (Tons/Year)	Anticipated Date of Closure
Regional Total	Knob Road	53	16,536	10/96

* Assumes 312 days/year.

Table II-8

Planned Expansions and Planned New Facilities Which Will Operate for Ten Years or More

Grainger County	Proposed Facility		Location	When Will Capacity be Available	Permitted Capacity Sought (acre)	Design Rate of Waste (tpd) Disposed*	Potential Expansion Yes/No
	Expan.	New					
Grainger Sanitary Landfill		X	Knob Road	10/96	25	60 TPD	Yes
Planned New Regional Capacity			same	10/96	25	60 TPD	Yes

* Assumes 312 days/year.

Table II-9

Total Existing and Planned Capacity in the Region of Grainger County at the Close of the Next Ten Years

Year	TONS		
	Existing	Planned	Total
FY 1993	16,536		16,536
FY 1994	16,536		16,536
FY 1995	16,536		16,536
FY 1996		16,536	16,536
FY 1997		16,536	16,536
FY 1998		16,536	16,536
FY 1999		16,536	16,536
FY 2000		16,536	16,536
FY 2001		16,536	16,536
FY 2002		16,536	16,536
FY 2003		16,536	16,536

The location of all disposal facilities (existing and planned) for the Region of Grainger County can be viewed on the regional map at the end of this chapter.

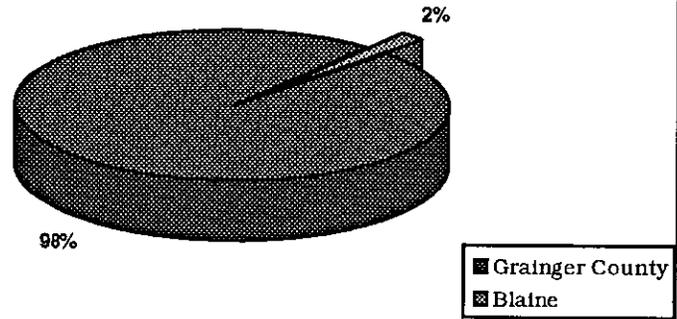
F. COSTS AND REVENUES FOR THE CURRENT SYSTEM

The following Table indicates the current system costs and revenues for Grainger County and the City of Blaine for 1994.

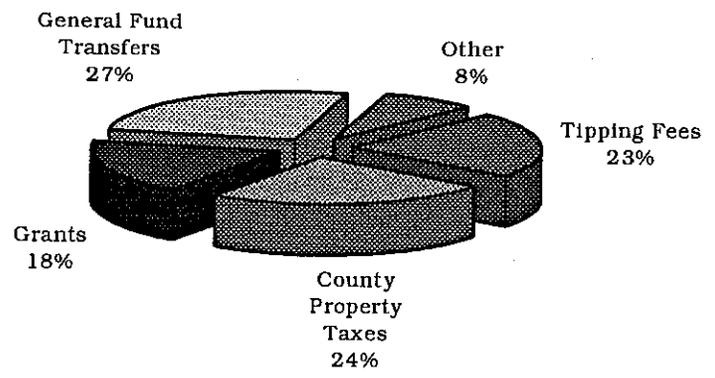
Region of Grainger County	County	Blaine	Total
EXPENSES			
Collection & Transportation			
Publicly-Owned	\$189,300	\$8,245	\$197,545
Privately-Contracted			
Problem Wastes	\$0	\$0	
Composting	\$0	\$0	
Processing/Handling	\$0	\$0	
Litter & Recycling	\$ 44,951	\$0	\$ 44,951
Disposal			
Tipping Fees		\$0	
Landfill Operation	\$208,150	---	\$208,150
TOTAL	\$442,401	\$8,245	\$450,646
REVENUES			
Tipping Fees	\$102,500	--	\$102,500
County Property Taxes	\$110,184	---	\$110,184
General Fund Transfers	\$112,000	\$8,245	\$120,245
Collection Fees	\$ 18,000		\$ 18,000
Grants	\$ 65,700		\$ 65,700
Other Taxes	\$ 34,850		\$ 34,850
TOTAL	\$443,234	\$8,245	\$451,479

The costs and revenues of the current system are displayed in the graphs on the following page.

Current Solid Waste Expenses by Percent By Jurisdiction 1994



Sources of solid Waste Revenues 1994



G. PUBLIC INFORMATION AND EDUCATION PROGRAMS

Solid waste education efforts are coordinated and carried out primarily by Partners for Clean Communities Keep America Beautiful System and the Clinch-Powell Resource Conservation and Development Council, as defined in the Needs Assessment. Partners KAB was certified as the first regional KAB in the nation in September 1992. They conduct a variety of programs focused on all segments of the population. Specific activities will be discussed in detail in Chapter IX.

The Grainger County Litter Grant is administered by the County Executive's Office. In 1993, the State stipulated that a portion of that grant be used for education focused on litter and solid waste handling.

A regional map indicating the location of local school systems and other community based education programs can be viewed at the end of this chapter.

H. PROBLEM WASTES (See Chapter X).

Except for waste tires, no information concerning problem wastes was collected during the Needs Assessment. A tire storage area will be constructed at the Grainger County Landfill with the aid and approval of the Tennessee Department of Environment and Conservation, Division of Solid Waste Management. An analysis of existing solid waste management practices for all problem wastes will be discussed in Chapter X.

I. SYSTEM MAP FOR BASE YEAR (1993)

A composite map of the regional solid waste management system is provided at the end of this chapter. The map identifies the approximate location of the following existing system components for the Region of Grainger County:

1. Convenience center sites;
2. Waste flow patterns for solid waste generated and disposed in the County;
3. Class I landfill site; and
4. Educational programs.

J. STRENGTHS AND WEAKNESSES OF EXISTING SYSTEM

STRENGTHS

1. County operated network of staffed/fenced convenience centers funded by the County and serving the needs of citizens.
2. Framework for an effective education program is in place.
3. Waste oil collection in place.
4. Significant amount of commercial/industrial waste reduction in place and documented.
5. Convenience center owned and operated by the City of Blaine.

WEAKNESSES

1. No County recycling collection or marketing program.
2. New Class 1 Landfill not currently permitted.
3. No household hazardous waste collection system in place.
4. Convenience centers will not meet new State requirements.
5. No trained or certified personnel at landfill or convenience centers.
6. No coordinated oversight of solid waste activities.

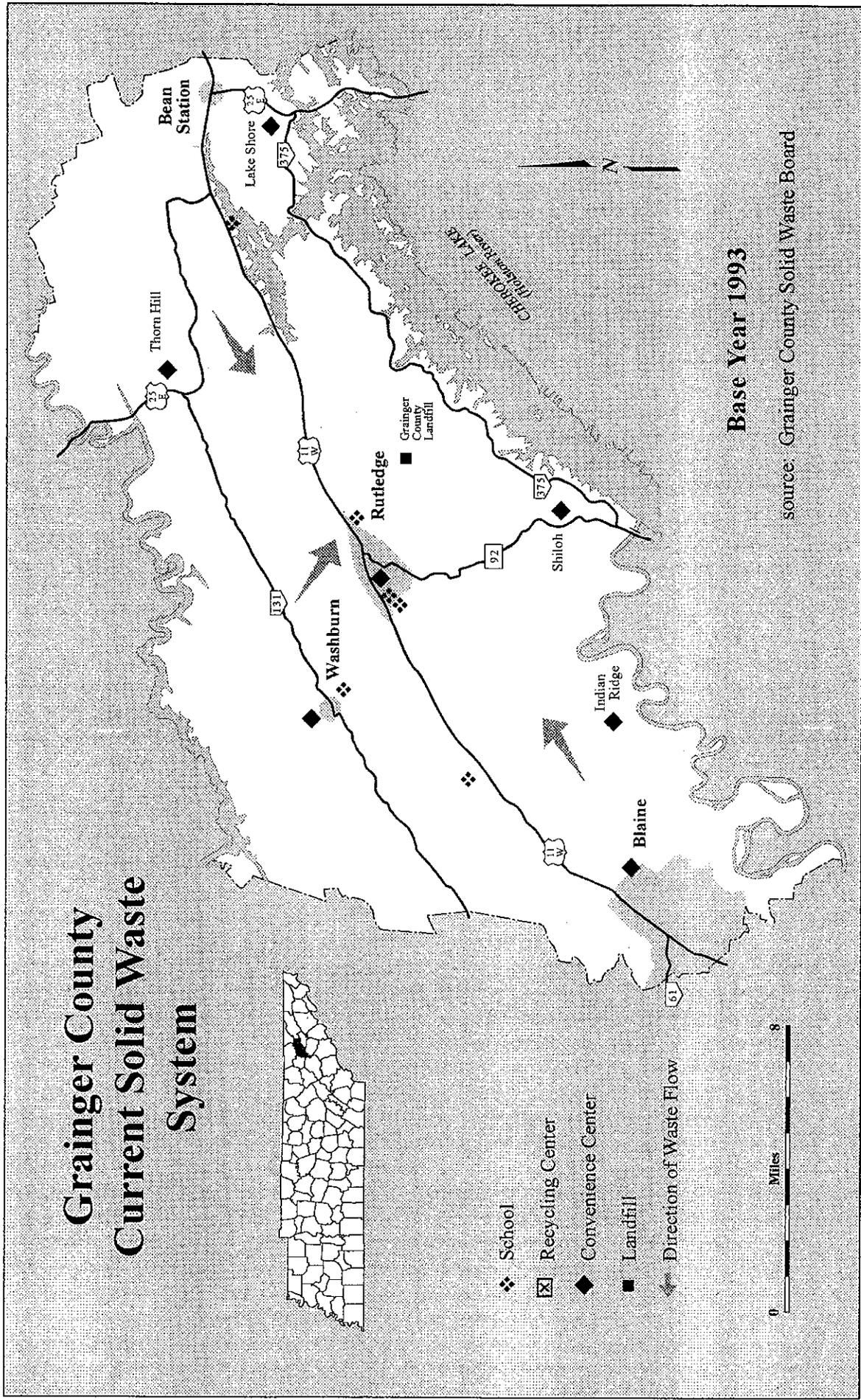
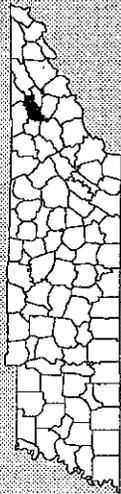
The major **NEEDS** as identified by the Solid Waste Planning Board are:

1. Develop a plan which will meet regulations and provide needed services at the least cost possible.
2. Develop and install a regional recycling infrastructure.
3. Expanded solid waste education program.
4. Assure disposal capacity.

The regional **PLANNING GOALS** are to:

1. Develop an implementation plan for comprehensive, integrated waste management which serves the best interest of all Grainger Countians, is practical, financially responsible and also meets State regulations.
2. Provide adequate collection of municipal solid waste from citizens through a network of services centers.
3. Plan for 10-year disposal (landfill) capacity to serve Grainger Countians and provide for economic growth and expansion.
4. Reduce waste by 25% by December 31, 1995 through recycling, waste reduction, reuse and responsibility.
5. Educate children, adults, business, industry, and government sectors on proper solid waste management including financial and environmental impacts.

Grainger County Current Solid Waste System



- ❖ School
- ☒ Recycling Center
- ◆ Convenience Center
- Landfill
- ➔ Direction of Waste Flow

Base Year 1993

source: Grainger County Solid Waste Board

CHAPTER III

**GROWTH TRENDS, WASTE PROJECTIONS
AND PRELIMINARY SYSTEM STRUCTURE**

Statutory Requirements

"...(E)ach plan submitted by a municipal solid waste region shall include... anticipated growth trends for the next ten-(10) year period...and anticipated waste capacity needs." [T.C.A. Section 68-211-815(b)(4) and (5)]

In this chapter the Region of Grainger County defined probable growth trends, and determined how much waste it will be required to manage in each year of the ten-year planning period (1994-2003). In defining the regional solid waste management demand, the Region of Grainger County carried out a regional analysis following the same methodology and reporting format used by the District Needs Assessment. Next, the regional plan states which of the possible components of an integrated waste management system is considered in the plan, how much of the waste stream might be managed by each, and how components will be evaluated.

A. PROJECTED REGIONAL DEMAND

For the Region of Grainger County, waste projections were reviewed in the County Profile in the District Needs Assessment, Chapter IV., A(1) through (7).

The following Table, summarizes calculations of annual per capita solid waste generation rates, for the Region.

Table III-1

1993 TPY Per Capita Generation

Grainger County	Total Waste Disposed (Generated) in FY 1993	Population 1993	Annual Per Capita Generation Tons/Person/Year
Total	16,684	17,200	.97

Source: 1992 Grainger County District Needs Assessment and current study data.

The projected quantity of solid waste requiring disposal (generation) in the Region of Grainger County is summarized in each projected year, adjusted for population changes.

Table III-2

Quantity of Solid Waste Requiring Disposal (tons)

Grainger County	1994	1995	1996	1997	1998	1999	2000	2001	2002	2003
Total	16,716	16,765	16,781	16,818	16,848	16,882	16,916	16,918	16,920	16,920

Source: Adjusted from 1991 Needs Assessment

The projected quantity of solid waste requiring disposal in the Region of Grainger County is summarized for each projection year, adjusted for population growth and economic growth.

Table III-3

**Quantity of Solid Waste Requiring Disposal (in tons)
Adjusted for Population and Economic Growth**

Grainger County	1994	1995	1996	1997	1998	1999	2000	2001	2002	2003
Total	17,299	17,351	17,404	17,459	17,514	17,569	17,625	17,648	17,668	17,691

Source: 1991 Needs Assessment

The projected quantities of solid waste requiring disposal (= generation) is summarized below for each projection year, adjusted for population growth, economic growth, and source reduction, recycling, and industrial process change.

Table III-4

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

Grainger County	1994	1995	1996	1997	1998	1999	2000	2001	2002	2003
Total	14,099	14,051	11,565	11,608	11,652	11,696	11,740	11,762	11,781	11,804

B. PRELIMINARY SYSTEM DESIGN

During the planning process, a variety of integrated management processes were considered including composting, air curtain destructors, Class I and IV landfilling, recycling, and a variety of different budgeting and financing scenarios.

Following is a short description of the selected components of an integrated system. Further discussion and analysis will occur in the following chapters.

Collection

Analysis of the current collection system indicates that all citizens are adequately served with six (6) County and one (1) City convenience center sites. The convenience centers will not meet existing State requirements for operation.

Waste Reduction

Residential Recycling - The current level (1993) of residential recycling is unknown at this time. The projected level of residential recycling in 1995 is 1,122 tpy and in 2003 is 1,108 tpy.

Commercial/Industrial Recycling - Current (1993) commercial and industrial recycling totals approximately 1,392 tpy. This is projected to increase to 2,178 tpy in 1995 and 2,248 tpy by 2003.

Diversion - Grainger County will permit a Class IV landfill for the disposal of construction and demolition waste. The projected level of waste diverted from the Class I to the Class IV landfill is 2,505 tpy in 1996, and in 2003 is 2,531 tpy.

Disposal

Analysis of the current disposal system indicates that a 10-year disposal capacity is assured for the Region's solid waste stream.

C. EVALUATION CRITERIA FOR THE REGION

The solid waste management system options will be carefully evaluated in the next seven chapters. A final selection of system elements and configurations will be determined in each chapter using evaluation criteria listed in the planning guidelines.

The evaluation criterion includes: institutional compatibility; number and size of facilities needed to meet defined regional needs; evaluation of regional markets for recovered materials, fuel or energy; capital and annual operating costs; unit costs (cost per ton of waste); citing and regulatory requirements; environmental impacts; public acceptance; and other criteria selected by the regional planning board.

CHAPTER IV
WASTE REDUCTION

Statutory Requirements:

"The goal of the state 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." [T.C.A. Section 68-211-861(a)]

"...[E]ach plan submitted by a municipal solid waste region shall include...a description of waste reduction activities designed to attain the twenty-five percent (25%) reduction required by Section 25(a) [T.C.A. Section 68-211-861(a)]; and Section 14(b)10. [T.C.A. Section 68-211-815(b) (10)].

"A county or region shall have the flexibility to design its own plan and methods which take into account local conditions for attaining the waste reduction goal set by this section. This plan shall be included as a part of the county or regional plan required by Section 13 of this act." [T.C.A. Section 68-211-861(f)]

A. ESTABLISHING A BASE YEAR QUANTITY

The quantity of solid waste generated and disposed of in calendar 1989 for the Region of Grainger County is provided below in Table IV-1. (This data is available in the UT Report entitled "Managing Our Waste: Solid Waste Planning in Tennessee," published in February 1990).

Table IV-1

Quantity of Solid Waste Generated and Disposed in Calendar 1989

Grainger County	Tons Disposed	Population (1989)	Waste Disposed Per Capita
Regional Total	23,707	17,450	1.35

B. A TARGET 1995 WASTE REDUCTION PER CAPITA DISPOSAL GOAL

To calculate the value of a 25% reduction in the per capita quantity of waste disposed, in tons/person/year, the following equation is use:

$$\begin{array}{l} \text{Average 1989 per capita rate} \times .25 = \text{Target 1995 per capita reduction} \\ \text{(tons/person/year)} \qquad \qquad \qquad \text{(tons/person/year)} \end{array}$$

$$1.35 \times .25 = \underline{.3375}$$

The total quantity of waste in tons that must be reduced at the source, or diverted to alternative treatment options is calculated by multiplying the target 1995 per capita reduction rate by the regional population projection for 1995 (Chapter III, Table III-1, Column 2).

$$\text{1995 target per capita reduction (tons/person/year)} \times \text{1995 population (persons)}$$

$$= \text{1995 target reduction in tons/year}$$

$$.3375 \times 17,283 = \underline{5,833 \text{ target reduction in tons/year}}$$

TABLE IV-2
Estimated Quantities of Waste Removed or
Diverted From the Waste Stream (tons)

Year	Recovered & Recycled	Diverted to Alternative Disposal	Total
1985 to 1989	0	0	0
1990	0	0	0
1991	0	0	0
1992	0	0	0
1993	0	0	0
1994	3,200	0	3,200
1995	3,300	0	3,300
Subtotal	6,500	0	6,500
1996	3,334	2,505	5,839
1997	3,335	2,516	5,851
1998	3,342	2,520	5,862
1999	3,348	2,525	5,873
2000	3,355	2,530	5,885
2001	3,356	2,530	5,886
2002	3,356	2,531	5,887
2003	3,356	2,531	5,887
TOTAL	33,282	20,188	53,470

C. HOW THE REGION WILL MEET THE STATEWIDE WASTE REDUCTION GOAL

Short-Term Goal - achieve the State mandated 25% waste reduction goal by 12/31/95 through:

1. Source Reduction: Pursue with a "buy recycled" and "preycling" focus with the private and public sectors. Sponsor workshops and encourage waste audits/reduction in the industrial/ institutional/ commercial sectors.
2. Reuse: Begin initial research into possibilities and in a waste exchange.
3. Recycling: Establish recycling drop-off processing center. Work with school system to institute a recycling program.
4. Diversion: Begin permitting process for a Class IV landfill to accept construction and demolition waste.

Some specific short term actions to be taken are:

1. Develop "buy recycled" and recycled campaign.
2. Network and encourage industry to conduct waste audits.
3. Research pros and cons of a waste exchange.
4. Establish drop-off recycling center for processing and marketing.
5. Provide sites for waste oil to be recycled.
6. Work with school system to set up a recycling program.
7. Continue and expand survey efforts to document diversion and recycling.
8. Revise plan in 1999.

Long-Term Goal - Work toward continued waste reduction goal through 2003 by:

1. Source reduction: Continue and expand short term programs. Institute an awards and recognition program. Aggressively monitor procurement practices and encourage purchase of recycled products when possible. Challenge business and industry to adopt source reduction policies. Expand aggressive education campaign targeted to industrial employees to help "close the loop."
2. Reuse: Based on short-term research, develop potential for instituting or participating in a waste exchange.
3. Recycling: Expand and improve short term recycling programs. Establish drop-offs at four (4) convenience centers. Research potential and possible end-users and encourage process changes to strengthen markets. Seek markets for recyclable materials.
4. Continue short-term activities: Complete Class IV permitting, construct and begin diversion to the facility.

Specific long-term actions will be developed during the plan revision in 1995.

Table IV-2

1995 Planned Waste Reduction by Material (TPY)

Year	Glass	ONP	Alum.	Ferrous Metals	Plastics	OCC	Wood Waste	Oil	Textiles	Total
1995	26	495	25	148	10	990	1,486	25	95	3,300

Table IV-4

Waste Reduction Target for Recycling Program

Economic Sector	Residential Sector (City and County)	Private Sector (Commercial, Institutional & Industrial)	TOTAL TONS
1994	1,122	2,078	3,200
1995	1,122	2,178	3,300
1996	1,100	2,233	3,334
1997	1,101	2,234	3,335
1998	1,103	2,239	3,342
1999	1,105	2,243	3,348
2000	1,107	2,248	3,355
2001	1,108	2,248	3,356
2002	1,108	2,248	3,356
2003	1,108	2,248	3,356

Strategies

The strategy for reaching the waste reduction goals has already been set in motion. Commercial and industrial businesses in Grainger County have been reducing and recycling their waste stream. A Class IV facility is planned to divert wood waste, construction and demolition waste. Support and encouragement will play an important part in increasing waste reduction in the commercial, industrial and institutional sector. An aggressive education program is critical to the success of the waste reduction plan and is discussed in Chapter IX. The school system is targeted for an aggressive campaign for waste reduction.

Collected recycled materials will be processed and marketed at the Grainger County Processing Center, which is planned for operation by 1995. The County will join the Recycling Marketing Cooperative for East Tennessee for additional marketing of collected materials.

Whole tires and batteries will be banned from the landfill. Whole tires are currently collected and will be periodically shredded. The planning board is in support and in dialogue with surrounding Counties concerning the potential of attracting an end-user for tires. The County Processing will be the point of collection and marketing for batteries.

Source reduction, especially pre-cycling, has been discussed and is a focus area in education programs. Quantification of the waste reduction component is difficult. The County will prepare and seek approval of resolutions and ordinances by County and City governments to adopt recycled content resolutions for purchase of supplies and materials where quality and cost are competitive.

Table IV-5

Waste Reduction Target by Material and Year (TPY)

Year	Glass	ONP	Alum	Ferrous Metals	Plastics	OCC	Wood Waste	Oil	Textiles	Total
1994	26	450	25	140	10	990	1,443	25	95	3,200
1995	26	495	25	148	10	990	1,486	25	95	3,300
1996	25	500	25	150	10	1,000	1,500	25	99	3,334
1997	25	500	25	150	10	1,000	1,500	25	100	3,335
1998	25	500	26	150	11	1,000	1,503	26	101	3,342
1999	26	500	26	151	11	1,004	1,503	26	101	3,348
2000	26	500	26	158	11	1,004	1,503	26	101	3,355
2001	26	500	26	159	11	1,004	1,503	26	101	3,356
2002	26	500	26	159	11	1,004	1,503	26	101	3,356
2003	26	500	26	159	11	1,004	1,503	26	101	3,356

D. 10-YEAR STAFFING REQUIREMENTS, BUDGET, AND FUNDING PLAN

Detailed staffing requirements, budget information and funding plan information can be found in related Chapters V and XI. Staff responsibility for waste reduction will be shared among programs: Recycling, Collection and Education. A Recycling Coordinator will be hired and will have primary responsibility for collection quality control, data management and marketing.

E. 10-YEAR IMPLEMENTATION SCHEDULE FOR ALL WASTE REDUCTION STRATEGIES

Table IV-6

Implementation Schedule for All Waste Reduction Strategies

Program	Responsible Organ.*	1994	1995	1996	1997	1998	1999	2000	2001	2002	2003
Buy recycled campaign	PCC		X	X	X						
Promote waste audits	PCC/SWB		X	X	X						
Establish 4 recycling sites	County/City		X	X							
Establish processing center	County		X								
Schools recycling program	PCC/County/Schools		X	X							
Research waste exchange	RM CET/PCC				X	X					

NOTE: "X" denotes milestone period and shading denotes on-going operation/emphasis of program item.

F. RESPONSIBILITY FOR IMPLEMENTATION

* Responsible Organization: PCC - Partners for Clean Communities Keep America Beautiful System; SWB - Grainger County Regional Solid Waste Planning Board; Schools - Grainger County Schools; RM CET - Recycling Marketing Cooperative for East Tennessee; City - Blaine.

G. REGIONAL DATA COLLECTION / ANNUAL PROGRESS REPORTS

As per, T.C.A. Sections 68-211-863(b), the Region of Grainger County must report to the State Planning Office annually the quantities and types of recyclable materials collected. Regional data collection will be maintained in monthly, quarterly and annual reports by quantities and types of recyclables collected in the Region by a qualified staff person. Annual progress reports, utilizing information gathered in the Tables presented in this chapter, will be submitted to the State Planning Office.

WASTE COLLECTION AND TRANSPORTATION**Statutory Requirements:**

"...[E]ach plan submitted by a municipal solid waste region shall include...collection capability, including data detailing the different types of collection systems and the population and areas which receive and do not receive such services..." [T.C.A. 68-211-815(b)(2)(B)]; and "...as part of the local plan required by Section 13 of the Act, each county or multi-county municipal solid waste disposal region shall submit a plan for the adequate provision of collection services to the State Planning Office. Such plan shall identify unmet needs and shall be updated annually." [T.C.A. 68-211-851(b)]

A. EXISTING COLLECTION SYSTEM

The existing collection services and facilities in the planning region of Grainger County (County Profile of the District Needs Assessment, Chapter V, A.1-18.) are provided by both the County and the City of Blaine. The City of Blaine owns and operates a convenience center for its residents, and the County offers solid waste collection services through a network of six (6) convenience center sites. Each convenience center is open to the public at various hours and days of the week. Operating hours are posted at each site entrance. Flyers, advertising the operating hours of the sites, are available to the public. The current centers will not meet State regulations, therefore, the number of registered centers will be reduced to four (4).

B. DEFINE REGIONAL NEEDS FOR COLLECTION SERVICE

The State requires only two (2) convenience centers to serve the area and population of the County (Convenience Center Rule, 1200-1-7). With the four (4) planned centers located in the County, and three (3) manned green box centers, no underserved areas exist in the Region.

Currently, collection of solid waste is provided by one County-owned front-end loader. Upgrading the convenience center system will continue through 1995 with the completion on construction of 4 sites, the purchase of equipment (fire safety, communication, waste containers), and planned site permits obtained.

TABLE V-1

CONVENIENCE CENTER INVENTORY (May 1994)

	1	2	3	4
DESIGN/OPERATION STANDARDS	Bean Station	Washburn	Rutledge	Blaine
ACCESS • Fence • Hours posted	Yes	Yes	Yes	Yes
DUST/MUD CONTROL • Paved/compacted stone	Paved	Paved	Paved	Paved
RUN-OFF CONTROL • Proper grading	Yes	Yes	Yes	Yes
FIRE SAFETY • Fire suppression equipment • Fire department support	Planned	Planned	Planned	Planned
COMMUNICATION • On-site equipment	Yes	Yes	Yes	Planned
PERSONNEL FACILITIES • Office building • Sanitary facilities	Yes Yes	Yes Yes	Yes Yes	Yes Planned
WATER • Equipment and facility	NA -----	-----	-----	----->
PROCESS WATER • Compaction equipment	NA-----	-----	-----	----->
WASTE HANDLING • Litter maintenance	Yes	Yes	Yes	Yes
FACILITY SUPERVISION • Personnel present • Training completed	Yes Planned	Yes Planned	Yes Planned	Yes Planned
SITE PERMITTED	Planned	Planned	Planned	Planned
SPECIAL WASTE	NA -----	-----	-----	----->
WASTE CONTAINERS • 6 cubic yard • Number	21	15	18	22
Wetland	No	No	No	No
Floodplain	No	No	No	No
T & E Species	No	No	No	No
RECYCLING	Oil Aluminum Cans	Oil	Oil Aluminum Cans	Planned

C. HOW REGION WILL MEET IDENTIFIED NEEDS WITHIN 10 YEARS

1. Collection Goals and Objectives

- a. Adequately serve all citizens.
- b. Provide collection in the most cost-effective and efficient manner.
- c. Integrate recycling with collection system.
- d. Upgrading collection system to meet State guidelines.

2. Transfer Stations and/or Intermediate Processing Facilities

There are no underserved areas in the Region. Also, there are no transfer stations or intermediate processing facilities planned.

3. Integration of the Collection System with Recycling and Problem Waste

Upgraded convenience centers will be full service centers to best meet the needs of citizens and State requirements. Centers will:

- **collect household waste**
- **have drop-off containers for recyclables**
- **waste oil collection bins**
- **be staffed with trained personnel to help citizens manage waste correctly**

The collection system is integrated with recycling because there will be recycling drop-off containers at four (4) convenience centers. Waste oil will be collected at these same four (4) designated sites but will be serviced by a private company.

D. 10-YEAR STAFFING AND TRAINING NEEDS

Staffing and training will be displayed in an integrated manner in Chapter XI.

Staffing

- 4 Convenience Center Attendants
- 1 Truck Driver
- 3 Green Box Center Attendants

Training

Attendants will need to be trained in the following:

- Separating recyclables
- Quality control and monitoring recyclables
- Identification and acceptance of wastes in landfill
- Working with public as point people in education and quality control
- Keeping records of center attendance and usage
- Operation and maintenance of equipment
- Knowledge of applicable laws, rules and regulations
- Keeping site tidy, neat, pleasant and attractive
- Maintaining fencing and landscaping

E. 10-YEAR BUDGET

10-Year Waste Collection and Transportation Costs

Year	Capital Costs	County Annual Costs	Blaine Annual Costs	Total
1994		\$ 99,000	\$ 8,245	\$107,545
1995	\$38,000	\$105,358	\$ 8,509	\$151,867
1996		\$111,609	\$ 8,781	\$120,390
1997		\$118,060	\$ 9,061	\$127,121
1998	\$125,000*	\$124,717	\$ 9,350	\$259,067
1999		\$131,587	\$ 9,649	\$141,236
2000		\$138,677	\$9,957	\$148,634
2001		\$145,994	\$10,275	\$156,269
2002		\$153,545	\$10,603	\$164,148
2003		\$161,338	\$10,942	\$172,280

* Replacement truck.

10-Year Waste Collection and Transportation Revenues

Year	Debt Service	County Taxes & Collection Fees	County Grants	Blaine Fund Transfers	Total
1994		\$128,184	\$65,700	\$ 8,245	\$202,129
1995		\$128,184	\$50,000	\$ 8,509	\$186,693
1996		\$128,184		\$ 8,781	\$136,965
1997		\$128,184		\$ 9,061	\$137,245
1998	\$125,000	\$153,384		\$ 9,350	\$287,734
1999		\$156,587		\$ 9,649	\$166,236
2000		\$163,677		\$ 9,957	\$173,634
2001		\$170,994		\$10,275	\$181,269
2002		\$178,545		\$10,603	\$189,148
2003		\$186,338		\$10,942	\$197,280

F. 10-YEAR TIMETABLE FOR IMPLEMENTATION

Timetable for Collection System

Program	1994	1995	1996	1997	1998	1999	2000	2001	2002	2003
Upgrading Existing Centers		X								
Train Staff		X								
Data Collection/Annual Reports		X								
Purchase Truck					X					
Plan Updates						X				
Integrate Recycling Services		X								

Financing for this system is in place and will come from County property taxes, collection fees, grants and City transfers. The solid waste collection plan will be annually updated by the County as required by T.C.A. 68-211-814. The annual update will consider:

- Survey of roadside dumps;
- Citizen complaints;
- Alternative systems available; and
- Volume of waste received or collected by the existing systems.

This evaluation report will be submitted to the State Planning Office on July 1, 1995 and each year thereafter.

G. NOT APPLICABLE

H. SYSTEMS MAP

The approximate location of the existing and new elements of the regional collection and transportation system in Grainger County is available on the system map provided in Chapter XI. Arrows are used to indicate probable waste flow patterns within/or between the region and adjoining regions.

Statutory Requirements:

"...[E]ach plan submitted by a municipal solid waste region shall include...a recycling plan, including a description of current public and private recycling efforts and planned efforts to enhance recycling within the county or region." [T.C.A. 68-211-815(b)(7)]

and "Effective January 1, 1996, each county shall provide...one (1) or more sites for collection of recyclable materials..." [T.C.A. 68-211-863(a)]

"Each person or entity operating a collection site for recyclable materials shall annually report the quantities of recyclable materials collected, by type of material, to the region which shall then report...[this information]...to the State Planning Office." [T.C.A. 68-211-863(b)]

A. REGIONAL NEEDS FOR RECYCLING PROGRAMS, FACILITIES, AND SERVICES

The major need of the Region is to develop and establish a recycling collection infrastructure. This includes setting up a processing/marketing center, recycling drop-off sites, arranging transportation, promoting the program, working with local processors and finding markets for expanded materials recycling. Other needs are to set up a commercial recycling program and encourage business and industry to initiate in-house recycling programs.

B. SPECIFICATIONS

Regional Goal - Establish a recycling infrastructure designed to meet the 25% reduction goal and beyond.

Objectives

1. Establish a processing/marketing center in the Region.
2. Establish school-based recycling program.
3. Establish waste oil collection sites at convenience centers.
4. Network and encourage industry to conduct waste audits.
5. Work with the State Office for Cooperative Marketing as information becomes available.

6. Work through the Recycling Marketing Cooperative for East Tennessee for expanded marketing of materials.
7. Hire a recycling coordinator.

Strategy for Expanding Recycling Collection

Residential Recycling

A Processing Center is planned for 1994/95 to be located in the Grainger County Industrial Park. The Center will serve as a regional drop-off site for residents to bring their recyclable materials. A recycling equipment grant was submitted by the County on March 24, 1994 for the planned program. Drop-off compartmentalized containers will be placed at four (4) convenience centers in future years.

Industrial and Commercial Recycling

A large amount of recycling and diversion is already on-going in the private sector. During the planning process, surveys revealed more than thirteen (13) companies were recycling or diverting 1,392 tons per year. Waste assessments will continue to be promoted and coordinated for area businesses.

Institutional Recycling

The school system is targeted for a recycling collection program.

Collected Materials

The County recycling program will begin by collecting the following materials:

- Aluminum
- Glass (Brown, Clear, Green)
- Steel Cans
- Newspaper
- Plastic (PETE, HDPE)
- Waste Oil
- Corrugated Cardboard

Program Description

Type of System - The system will be a drop-off system at a regional processing center and four (4) convenience center sites in the County.

Size of Program - The program will serve approximately 6,394 households, which is 100% of the households in the Region.

Estimated Quantity of Recovered Materials

Year	Glass	ONP	Alum	Ferrous Metals	Plastics	OCC	Wood Waste	Oil	Textiles	Total
1994	26	450	25	140	10	990	1,443	25	95	3,200
1995	26	495	25	148	10	990	1,486	25	95	3,300
1996	25	500	25	150	10	1,000	1,500	25	99	3,334
1997	25	500	25	150	10	1,000	1,500	25	100	3,335
1998	25	500	26	150	11	1,000	1,503	26	101	3,342
1999	26	500	26	151	11	1,004	1,503	26	101	3,348
2000	26	500	26	158	11	1,004	1,503	26	101	3,355
2001	26	500	26	159	11	1,004	1,503	26	101	3,356
2002	26	500	26	159	11	1,004	1,503	26	101	3,356
2003	26	500	26	159	11	1,004	1,503	26	101	3,356

Service Area - The service area will be the Region of Grainger County.

Description and Location of Collection Sites - Please refer to the composite map at the end of Chapter XI for location of the processing center and drop-off sites at the four (4) convenience centers.

Volume and Markets - The small quantities collected from drop-off sites will be combined with recyclable materials brought to the processing center by the public and private sectors. The processing center will serve as the regional processing/marketing center for Grainger County.

Interaction with Office of Cooperative Marketing - The Region will submit reports to the OCM and is willing to cooperate in any cost-effective marketing contracts arranged by the OCM.

Expanding Markets - A resolution will be prepared and adoption actively pursued for the County to adopt a "buy recycled content" policy for procurement. Similar ordinances will be pursued in the City. The potential for a waste exchange will be further evaluated and will be pursued if feasible. The Region will work through the Recycling marketing Cooperative for East Tennessee to actively seek expanded, stable and attractive markets for materials.

Recycling Education - Please see Chapter IX for integrated education program description.

Ten-Year Staffing Plan -

- Recycling Coordinator (1)
- Recycling Assistant (1) (part-time)

Ten-Year Recycling Program Budget

Year	Capital Outlay	Annual Costs
1994	\$34,400	\$33,780
1995	\$21,000	\$39,990
1996	\$14,000	\$43,382
1997		\$44,770
1998		\$46,203
1999		\$47,681
2000		\$49,207
2001		\$50,782
2002		\$52,407
2003		\$54,084

Note: Annual operating costs dependent on continuing TDOT Litter Grant Program.

Recycling Program Cost Breakdown (1994 - 1996)

Program	Capital Outlay	Grants	Annual Operating
Processing Center	\$34,400	\$20,000	\$33,780
4 Convenience Center Drop-off Sites*	\$28,000	\$28,000	\$ 8,320
Truck*	\$ 7,000	\$ 7,000	
RMCET Membership Fee**			\$ 1,282
Total	\$69,400	\$55,000	\$43,382

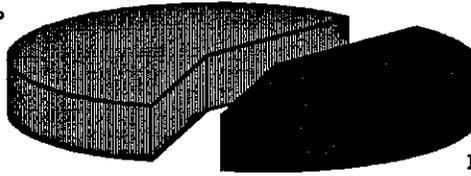
* Cost incurred 1995/96.

** Full membership fee phased-in 1994-1996.

Funding Plan and Sources of Revenues

Capital Outlay Recycling Program Revenues

Grants
58%



Property Tax
42%

Annual Operating Recycling Program Revenues

Sale of
Recyclables
25%



Property Tax
75%

C. PUBLIC/PRIVATE SECTOR/NON-PROFIT COOPERATION

Coordination between the public/private sector has been discussed earlier in this chapter.

D. TEN-YEAR IMPLEMENTATION SCHEDULE

Implementation Schedule for Recycling Program

Program	Responsible Organ.*	1994	1995	1996	1997	1998	1999	2000	2001	2002	2003
Buy recycled campaign	PCC		X	X	X						
Promote waste audits	PCC/SWB		X	X	X						
Establish 4 recycling sites	County/City		X	X							
Establish processing center	County		X								
Schools recycling program	PCC/County/Schools		X	X							
Research waste exchange	RM CET/PCC				X	X					

NOTE: "X" denotes milestone period and shading denotes on-going operation/emphasis of program item.

E. RESPONSIBILITY FOR IMPLEMENTATION

* Responsible Organization: PCC - Partners for Clean Communities Keep America Beautiful System; SWB - Grainger County Regional Solid Waste Planning Board; Schools - Grainger County Schools; RM CET - Recycling Marketing Cooperative for East Tennessee; City - Blaine.

F. LOCATION MAP

A composite map of the planned recycling facilities and services is available in Chapter XI.

CHAPTER VII

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

Statutory Requirements:

"...[Each plan submitted by a municipal solid waste region shall include...any other information as the Director of the State Planning Office may deem relevant...]" [T.C.A. 68-211-815(b)(15)]

Neither composting facilities, solid waste processing facilities, or incineration facilities are included in the statutory list of planning requirements. However, because these facilities are viable options which may be considered in designing an integrated, regional waste management system, the Director of the State Planning Office has determined that this information is relevant, and should be included in the regional plan.

A. REGIONAL NEEDS FOR COMPOSTING, WASTE PROCESSING AND/OR INCINERATION

From information gathered during the Needs Assessment in 1991, there were no composting, solid waste processing or incineration facilities available in the Region of Grainger County. Due to the small percentage of yardwaste disposed at the landfill, there is little need for a composting facility. Many of the residents in the County (including the City of Blaine) manage yardwaste generated on their property without need for municipal disposal.

CHAPTER VIII**DISPOSAL CAPACITY****Statutory Requirements:**

"...Each plan submitted by a municipal solid waste region shall include [a] planned capacity assurance, including descriptions of planned or need facilities." [T.C.A. 68-211-815(b)(6)]

A. REGIONAL SUPPLY/DEMAND FOR DISPOSAL CAPACITY

A Class IV landfill is planned on the same property with the Class I facility. Design and permitting have not begun, but preliminary discussion with engineers is favorable.

TABLE VIII-1**PROJECTED DEMAND, SUPPLY AND SURPLUS OF DISPOSAL CAPACITY
Tons Per Year****GRAINGER COUNTY**

YEAR	DEMAND: Tons of Waste Requiring Disposal	SUPPLY: Existing & Planned Capacity	SURPLUS (+)
1994	14,099	16,536	2,437
1995	14,051	16,536	2,485
1996	11,565	16,536	4,971
1997	11,608	16,536	4,928
1998	11,652	16,536	4,884
1999	11,696	16,536	4,840
2000	11,740	16,536	4,796
2001	11,762	16,536	4,774
2002	11,781	16,536	4,755
2003	11,804	16,536	4,732

TABLE VIII-2

**PROJECTED NET DISPOSAL CAPACITY
FOR THE REGION (tons/year)***

	1994	1995	1996	1997	1998	1999	2000	2001	2002	2003
Regional Net Capacity	2,437	2,485	4,971	4,928	4,884	4,840	4,796	4,774	4,755	4,732

* Indicates surplus capacity.

B. EXCESS CAPACITY

To protect excess disposal capacity and efficiently manage the solid waste system, the Grainger County Solid Waste Region plans to exercise flow control. Should expanded capacity be required, larger cells can be designed and constructed to meet additional needs.

C. DISPOSAL PLAN

Regional Goal - Plan for 10-year disposal capacity to provide for economic growth and expansion.

Objectives -

Design and permit a Class I Subtitle D Landfill Facility

Design and permit a Class IV Landfill Facility

The new Class I facility will have 25-30 permitted acres. The property adjoins the existing landfill property. The final design will be completed in 1995.

Projected costs for development, construction, operation and closure/post-closure of the Class I landfill facilities are provided in Table VIII-3 on the following page.

**TABLE VIII-3
PROJECTED SUBTITLE D CLASS I LANDFILL COSTS (1995)**

ITEM	EXISTING FACILITY	NEW SUBTITLE D
PRE-DEVELOPMENT COSTS		
Geotechnical Investigations		\$ 60,000
Site Mapping		\$ 5,000
Engineering Design (Class I & IV)		\$125,000
Permit Application		\$ 10,000
Monitoring Wells		\$ 18,000
(a) TOTAL PRE-DEVELOPMENT		\$218,000
INITIAL CONSTRUCTION COSTS		
Erosion & Sediment Facilities (pond and drainage ditches)		\$125,000
Liners, liner cushion system & internal leachate control (1 acre cell)		\$125,000
Main leachate collection lines and gas venting system		\$ 60,000
Weighing Scales	\$ 35,000	
Scalehouse and Office	\$ 8,000	
Tire Storage Area	\$ 10,000	
Construction engineering & quality control testing		\$ 30,000
(b) TOTAL INITIAL CONSTRUCTION	\$ 53,000	\$340,000
ANNUAL OPERATIONAL COSTS		
Salaries/Employee Costs		\$129,000
Board expenses		\$ 500
Communication		\$ 600
Engineering		\$ 6,000
Evaluation and testing		\$ 9,000
Maintenance and repair		\$ 12,000
Travel		\$ 600
Crushed stone		\$ 5,000
Diesel fuel/Gasoline		\$ 12,500
Electricity		\$ 2,400
Erosion Control		\$ 0
Lubricants, Tires & Tubes		\$ 3,500
Office Supplies		\$ 500
Trustee's Commission		\$ 2,500
Equipment Insurance		\$ 2,500
Surcharge		\$ 12,500
Other Equipment		\$ 5,000
Equipment payments		\$ 65,000
(c) TOTAL ANNUAL OPERATIONAL COSTS		\$269,100
CLOSURE & POST-CLOSURE		
	\$250,000	\$ 15,000 (old)
		\$ 20,000 (new)
(d) TOTAL CLOSURE/POST-CLOSURE		\$ 35,000
SUMMARY COSTS		
Capital costs (a + b)	\$ 53,000	\$558,000
Annual Operating Costs (c)		\$269,100
Annualized Closure/Post-Closure Costs (d)		\$ 35,000
Annual Tons/Year		16,536

Note: Costs projected from engineering estimates, local experience and historical costs.

FINANCING PLAN FOR CAPITAL COSTS

Capital costs will be funded from debt service, property taxes and tipping fees.

The current tipping fee is \$6.00/cubic yard for commercial users. This raises about \$102,500/year. The County and City do not pay a tipping fee, however the County does subsidize the landfill currently in the amount of about \$106,000/year. The costs displayed in the above chart reflect costs during and after construction of the new Subtitle D facility and Class IV landfill. The County supplement will rise to approximately \$270,769/year after installation of the new facilities.

STAFF AND TRAINING

Landfill Manager
5 Equipment Operators

Leadership in training will be provided by the State. Further training guidance will be developed when the State distributes further information. The Landfill Manager and one landfill operator will be certified by the State to insure that a certified operator is on site at all times.

TABLE VIII-4

TEN-YEAR DISPOSAL OPERATION AND MAINTENANCE BUDGET

YEAR	Annual Costs Including Operation & Maintenance
1994	\$208,500
1995	\$304,100
1996	\$313,831
1997	\$323,874
1998	\$334,238
1999	\$344,933
2000	\$355,971
2001	\$367,362
2002	\$379,118
2003	\$391,250

TABLE VIII-5**TEN-YEAR OPERATING AND MAINTENANCE FUNDING PLAN**

YEAR	TIPPING FEES*	COUNTY APPROPRIATIONS
1994/95	\$102,500	\$106,000
1995/96	\$136,664	\$207,769
1996/97	\$136,664	\$149,167
1997/98	\$136,664	\$159,210
1998/99	\$136,664	\$169,574
1999/00	\$136,664	\$180,269
2000/01	\$136,664	\$191,307
2001/02	\$136,664	\$202,698
2002/03	\$136,664	\$242,454
2003/04	\$136,664	\$254,586

* Assumes tipping fee of \$26.00/ton (\$8.00/cubic yard) and waste reduction occurs as projected.

INTEGRATION WITH REMAINDER OF THE REGIONAL WASTE MANAGEMENT SYSTEM

The disposal plan and system is integrated into the regional waste management system as a cornerstone program which will be operated by the Region. The other cornerstones are collection, waste reduction, and education. Operation of the integrated system will be discussed in more detail in Chapter XI and XII.

D. IMPLEMENTATION SCHEDULE

TABLE VIII-6

TEN-YEAR DISPOSAL CAPACITY SCHEDULE

Program	1994	1995	1996	1997	1998	1999	2000	2001	2002	2003
Complete new Class I facility design		X								
Close out old facility			X							
Carry out post closure plan				X						
Complete permit process		X								
Review tipping fee	X	X	X	X	X	X	X	X	X	X
Begin Class IV facility permit process & design		X								
Train & certify landfill manager			X							
Begin construction of new Class I cell			X							
Begin construction on Class IV cell			X							

X - When program begins. Shading indicates annual or on-going activity.

E. LOCATION MAP

The location of the existing and planned landfill facilities can be found on the systems map in Chapter XI.

F. IMPORTED/EXPORTED WASTE

There is no planned imported or exported waste planned in the planning horizon. The possibility of importing waste was discussed during the planning process and will likely be discussed again when the new Subtitle D facility comes on line and cost dramatically increase.

PUBLIC INFORMATION AND EDUCATION

Statutory Requirements:

"...[E]ach plan submitted by a municipal solid waste region shall include...a description of education initiatives aimed at business, industry, schools, citizens, and other, which address recycling, waste reduction, collection, and other goals..." [T.C.A. 68-211-815(b)(11)]

"...[E]ach solid waste regional plan shall include an education program to assist adults and children to understand solid waste issues, management options and costs, and the value of waste reduction and recycling." [T.C.A. Section 68-211-842]

A. REGIONAL NEEDS FOR PUBLIC INFORMATION AND EDUCATION PROGRAMS

The regional needs are to develop and implement a comprehensive, integrated information, education and publicity program which targets all sectors of the community including adults, children, government, business and industry and the general public.

B. STEPS THE REGION WILL TAKE TO MEET IDENTIFIED NEEDS

Regional Goals and Objectives

Goal - To change attitudes and behaviors toward the handling of solid waste so that source reduction, recycling, reuse and non-littering become the routine behavior in Grainger.

Objectives:

- Reduce solid waste generation
- Increase participation in recycling programs
- Maintain high quality in recovered recyclables
- Reduce roadside litter and illegal dumping
- Increase understanding and participation in improved solid waste handling methods.

Target Groups and Audiences:

- Schools
- Adults
- Government
- Media
- Business/Industry
- General Public

Amount and Kind of Information to be Provided:

Organize with local governments a regional Household Hazardous Waste Collection program.

Grocery bag stuffers on recycling program at two grocery stores.

In-school recycling for aluminum cans at interested schools.

Litter-free event promotions at annual County fair, high-school ballgames and other events.

Develop and distribute promotion items: magnets, pencils, mugs, etc.

Car and boat litterbags.

Awards program - clean docks, clean business, clean yard, etc.

Newsletter.

Bank statement inserts.

Employee Check envelope inserts.

Marquee messages.

Restaurant tray liners with solid waste message at restaurants.

Purchase and place "Rotten Truth" videos in libraries for rental.

Hold convenience center attendants and other solid waste employee training and annual recognition program.

Educational stuffers in business licenses.

Tube of Trash education tool.

Presentations to groups and clubs in a speakers bureau format.

Develop educational centers at convenience centers.

Hold government forums to build teamwork in fighting illegal dumping.

Regular news articles in newspaper.

Displays.

Courthouse/City Hall exhibits.

Actively promote community service in lieu of fines.

Publish before/after pictures in newspaper of clean-ups.

Promote office recycling with "how to" guides.

Develop public "how to" guides for residential recycling.

Promote "pre-cycling" at retail businesses through posters, flyers and stuffers.

Sponsor business/industry waste reduction seminars and workshops.

Prepare "ready to go" presentation, demonstrations and project ideas for volunteers and others to use for a variety of audiences and age groups.

Schools Programs: formal program in 4th and 7th grades where educator travels between none schools for a period of days teaching about solid waste handling, littering, source reduction, and recycling; mini-grants to schools for Trashinator Clubs; support and participate in the Clinch-Powell RC&D Council education programs Water Wizards (3rd grader) and Conservation Camp (6th grade) which have strong solid waste education components; support plays with solid waste themes by high-school drama clubs with small seed grants; hold Enviro 2000 teacher in-service training annually for County teachers and educators with annual emphasis on solid waste education; sponsor rhyme, poem, art contests with solid waste themes; hold annual Earth Day Art Expo for elementary students with solid waste/environmental themes and display artwork publicly; Kid "Earth Art" Calendar.

Methods to be Utilized

1. **School-based instruction** - KAB curriculums, Waste-In-Place, Waste: A Hidden Resource, and Frog Pond, have been purchased and placed at every school in the County. Teacher in-service on these curriculums was attended by teachers from the Grainger County Schools in 1993. Annual in-service will be held on a variety of solid waste education material including Project SWEEP. A survey will be conducted of educators to determine to what extent and in what formats they are teaching solid waste. An instructor based program will be pursued and implemented similar to the D.A.R.E. program targeting the 4th and 7th grades.
2. **Workshops, conferences, and training courses** - Training for convenience center operators, forums for litter prevention, waste reduction seminars for business/industry.
3. **Audio-visual materials, slides and videos** - Slide presentations will be developed for local use and videos placed in libraries on solid waste subjects, such as, "The Rotten Truth," produced by the Children's Television Network.
4. **Publications** - Various pamphlets, calendar, brochures, flyers, stuffers, etc. will be developed and used in numerous situations.
5. **Contests and awards** - Awards for clean business, clean convenience center, etc. will be developed.
6. **Exhibits or demonstrations** - Numerous exhibits at fairs, the Courthouse, City Hall and other appropriate places.
7. **Speaker's Bureau** - Participation in a Speaker's Bureau will continue.
8. **Other** - Many other methods will be employed as outlined in the previous section.

Staff and Budget Needs

Staff - The Grainger County education program will be carried out by staff of Partners Clean Communities Keep America Beautiful System (a part of Clinch-Powell RC&D Council) which will be supported by each participation County.

KAB Coordinator (shared with 4 other Counties)

KAB Education Assistant (shared with 4 other Counties)

KAB Part-time Clerical (shared with 4 other Counties)

Public Education Budget

Program	1994	1995	1996	1997	1998	1999	2000	2001	2002	2003
PCC-KAB	\$12,100	\$12,500	\$12,500	\$6,000	\$6,200	\$6,400	\$6,600	\$6,800	\$7,000	\$7,200

Public Education Funding Plan

Program	1994	1995	1996	1997	1998	1999	2000	2001	2002	2003
PE Grant	\$7,500	\$7,500	\$7,500	*	*	*	*	*	*	*
Litter Grant	\$3,100	\$4,100	\$4,100	\$4,100	\$4,100	\$4,100	\$4,100	\$4,100	\$4,100	\$4,100
Property Taxes	\$1,500	\$ 900	\$ 900	\$1,900	\$2,100	\$2,300	\$2,500	\$2,700	\$2,900	\$3,100

* Public education grants are scheduled to end in 1997.

Evaluation and Reporting

Evaluation of the program will be carried out in several ways. Measurement of waste reduction will be an important evaluation tool, as will weights and volumes of collected recyclables. Training will be measured by numbers of participants attending workshops and seminars and with follow-up on information/skills used with surveys and questionnaires. Pre and post tests will be used with students. Reports will be submitted to the State as requested and required. Keep America Beautiful requires semi-annual reports as well.

C. 10-YEAR IMPLEMENTATION SCHEDULE

Program	1994	1995	1996	1997	1998	1999	2000	2001	2002	2003
School-based instruction	X									
Workshops	X									
AV/Slides		X								
Publications	X									
Awards			X							
Exhibits	X									
Speakers Bureau	X									

X - When program begins. Shading indicates annual or on-going activity.

Statutory Requirements:

"...[E]ach plan submitted by a municipal solid waste region shall include...a plan for the disposal of household hazardous wastes; [T.C.A. 68-211-815(b)(8)]

"...Each county...shall provide a service site and shall advertise...the day(s) and hours and location where the household hazardous wastes will be collected...[and]...furnish at least one(1) person...who will assist...[at the] collection unit." [T.C.A. 68-211-829].

"...Effective January 1, 1995, no municipal solid waste disposal facility or incinerator shall accept for disposal any whole waste tires, lead acid batteries, or used oil..." [T.C.A. 68-211-866(a)]

"...By January 1, 1995, each county shall provide at least one (1) site to receive and store waste tires, used automotive oils and fluids, and lead-acid batteries...[and]...shall sell and/or cause the transfer of the recyclable materials...to a commercial recycler or a regional receiving facility..." [T.C.A. 68-211-866(b)]

"...(E)ach plan submitted by a municipal solid waste region shall include...any other information as the Director of the State Planning Office may deem relevant to the implementation of the Act." [T.C.A. 68-211-815(b)(15)]

The Solid Waste Management Act directly addresses four problem wastes. The Region of Grainger County, in its plan, must describe how the regional programs will interface with the state household hazardous waste collection service. The Act also bans disposal of scrap tires, batteries and waste oil in landfills after January 1, 1995, and requires the County to develop an infrastructure for accepting, storing, recycling or safe disposal of these materials by the end of 1994. The regional plan addresses these requirements.

The Act does not address litter prevention/education/remedial action programs. However, the community efforts funded by the litter grants are acknowledged, evaluated, and incorporated into the regional plan.

No data on current handling of waste tires, used oil or lead acid batteries was collected in the District Needs Assessment. The Act bans these materials from landfills or incinerators by the end of 1994, and requires the County to provide a site to receive and store them for ultimate recycling and disposal. The regional plan describes how the Region will collect necessary data to locate, design and open these collection sites by the statutory deadline. Specific information included for each problem waste is provided in the pages that follow. A more detailed plan will be required when the regional plan is updated in 5 years.

A. HOUSEHOLD HAZARDOUS WASTE (HHW)

Regional Needs for a HHW Management Program

- 1) Identify an appropriate temporary site for collection,
- 2) Promote the collection event through advertisement and education; and,
- 3) Provide a County site representative during Collection Event.

Several potential temporary locations have been identified by the County for the collection, sorting and packaging of HHW. Given the minimum requirements of a temporary site required by the Tennessee Department of Environment and Conservation, as cited in the Policy Guide on County Responsibilities for the Tennessee HHW Collection Program, 1993, the most appropriate location in Grainger County would be:

Grainger County High School

Seven to fifteen days prior to the Collection Event, the County will allow the HHW collection contractor to inspect the site in order to finalize plans for the Event. The County will have a site location identified when submitting a request in writing to the State for the collection service. The request will identify any of the site criteria that are impossible for the County to meet. The County will provide one or more waste containers for the collection of nonhazardous household waste at each Collection Event and provide for the proper disposal of the nonhazardous wastes.

The County will advertise in the local newspapers the date, hours and location of the Collection Event. The advertisement will be published at least two full weeks preceding the event date and during the week of the event. The ad will specify that only 110 pounds of waste will be accepted from each household during the event and list the items excluded from the program, as well as examples of acceptable items. The ad will indicate that the collection and disposal costs will be paid by the State of Tennessee.

The County will provide educational materials and brochures concerning HHW collection and disposal to the public. Educational materials provided by the contractor and the State will also be made available for use by the County. In addition, Partners for Clean Communities Keep America Beautiful System will promote the event through the local schools, to businesses, civic organizations and the general public.

A site representative will be provided by the County and available on site to represent the County during the Collection Event. The site representative will safeguard the County property used by the collection contractor (land and waste containers) and manage problems that may arise during the collection of HHW with County-owned utilities and the nonhazardous waste containers.

The site representative will be available to assist the collection contractor in the event of an emergency. Telephone numbers for the local law enforcement, emergency response, and nearest medical facilities and the address of the medical facilities will be provided to the collection contractor. The site representative will be responsible for notifying the proper authorities if necessary.

Provided below is an estimate of the program costs to the County for a HHW collection program.

HOUSEHOLD HAZARDOUS WASTE COLLECTION

<u>PROGRAM ELEMENTS</u>	<u>PROGRAM COSTS</u>
Site (containers)	\$ 0 County-owned
Advertisement	\$200 (newspaper article, brochures)
Site Representative	<u>\$ 60</u> (\$6/hr @ 10hrs.)
Total	\$260

Site Criteria:

- Be accessible by paved roads
- Convenient location
- Paved working area (100 ft. X 100 ft.)
- Accommodate at least 15 cars
- Clean water source
- Toilet facilities
- Telephones
- 110 electrical outlet

Progress of the program will be reported annually to the State on the types and amounts of HHW collected and the number of people served by the program. As per, T.C.A. Section 68-211-863(b), the Region will submit these annual reports to the State Planning Office.

B. WASTE TIRES

The current (1993) waste tire handling and disposal practices in Grainger County will be supported by a waste tire storage site located at the Grainger County Landfill. The site will store approximately 30,000 tires. During the fiscal year 92/93, 12,523 tires were sold in Grainger County (This quantity was calculated from the annual amount of the tire pre-disposal fees paid into the Solid Waste Management Fund each year. The annual revenues was obtained from the Department of Revenue, 1993). The existing storage site will be capable of handling the current discard rate. Shredded tires will be disposed in the County Class IV Landfill.

The County will continue to inventory illegal tire piles and estimate the quantity of tires in each through the operations of the County litter prevention program. Education efforts to impact illegal dumping will be coordinated with the Partners for Clean Communities Keep America Beautiful System.

Estimated operational costs on the maintenance of the storage site, vector control, and shredding operation support will be integrated into the daily activities of the landfill operator already on site at the County landfill.

C. WASTE OIL

Waste oil is currently managed in the County at several convenience center sites and at many local gasoline and automobile service stations who supply waste oil tanks for temporary disposal. No estimate on the quantity of oil recovered in 1993 is available for Grainger County. The County plans to install oil collection bins at four convenience centers.

D. LEAD ACID BATTERIES

Lead-acid batteries are not currently managed efficiently in the County. The County will provide at least one collection site, to receive and store discarded batteries as required by T.C.A. 68-211-866(b) through the scheduled HHW collection events.

E. LITTER

The County will continue to operate the litter prevention program for the collection of roadside litter and the clean-up of identified roadside dumps. The County Executive's Office administrates the litter prevention grant with the daily pick-up of roadside litter (approximate amount of roadside litter collected is unknown).

Litter education will be provided by Partners for Clean Communities Keep America Beautiful System and supported, in part, by a portion of the Litter Grant Fund designated for education.

F. TIMETABLE FOR PROBLEM WASTE COLLECTION PROGRAM

Provided below is a timetable to indicate the schedule of events planned with regards to problem waste collection.

Table X-1

Timetable for Problem Waste Collection Program in the Region of Grainger County

Program	1994	1995	1996	1997	1998	1999	2000	2001	2002	2003
Household Hazardous Waste: Identify Potential Site Location Advertisement and Education Identify Site Representative Scheduled Collection Event		X								
Oil and Battery Collection*	X									
Waste Tire Collection*	X									
Litter Collection*	X									

X = when implementation begins.

* Waste tire, litter and oil collection programs began before 1994, and will continue throughout the 10-year planning period.

IMPLEMENTATION: SCHEDULE, STAFFING AND FUNDING

In this chapter, decisions about the components and structure of an integrated solid waste management system are revisited.

A. SYSTEM DEFINITION**GOAL**

Comprehensive and integrated solid waste management in Grainger County which is environmentally and financially sound, meets long-term needs of development, and is in the best interest of the citizens.

OBJECTIVES

- Develop an implementation plan which meets State regulations, serves the best interests of the citizens, is practical and financially responsible.
- Provide adequate collection of municipal solid waste from citizens through a network of service centers.
- Plan for 10-year disposal (landfill) capacity to serve Grainger Countians and provide for economic growth and expansion.
- Reduce waste by 25% by December 31, 1995 through recycling, waste reduction, reuse and responsibility.
- Educate children, adults, business, industry, and government sectors on proper solid waste management including financial and environmental impacts.

SYSTEM ELEMENTS**Collection and Transportation**

Analysis of the current collection system indicates that all citizens are adequately served with six (6) County owned and operated convenience centers and one (1) convenience center owned and operated by the City of Blaine. All centers are staffed, fenced and open on various days and hours of the week. Centers will need to be upgraded to meet State regulations.

Waste Reduction

The strategy for reaching waste reduction goals has already been set in motion. Commercial/industrial businesses have collected and distributed for market 1,392 tons of recyclables in 1994. Recycling drop-off containers are planned for four (4) convenience center sites to collect glass, plastics, steel cans, aluminum cans, newspaper and waste oil. The County plans to construct and operate a processing center for recyclable materials collected in the Region by the public and private sectors. Operation for the processing center is proposed for 1994/95.

The County will join the Recycling Marketing Cooperative for East Tennessee for additional marketing of collected materials.

A Class IV facility is also planned to divert wood waste and construction/demolition waste. Support and encouragement will play an important part in increasing waste reduction in the commercial, industrial and institutional sector. An aggressive education program is critical to the success of the waste reduction plan and is discussed in Chapter IX. The school system is targeted for an aggressive campaign for waste reduction.

Whole tires and batteries will be banned from the landfill. Whole tires are currently and will be periodically shredded. The planning board is in support and in dialogue with surrounding Counties concerning the potential of attracting an end user for tires. Batteries will be collected and disposed during the Region's scheduled Household Hazardous Waste event.

There are no current or planned economic incentives or disincentives in the Region.

Source reduction, especially precycling, has been discussed and is a focus area in education programs. Quantifying this waste reduction component is difficult. The Region will prepare and seek approval of resolutions and ordinances by County and City governments to adopt recycled content resolutions for purchase of supplies.

Residential Recycling - The current level (1993) of residential recycling is unknown. The projected level of residential recycling in 1995 is 1,122 tpy and in 2003 is 1,108 tpy.

Commercial/Industrial Recycling - Current (1993) commercial and industrial recycling totals approximately 1,392 tpy. This is projected to increase to 2,178 tpy in 1995 and 2,248 tpy in 2003.

Diversion - Grainger County will permit a Class IV landfill for the disposal of construction and demolition waste. The projected level of waste diverted from the Class I to the Class IV landfill is 2,505 tpy in 1996, and in 2003 is 2,531 tpy.

Disposal

Careful analysis of the disposal situation anticipates the planned design and installation of a new Class I facility in Grainger County. The design plan calls for the initial construction of a one to one and one-half acre cell projected to serve the waste stream of the Region for two years. The waste stream for the Region of Grainger County is approximately 53 tpd.

If, for some unforeseen reason, the demand for more capacity arises, the site is more than adequate to accommodate the additional tonnage with construction of additional or larger Class I cells. The permitted site will be 25 - 30 acres when approved by the Tennessee Department of Environment and Conservation, Division of Solid Waste Management.

A Class IV facility will be planned for construction and operation in 1996 to accept construction and demolition waste.

Education

A comprehensive, integrated information, education and publicity program which targets all sectors of the community including adults, children, government, business and industry and general public has been designed with leadership given to Partners for Clean Communities Keep America Beautiful System. Goals will be pursued through many focused activities, projects, publicity and education campaigns designed to increase understanding and participation.

The primary methods to be used are school based instruction, workshops and training, audio-visual materials, slides and videos, publication, contests and awards, exhibits and demonstrations, and a speaker's bureau.

SYSTEM MAP

A composite map of the planned regional solid waste management system is provided at the end of this chapter.

INSTITUTIONAL STRUCTURE

The current system in Grainger County Region is not integrated. The County oversees the landfill and convenience centers. The County Executive oversees the litter grant program. Partners for Clean Communities oversees the education program. There is currently no publicly supported recycling program in the County.

Implementation of this Plan, including new programs, services and facilities, will require coordination, oversight, monitoring, supervision and integration with the existing system. Stringent regulations will require trained staff, experienced in working with details, engineering plans, mandates, and complex issues. It will require coordination of collection, transportation, disposal, recycling, reduction and education programs. It will require completion of frequent detailed reports on every component of the Plan and an annual report of implementation and revision.

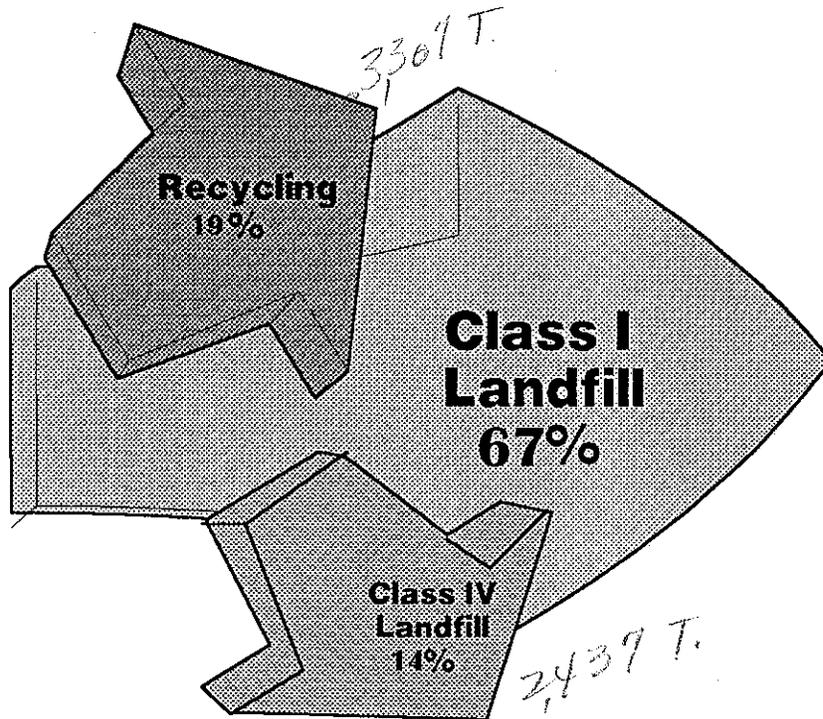
Mandates will best be met by naming a solid waste coordinator to management the day-to-day operations of the disposal, collection, waste reduction and education program in the Region of Grainger County.

WASTE FLOW PATTERNS

The projected waste flow for the Region of Grainger County is illustrated by the diagram on the following page.

1996 Projected Waste Flow

(based on 17,404 tpy)



B. IMPLEMENTATION SCHEDULE

Ten-Year Timetable for Collection and Transportation

Program	1994	1995	1996	1997	1998	1999	2000	2001	2002	2003
Upgrading Existing Centers		X								
Train Staff		X								
Data Collection/Annual Reports		X								
Purchase Truck					X					
Plan Updates						X				
Integrate Recycling Services		X								

X - when implementation begins. Shading indicates annual or on-going activity.

Ten-Year Timetable for Waste Reduction Program

Program	Responsible Organ.*	1994	1995	1996	1997	1998	1999	2000	2001	2002	2003
Buy recycled campaign	PCC		X	X	X						
Promote waste audits	SWB		X	X	X						
Establish 4 recycling sites	County/City		X	X							
Establish processing center	County		X								
Schools recycling program	PCC/County/Schools		X	X							
Research waste exchange	RM CET/PCC				X	X					

X - when implementation begins. Shading indicates annual or on-going activity.

* Responsible Organization: PCC - Partners for Clean Communities Keep America Beautiful System; SWB - Grainger County Regional Solid Waste Planning Board; Schools - Grainger County Schools; RM CET - Recycling Marketing Cooperative for East Tennessee; City - Blaine.

Ten-Year Timetable for Disposal Capacity

Program	1994	1995	1996	1997	1998	1999	2000	2001	2002	2003
Complete new Class I facility design		X								
Close out old facility			X							
Carry out post closure plan				X						
Complete permit process		X								
Review tipping fee	X	X	X	X	X	X	X	X	X	X
Begin Class IV facility permit process & design		X								
Train & certify landfill manager			X							
Begin construction of new Class I cell			X							
Begin construction on Class IV cell			X							

X - When program begins. Shading indicates annual or on-going activity.

Ten-Year Timetable for Education Program

Program	1994	1995	1996	1997	1998	1999	2000	2001	2002	2003
School-based instruction	X									
Workshops	X									
AV/Slides		X								
Publications	X									
Awards			X							
Exhibits	X									
Speakers Bureau	X									

X - When program begins. Shading indicates annual or on-going activity.

Ten-Year Timetable for Problem Waste Collection

Program	1994	1995	1996	1997	1998	1999	2000	2001	2002	2003
Household Hazardous Waste: Identify Potential Site Location Advertisement and Education Identify Site Representative Scheduled Collection Event		X								
Oil and Battery Collection*	X									
Waste Tire Collection*	X									
Litter Collection*	X									

X - when implementation begins. Shading indicates annual or on-going activity.

* Waste tire, litter and oil collection programs began before 1994, and will continue throughout the 10-year planning period.

C. STAFFING AND TRAINING REQUIREMENTS

Current Staffing (1993)

Landfill Manager (1)*
 Landfill Operators (2)
 Truck Drivers (1)
 County Convenience Center Attendants (6)*
 City Convenience Center Attendant (1)*

* Denotes employees required to be trained and certified under the Solid Waste Management of 1991. Training will be sought when guidelines are issued from the State.

Future Staffing (1995 - 2003)

Overall management and oversight will be handled by the Solid Waste Board and County Executive. Solid waste education responsibilities will fall to PCC/KAB.

Disposal

Landfill Manager (1)*
 Landfill Operators (5)

Collection and Transportation

Truck Driver (1)
 County Convenience Center Operators (3)*
 City Convenience Center Operators (1)*
 Green Box Center Attendants (3)

Waste Reduction

Recycling Coordinator (1)
 Recycling Assistant (1) (part-time)

* Denotes employees required to be trained and certified under the Solid Waste Management Act of 1991. Training will be sought when guidelines are issued from the State. Specifics on anticipated hiring and training in matrix format can viewed in Section of this Chapter.

D. BUDGET

Ten-Year Collection and Transportation Budget

Year	Capital Costs	County Annual Costs	Blaine	Total
1994		\$ 99,000	\$ 8,245	\$107,245
1995	\$38,000	\$105,358	\$ 8,509	\$151,867
1996		\$111,609	\$ 8,781	\$120,390
1997		\$118,060	\$ 9,061	\$127,121
1998	\$125,000*	\$124,717	\$ 9,350	\$259,067
1999		\$131,587	\$ 9,649	\$141,236
2000		\$138,677	\$ 9,957	\$148,634
2001		\$145,994	\$10,275	\$156,269
2002		\$153,545	\$10,603	\$164,148
2003		\$161,338	\$10,942	\$172,280

* Replacement truck.

Ten-Year Waste Reduction Budget

Year	Capital Outlay	Annual Costs
1994	\$34,400	\$33,780
1995	\$21,000	\$39,990
1996	\$14,000	\$43,382
1997		\$44,770
1998		\$46,203
1999		\$47,681
2000		\$49,207
2001		\$50,782
2002		\$52,407
2003		\$54,084

Note: Annual operating costs dependent on continuing TDOT Litter Grant Program.

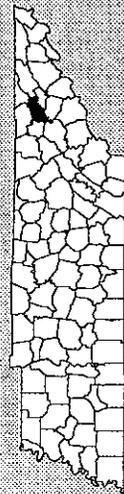
Ten-Year Public Education Budget

Program	1994	1995	1996	1997	1998	1999	2000	2001	2002	2003
PCC-KAB	\$12,100	\$12,500	\$12,500	\$6,000	\$6,200	\$6,400	\$6,600	\$6,800	\$7,000	\$7,200

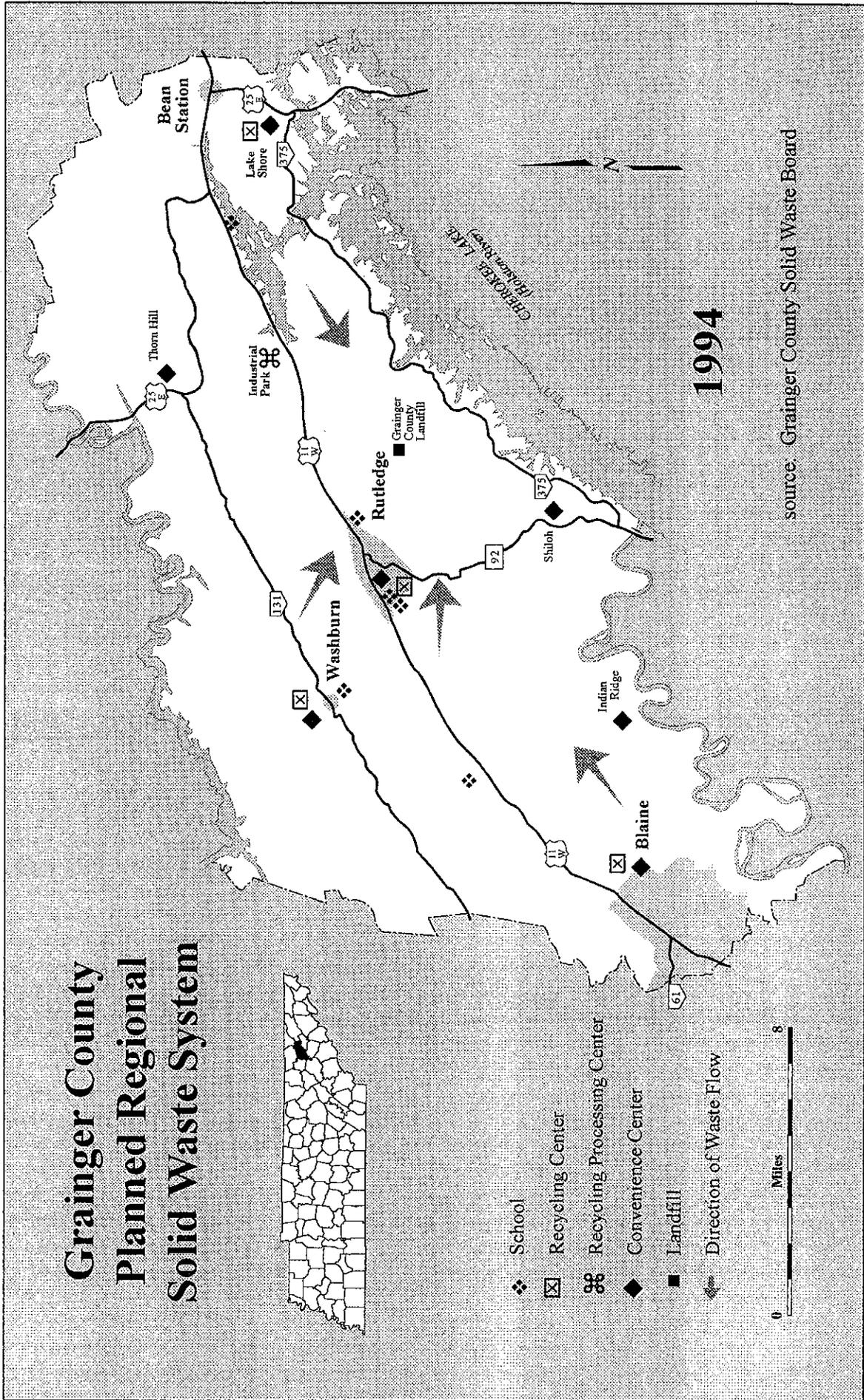
Ten-Year Disposal Capacity Budget

Program	1994	1995	1996	1997	1998	1999	2000	2001	2002	2003
Landfill Operations & Maintenance	\$208,500	\$304,100	\$313,831	\$323,874	\$334,238	\$344,933	\$355,971	\$367,362	\$379,118	\$391,250

Granger County Planned Regional Solid Waste System



- ◆ School
- ⊠ Recycling Center
- ⊠ Recycling Processing Center
- ◆ Convenience Center
- Landfill
- Direction of Waste Flow



source: Granger County Solid Waste Board

CHAPTER XII

ALLOCATION OF IMPLEMENTATION RESPONSIBILITIES: PLAN ADOPTION AND SUBMISSION

Grainger County remains a one-county region, therefore the full responsibility for implementation resides with the County. The Regional Plan has been formally adopted by the Solid Waste Planning Board and by resolution of the Grainger County Commission. The local Planning Commission has been given the opportunity to review and comment on the Solid Waste Management Plan.

FLOW CONTROL AND PERMIT APPLICATION

A. FLOW CONTROL

The Solid Waste Management Act of 1991 authorizes regions with approved plans to exercise certain flow control powers in accordance with the plan. The Act permits regions to exercise two (2) types of flow control: (1) the out-of-region waste ban [T.C.A. Section 68-211-814(b)(1)(B)]; and intra-region flow control [T.C.A. Section 68-211-814(b)(1)(a)]. The regional plan must specifically describe any flow control measures it plans to take and set forth a schedule for adoption.

To preserve available landfill capacity necessary to serve the Grainger County Solid Waste Planning Region, the Grainger County Solid Waste Board elects to restrict the amount of solid waste that may be received from outside the Region. Solid waste from outside the Region may be received so long as planned capacity exists, but is hereby banned if and when there is no planned capacity remaining. The following formula shall be used to determine if planned capacity remains.

The remaining permitted capacity of the landfill, as determined by the Tennessee Division of Solid Waste Management, divided by the remaining years of this Solid Waste Plan less the volume being received from the Grainger County Solid Waste Planning Region.

Volume received in excess of the above is banned.

To preserve and assure adequate waste flow, in order to guarantee a revenue stream for financing bonds for municipal solid waste management facilities located within the Grainger County Solid Waste Planning Region, intra-region flow control will be exercised as set forth in [T.C.A. Section 68-211-814(b)(1)(A)].

B. PERMIT REVIEW

Basis For Review

The review of any application for landfill approval with the Grainger County Planning Region will be based upon compliance with the intent of the Plan as written, approved, and adopted. The primary questions to be answered are:

1. Will the additional landfill volume be need for the Region to maintain an environmentally acceptable and cost-effective Class I disposal volume for the waste generated within the Region?
2. Will the location of the new landfill or extension within the Region provide for more cost-effective disposal of Class I waste without sacrificing environmental acceptability?
3. Is the location of the facility suitable for a landfill to serve the Region? In other words, landfills which are located at the outer edges of the Region (away form major population centers) and designed to serve out-of-region waste will be considered to be not suitably located to serve the Region.
4. Will the cost impacts for providing infrastructure (roads, water, etc.) for importing waste into the Region exceed the cost savings provided by the additional landfill facility?

Application and Review Procedure

1. A copy of the Part 1 Solid Waste Disposal Facility Permit Application shall be submitted to the chairman of the Grainger County Solid Waste Planning Board prior to submittal of said document to TDEC, Division of Solid Waste Management. In addition to TDEC, DSWM Part 1 Application, this submittal shall include the following:
 - Estimated total volume of the facility in tons of waste.
 - Proposed daily tonnage of the facility.
 - Proposed service area of the facility.
 - Map showing the location of the site suitable for advertisement.
 - Map showing current zoning of the site with a description of any special permits or re-zonings required and the status of same.
 - General site layout map showing proposed approximate landfill foot, access roads, and solid waste management facilities proposed, etc.
 - Any preliminary site evaluation studies available (hydrogeologic, environmental, engineering, etc).
 - An application fee will be established to cover the costs of the advertisement, public hearing, etc.

2. The Solid Waste Board Chairman will advertise the proposal in the local newspapers of the County in which the disposal facility is proposed, as well as, in the newspapers of any solid waste region which has a portion of its land mass within five (5) miles of the proposed facility. This advertisement will include the following information:
 - General description of the proposed facility.
 - Road address and location relative to incorporated or unincorporated municipalities.
 - Map showing the location of the site.
 - Date, time, and location of public hearing (must be at least 28 days after advertisement runs).
 - Dates of public comment period.
 - Address for mailing of public comments.
3. The Board Chairman will send copies of the application to each member of the Board, the County Executive in the Region and the Tennessee Division of Solid Waste Management.
4. The Board will call a special meeting which will act as the public hearing.
5. The public hearing will be in presentation format. The applicant will present a 15 minute discussion of the proposed project. This will be followed by a fifteen minute report form from a representative of the Board. The public comment period will follow with comments limited to five (5) minutes per person. The hearings will be documented through a court recorder.
6. At the end of the public hearing, the Board will schedule another special meeting to be a minimum of two weeks and a maximum of four weeks after the public hearing.
7. At the second special meeting, the Board will discuss the issue and then will vote to reject or not to reject the application.
8. The Board may reject an application for a new solid waste disposal facility or incinerator, or expansion of an existing solid waste disposal facility or incinerator within the Region, only upon determining that the application is inconsistent with the solid waste management plan adopted by the Region and approved by the Tennessee Department of Environment and Conservation, Division of Solid Waste Assistance. The Board shall document in writing the specific grounds on which the application is inconsistent with the Plan. The vote will be decided by simple majority. In the event of a tie vote, any abstentions will be repolled for a vote. In the event that the vote remains tied, a new special meeting will be called within

two weeks and the application will be voted on again. In the event that the outcome remains a tie, the application will be automatically rejected. The outcome will be provided to the Owner and the Tennessee Department of Environment and Conservation, Division of Solid Waste Management.

9. If the Board does not reject the application, the applicant can proceed with the full permitting process of the State. The State review process will determine the technical acceptability of the proposal. The Board's decision is based on siting and need for the facility.
10. Rejection of the proposal will result in the decision that the proposal is not consistent with the Grainger County Municipal Solid Waste Management Plan, and therefore, the facility cannot proceed through the State permitting process. If the Board rejects an application, the DSWM shall not issue the permit unless they find that the decision of the Board is arbitrary, capricious and unsupported in the record developed before the Board.
11. Appeal of final actions of the Board, shall be taken by an aggrieved party within thirty (30) days to the Chancery Court. The court shall exercise the same review as it would in a case arising under Tennessee Code Annotated, Title 4, Chapter 5. For the purposes of this section, an "aggrieved party" shall be 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.

PART III

APPENDICES

APPENDIX A

LEGAL DOCUMENTATION AND ORGANIZATION OF THE REGION

COPY

STATE OF TENNESSEE)
COUNTY OF GRAINGER)

BE IT REMEMBERED THAT THE BOARD OF COMMISSIONERS OF GRAINGER COUNTY, TENNESSEE, MET IN REGULAR SESSION ON MONDAY, DECEMBER 7, A.D., 1992, WITH THE HONORABLE DALE HARRIS, COUNTY COMMISSION CHAIRMAN, PRESENT AND PRESIDING, AND THE FOLLOWING COUNTY COMMISSIONERS PRESENT TO-WIT:

DARELL STRATTON, NADINE COLBOCH, BUEL ROACH, RAYMOND LAYEL, JR., GEORGE SHOCKLEY, JAMES KERR, JOYCE SEWELL, STANLEY ROACH, PAUL FRYE, KATHRYN COFFEY, DALE HARRIS, RAYMOND SCEARCE (12)

ABSENT: J. C. WILLIAMS, TERRY DALTON, LARRY JOHNSON (3)

EARL CAMERON, SHERIFF OF SAID COUNTY, WAS PRESENT TO OPEN SAID MEETING OF THE BOARD OF COMMISSIONERS OF GRAINGER COUNTY AND BARBARA G. JACKSON, COUNTY CLERK, WAS ALSO PRESENT. COURT WAS OPENED IN DUE FORM OF LAW AND ENTERED OF RECORD TO-WIT:

MINUTES, Approval of for November 9

Barbara G. Jackson, County Clerk, read the Minutes of the November 9, 1992, meeting and UPON MOTION of Commissioner PAUL FRYE, Seconded by Commissioner DARELL STRATTON, SAID MINUTES WERE APPROVED AS READ.

SOLID WASTE, Adoption of Resolution
RESOLUTION, Adoption of for Solid Waste

UPON MOTION of Commissioner JOYCE SEWELL, Seconded by Commissioner NADINE COLBOCH, the Grainger County Board of Commissioners approved the following copied Resolution establishing Grainger County as a Single-County Solid Waste Region by Roll Call Vote as follows:

AYE: DARELL STRATTON, NADINE COLBOCH, BUEL ROACH, RAYMOND LAYEL, JR., GEORGE SHOCKLEY, JAMES KERR, JOYCE SEWELL, STANLEY ROACH, PAUL FRYE, KATHRYN COFFEY, DALE HARRIS, RAYMOND SCEARCE (12)

NAYE: None

PASS: None

ABSENT: J. C. WILLIAMS, TERRY DALTON, LARRY JOHNSON (3)

County of Tennessee
County of Grainger

Barbara G. Jackson, County Clerk, certify that the foregoing is a true and perfect copy of

original 6 minutes

kept in my office.

This 25 day of July, 1994

Barbara Jackson
Barbara G. Jackson, County Clerk

COPY

MONDAY, DECEMBER 7, 1992

Barbara G. Jackson, County Clerk, certify that the foregoing is a true and perfect copy of Resolution

RESOLUTION NO. _____ 25 day of July, 1994

Barbara G. Jackson, County Clerk

A RESOLUTION CREATING GRAINGER 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, commercial, and industrial leaders, the 97th Tennessee General Assembly enacted T.C.A. 68-211-801 et seq. titles "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 work 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 development districts in the State of Tennessee have completed a district needs assessment which are inventories of the solid waste systems in Tennessee; and

WHEREAS, Grainger County's Board of County Commissioners has given consideration to the needs assessment prepared by the East Tennessee development district; and

WHEREAS, T.C.A. 68-211-813, requires that counties in the State of Tennessee from 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 in developing their municipal solid waste region plans; and

WHEREAS, the primary and prevailing purpose of the municipal solid waste regions are 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 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 Grainger County.

NOW, THEREFORE BE IT RESOLVED, by the Board of County Commissioners of Grainger 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 Grainger County, Tennessee; and

BE IT FURTHER RESOLVED, that pursuant to T.C.A. 68-211-813(a)(2), that the Board of County Commissioners of Grainger County, Tennessee finds and determines that Grainger County shall be and shall constitute a single county municipal solid waste region due to the following reason, There has not been enough time to adequately research the positive and negative impacts of planning with other counties based on the recommendations of the district Needs Assessment; and

BE IT FURTHER RESOLVED, that this Municipal Solid Waste Region Board shall be composed of seven members; one representing the City of Blaine, which provides solid waste collection and six members representing the county.

BE IT FURTHER RESOLVED, that pursuant to T.C.A. 68-211-813(b)(1) six Board members shall be recommended by the County Executive and approved by this Board of County Commissioners and, due to the fact that Blaine collects or provides disposal services through its own initiative or by contract, the City of Blaine shall have a Board member recommended by the Mayor of Blaine and approved by the City Council of Blaine.

BE IT FURTHER RESOLVED, that members of the Board of the Municipal Solid Waste Region shall serve as follows: two (2) members approved by the County shall have a six (6) year term, that two (2) members approved by the County shall have a four (4) year term, that one (1) member approved by the City of Blaine shall have a two (2) year term, that two (2) members approved by the county shall have a two (2) 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 Grainger County governmental personnel, to employ or contract with persons, private consulting firms, and/or governmental, quasi-governmental, and public entities and agencies to utilize Grainger 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 organizational meeting it shall select from its members a chair, vice-chair, and secretary/treasurer 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 the 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, Grainger County, and the City of Blaine, and to apply for and receive donations and grants from private corporations and foundations; and

BE IT FURTHER RESOLVED, that Grainger 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 Grainger County shall transmit a copy of this Resolution to the Tennessee State Planning Office.

RESOLVED BY THE BOARD OF COUNTY OF COMMISSIONERS OF GRAINGER COUNTY, TENNESSEE, this 7th day of December, 1992. Barbara G. Jackson, County Clerk certify the welfare of the citizens of Grainger County requiring it.

~~County of Tennessee
County of Grainger
I, Barbara G. Jackson, County Clerk, certify
that this Resolution is a true and perfect copy of
original
filed in my office.
this _____ day of _____, 19____
Barbara G. Jackson, County Clerk~~

Sponsor

John E. Han-
County Commissioner

Attest:

Barbara H. Jackson
County Clerk

Approved:

Nicholas J. ...
County Executive

Approved as to form:

Robert M. Burtz
County Attorney

DESCRIPTION OF THE ADMINISTRATIVE BOARD

LIST OF MEMBERS, JURISDICTION AND TERM OF OFFICE

Stanley Roach	County	6 years
J.C. Williams	County	6 years
Buel Roach	County	4 years
Raymond Searce	County	4 years
Doug Beeler	County	2 years
Michael K. Hammer	County	2 years
Vickie Vineyard	County	2 years

OFFICERS (1993 - 1994)

Doug Beeler	Chairman
Stanley Roach	Vice-Chairman
Vickie Vineyard	Secretary

DESCRIPTION OF THE STRUCTURE AND ROLE OF REGIONAL ADVISORY BOARD

Mission Statement - Function as the sounding board, provide guidance, advice and assistance as needed to the Solid Waste Regional Planning Board.

Summary of Activities - Advisory Board was primarily on a one-on-one basis concerning planning issues which would impact the sectors each member represented. The board met gathered information and data for portions of the Plan.

Probable Role in Implementation - The planning Advisory Board will continue to serve the advisory board to the Solid Waste Board with the same functions and mission.

List of Members

Albert Searce
Donna Barnard
Donna Kitts
Cindy Collins
Hal Stansberry
Lindy Turner
Chris Garkovich

SOLID WASTE REGION BOARD, Appointment of STANLEY ROACH, J. C. WILLIAMS, BUEL ROACH, RAYMOND SCEARCE, MICHAEL HAMMER, DOUG BEELER

BOARD, Solid Waste Appointments of STANLEY ROACH, J. C. WILLIAMS, BUEL ROACH, RAYMOND SCEARCE, MICHAEL HAMMER, DOUG BEELER

UPON MOTION of Commissioner JOYCE SEWELL, Seconded by Commissioner JAMES KERR, the Grainger County Board of Commissioners accepted the following recommendations of County Executive Michael Hammer and ratified the appointments of the following named to the Grainger County Municipal Solid Waste Region Board, per Resolution Creating Grainger County's Municipal Solid Waste Planning Region, approved by the Grainger County Commission at the December 7, 1992, meeting:

Six (6) Year Term
Expiring March 8, 1999

Stanley Roach
J. C. Williams

Four (4) Year Term
Expiring March 8, 1997

Buel Roach
Raymond Searce

Two (2) Year Term
Expiring March 8, 1995

County Executive Michael Hammer
Doug Beeler

The City of Blaine shall appoint one (1) member with a two (2) year term expiring March 8, 1995.

CLERK'S NOTE: (No need to index.)

County Executive Michael Hammer updated the County Commission on the latest status of the Bean Station Library.

TRUSTEE'S REPORT, Approval of

UPON MOTION of Commissioner STANLEY ROACH, Seconded by Commissioner PAUL FRYE, the Trustee's Report for the period of September 30 through November 30, 1992, as presented by Donald Nance, Trustee, and as copied in its entirety hereunder was approved by Voice Vote:

OFFICE OF COUNTY EXECUTIVE

**GRAINGER COUNTY
RUTLEDGE, TENNESSEE 37861**

**MICHAEL K. HAMMER
COUNTY EXECUTIVE**

**TELEPHONE
828-3513**

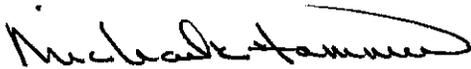
**TO: Doug Beeler, Chairman
Grainger County Solid Waste Planning Board**

DATE: June 29, 1994

**SUBJECT: COMPLIANCE WITH FINANCIAL ACCOUNTING REQUIREMENTS
OF T.C.A. 68-31-874(A)**

**This letter assures that the Grainger County Solid Waste Planning Region is
complying with the Solid Waste Management Act of 1991 and certifies that the county has
complied with applicable financial accounting requirements.**

Sincerely,



**Michael K. Hammer
County Executive**

CITY OF BLAINE

P.O. Box 85
Blaine, Tennessee 37709

August 20, 1994

Doug Beeler, Chairman
Grainger County Solid Waste Board
Rutledge, Tennessee 37861

Dear Mr. Beeler:

The City of Blaine has complied with the financial accounting requirements of T.C.A. 68-31-874(4) and I hereby certify that the city has established a special revenue fund for solid waste. The name of the special revenue fund is Sanitation Fund.

Sincerely,



Vickie Vineyard, Mayor
City of Blaine

VV/ew

Resolution No _____

A RESOLUTION RATIFYING THE GRAINGER COUNTY PLANNING REGION'S MUNICIPAL SOLID WASTE PLAN

Whereas, Tennessee Code Annotated 68-211-801 et.seq. requires that each county in the State of Tennessee form solid waste planning regions, and

Whereas, said regions are responsible for developing a ten (10) year plan for the management of solid waste, and

Whereas, by resolution, the Grainger County Board of County Commissioners created the Grainger County Solid Waste Planning Region, and

Whereas, the resolution creating the Grainger County Planning Region also established a Board with the responsibility of developing, administering and updating the Region's plan as per the requirements of T.C.A. 68-211-801 et.seq., and

Whereas, the guidelines promulgated by the Tennessee State Planning require that the municipal solid waste plan prepared by the Grainger County Planning Region be ratified by the Board of the County Commissioners of the County composing said Region.

Now, Therefore, Be It Resolved, by the Grainger County Board of County Commissioners that it hereby ratified the Grainger County Planning Regions solid waste plan and acknowledges Grainger County's participation and responsibilities under this plan.

Resolved, this 16th day of May, 1994, the welfare of the citizens of Grainger County, Tennessee requiring it.

Nick ...
County Executive

ATTEST: *Barbara G. Jackson*
County Clerk

County of Grainger

Barbara G. Jackson, County Clerk, certify that the foregoing is a true and perfect copy of

original Resolution
filed in my office.

This 25 day of July, 1994

Barbara Jackson
Barbara G. Jackson, County Clerk

APPENDIX B

DOCUMENTATION FOR ADJUSTMENTS TO THE BASE YEAR GENERATION

Adjustments to the base year were not made for the Grainger County Plan.

APPENDIX C

PUBLIC PARTICIPATION ACTIVITIES

1. A number of presentations to civic groups were made during the formulation of this Plan. A County Commissioners workshop was held to present the Plan and request feedback. The Partners for Clean Communities Keep America Beautiful gathered information for the Plan.
2. Attendance at Public Hearing

Stanley Roach
J.C. Williams
Buel Roach
Raymond Scarce
Doug Beeler
Michael K. Hammer
Vickie Vineyard
Sandra Jarvis
Joyce Phillips
Lindy Turner
Chris Garkovich

APPENDIX D

EXPORTS AND IMPORTS

The Grainger County Solid Waste Region does not plan to import or export solid waste.

TO: Grainger County Planning Commission

FROM: Doug Beeler, Chairman
Grainger County Solid Waste Planning Board

DATE: June 20, 1994

SUBJECT: REVIEW OF GRAINGER COUNTY TEN-YEAR SOLID WASTE PLAN

Enclosed is a copy of the Grainger County Ten-Year Solid Waste Plan for your review, comment and possible adoption. Your review is necessary to assure that the Plan has complied with T.C.A. Section 13-3-105 and/or Section 13-4-104.

After your review please supply me with a copy of the minutes of your meeting for submission to the Tennessee Department of Environment and Conservation, Division of Solid Waste Assistance.