

**HICKMAN COUNTY GOVERNMENT**

**STEPHEN E. GREGORY**

COUNTY EXECUTIVE  
HICKMAN COUNTY COURTHOUSE  
CENTERVILLE, TENNESSEE 37033  
PHONE (615) 729-2492

October 11, 1994

RECEIVED OCT 12 1994

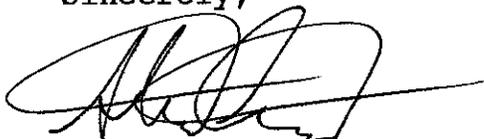
Mr. Paul Evan Davis, Director  
Division of Solid Waste Assistance  
Department of Environment & Conservation  
14th Floor, L & C Tower  
401 Church Street  
Nashville, Tennessee 37243-0455

Dear Mr. Davis:

Pursuant to the request from your division, enclosed are 9 (nine) more copies of Hickman County's Regional Solid Waste Plan. We apologize for not sending them in with the original, but did not realize you needed a total of 10 (ten).

Please let me know if you have any other needs, or require additional information, regarding our plan.

Sincerely,



Steve Gregory  
Hickman County Executive

Enclosures



**HICKMAN COUNTY GOVERNMENT**

**STEPHEN E. GREGORY**

COUNTY EXECUTIVE  
HICKMAN COUNTY COURTHOUSE  
CENTERVILLE, TENNESSEE 37033  
PHONE (615) 729-2492

September 21, 1994

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

RE: Regional Solid Waste Plan for Hickman County

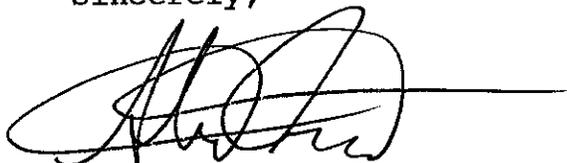
Dear Mr. Davis:

Enclosed - at long last - is an approved copy of a 10-year regional solid waste plan for the Hickman County Solid Waste Region. As you are aware we have had several setbacks in getting our plan together and approved, but it was adopted by our County Commission this past Monday night and is now ready for submission to your office for review.

Along with the plan is a certified copy of the adopting resolution as well as a copy of our public hearing notice. There were about thirty people that attended our public hearing. Unfortunately, the sign-in sheet has been misplaced and cannot be sent at this time. We did, however, tape the entire meeting and can provide the tapes or a transcription if necessary.

After reviewing the plan you should have any questions, or if changes need to be addressed, please let me know. And, thank you for your continued support and interest in Hickman County and our solid waste programs.

Sincerely,



Steve Gregory  
Hickman County Executive

Enclosures





Board of Prof. Resp. #2595  
4/4tc/31565

**NOTICE OF SALE**

WHEREAS on August 20, 1988, Cumberland Castings Company, a Tennessee Corporation, did by Deed of Trust in Trust Deed Book 104, Page 310, Register's Office, Hickman County, Tennessee, convey to J.B. Walker, Trustee, the real estate hereinafter described to secure a note to The First National Bank of Centerville, Tennessee, as described therein.

AND WHEREAS, default has been made in the payment of said indebtedness, the owner and holder of said indebtedness has declared the entire amount due and payable as provided in said deed of trust, in accordance with the terms thereof. The public is hereby notified that the undersigned Trustee will sell the hereinafter described property to the highest and best bidder, for cash, at the door of the Court House in Centerville, Tennessee, at 10:00 a.m., on Friday, August 19, 1994, or at such other time as shall be announced on August 19, 1994. Said property to be sold free from the right of redemption, but subject to any unpaid taxes.

Two tracts of land lying in the Seventh Civil District of Hickman County, Tennessee, shown on the Tax Books as Map 059, Parcel 027.00 and being more particularly bounded and described as follows:

TRACT NO. 1: Being a store house and lot in the Village of Nunnely: BEGINNING on the southeast corner of J.N. Thompson post office lot, and runs thence East 43 feet with railroad right-of-way to 12 foot alley; thence with same 185 feet, 9 inches to the corner of John Young's lot; thence West with the same 74 feet to an iron pin in his west boundary line; thence South 143 feet 9 inches with C.C. Cessler's (Sesler) east boundary line to the northwest corner of J.N. Thompson's post office lot; thence 30 feet to his northeast corner; thence South 42 feet to the beginning on the railroad right-of-way nearly opposite the depot.

TRACT NO. 2: BEGINNING on an iron stake in the north boundary line of railroad right-of-way close to the southwest corner of post office building and runs thence North 84 deg. West with said right-of-way 18-7/16 poles to an iron stake in same; thence North 9 deg. East 2-1/2 poles to iron stake on south side of Nunnely and Only Road; thence North 84 deg. East 19-3/4 poles to the northwest corner of

Office, Hickman County, Tennessee.

This 21st day of July, 1994.

J.B. WALKER  
Trustee  
25/3tc/31593

**NONDISCRIMINATION POLICY**

It is the policy of Hickman County Health Services, Inc. to admit and treat all patients without regard to race, color or nation origin. The same requirements for admission are applied to all and patients are assigned within the facilities without regard to race, color, religion, national origin, mental or physical handicap, sex, age or veterans status.

There is no distinction in eligibility for, or in the manner of providing, any patient service of the Hickman County Health Services, Inc. All facilities are available to all regardless of race, color, religion, national origin, mental or physical handicap, sex, age or veteran status.

All persons involved in the referral of patients within the Hickman County Health Services, Inc. must do so without regard to race, color, religion, national origin, mental or physical handicap, sex, age or veterans status.

Thank you,  
DOROTHY HUDGINS  
Assistant Administrator  
25/1tc/31588

**INVITATION TO BID**

The Hickman County Board of Education will receive bids on "Non-Food Items" for the cafeterias. Sealed bids will be opened Monday, August 1, 1994, at 8:30 a.m. The Hickman County Board of Education reserves the right to accept or reject any and/or all bids in whole or in part if it is deemed to be in the best interest of the county.

25/1tc/31590

**INVITATION TO BID**

The Hickman County Board of Education will receive bids on the following: Trash Hauling Services for the East Hickman Schools. Sealed bids will be opened at 10 a.m., Wednesday, August 3, 1994. The Hickman County Board of Education reserves the right to accept or reject any and/or all bids in whole or in part if it is deemed to be in the best interest of the county.

25/1tc/31598

**PUBLIC NOTICE**

Sealed proposals will be received by the Hickman County Finance Office at the Board of Education Office, 108 College Avenue, Centerville, Tennessee 37033 before 2 p.m. local time

Submit your offer on your own bid form. Include a statement that the installation will comply with all applicable codes and conform to the intent of the drawings. Also include the completion date. The date of completion will be a consideration in the bid award. Liquidated Damages of \$100 per day past completion date may be assessed.

Payment for work will be made only after 100 percent of work has been completed and work has been accepted by Hickman County.

Hickman County reserves the right to reject any or all bids and to waive informalities.

HICKMAN COUNTY FINANCE OFFICE  
Courthouse  
Centerville, Tennessee 37033  
25/1tc/31597

**PUBLIC NOTICE**

The Hickman County Highway Commissioners will meet in regular session Monday, August 1, 1994 at 7 p.m. at the Highway Department Garage on 50 Highway. These meetings are open to the public.

25/1tc/31596

**PUBLIC NOTICE**

A public hearing will be held at 7 p.m., on Thursday, August 11, 1994, in the courtroom of the Hickman County Courthouse to present and discuss Hickman County's 10-year Regional Solid Waste Plan. The public is invited and encouraged to attend.

Respectfully submitted this 21st day of July, 1994.

STEVE GREGORY  
County Executive  
25/2tc/31604

**INVITATION TO BID**

The Hickman County Finance Office is accepting bids on an air conditioning unit installed on a 963 Caterpillar track type loader. Bids are to be opened Tuesday, August 3, 1994 at 9 a.m. in the Finance Office at the Courthouse in Centerville. Bids should be mailed or hand delivered to the Finance Office, Courthouse, Centerville, Tennessee 37033. Bids should be for installation to be done on sight at the Hickman County Landfill. Unit must operate to reduce health hazards to the equipment operator. A fully enclosed cab is provided to accept unit. The unit must have a state warranty. For more information, contact the Hickman County Landfill at 615-729-2136. Hickman County reserves the right to accept or reject any or all bids.

25/1tc/31603  
**INVITATION TO BID**

the Finance Office, Courthouse, Centerville, Tennessee 37033. For more information, contact Hickman County Landfill at 615-729-2136. Hickman County reserves the right to accept or reject any or all bids. 25/1tc/31602.

**INVITATION TO BID**

Grade Crossing Construction on the South Central Tennessee Railroad. Separate sealed bids for grade crossings on the South Central Tennessee Railroad will be received by the South Central Tennessee Railroad, at P.O. Box 259, Centerville, TN 37033, until 3 p.m. on August 8, 1994, and then at said office publicly opened and read aloud.

The work for which bids are to be submitted consists of furnishing all labor, equipment, specified materials and performing all work necessary for construction of three 16' timber and asphalt grade crossing on the South Central Tennessee Railroad as described herein.

The Form of Bid, Specifications, and other contract documents may be obtained from:

Crouch Engineering, P.C.  
2089 Hunterwood Drive  
Brentwood, TN 37027  
615-791-0630

Deposit for specification/bid package shall be \$50 per set, which shall be refunded to any bidder who returns the documents in good condition.

The owner reserves the right to waive any informalities or to reject any or all of the bids.

Bids shall be good for 60 days from bid opening.

Time limit: Work shall begin within 14 days from date of notice to proceed. Work shall be completed within 45 Calendar Days from the time the work is initiated until the contractor has completed 100% of the project.

All bidders must be licensed general contractors to perform the type construction herein described as required by the Tennessee Code Annotated, Title 62, Chapter 6, Amended by Chapter 9, and Chapter 406 of the Public Acts of 1977.

SOUTH CENTRAL TENNESSEE RAILROAD  
MR. DALE BURLISON, Manager  
25/2tc/31616

**INVITATION TO BID**

The Hickman County Finance Office is accepting bids for a digital duplicator. Sealed bids should be delivered to the Hickman County Finance Office, Courthouse, Centerville, Tennessee, on or before Monday, August 1, 1994, at 10 a.m. Bids will be opened Monday, August

**RESOLUTION NO. 9456**

**REGARDING APPROVAL OF A REGIONAL TEN-YEAR  
MUNICIPAL SOLID WASTE PLAN  
FOR HICKMAN COUNTY, TENNESSEE**

**WHEREAS**, at the urging and support of a coalition of local government, environmental, commercial, and industrial leaders, the 97th General Assembly enacted the "Solid Waste Management Act of 1991", codified in Tennessee Code Annotated, §68-211-801 et seq., and

**WHEREAS**, Tennessee Code Annotated, §68-211-813, requires that counties in the State of Tennessee form municipal solid waste planning regions; and

**WHEREAS**, Hickman County, Tennessee, by passage of Resolution No. 9432 on April 18, 1994, became a single-county municipal solid waste planning region, and a ten-year solid waste plan was developed; and

**WHEREAS**, a public hearing, as required, was held on Thursday, August 11, 1994, to gather public input regarding the proposed solid waste plan; and

**WHEREAS**, the plan, due by July 1, 1994, is now ready to be sent to the Tennessee Department of Environment and Conservation, Division of Solid Waste Assistance, for approval.

**NOW, THEREFORE, BE IT RESOLVED**, by the Hickman County Legislative Body, meeting in regular session this 19th day of September, 1994, that:

**Section 1:** The ten-year municipal solid waste plan for the Hickman County Solid Waste Planning Region is hereby approved as presented.

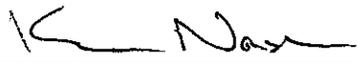
**Section 2:** The county executive of Hickman County, Tennessee, is hereby authorized to submit said plan to the Division of Solid Waste Assistance of Tennessee's Department of Environment and Conservation for consideration and approval.

**Section 3:** The Hickman County Legislative Body, realizing the financial impact of said plan and wishing not to lose accountability, do hereby require the four members of the Solid Waste Administrative Board, still to be approved, be comprised of members of this body for the first six years of the plan.

**Section 4:** The Hickman County Legislative Body, realizing the possible disadvantages of said plan, do hereby authorize the Solid Waste Administrative Board, once it is formed, to site a Class I, Subtitle D, Municipal Solid Waste landfill inside the corporate limits of Hickman County, should such action be deemed necessary and in the best interest of the citizens of Hickman County.

**Section 5:** This resolution shall become effective from and after its passage, the public welfare requiring it.

**SPONSORS:**

  
\_\_\_\_\_  
Keith Nash

  
\_\_\_\_\_  
Steve Hethcote

  
\_\_\_\_\_  
Ralph C. Givens, Jr.

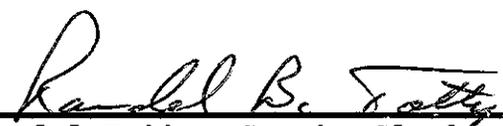
\_\_\_\_\_

**VOTE:**    20 **AYE**        0 **NAY**        0 **PASS**        0 **ABSENT**

**APPROVED:**

  
\_\_\_\_\_  
Steve Gregory, County Executive

**ATTEST:**

  
\_\_\_\_\_  
Randel Totty, County Clerk

**HICKMAN COUNTY  
SOLID WASTE REGION PLAN**

**Prepared by:  
GRESHAM, SMITH AND PARTNERS  
3310 West End Avenue  
Nashville, Tennessee 37203  
(615) 385-3310**

**June, 1994**

## **PART I**

### **EXECUTIVE SUMMARY**

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#### **General Description**

This Municipal Solid Waste Regional Plan is developed for Hickman County as a single county region. The area is primarily rural covering 613 square miles. The City of Centerville is the only incorporated municipality in the region.

Hickman County is approximately 45 miles southwest of Nashville and is accessible by Interstate Highway 40. Terrain in the area varies greatly from level farmland to steep hills covered with trees. Much of the land is undeveloped and 16% of the working population is in an agricultural business. Exhibit I-1 is a map showing political boundaries, major roads, railways and waterways.

#### **Rationale for Region Formation**

The State of Tennessee passed the "Solid Waste Management Act of 1991" requiring each county to develop a solid waste plan. Originally Hickman, Lewis and Perry Counties were planning to form a Tri-County region because of their similar characteristics. These counties all belong to the Meriwether-Lewis Electric Co-op, and are similar in size and government structure. The demographics are consistent throughout the region. This newly formed region continued to consider the addition of surrounding counties, and Houston and Humphreys Counties both considered joining the region. Ultimately, Houston County elected not to participate, while Humphreys County

decided to join the group which is now known as the Quad County Regional Authority. Lewis County who is the host county decided to withdraw from the region. Hickman, Humphreys and Perry Counties had meetings to try to remain a region. Hickman County will be a single county region.

### **Summary of Regional Needs**

Hickman County operates a landfill with limited capacity for future use and does not meet RCRA Subtitle D Regulations. Under the Solid Waste Management Act of 1991, Hickman County must develop a plan to dispose of waste for the next ten years. As a single county, incineration and composting of municipal solid waste are cost prohibitive. Hickman County is not a large generator of waste and has decided to transport their waste to a private facility.

### **Regional Goals and Objectives**

This region plans to meet the requirements established in the Solid Waste Management Act of 1991.

- Effective January 1, 1996 Hickman County shall assure that one or more municipal solid waste collection and disposal systems are available to meet the needs of the residents of the county.
- To reduce by 25% the amount of solid waste disposed of at municipal solid waste disposal facilities and incinerators, as measured on a per capita bases within Tennessee by weight, by December 31, 1995.
- Expand their recycling program to help reduce waste.
- Public education about solid waste, recycling and disposal of household hazardous waste.

- Meet disposal capacity needs for ten years.

### **Summary of System Elements Included in the Regional Plan**

- A. Collection and Transfer
  - 1. Curbside service in City of Centerville
  - 2. Convenience Centers
  - 3. Transfer Station
  
- B. Disposal
  - 1. Haul to Private Facility

Integration of new programs, services and facilities with the existing system.

The City of Centerville will collect solid waste as they have in the past. Waste collected from curb-side service will go directly to the new transfer station when the existing landfill closes. Rural residents can drop their waste off at the new convenience centers throughout the county. The county is responsible for transportation from the convenience center to the transfer station.

Recyclable materials will be collected at all the convenience centers throughout the County. Recyclable materials will be stored at the landfill until they are sold. Household Hazardous Waste will have designated days for collection and used oil will be accepted at all times the centers are open. All problem wastes will be disposed through the states mobile unit program.

## Implementation Schedule

### Timetable and Milestones for Construction of Convenience Centers/Transfer Stations

#### Phase I

- |                                     |                              |
|-------------------------------------|------------------------------|
| • Grant Applications                | March 1-9, 1994              |
| • Sites Optioned                    | Jan. 1 - Feb 28, 1995        |
| • Survey Sites                      | Jan. 1-31, 1995              |
| • Prepare Environmental Assessments | Nov. 23 - Dec. 24, 1994      |
| • Grants Approved                   | Sept. 1-15, 1994             |
| • Design Facilities                 | Dec. 1, 1994 - Jan. 31, 1995 |
| • Submit Design Plans               | Jan. 1-31, 1995              |
| • Open Bids/Award Contract          | Dec. 6-30, 1994              |
| • Hire and Train Staff              | Mar. 1-30, 1995              |
| • Construct Facilities              | Feb. 15 - Mar. 30, 1995      |
| • Start-Up                          | Mar. 15 - April 15, 1995     |
| • Initiate Operation                | April 15, 1995               |

#### Phase II

- |                                     |                               |
|-------------------------------------|-------------------------------|
| • Sites Optioned                    | Feb. 22 - April 14, 1995      |
| • Survey Sites                      | Apr. 3-14, 1995               |
| • Prepare Environmental Assessments | Apr. 3-30, 1995               |
| • Design Facilities                 | May 1 - June 30, 1995         |
| • Submit Design Plans               | July 1-6, 1995                |
| • Open Bids/Award Contract          | July 1-20, 1995               |
| • Hire and Train Staff              | Nov. 1 - Dec. 30, 1995        |
| • Construction                      | July 23 - Aug. 30, 1995       |
| • Start-Up                          | Dec. 15, 1995 - Jan. 15, 1996 |
| • Initiate Operation                | July 15, 1996                 |

## Estimated 10-Year System Costs

The proposed Hickman County solid waste plan has two components. Below is a breakdown of costs for the system.

### ANNUAL OPERATING EXPENSES FOR 1994-2003

Year	Collection Centers	Transport and Disposal	Total
1994	\$ 122,500	\$ 0	\$ 122,500
1995	245,000	0	245,000
1996	252,350	99,000	351,350
1997	259,921	396,000	655,921
1998	267,718	419,760	687,478
1999	275,750	444,946	720,696
2000	284,022	471,642	755,664
2001	292,543	499,941	792,484
2002	301,319	529,937	831,256
2003	310,359	561,734	872,093
TOTAL	\$ 2,611,482	\$ 3,422,960	\$ 6,034,442

## CHAPTER 1.0

### DESCRIPTION OF THE MUNICIPAL SOLID WASTE REGION

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#### 1.1 General Description

This Municipal Solid Waste Regional Plan is developed for Hickman County as a single county region. The area is primarily rural covering 613 square miles. The City of Centerville is the only incorporated municipality in the region.

Hickman County is approximately 45 miles southwest of Nashville and is accessible by Interstate Highway 40. Terrain in the area varies greatly from level farmland to steep hills covered with trees. Much of the land is undeveloped and 16% of the working population is in an agricultural business. Exhibit I-1 is a map showing political boundaries, major roads, railways and waterways.

#### 1.2 Rationale for Region Formation

The State of Tennessee passed the "Solid Waste Management Act of 1991" requiring each county to develop a solid waste plan. Originally Hickman, Lewis and Perry Counties were planning to form a Tri-County region because of their similar characteristics. These counties all belong to the Meriwether-Lewis Electric Co-op, and are similar in size and government structure. The demographics are consistent throughout the region. This newly formed region continued to consider the addition of surrounding counties, and Houston and Humphreys Counties both considered joining the region. Ultimately, Houston County elected not to participate, while Humphreys County

decided to join the group which is now known as the Quad County Regional Authority. Lewis County who is the host county decided to withdraw from the region. Hickman, Humphreys and Perry Counties had meetings to try to remain a region. Hickman County will be a single county region.

### **1.3 Institutional Structure**

The Administrative Board for this municipal solid waste plan will consist of five members. Four members of the board will be appointed by Hickman County and one member will be appointed by the City of Centerville.

A municipal solid waste planning advisory committee may be established and the Administrative Board shall determine the composition of the advisory committee. The Tennessee Code (T.C.A. 68-211-812) recommends the selection of an executive committee of the board which is made up of people from the region. In order to ensure a diverse group, the Code suggests that the following interests be represented: one person each representing the recycling industry, business interests, environmental concerns, education and one citizen at-large.

### **1.4 Demographics**

Based on projections from the U.S. Census Bureau the 1993 population for Hickman County is 17,245 people. Table I-1 shows the size, population and average population density of Hickman County. This region has a very stable population with very little fluctuations over the past 15 years.

**Table I-1  
POPULATION AND POPULATION DENSITY**

<b>County</b>	<b>Area (Sq. Miles)</b>	<b>Population</b>	<b>Avg. Density Pop./sq.miles</b>
Hickman	613	17,245	28.13
Regional Total	613	17,245	28.13

According to the U.S. Census Bureau, an Urban area is any city with a population greater than 2,500 people. This region is primarily rural with 78% of the population living in non-urban areas. Hickman County's only urban city is Centerville. Table I-2 shows the distribution of the region by urban and rural areas.

**Table I-2  
DIST. OF THE TOTAL REGIONAL POPULATION, BY URBAN & RURAL AREAS:**

<b>County</b>	<b>URBAN</b>		<b>RURAL</b>	
	<b>Population</b>	<b>%</b>	<b>Population</b>	<b>%</b>
Hickman	3794	22	13,451	78
Regional Total	3794	22	13,451	78

Table I-3 gives a distribution of the regional population by sex and age. The regional total shows the population to be divided equally between males and females. Twenty-four percent of the population is under the age of 18, sixty-two percent is between 18 and 65 and fourteen percent is over the age of 65.

**Table I-3  
DISTRIBUTION OF THE REGIONAL POPULATION BY SEX AND AGE**

Age	Total	Male	%	Female	%
0-4	1,062	548	52	514	48
5-17	2,957	1,541	52	1,416	48
18-44	6,923	3,825	55	3,098	45
45-64	3,477	1,748	50	1,729	50
65+	2,335	960	41	1,375	59
Regional Total	16,754	8,622	51	8,132	49

Table I-4 is a breakdown of the educational background of the citizens living in this region. Comparing the educational background of Hickman County with the standards of the State of Tennessee shows this region has more than double the number of people leaving school before reaching the 9th grade.

**Table I-4  
DISTRIBUTION OF REGIONAL POPULATION BY EDUCATION (AGE >/ 25)**

	Number	%
Less than 9th Grade	2,639	36
High School (1-4)	3,671	49
College (1-4)	792	11
Post Graduate/Professional (>4)	284	4
Regional Total	7,386	100

The occupancy rate for housing units in this area is 90%. Of those units occupied, 19% are rented and 81% are owner-occupied. Table I-5 shows a distribution by the type of housing and occupancy for the region.

**Table I-5  
DISTRIBUTION BY TYPE OF HOUSING AND OCCUPANCY**

	Total Units	Occupied	Owner	Rented
SINGLE FAMILY 1, Detached	5,015	4,529	3,922	607
1, Attached	23	19	17	2
MULTI-FAMILY 2	45	39	9	30
3-4	56	51	3	48
5-9	16	14	1	13
10-19	57	54	2	52
20-49	37	35	2	33
50 or more	71	71	0	71
Institutional (# of people)	1,039			
Mobile Home/Trailer	1,285	1,120	846	274
Other	57	44	24	20
Regional Total	6,662	5,976	4,826	1,150

Over the next ten years the population in Hickman County is expected to increase by about 8%. This is consistent with the stability of the region over the past 15 years. Table I-6 shows population projections for the years 1994-2003.

**Table I-6  
REGIONAL POPULATION PROJECTIONS 1994-2003**

County	1994	1995	1996	1997	1998	1999	2000	2001	2002	2003
Hickman	17411	17578	17748	17919	18091	18266	18440	18576	18711	18847
Regional Total	17411	17578	17748	17919	18091	18266	18440	18576	18711	18847

## 1.5 Economic Activity

Hickman County is a very stable area. The industries in this area do not anticipate cutbacks or expansions in the near future.

Table I-7 shows the basic economic information for Hickman County in 1991. Total earnings for Hickman County were \$ 191,561,000. Per capita income in Hickman County was \$11,327.

**Table I-7**  
**BASIC ECONOMIC INFORMATION, FOR EACH COUNTY, AND THE REGION IN 1991**

County	Population	MSA County (yes/no)	Total Employment	Total Earnings	Per Capita Income	% Pop. Below the Poverty level
Hickman	16,917	No	5,324	191,561,000	11,327	18.1
Regional Total	16,917	No	5,324	191,561,000	11,327	18.1

Most of the people in Hickman County have non-agricultural jobs. Of this component, manufacturing is the largest, with 28% of the jobs in the non-agricultural category. Table I-8 shows the percent by category of the non-agricultural employment in the area.

**Table I-8**  
**% OF TOTAL NON-AGRICULTURAL EMPLOYMENT**

County	Manufacturing	Construction	Trade	Finance	Service	Gov't	Transportation Public Utilities
Hickman	1,267	424	606	142	830	1,005	188
Regional Total	1,267	424	606	142	830	1,005	188
%	28	9	14	3	19	23	4

Table I-9 gives the total number of agricultural employees in Hickman County. Approximately 16% of the working population is employed in agricultural vocations.

**Table I-9  
AGRICULTURAL EMPLOYEES**

County	Employment
Hickman	826
Regional Total	826

Table I-10 provides a breakdown of commercial and non-hazardous waste generated by the major employers in the region, including the private and public sector employees. The screening criterion is based on population. Hickman County has more than 10,000 people but less than 50,000; therefore, businesses with greater than 25 employees are included.

**Table I-10  
GENERATORS OF COMMERCIAL AND NON-HAZARDOUS INDUSTRIAL WASTE**

County	Screening Criteria Applied	Number of Generators	Estimated Total Quantity of Waste
Hickman	Businesses with > 25 employees	26	5,311
Regional Total		26	5,311

There is only one facility in Hickman County that houses more than 100 people. This facility, the Tourney Center, is a maximum security prison.

**Table I-11  
REGIONAL SUMMARY OF INSTITUTIONS HOUSING MORE THAN 100 PERSONS**

County	Total Number of Institutions	Total Number of Students Prisoners/Residents	Estimated Quantity of Waste Generated
Hickman	1	850+	n/a
Regional Total	1	850+	n/a

Table I-12 addresses infectious waste management at facilities that have more than 50 beds. Hickman County has two facilities, both located in the City of Centerville. These include Centerville Health Care and Hickman County Hospital.

**Table I-12  
SUMMARY DATA ON MAJOR HEALTH CARE FACILITIES IN THE REGION  
( > 50 beds, includes hospitals, nursing homes)**

County	No. of Facilities	No. of Beds	Infectious Waste Management		Est. Quantity of Solid Waste Generated
			Onsite/Offsite	Type Treatment	
Hickman	2	132	Offsite	BFI	unknown
		84	Offsite	BFI	unknown
Regional Total	2	216			

Sources of local revenues for Hickman County are shown in Table I-13. This table reflects revenue in 1991 as presented in the needs assessment reports.

**Table I-13  
SOURCES OF LOCAL REVENUE UTILIZED IN THE REGION**

County	Property Tax	Local Sales Tax	Wheel Tax	Local Waste Collection Fee	User Fee/Tipping Fee	Other*
Hickman	3,513,963	655,000	435,000	178,499	0	1,183
Regional Total	3,513,963	655,000	435,000	178,499	0	1,183

\* interest earned

Local tax revenues based on fiscal year 1993 are shown in Table I-14.

**Table I-14  
LOCAL TAX REVENUE BASED ON DATA FOR FISCAL YEAR 1993**

County	Total Assessed Property Value	Total Property Tax Revenue	Total Sales Subject to Sales Tax	Total Local Sales Tax Revenue	# Registered Vehicles	Total Wheel Tax Revenue
Hickman	103,907,684	3,642,360	31,111,000	700,000	12,300	432,000
Regional Total	103,907,684	3,642,360	31,111,000	700,000	12,300	432,000

ANALYSIS OF THE CURRENT SOLID WASTE MANAGEMENT SYSTEM

2.1 Waste Stream Characterization

Hickman County and the City of Centerville that make up the Planning Region generated 21,244 tons or 1.26 tons per capita of solid waste in 1991. The average solid waste generation per person in Tennessee is 1.18 tons per year. Hickman County is 7% above Tennessee's average solid waste generation per person.

Table II-1  
 QUANTITY OF SOLID WASTE RECEIVED FOR DISPOSAL/INCINERATION IN 1991

County	Tons Disposed	Population (1991)	Waste Disposed Per Capita
Hickman	21,244	16,917	1.26
Regional Total	21,244	16,917	1.26

A comparison to information contained in the Guidelines for Decision Makers: Solid Waste Management, shows the state of Tennessee's waste composition to resemble national levels. A comparison of the waste stream in Hickman County vs. the State of Tennessee is provided below:

**Exhibit II-1  
COMPARISON OF WASTE STREAM IN HICKMAN COUNTY REGION**

Types of Waste	Hickman County	Tennessee
Residential	52%	37%
Industrial	26%	29%
Commercial	20%	27%
Special	2%	3%
Other	0%	0%

Refer to Table II-2 for a breakdown of the types of regional solid waste by county in 1991.

**Table II-2  
ORIGIN OF REGIONAL SOLID WASTE IN 1991**

TONS PER YEAR					
County	Residential	Institutional/ Commercial	Non- Hazardous Industrial	Special	Other
Hickman	11,060	4,174	5,591	419	0
Regional Total	11,060	4,174	5,591	419	0

Waste streams need to be analyzed to determine which materials have the most significant impact toward meeting the 25% waste reduction goal for solid waste disposed in Tennessee's Class I municipal solid waste (MSW) landfills and (MSW) incinerators by the end of 1995. Table II-3 shows types of waste and quantity in tons of waste that is currently being disposed of in Class I landfills. These wastes could be disposed of in a Class II, III, or IV landfill. In this region, the removal of yard and demolition waste would achieve a 15% reduction of materials going to Class I landfills.

**Table II-3  
ACCEPTANCE OF SOLID WASTE FOR DISPOSAL OR INCINERATION**

County	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
Hickman	Y	2920	N	0	Y	212	N	0	Y	637
Regional Total		2920		0		212		0		637

Table II-4 provides a breakdown of the waste stream by materials. Based on National percentages, the major component of waste is paper and paperboard at 40%. Because this is the largest component of material in the waste stream, an effective recycling program would focus on diverting these materials from the waste stream.

**Table II-4  
DESCRIPTION OF THE WASTE STREAM BY MATERIALS**

<b>Waste Category</b>	<b>National %</b>	<b>Calculated Regional Tons</b>
Paper & paperboard	40.0	8,498
Glass	7.0	1,487
Ferrous Metals	6.5	1,381
Aluminum	1.4	297
Other Non-Ferrous Metals	0.6	127
Plastics	8.0	1,700
Rubber & Leather	2.5	531
Textiles	2.1	446
Wood	3.6	765
Food Waste	7.4	1,572
Yard Waste	17.6	3,739
Misc. Inorganic Waste	1.5	319
Other	1.7	382
<b>TOTAL MUNICIPAL SOLID WASTE</b>	<b>100.0</b>	<b>21,244</b>

Hickman County has areas that are not served by the current waste collection system. It is estimated that these unserved areas generate 3,000 tons of waste per year. Table II-5 shows quantities of unmanaged waste by county.

**Table II-5  
UNMANAGED WASTE**

<b>County</b>	<b>Potential Waste Generation 1991 tpy</b>	<b>Actual Waste Disposed 1991 tpy</b>	<b>Unmanaged Waste 1991 potential actual tpy</b>	<b>Percent of Potential Total</b>
Hickman	24,244	21,244	3,000	14.12%
Regional Total	24,244	21,244	3,000	14.12%

## **2.2 Waste Collection and Transportation Systems**

### Collection

The total number of households requiring solid waste collection service is 6,662. A municipal pickup service is provided in the City of Centerville for 1,520 homes and 213 businesses. The city provides one polycart to every resident and business. Additional polycarts may be requested at a cost of \$2.50 per month for each extra polycart. Residents are charged \$5.85 per month for once a week curbside pickup service. Small businesses pay \$10.69 per month for once a week curbside pickup. Medium and Large businesses as well as schools pay \$17.63 per month for once a week pickup. There is an additional charge if these businesses require more frequent pickup or have a high volume of waste. Private collection is provided by six companies that serve the Cities of Lyles, Centerville, and Pleasantville. These private companies service 862 homes and 59 businesses. These haulers deliver directly to the landfill. There are five reported roadside dumps in the county.

### Disposal facility

Hickman County owns a sanitary landfill that serves all residents in Hickman County. This facility is located on Industrial Drive near the City Industrial Park. The remaining life at this facility is 1-1/2 years.

## **2.3 Source Reduction and Recycling Systems**

### Source Reduction

Source Reduction is defined by the EPA as "the design, manufacture, and use of products so as to reduce the quantity and toxicity of waste produced when the products reach the end of their useful lives." At this time there are no formal programs that focus on source reduction as a means of reducing waste volumes.

### Recycling

Hickman County has established a recycling program. They collect cardboard, white goods and aluminum cans. In 1993 they collected 50 tons of cardboard and 23 tons of white goods. Hickman County has four commercial and industrial businesses participating in recycling programs. Listed below are the quantities and materials collected by these businesses.

<u>Business</u>	<u>Location</u>	<u>Quantity (t/y)</u>	<u>Material</u>
Clark Container	Lyles	210	Polyethylene scrap
		128	Corrugated scrap
Hard Core Inc.	Centerville	N/A	Shred paper for packaging
		N/A	Mulch organics
Bancroft Pkging, Inc.	Lyles	500	Polyethylene, paper, plastic
Freeman Lumber	Centerville	16,000	Wood waste

## 2.4 Waste Processing, Composting, and Waste-to-Energy/Incineration Systems

### Composting

Presently there are no composting facilities operating in Hickman County, and no plans in the near future to open a composting facility.

Table II-6  
OPERATING AND PLANNED COMPOSTING FACILITIES IN THE REGION

County	Facility Location	Tons of Waste Processed/yr	Composted Materials		
			Yard Waste	Sewage Sludge	Solid Waste
EXISTING:					
Hickman	None				
PLANNED:					
Lewis	None				
Regional Total					

### Waste-To-Energy Incineration

Presently there are no incineration facilities operating in Hickman County, and no plans in the near future to open an incineration facility. All existing and planned facilities in the region are shown in Table II-7.

**Table II-7  
MUNICIPAL SOLID WASTE INCINERATORS OR WASTE-TO-ENERGY FACILITIES**

County	Facility Location	Design Capacity tons/year	Current Use tons/year	Anticipated operating Life of Facility
OPERATING FACILITIES:				
Hickman	None			
PLANNED FACILITIES:				
Hickman	None			

## 2.5 DISPOSAL FACILITIES - LANDFILLS AND BALEFILLS

Hickman County has a Class I sanitary landfill that is presently used to dispose of municipal solid waste. Table II-8 provides the details of the existing municipal solid waste landfills in the region.

**Table II-8  
EXISTING MUNICIPAL SOLID WASTE LANDFILLS IN THE REGION**

County	Name of Landfill	Location	Permitted Capacity (acres)	Current Rate of Waste Accepted (tons/day)	Remaining Capacity (tons)
Hickman	County Landfill	Centerville	unknown	30	42,660
Regional Total				30	42,660

Hickman County's municipal solid waste landfill is expected to close well before the end of the planning period in the year 2003. Table II-9 shows the current annual use and when the facility is expected to close.

**Table II-9  
EXISTING LANDFILLS EXPECTED TO CLOSE BEFORE 2003**

County	Location	Current Use (tons/day)	Current Annual Use (tons/year)	Anticipated Date of Closure
Hickman	County Landfill	30	13,000	1996
Regional Total		30	13,000	1996

Subsequent sections of this planning document will detail the proposed disposal scenario. Table II-10 reflects that no expansion or new sanitary landfills are planned.

**Table II-10  
PLANNED EXPANSIONS AND PLANNED NEW FACILITIES  
(to operate for 10 or more years)**

County	Proposed Facility		Location	When will Capacity by Available	Permitted Capacity Sought (acre)	Design Rate of Waste (tpd) Disposed	Potential Expansion Yes/No
	Expan	New					
Hickman	None	None					

Table II-11 shows the total existing and planned capacity in the region for the next 10 years. These quantities include the existing sanitary landfill.

**Table II-11  
TOTAL EXISTING AND PLANNED CAPACITY IN THE REGION  
(at the close of the Next 10 years)**

Year	TONS		
	Existing	Planned	Total
FY 1993	50,460	0	42,660
FY 1994	42,660	0	34,860
FY 1995	34,860	0	27,060
FY 1996	27,060	0	19,260
FY 1997	0	0	0
FY 1998	0	0	0
FY 1999	0	0	0
FY 2000	0	0	0
FY 2001	0	0	0
FY 2002	0	0	0
FY 2003	0	0	0

**2.6 Cost of the Current System**

The county and the municipality have separate waste budgets. The costs are listed separately and then summarized for the region.

Regional Costs

County Cost

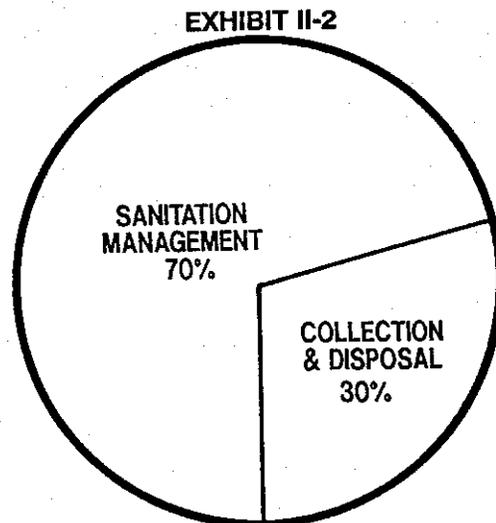
Sanitation Management	\$ 226,135
Employee Benefits	17,464
Litter and Trash Collection	26,260

City of Centerville

Disposal Fee	<u>79,700</u>
--------------	---------------

Total for region	\$ 349,559
------------------	------------

The above costs have been combined into two categories: Sanitation Management \$243,599; Collection and Disposal \$105,960. Exhibit II-2 shows the percentage of the budget that went to each category.



## 2.7 Revenues

The county as well as the municipalities have their own sources of revenues. These revenues are listed separately and then summarized for the region.

### Regional Revenues

#### County Cost

Tipping Fees	\$ 232,667
State of Tennessee	12,000
Sales of Recycled Materials	2,000
Public Work Grants	26,260

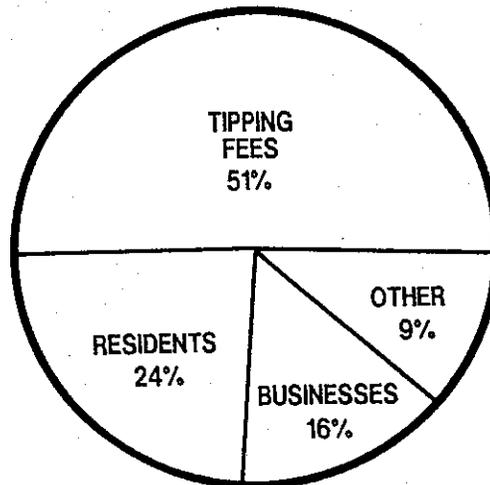
#### City of Centerville

Residents	106,704
Small Businesses	6,563
Medium Large Businesses	<u>65,387</u>

Total Regional Revenue	\$ 451,581
------------------------	------------

The above revenues have been combined into four categories: Tipping Fees \$232,667; Residents \$106,704; Businesses \$71,950; and Other \$40,260. Exhibit II-3 shows the percentage of revenue sources for each category.

EXHIBIT II-3



## 2.8 Public Information and Education Programs

Hickman County has taken steps to make their citizens aware of solid waste issues and the need for recycling. The local newspapers have published articles to inform the public of solid waste issues and general public education. The efforts put forth by Hickman County to educate their community are described below.

- The Hickman County Times, with a circulation of 5,945 readers, publishes articles on solid waste.
- Hickman County Chamber of Commerce conducts educational programs on recycling.
- Centerville Elementary, East Hickman Elementary and Hickman County Middle School each has a recycling program.

As can be seen from the above list, Hickman County is working to provide education to the residents. They have formed organizations, used newspaper coverage and provided school programs. By working together as a region, the residents are encouraged to form an advisory council or task force to provide an organizational framework for citizen education and participation.

## **2.9 Problem Wastes**

See Chapter 10

## **2.10 System Map For Base Year 1993**

Map provided in pouch at the end of the report.

## **2.11 Strengths and Weaknesses of Existing System**

A strength of their existing system is residents in the Centerville are provided curb-side service. The current system offers little for rural residents and they must contract with private haulers for disposal service.

The new system will continue curb-side service for Centerville residents while providing rural residents with convenience center service.

## CHAPTER 3.0

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

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#### 3.1 Waste Projections

The planning region must first define probable population growth trends in order to determine the quantity of waste to be managed each year over the ten-year planning period (1994-2003). Table III-1 shows the total waste disposed in the landfill for fiscal year 1993.

Table III-1  
ANNUAL PER CAPITA SOLID WASTE GENERATION RATES, BY COUNTY

County	Total Waste Disposed In FY 1993 (tons)	Projected Population 1993	Annual Per Capita Generation Tons/Person/Year
Hickman	21,656	17,245	1.26
Total	21,656	17,245	1.26

Using the year 1993 as the base for making projections, the following tables illustrate how the final annual projections for the quantity of solid waste requiring disposal were derived. The first adjustment is based on the projected change in county population over the planning period. Table III-2 shows the change in solid waste disposal requirements based on the population changes.

**Table III-2**  
**QUANTITY OF SOLID WASTE REQUIRING DISPOSAL (tons)**  
**Adjusted for population changes**

County	1994	1995	1996	1997	1998	1999	2000	2001	2002	2003
Hickman	21,864	22,074	22,288	22,502	22,718	22,938	23,157	23,327	23,576	23,747
Total	21,864	22,074	22,288	22,502	22,718	22,938	23,157	23,327	23,576	23,747

In addition to population, economic growth in a planning area is another factor which can affect future projections of waste disposal. Table III-3 uses the data that is generated in Table III-2, and further adjusts for economic growth trends. This table represents the maximum waste disposal requirements in the planning area, and assumes no waste reduction measures are implemented.

**Table III-3**  
**QUANTITY OF SOLID WASTE REQUIRING DISPOSAL (in tons)**  
**Adjusted for Population and Economic Growth**

County	1994	1995	1996	1997	1998	1999	2000	2001	2002	2003
Hickman	22,588	22,821	23,059	23,298	23,540	23,786	24,031	24,230	24,507	24,709
Total	22,588	22,821	22,059	23,298	23,540	23,786	24,031	24,230	24,507	24,709

The State of Tennessee, however, through the "Solid Waste Management Act of 1991" requires a 25% reduction of municipal solid waste by December 31, 1995. Table III-4 reflects waste disposal requirements for the planning area assuming that the region will meet the 25% reduction in solid waste.

**Table III-4**  
**QUANTITY OF WASTE REQUIRING DISPOSAL (In tons)**  
**Adjusted for Population changes, Economic Growth, Waste reduction and recycling**

County	1994	1995	1996	1997	1998	1999	2000	2001	2002	2003
Hickman	20,322	17,097	17,276	17,454	17,636	17,820	18,004	18,153	18,380	18,532
Total	20,322	17,097	17,276	17,454	17,636	17,820	18,004	18,153	18,380	18,532

Tables III-5, III-6 and III-7, as described in the Guidelines for Preparation of a Municipal Solid Waste Regional Plan are omitted since there are no special factors in Hickman County which would affect the waste stream. The final annual solid waste projections for Hickman County over the next ten years are presented in Table III-8.

**Table III-8**  
**ANNUAL PROJECTIONS OF SOLID WASTE REQUIRING DISPOSAL**  
**Adjusted for All Applicable Factors (In tons/year)**

County	1994	1995	1996	1997	1998	1999	2000	2001	2002	2003
Hickman	20,322	17,097	17,276	17,454	17,636	17,820	18,004	18,153	18,380	18,532
Total	20,322	17,097	17,276	17,454	17,636	17,820	18,004	18,153	18,380	18,532

Based on yearly quantities displayed in Table III-8, the disposal needs for Hickman County over the next ten years is 180,674 tons of municipal solid waste.

### 3.2 Preliminary System Design

The components of the regional integrated waste management system will include a system for collection of wastes-recyclable materials as well as disposable wastes, a system for transportation of the materials to the point of ultimate disposal, and finally, a system for ultimate disposal of the non-recyclable portion of the solid waste.

### **3.3 Evaluation Criteria for the Region**

Hickman County investigated the formation of a four county region using incineration to dispose of their municipal solid waste. The region agreed Lewis County would be the host county for the incinerator; however, no agreement was made for disposal of the ash. Lewis County eventually withdrew from the region and formed a single county region. Hickman County had to form a single county region.

## CHAPTER 4.0

### WASTE REDUCTION

---

#### 4.1 Establishing a Base Year Quantity

The State of Tennessee has elected to use 1989 as the base year for determining waste reduction requirements. The Waste Management Research and Education Institute at the University of Tennessee was employed by the Tennessee State Planning Office to prepare a report which details population and disposal rates for each county in Tennessee. The report entitled "Managing Our Waste: Solid Waste Planning for Tennessee" was prepared in February, 1991, and was based on waste disposal information for 1989. Table IV-1 shows population and total waste disposal quantities for Hickman County based on that report.

Table IV-1  
POPULATION AND QUANTITY OF WASTE DISPOSED  
OF AT MUNICIPAL SOLID WASTE FACILITIES  
DISPOSAL FACILITIES AND INCINERATION, IN 1989

County	1989 Population	1989 Total Waste Disposed (tons)
Hickman	16,950	7,800
Regional Total	16,950	7,800

The regional per capita waste disposal for the base year 1989 is 0.46 (tons/person/year).

#### **4.2 Calculate a Target 1995 Waste Reduction Per Capita Disposal Rate**

The target year for the first measured waste reduction is the year 1995, and the projected 1995 population for this region is 17,578. Twenty-five percent (25%) of the per capita disposal rate is 0.12 (tons/person/year). This means Hickman County must reduce its waste quantity by 2,109 tons for 1995.

#### **4.3 Describe How the Region Will Meet the Statewide Reduction Goal**

Initially, the region will continue the recycling programs that are already in place, while also looking for ways to improve and expand the range of services offered by these programs. The region must also find ways to divert waste from sanitary landfills.

The long term components of the waste reduction plan include expanding recycling programs and constructing a Class IV demolition landfill. Public education is critical to the success of these waste reduction programs, so the development of public education programs must be included as part of the program.

Waste reduction targets for the year 1995 can be identified in several ways. First, in Chapter 2.0, Table II-4 shows what the national percentages are for the different components of the waste stream. Using those percentages, Exhibit IV-1 shows how many tons of each material must be removed from the regions waste stream to meet their goal if the intent was to reduce each component by the 25% level. Since Hickman County is mainly rural, they have less yard waste in their waste stream than the national

percentages indicate. Reduction of yard waste will play only a minor role in waste reduction for Hickman County.

**Exhibit IV-1  
WASTE REDUCTION BY MATERIAL**

Material	Percent	Quantity
Paper & Paperboard	40.0%	844
Glass	7.0	148
Ferrous Metals	6.5	137
Aluminum	1.4	30
Other Non-Ferrous Metals	0.6	13
Plastics	8.0	169
Rubber & Leather	2.5	53
Textiles	2.1	44
Wood	3.6	76
Food Waste	7.4	156
Yard Waste	17.6	371
Misc. Inorganic	1.5	32
Other	1.8	36
<b>Total</b>	<b>100.0%</b>	<b>2,109</b>

Another way to categorize waste is by economic sector. Chapter 2.0 contains a breakdown of the percentage of waste generated by each economic sector. Using those percentages, Exhibit IV-2 shows how much each sector must reduce to meet the goal.

**Exhibit IV-2  
WASTE REDUCTION BY ECONOMIC SECTOR**

Economic sector	Percent	Reduction Necessary (tons)
Residential	52 %	1,097
Industrial	26	548
Commercial	20	422
Special	2	42
<b>Total</b>	<b>100 %</b>	<b>2,109</b>

Long range planning is important to ensure that the region continues to meet the 25% reduction goal in future years. Exhibit IV-3 shows waste reduction based on the population projections from Table I-6 in Chapter 1.0. This table shows the tons per year that must be removed, through the year 2003, in order to maintain the target waste volume.

Exhibit IV-3  
WASTE REDUCTION

Year	Tons
1994	2,089
1995	2,109
1996	2,130
1997	2,150
1998	2,171
1999	2,192
2000	2,213
2001	2,229
2002	2,245
2003	2,262

Hickman County expects to achieve their waste reduction goal through recycling and diverting waste to a Class IV demolition landfill. Table IV-2 presents the estimated quantities of waste removed or diverted from the waste stream for the next 10 years.

**Table IV-2  
ESTIMATED QUANTITIES OF WASTE REMOVED  
OR DIVERTED FROM THE WASTE STREAM  
(tons)**

Year	Previous Reductions	Recovered & Recycled	Diverted to Alternative Disposal	Economic Incentives	Other	Total
1985 to 1989						
1990						
1991						
1992						
1993		72				72
1994		522				522
1995		2,109				2,109
Subtotal		2,703				2,703
1996		2,130				2,130
1997		1,433	717			2,150
1998		1,447	724			2,171
1999		1,461	731			2,192
2000		1,475	738			2,213
2001		1,486	743			2,229
2002		1,497	748			2,245
2003		1,508	754			2,262
Total		15,140	5,155			20,295

Recycling strategies are discussed in detail in Chapter 6.0. Waste diverted to Class IV demolition landfills will be addressed here.

#### **4.4 Other Waste Reduction Strategies**

##### **4.4.1 Diverting Demolition Waste**

Hickman County is planning to re-permit their Class I landfill to a Class IV landfill in 1996. They plan to use the remaining acreage from the Class I landfill for construction demolition waste.

##### **4.5 Data Collection and Annual Progress Reporting**

Hickman County has scales at the existing sanitary landfill that will remain at this facility. All recyclable materials collected will be weighed. The County will complete any necessary forms required by the state to show their progress and compliance with the 25% waste reduction.

## CHAPTER 5.0

### WASTE COLLECTION AND TRANSPORTATION

---

#### 5.1 Existing Systems

The City of Centerville currently provides curbside waste collection. This service is a higher level than the service required by Rule 1200-1-.10, which states a convenience center as the minimum acceptable service level. Rural residents can contract with private haulers for waste disposal.

#### 5.2 Regional Needs for Collection

According to Rule 1200-1-.10, the number of convenience centers required can be determined by either square miles or by population. Based on population, this region is required to have one convenience center, resulting in many unserved areas in the region.

#### 5.3 Proposed Waste Collection

Under this plan the region will provide curbside service to the City of Centerville, convenience centers in rural areas, vehicles and transportation equipment, transfer stations and a baling facility if they construct their own landfill.

##### Curb-side Service

Curb-side service will continue as it has in the past.

### Convenience Centers

Only one convenience center is required to meet the minimum level of service. Hickman County has decided to provide more centers than the minimum requirement. Each household will be no further than eight to ten miles away from a convenience center, all of which will be located on the most heavily traveled highways. Hickman County plans to construct between four and eight convenience centers total.

There will be two types of convenience centers constructed in Hickman County. Smaller convenience centers will be equipped with dumpsters only and the estimated capital cost will be \$50,000. At larger centers, serving a larger population center, it will be more cost effective to use a compactor instead of many dumpsters. The capital cost for the larger center is estimated at approximately \$65,000 each.

### Transfer Stations

One convenience center in Centerville will be set up as a transfer station to be used to transport waste to the disposal facility. The estimated capital cost of the transfer station is \$100,000.

### Baling Facility

This facility is necessary only if the region decides to build a Class I sanitary landfill. The baler will be located at the landfill. Capital costs for the baler and facility are \$700,000.

## Vehicles and Transportation Equipment

The region will purchase one loader for the 42 yd<sup>3</sup> bins. Total cost for all equipment is \$60,000.

### **5.4 Meeting Regional Needs**

#### Collection Goals and Objectives

The main goal for this region is to meet the requirements in Section 21 of the Solid Waste Management Act of 1991. It states that "effective January 1, 1996, each county shall assure that one or more municipal solid waste collection and disposal systems are available to meet the needs of the residents of the county.

#### Strategy

On January 1, 1996 this region will continue to operate all curbside collection as it has in the past, and provide at least one convenience center. One convenience center is proposed to be built in Phase I. In the Spring of 1994, Hickman County applied for grant money to offset the capital cost of the initial convenience center. The maximum amount available per county through the grant program is \$50,000.

#### Timetable and Milestones for Construction of Convenience Centers/Transfer Stations

##### **Phase I**

- |                                     |                              |
|-------------------------------------|------------------------------|
| • Grant Applications                | March 1-9, 1994              |
| • Sites Optioned                    | Jan. 1 - Feb. 28, 1995       |
| • Survey Sites                      | Jan. 1-31, 1995              |
| • Prepare Environmental Assessments | Nov. 23 - Dec. 24, 1994      |
| • Grants Approved                   | Sept. 1-15, 1994             |
| • Design Facilities                 | Dec. 1, 1994 - Jan. 31, 1995 |
| • Submit Design Plans               | Jan. 1-31, 1995              |
| • Open Bids/Award Contract          | Dec. 6-30, 1994              |
| • Hire and Train Staff              | Mar. 1-30, 1995              |

### Phase I (Continued)

- Construct Facilities Feb. 15 - Mar. 30, 1995
- Start-Up Mar. 15 - April 15, 1995
- Initiate Operation April 15, 1995

### Phase II

- Sites Optioned Feb. 22 - April 14, 1995
- Survey Sites April 3-14, 1995
- Prepare Environmental Assessments April 3-30, 1995
- Design Facilities May 1 - June 30, 1995
- Submit Design Plans July 1-6, 1995
- Open Bids/Award Contract July 1-20, 1995
- Hire and Train Staff Nov. 1 - Dec. 30, 1995
- Construction July 23 - Aug. 30, 1995
- Start-Up Dec. 15, 1995 - Jan. 15, 1996
- Initiate Operation Jan. 15, 1996

### Timetable and Milestones for Purchase of Collection Vehicles

A loader is needed for the 42 yd.<sup>3</sup> bins and will be purchased in March 1995.

### Integration of the Collection System with Recycling and Problem Waste Collection,

#### Storage, and Transportation

The town of Centerville will collect solid waste as they have in the past. The County is responsible for transporting waste from the convenience centers to the landfill or transfer station in Centerville.

Recyclable materials will be collected at the convenience centers and transported to the existing landfill facility for storage and disposal. Household Hazardous Waste will have designated days for collection at the convenience centers and used oil will be accepted at all times the center is open. All problem wastes will be disposed through the states mobile unit program.

## 5.5 Summary of Ten Year Staffing and Training Needs

The specific detail on staffing requirements is contained in Chapter 11.0

## 5.6 Ten Year Budget

Hickman County has given consideration to county-wide curbside service instead of constructing convenience centers. The budgets for both options are presented.

### 5.6.1 Collection Centers and Transportation

#### Capital Costs

#### Convenience Centers:

	<u>Class I Option</u>	<u>Private Facility Option</u>
Hickman County		
Transfer Station	\$ -0-	\$ 100,000
Dumpsters	300,000	300,000
Compactors	<u>65,000</u>	<u>65,000</u>
Subtotal	\$ 365,000	\$ 465,000

#### Vehicles:

Loader for 42 cy Bin(1)	\$ <u>60,000</u>
Subtotal	\$ 60,000

## Annual Operating and Maintenance Costs

Listed below is a detailed breakdown of the annual operating and maintenance costs for 1994.

<u>Item</u>	<u>Class I Option</u>	<u>Private Facility Option</u>
Wages:		
Operator	\$ 20,000	\$ 20,000
Operator Assistants	15,000	15,000
Site Superintendents (5)	75,000	75,000
Maintenance & Repair	15,000	18,000
Supplies	5,000	5,000
Insurance	10,000	10,000
Fuel	10,000	10,000
Miscellaneous	5,000	5,000
Amort. conven. center	50,000	52,000
Deprec. conven. center	<u>30,000</u>	<u>35,000</u>
SUBTOTAL	\$ 235,000	\$ 245,000

### 5.6.2 Countywide Curbside Service

Typically, waste collection costs (including amortization and depreciation) range from \$1.25 to \$1.50/mile. In establishing costs for Hickman County, the County has been divided into "service regions" of approximately equal areas (square miles) as with the convenience center concept. Routing patterns may be refined somewhat, but basically it can be assumed that transportation distances will approximate the total length of County and State highway miles in each area excluding the areas within Centerville's Corporate Limits. In Hickman County, the length is approximately 200 miles within each of the 4 rural service areas.

$$A = \frac{1260 \text{ cubic yard/week}^*}{20 \text{ cu.yd./load}} = 65 \text{ loads/week} \times 52 \text{ weeks/year} = 3,380 \text{ loads/year}$$

$$3,380 \text{ loads/year} \times 40 \text{ mile roundtrip to disposal} = 135,200 \text{ miles/year}$$

$$B = 200 \text{ miles/wk/service area} \times 4 \text{ service areas} \times 52 \text{ weeks/year} = 41,600 \text{ miles/year}$$

$$A+B = 135,200 \text{ miles/year} + 41,600 \text{ miles/year} = 176,800 \text{ miles/year}$$

$$176,800 \text{ miles/year} \times \$1.375/\text{mile} = \$ 243,100/\text{year}$$

\* Based on estimated waste load for 2005

### 5.6.3 Comparison of Options

Exhibit V-2 uses 1994 as the base year and projects the annual operating expenses to the year 2003. The two options with collection centers assumes eight centers will be built. A 3% inflation rate is used for these projections.

**EXHIBIT V-2  
ANNUAL OPERATING EXPENSES FOR 1994-2003**

Year	Class I Option Collection Centers	Private Facility Option Collection Centers	Countywide Curbside Service
1994	\$ 117,500	\$ 122,500	\$ 121,550
1995	235,000	245,000	243,100
1996	242,050	252,350	250,393
1997	249,312	259,921	257,905
1998	256,791	267,718	265,642
1999	264,495	275,750	273,611
2000	272,429	284,022	281,820
2001	280,602	292,543	290,274
2002	289,020	301,319	298,982
2003	297,691	310,359	307,952
<b>TOTAL</b>	<b>\$ 2,504,890</b>	<b>\$ 2,611,482</b>	<b>\$ 2,591,229</b>

## **5.7 Financing Plan**

- **Financing Capital Costs**

See Chapter XI - Section 11.8

- **Funding Annual Operating Costs**

All households in Hickman County will be charged a user fee. These fees will be used to cover the annual operating costs associated with the solid waste program. See Chapter XI.

## CHAPTER 6.0

### RECYCLING

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#### 6.1 General Purpose

The Solid Waste Management Act of 1991 goal is to reduce the quantity of solid waste by twenty-five percent by 1995. This waste reduction goal applies to solid waste disposed of at municipal solid waste disposal facilities and incinerators, as measured on a per capita basis by weight, by December 31, 1995. One method which can be used to achieve this goal is recycling. It is defined in the "Solid Waste Management Act of 1991" as "any process by which materials which would otherwise become solid waste are collected, separated, or processed and reused or returned to use in the form of raw materials or products." There must be a market for recyclable materials in order for them to apply to the goal for waste reduction. A market is defined in Rule 1200-1-7.-01(2) as "the transfer of recovered materials to be used, reused, and recycled as it applies to waste reduction which results in a bill of sale for such a transaction or other records showing adequate proof of movement of the recovered material".

#### 6.2 Action Plans for Recovery, Reuse and Recycling

##### 6.2.1 Goals and Objectives

This region must reduce its municipal solid waste by 2,109 tons per year or 0.12 tons per capita per year to meet the 25% reduction requirement in 1995. It is the hope of the authorities to eventually produce a 10%-15% reduction in overall waste processed through point source separation and recycling.

**6.2.2 Proposed Program**

Initially the existing landfill will be the focal point for recycling in Hickman County. Last year they collected cardboard, aluminum cans, and white goods. Hickman County is planning to construct between four and eight convenience centers throughout the region. At these centers recycling bins will be provided to expand the current recycling program into unserved areas. One center is planned for Phase One construction with a completion date of April 1995, and the other centers are planned for Phase Two construction with a completion date of January 1996. Exhibit VI-1 shows centers planned for Phase One construction, households served and approximate waste reduction.

**EXHIBIT VI-1  
CONVENIENCE CENTER CONSTRUCTION - PHASE 1**

<b>Location</b>	<b>Households Served</b>	<b>* Solid Waste Generated tons/yr</b>	<b>15% Reduction by Recycling tons/yr</b>
Bon Aqua/Lyles	1,345	2,654	400

\* Based on 1995 projections

Phase Two construction contains seven convenience centers to be completed in July 1995. Exhibit VI-2 shows areas served. Upon completion of Phase Two construction all residents of Hickman County will be within seven miles of a recycling center.

**EXHIBIT VI-2  
CONVENIENCE CENTER CONSTRUCTION - PHASE 2**

<b>Location</b>	<b>Households Served</b>	<b>* Solid Waste Generated tons/yr</b>	<b>15% Reduction by Recycling tons/yr</b>
Northeast Part of County	476	934	140
Eastern Part of County	359	703	105
Southeast Part of County	246	482	72
Southwest Part of County	397	779	117
Western Part of County	285	559	84
Northwest Part of County	411	806	121
Nunnely	2,457	4,821	723

\* Based on 1995 projections

The staffing and budget for recycling is incorporated in the costs for the convenience centers. Refer to Chapter XI for convenience center costs.

## CHAPTER 7.0

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

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#### 7.1 Regional Needs

Hickman County has determined that as a single county region composting, waste-to-energy and incineration facilities are not possible at this time. They are going to pursue landfilling as a means to dispose of municipal solid waste.

## CHAPTER 8.0

### DISPOSAL CAPACITY

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#### 8.0 General

There are two options available for disposal. Hickman County can apply for a Subtitle D landfill permit as long as costs are not prohibitive. Their other option is to dispose their MSW in a private landfill.

#### 8.1 County Owned Subtitle D Landfill

##### 8.1.1 Capital Costs

###### Landfill Construction

Expenses	Amount
Clearing and Grubbing	\$ 3,000
Cell excavation (assume 20')	65,000
Buffer Preparation	10,000
Geomembrane Liner (\$0.75/sq.ft.)	30,000
Leachate Collection	12,000
Intermediate Drainage Level	17,000
Sedimentation Basins	15,000
Gas Migration	4,000
Groundwater Monitoring Wells	2,000
Finish Grade/Cap (30"@ \$3.00/cu.yd.)	12,000
Topsoil Cover (6"@ \$12.00/cu.yd.)	10,000
Groundcover (seed, fertilizer, etc.)	1,000
Post-Closure Plan	3,000
Quality Assurance	3,000
Site Maintenance (roadways)	2,000
Sub-total	<u>\$ 186,000</u>

Landfill Equipment

Scraper/Pan	\$	200,000
Compactor		200,000
Dozer		150,000
TOTAL	\$	<u>550,000</u>

Amortization at 15 years at 9% interest	\$	65,000
Depreciation at 10 years (straight-line)		55,000

Bailing Facility

Cost of Baler and Facility	\$	700,000
Amortization at 15 years at 9% interest		87,000 year
Depreciation at 10 years		70,000 year

Balefill Equipment

Dozer/Compactor	\$	200,000
Scraper/Pan		200,000
Amortization at 15 years at 9%		46,000
Depreciation at 10 years (straight-line)		<u>40,000</u>

8.1.2 Annual Operating Expenses

Conventional Unconsolidated Disposal

Prior to the implementation of Subtitle D Regulations for landfill development, most landfills simply received unconsolidated waste and simply "compacted" the waste with existing landfill equipment (dozers) or with specialized compactors. Typical compacted weights in conventionally operated landfills average approximately 400-500 pounds per cubic yard. Unconsolidated disposal is basically the "do-nothing" alternative and will serve as the basis for comparison for other processing alternatives.

Hickman County currently receives approximately 30 tons of waste per day. Using a compaction rate of 500 pounds per cubic yard, the total number of cubic yards of landfill space required is:

$$30 \text{ tons/day} \times 2000\#/\text{ton} \times 1 \text{ cu. yd.}/500\# = 120 \text{ cu.yd./day}$$

$$120 \text{ cu.yd./day} \times 315 \text{ days/year} = 37,800 \text{ yd}^3/\text{year}$$

Assume cell area of 1 acre, approximately 20 feet deep

$$43,560 \text{ feet}^2 \times 20 \text{ feet} = 871,200 \text{ feet}^3 \text{ or } 32,000 \text{ cu.yd./acre}$$

$$\frac{37,800 \text{ yd}^3/\text{year}}{32,000 \text{ yd}^3/\text{acre}} = 1.2 \text{ acres/year at } \$ 186,000/\text{acre, annual costs are approximately } \$ 223,200.$$

#### Annual Expenses

Wages:	Operators (2)	\$	40,000
	Asst. Oper (1)		18,000
Maintenance and Repair			15,000
Fuel			21,000
Insurance			5,000
Landfill Development			223,200
Equipment Amortization			65,000
Equipment Depreciation			55,000
State Surcharge (\$0.85/ton)			7,000
Leachate Collection and Treatment			15,000
Laboratory Testing			12,000
Miscellaneous Materials			10,000
			<hr/>
	TOTAL	\$	486,200

## Landfill with Baling Facility

Baling involves mechanically compacting solid waste into rectangular bales. Typical compaction rates average approximately 1,800 pounds per cubic yard. Some of the concerns associated with baling include additional operating requirements and potential for mechanical "downtime". Benefits include significant reduction in landfill space, handling ease, and reduction in cover requirements.

### Annual Expenses

Wages:	Baler Operator	\$	20,000
	Floorman		17,000
	Floorman		17,000
	Yardman		17,000
	Maintenance and Repair		12,000
	Utilities (gas, electricity, water & sewer)		20,000
	Office Supplies and Expenses		12,000
	Equipment		10,000
	Heating Fuel		5,000
	State Surcharge (\$0.85/ton)		7,000
	Insurance		5,000
	Miscellaneous		5,000
	Amortization		87,000
	Depreciation		<u>70,000</u>
	TOTAL	\$	<u>304,000</u>

The annual expenses of the baling facility are incorporated into the total cost of a landfill with baled solid waste. Only 0.4 acres/year need to be developed if the solid waste is baled.

### Landfill Volume Required with Baling Operation

30 tons/day x 2000#/ton x 1 cu.yd/1800# = 33 cubic yard/day

33 cu.yd/day x 315 days/yr = 10,395 cubic yard/year

Assume cell area of 1 acre, approximately 20 feet deep

43,560 feet<sup>2</sup> x 20 feet = 871,200 feet<sup>3</sup> or 32,000 cubic yard/acre

10,395 cubic yard/year = 0.3 acres/year

32,000 cubic yard/acre

0.3 acres/year at \$186,000/acre, annual costs are approximately \$ 55,800

### Annual Expenses

Wages: Operator	\$ 20,000
Maintenance and Repair	8,000
Fuel	12,000
Insurance	3,000
Landfill Development	55,800
Baler Operation	304,000
Equipment Amortization	46,000
Equipment Depreciation	40,000
Leachate Collection and Treatment	8,000
Laboratory Testing	12,000
Miscellaneous Materials	<u>5,000</u>
TOTAL	<u>\$ 513,800</u>

### 8.1.3 Implementation Schedule

The implementation schedule for the Hickman County program is given as follows:

- Plan approved by Solid Waste Committee and County Commission
- State approves Regional Plan
- Regional Authority formed
- All required permits approved and on file
- Prepare site survey
- Submit proposed plans to T.D.E.C.
- Secure funding
- Respond to State Review Comments
- Initiate operator training program
- State Review of final documents
- Prepare Bid Documents
- Receive Bids
- Award contract
- Facility construction begins
- Off-site infrastructure development begins
- Off-site infrastructure development complete
- Facility construction complete
- Facility start-up procedures
- Facility in operation

## **8.2 Transport to a Private Landfill**

### 8.2.1 Capital Costs

No capital costs are incurred if waste is sent to a private facility.

### 8.2.2 Operating Expenses

Transport to Disposal Facility		
11,000 tons x \$ 11.00		\$ 121,000
Disposal Costs		
11,000 tons x \$ 25.00		<u>\$ 275,000</u>
Total		<u>\$ 396,000</u>

### 8.3 Summary of Options

Conventional Unconsolidated Landfill	\$ 486,200
Landfill with Baling Facility	513,800
Transport to a Private Landfill	396,000

Exhibit VIII-1 projects operating expenses for the three options available to Hickman County. These costs are for disposal only and must be added to the annual operating expenses in Chapter 5 for collection. Option 1 and 2 have a 3% inflation rate since the County has control over the facility. If Option 3 is chosen the private facility being considered provides one year contracts only; therefore, an inflation rate of 6% is used since costs may escalate in the future.

**EXHIBIT VIII-1  
ANNUAL OPERATING EXPENSES FOR 1994-2003**

Year	Conventional Unconsolidated Landfill	Landfill with Baling Facility	Transport to a Private Landfill
1994	0	0	0
1995	0	0	0
1996	486,200	513,800	99,000
1997	500,786	529,214	396,000
1998	515,810	545,090	419,760
1999	531,284	561,443	444,946
2000	547,222	578,286	471,642
2001	563,639	595,635	499,941
2002	580,548	613,504	529,937
2003	597,965	631,909	561,734
<b>TOTAL</b>	<b>\$ 4,323,454</b>	<b>\$ 4,568,881</b>	<b>\$ 3,422,960</b>

Table VIII-1 and Table VIII-2 show the surplus and shortfall for the county.

**TABLE VIII-1**  
**County: Hickman**  
**TONS PER YEAR**

Year	DEMAND: Tons of Waste Requiring Disposal	SUPPLY: Existing & Planned Capacity	Surplus (+)	Shortfall (-)
1993	21,656	42,660	21,004	
1994	21,864	21,004		860
1995	22,074			22,074
1996	22,288			22,288
1997	22,502			22,502
1998	22,718			22,718
1999	22,938			22,938
2000	23,157			23,157
2001	23,327			23,327
2002	23,576			23,576
2003	23,747			23,747

**TABLE VIII-2  
PROJECTED NET DISPOSAL\* (TONS PER YEAR)  
COUNTY/REGIONAL**

Year	1.	2.	3.	4.	5.	6.	Regional Total
1993 Base Year	+21,004						+21,004
1994	- 860						- 860
1995	- 22,074						- 22,074
1996	- 22,288						- 22,288
1997	- 22,502						- 22,502
1998	- 22,718						- 22,718
1999	- 22,938						- 22,938
2000	- 23,157						- 23,157
2001	- 23,327						- 23,327
2002	- 23,576						- 23,576
2003	- 23,747						- 23,747

\* Use (+) to indicate surplus capacity, a (-) to indicate a capacity shortfall.

## CHAPTER 9.0

### PUBLIC INFORMATION AND EDUCATION

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#### 9.1 Regional Goals and Objectives

A strong, effective, public participation program is crucial for the implementation of a successful solid waste management program and to instill strong waste minimization habits among the public. The goal will be to develop an informative and factual education program which encourages residents and businesses to become positively involved in solid waste issues. Promotional and educational campaigns will increase public awareness and participation by identifying the potential for waste minimization that already exists in residential and business establishments to ensure that sound solid waste management practices happen.

This chapter focuses on the components which are typically considered for the development and implementation of an effective education/promotion program to generate support and participation in waste minimization efforts. The program will be aimed at educating the public on the benefits of minimization, promoting individual participation in existing activities such as recycling programs, and training targeted facilitators to expand this understanding throughout the region. An organized promotion/education program will secure community acceptance of recycling and other waste minimization activities.

## 9.2 Target Groups and Audiences

- Elementary/Secondary Education

An important element in the implementation of the promotion and education program is the development of school education programs. Educational programs are aimed to accomplish long-term behavioral changes and perceptions by providing a comprehensive understanding of the importance of waste minimization and overall solid waste management. This would involve cooperation from the Board of Education for Hickman County to actively promote the program and incorporate the program ideas into the education curricula. The elementary/secondary education curricula could include workbook materials (teacher manuals, etc.) and home participation exercises for waste minimization. Appendix F.3 provides several sources for solid waste management curricula and other educational materials.

Historically, minimization characters have been effective in raising awareness of students of minimization and its importance, particularly at the elementary school level. In addition, school education programs could include contests, field trips to solid waste facilities, and special events (for example, school assemblies in which local theater groups could perform recycling presentations at local schools). Presentations could also be made by these designated personnel on a regular basis to maintain the students' interest and involvement in the program.

- **Adult Education Programs**

The development of adult-oriented educational programs is also important for keeping the adult population informed of ongoing waste minimization activities as well as any potential changes that may occur in the minimization programs and overall solid waste management in the service district. These programs could be sponsored by the counties, municipalities, or civic organizations and could be held in such places as schools, libraries, civic centers, etc. This will provide for a more knowledgeable and well-informed public regarding solid waste disposal and minimization.

- **Non-Profit Organizations**

Community, civic, and religious groups can be supportive in promoting minimization with their respective memberships and assisting with the distribution of materials to the general public. Clean-up programs and recycling activities should also be designed for these organizations, similar to residential recycling programs. Implementation of the above types of programs will also go a long way towards increasing the rate of public participation in waste minimization.

### **9.3 Amount and Kinds of Information**

Tennessee Department of Education is developing a program called "Project SWEEP - Solid Waste Environmental Education Program." A copy of the initial proposal

is provided in Appendix F.1. Project SWEEP is going to provide an approved list of materials for grades K-12 and give in-service training for teachers. A solid waste management/recycling database will be available for youth educators for both in-state and out-of-state resources.

#### **9.4 METHODS TO BE UTILIZED**

- School-based instruction

See Appendix F.1 about Project SWEEP for details.

- Workshops, conferences and training courses

The Tennessee Department of Education will provide training courses for teachers.

- Audio-visual materials, slides, and videos

Slide or video presentations can be important tools for speakers and at special events for minimization. Supportive printed materials may also be used to supplement the slide production (e.g., workbooks, transcripts, etc.). Transfer and duplication to videotape of the slide programs may also be considered for broader distribution to community groups, schools, and interested parties.

- Publications

See Appendix F.2 for a list of magazines and periodicals that focus on waste and recycling.

- **Contests and awards**

Well orchestrated events provide media coverage and recognition of the Region's sponsorship. Facility openings, field trips, participation in local events, and clean-up days attract the public to actively participate (for example, a "Waste Minimization Awareness Day" could be planned). Conducting special events can build credibility and draw attention to the importance of waste minimization. A review of scheduled activities among civic/non-profit groups within the Region may be useful to determine opportunities for combining resources to promote the area's minimization goals.

- **Other**

Appendix F.3 is a list of recycling curricular documents and recycling education materials. This list provides materials developed by other states to use for educational purposes.

## **9.5 Staff and Budget Needs**

Hickman County will apply for grant money to fund staffing. Each county can apply for up to \$7,500 annually for educational purposes.

## CHAPTER 10.0

### PROBLEM WASTES

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#### 10.1 Household Hazardous Waste (HHW)

Household Hazardous Waste (HHW) contains substances that can threaten human health and the environment if disposed of improperly. To avoid future health and environmental problems, a management program is necessary to ensure these wastes are disposed of properly.

##### Regional Goals and Objectives

To inform the public of the potential dangers of (HHW). Set up permanent collection sites in each county to collect (HHW) and use the mobile collection services provided by the state to dispose of these waste properly.

##### Selecting a Temporary Site

Household Hazardous Waste (HHW) will be collected at the convenience centers. The attendant on duty will assist with pick up on state-sponsored collection days.

##### Public Education

See Chapter Nine.

##### Coordination of State Collection Days

Convenience center attendants will be trained in (HHW) and will provide assistance on collection days. In case of an emergency, the attendant can call for help.

### Staff and Training Needs

Additional staff is not required since the collection site is at the convenience center. All attendants will be trained to handle (HHW).

### Costs

The costs will be minimal to collect (HHW). The purchase of storage containers and staff training classes are the only additional expenses necessary to collect (HHW).

### Milestones to Meet Goals

Convenience center construction will be completed in Fall 1994. (HHW) disposal will begin when centers open. As part of the recycling program (HHW) will be weighed and recorded to help achieve the 25% waste reduction goal. Progress will be measured by yearly reports submitted to the state.

### Responsibility Allocating Among Jurisdictions

Hickman County will be responsible for the convenience centers.

## **10.2 Waste Tires**

Hickman County tire storage site is located immediately adjacent to the existing landfill on land owned by Hickman County. It is estimated the annual generation of tires is approximately 2,000. The maximum storage capacity is 10,000 tires. Hickman County plans to use the states mobile tire shredder service.

### **10.3 Waste Oil**

Used oil is a resource that can be easily recycled. Improper disposal in storm drains, in the trash or on the ground can contaminate ground water, surface water and soil. Oil can be re-refined, processed or burned as fuel.

This region does not have a used oil collection program. As part of managing solid waste used oil will be collected in the future. Each convenience center constructed in the region will provide containers to collect used oil. Construction of Phase 1 convenience centers are scheduled for completion fall 1994. The County will have at least one site by January 1, 1995 that will accept used oil to meet the requirement of T.C.A. 68-211-866(b). Hickman County plans to have their used oil site at the existing sanitary landfill.

### **10.4 Lead Acid Batteries**

A county-wide program has not been established yet. Phase 1 convenience centers will accept lead acid batteries by January 1, 1995 and meet requirements of T.C.A. 68-211-866(b).

### **10.5 Litter**

Hickman County received litter grants in past years. The grant money was mainly used to subsidize salaries of employers who collected litter. Hickman County employs teens during the summer to collect litter through the youth job partnership training

program. The adopt-a-highway program is also active in Hickman County. In the future the region plans to continue using T.D.O.T. grants for litter control and public education.

## CHAPTER 11.0

### IMPLEMENTATION: SCHEDULE, STAFFING AND FUNDING

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#### 11.1 System Definition

After significant consideration, the Hickman County Solid Waste Committee and the County Commission has opted to maintain its autonomy by becoming a single county region. Originally part of a four county planning effort, previously documented events and circumstances have lead Hickman County to the conclusion that establishing a single county region perhaps simplifies the planning and, most certainly, the implementation process.

As a single county region with a waste generation rate of only 30 tons/day, the options available for collection, processing and disposal are somewhat more limited. The following items were evaluated:

- A. Collection and Transfer
  - 1. Convenience Centers
  - 2. County-wide curbside service
  
- B. Processing
  - 1. Conventional unconsolidated disposal
  - 2. Baling
  
- C. Disposal
  - 1. Class I, Subtitle D Landfill
  - 2. Haul to a Private Facility

## **11.2 Collection and Transfer**

As noted earlier in the report, the demographics and land-use throughout the county is fairly similar. Hickman County is bisected by a series of two-lane state highways (State Routes 100, 50 and 48) and access from collector and arterial roads is effective. If facilities are made available in reasonable proximity to major transportation routes, transfer of solid waste throughout the County should be relatively easy.

### **11.2.1 Convenience Centers**

The County has relatively densely populated areas within the corporate limits of the town of Centerville, as well as a moderate commercially/dense residentially developed and expanding area in the Bon Aqua/Lyles community. These urban areas are surrounded by rural areas of moderate to sparse population. However, approximately 50 percent of the population base in the County is spread throughout the rural parts of the county from which there is sometimes significant distance between major population centers. The members of the Planning Board have expressed concern that, under current design guidelines for convenience center locations, there may be significant areas in the Counties without "convenient" access to a drop-off point. Therefore, we have established the following criteria for convenience center locations:

- No resident should be more than eight to ten miles from the nearest convenience center.
- All centers are to be located as close as possible to major thoroughfares, such that any resident would have access to a facility on a normal route to work, school, shopping, etc.

In positioning the facilities, we first reviewed the county highway maps which indicate all roadways and roadway names throughout the county. Locations were initially established within each municipality to serve the major population centers and concentrated areas of waste generation. Next, the County was divided into grids such that the intersection of grid lines presented an area with a six to seven mile radius. These intersections then served as approximate locations for the proposed convenience centers. With the approximate locations identified, the county highway maps were again reviewed and field verified to accurately position the centers to meet the established criteria.

Upon determining the location of the centers, we then positioned the centers on the Census Bureau Redistricting Maps and identified the approximate service boundary (six to seven mile radius) for each center. Existing and 20-year population figures for each area were calculated. Then, utilizing existing per capita waste flow information, calculations for existing and future waste loads within each area were developed.

With waste load information established, capacities, staffing needs, equipment requirements and operating parameters were developed. The results are presented in Tables 11-1 and 11-2. Diagrams and Cost Estimates for each center are given in Figures 11-1 through 11-3 and Tables 11-3 through 11-5, respectively.

Several factors effect the implementation of the proposed facilities, foremost of which is the availability of grant funds. Each County is eligible for up to \$50,000 towards convenience center development. In view of the cost associated with the construction

of each center, the County has prioritized the location for the first convenience centers and will utilize grant funds toward their implementation. The first facilities in the region have been designated as Phase I convenience centers.

Hickman County's landfill currently has sufficient capacity to allow continued operation through the implementation of the Regional Waste Plan. Since the town of Centerville currently offers curbside service and is equipped to transport to the County's landfill, priority was given to developing a facility at the largest unserved population center, the Bon Aqua/Lyles community. Also, the potential for more rapid future development dictates that solid waste collection service be made available immediately. Therefore, a compactor station is proposed at Site CCL-1.

The remainder of the centers will be developed as part of the development and implementation program of the Regional Plan. Implementation of the remaining centers has been designated as Phase II.

The rationale in developing equipment requirements at each facility is dependent on the ultimate method of disposal chosen. Regardless of the recommendation, CCL-2, 3, 4, 5, 6 and 7 remain truly rural convenience centers and will not be affected by the method of disposal. Additionally, because of the waste load generation anticipated in the Bon Aqua/Lyles community and the distance from either point of disposal dictates a compactor station at CCL-1.

If Hickman County elects to construct a Class I landfill, Centerville will continue current collection programs and transport waste to the Class I Facility. However, in order to accommodate the developed area surrounding the corporate limits of Centerville but outside the municipality's service area, convenience centers will be constructed utilizing existing green boxes. Since much of the County's population travels through Centerville for school, work and/or shopping, etc. on a daily basis, a compactor station is recommended for CCL-1.

If Hickman County elects to transport to a private disposal facility, all waste throughout the County (with the possible exception of the Bon Aqua/Lyles Convenience Center) will be collected and transported to CCL-8. A transfer station will be constructed at CCL-8 and all waste will be transported to the location for ultimate disposal.

The steps for implementation of the collection and transfer component are given as follows:

- Grant application submittal
- Site(s) optioned
- Survey site(s)
- Prepare Environmental Assessment(s)
- Grant approved
- Design facilities
- Submit design plans to county for review
- Prepare bid package
- Open bids/award contract
- Hire and train staff
- Construct facility
- Start-up
- Initiate operation

Annual expenses associated with convenience center operation are given as follows:

**Collection Centers and Transportation:**

<u>Item</u>	<u>Class I Option</u>	<u>Private Facility Option</u>
Wages:		
Operator	\$ 20,000	\$ 20,000
Operator Assistants	15,000	15,000
Site Superintendents (5)	75,000	75,000
Maintenance & Repair	15,000	18,000
Supplies	5,000	5,000
Insurance	10,000	10,000
Fuel	10,000	10,000
Miscellaneous	5,000	5,000
Amort. conven. center	50,000	52,000
Deprec. conven. center	<u>30,000</u>	<u>35,000</u>
SUBTOTAL	\$ 235,000	\$ 245,000

**11.2.2 Countywide Curbside Service**

Considerable attention has been given to rural curbside service due to contracts offered from private haulers in other areas of the state. Prices as low as \$3.50 per customer per month for once a week curbside pick-up have been quoted; however, a portion of this fee is dependant upon urban collection to defray costs associated with more rural collection.

Typically, waste collection costs (including amortization and depreciation) range from \$1.25 to \$1.50/mile. In establishing costs for Hickman County, the County has been divided into "service regions" of approximately equal areas (square miles) as with the convenience center concept. Routing patterns may be refined somewhat, but basically it can be assumed that transportation distances will approximate the total length of

County and State highway miles in each area excluding the areas within Centerville's Corporate Limits. In Hickman County, the length is approximately 200 miles within each of the 4 rural service areas.

$$A = \frac{1260 \text{ cubic yard/week}^*}{20 \text{ cu.yd./load}} = 65 \text{ loads/week} \times 52 \text{ weeks/year} = 3,380 \text{ loads/year}$$

$$3,380 \text{ loads/year} \times 40 \text{ mile roundtrip to disposal} = 135,200 \text{ miles/year}$$

$$B = 200 \text{ miles/wk/service area} \times 4 \text{ service areas} \times 52 \text{ weeks/year} = 41,600 \text{ miles/year}$$

$$A+B = 135,200 \text{ miles/year} + 41,600 \text{ miles/year} = 176,800 \text{ miles/year}$$

$$176,800 \text{ miles/year} \times \$1.375/\text{mile} = \$ 243,100/\text{year}$$

\* Based on estimated waste load for 2005

It should also be noted that the infrastructure within Hickman County, under current conditions, may not support a typical garbage collection vehicle. More specifically, unless significantly smaller vehicles are used for collection, many of the existing roads and bridges within the County will not accommodate the weights and dimensions of a conventional vehicle.

### 11.3 Processing

After solid waste is collected and transported to its ultimate destination, the County must evaluate the most feasible mechanism for processing the waste prior to disposal. The options considered are discussed below:

#### 11.3.1 Conventional Unconsolidated Disposal

Prior to the implementation of Subtitle D Regulations for landfill development, most landfills simply received unconsolidated waste and simply "compacted" the waste with existing landfill equipment (dozers) or with specialized compactors. Typical compacted weights in conventionally operated landfills average approximately 400-500 pounds per cubic yard. Unconsolidated disposal is basically the "do-nothing" alternative and will serve as the basis for comparison for other processing alternatives.

Hickman County currently receives approximately 35 tons of waste per day. Using a compaction rate of 500 pounds per cubic yard, the total number of cubic yards of landfill space required is:

$$30 \text{ tons/day} \times 2000\#/\text{ton} \times 1 \text{ cu. yd.}/500\# = 120 \text{ cu.yd./day}$$

$$120 \text{ cu.yd./day} \times 315 \text{ days/year} = 37,800 \text{ yd}^3/\text{year}$$

Assume cell area of 1 acre, approximately 20 feet deep

$$43,560 \text{ feet}^2 \times 20 \text{ feet} = 871,200 \text{ feet}^3 \text{ or } 32,000 \text{ cu.yd./acre}$$

$$\frac{37,800 \text{ yd}^3/\text{year}}{32,000 \text{ yd}^3/\text{acre}} = 1.2 \text{ acres/year at } \$ 186,000/\text{acre, annual costs are approximately } \$ 223,200.$$

## Conventional Landfill

### Equipment

Scraper/Pan	\$	200,000
Compactor		200,000
Dozer		<u>150,000</u>
TOTAL	\$	550,000

Amortization at 15 years at 9% interest	\$	65,000
Depreciation at 10 years (straight-line)		55,000

### Annual Expenses

Wages: Operators (2)	\$	40,000
Asst. Oper (1)		18,000
Maintenance and Repair		15,000
Fuel		21,000
Insurance		5,000
Landfill Development		223,200
Equipment Amortization		65,000
Equipment Depreciation		55,000
State Surcharge (\$0.85/ton)		7,000
Leachate Collection and Treatment		15,000
Laboratory Testing		12,000
Miscellaneous Materials		<u>10,000</u>
TOTAL	\$	486,200

### 11.3.2 Baling

Baling involves mechanically compacting solid waste into rectangular bales. Typical compaction rates average approximately 1,800 pounds per cubic yard. Some of the concerns associated with baling include additional operating requirements and potential for mechanical "downtime". Benefits include significant reduction in landfill space, handling ease, and reduction in cover requirements.

It should be noted that several counties surrounding Hickman County have opted to use process balers with relative success, including Montgomery, Dickson, Lawrence and Wayne.

The costs for a baling facility are given as follows:

**Baling Facility Operation Expenses**

Cost of Baler and Facility	=	\$	700,000
Amortization at 15 years at 9% interest	=		87,000 year
Depreciation at 10 years	=		70,000 year

**Annual Expenses**

Wages:	Baler Operator	\$	20,000
	Floorman		17,000
	Floorman		17,000
	Yardman		17,000

Maintenance and Repair	12,000
Utilities (gas, electricity, water & sewer)	20,000
Office Supplies and Expenses	12,000
Equipment	10,000
Heating Fuel	5,000
State Surcharge (\$0.85/ton)	7,000
Insurance	5,000
Miscellaneous	5,000
Amortization	87,000
Depreciation	<u>70,000</u>

TOTAL \$ 304,000

### Landfill Volume Required with Baling Operation

30 tons/day x 2000#/ton x 1 cu.yd/1800# = 33 cubic yard/day

33 cu.yd/day x 315 days/yr = 10,395 cubic yard/year

Assume cell area of 1 acre, approximately 20 feet deep

43,560 feet<sup>2</sup> x 20 feet = 871,200 feet<sup>3</sup> or 32,000 cubic yard/acre

10,395 cubic yard/year = 0.3 acres/year

32,000 cubic yard/acre

0.3 acres/year at \$186,000/acre, annual costs are approximately \$ 55,800

### Balefill

#### Equipment

Dozer/Compactor	\$ 200,000
Scraper/Pan	200,000
Amortization at 15 years at 9%	46,000
Depreciation at 10 years (straight-line)	<u>40,000</u>
TOTAL	<u>\$ 86,000</u>

#### Annual Expenses

Wages: Operator	\$ 20,000
Maintenance and Repair	8,000
Fuel	12,000
Insurance	3,000
Landfill Development	55,800
Baler Operation	304,000
Equipment Amortization	46,000
Equipment Depreciation	40,000
Leachate Collection and Treatment	8,000
Laboratory Testing	12,000
Miscellaneous Materials	5,000
Tipping Fee to Owners (at \$2.00/ton)	<u>28,000</u>
TOTAL	<u>\$ 513,800</u>

The cumulative cost comparison between unconsolidated disposal and baling is given as follows:

Landfill	\$	523,000
Balefill		533,000

#### 11.4 Disposal

The only plausible alternatives available for managing Hickman County's waste are:

- 1) Developing a permitted Subtitle D, Class I landfill
- 2) Hauling waste to a private disposal facility

In either instance it will be necessary to provide administration for the management and operation of proposed facilities, and to provide the equipment necessary for operation. The costs associated with administration and equipment for Hickman County's solid waste system are given as follows:

#### ADMINISTRATIVE AND EQUIPMENT

##### OFFICE EXPENSES

	<u>Class I Option</u>	<u>Private Facility Option</u>
Lease	\$ 2,000	\$ 2,000
Furniture	2,000	2,000
Insurance	4,000	4,000
Materials and Supplies	2,000	2,000
Office Machines	1,000	1,000
Postage	500	500
Telephone/Fax	500	500
Utilities	1,000	1,000
Miscellaneous	<u>3,000</u>	<u>3,000</u>
<b>Subtotal</b>	<b>\$ 16,000</b>	<b>\$ 16,000</b>

**PERSONNEL EXPENSES (includes OASI, ins., retirement, etc.)**

	<u>Class I Option</u>	<u>Private Facility Option</u>
Administrative Assistant	\$ 16,000	\$ 16,000
General Manager	30,000	20,000
General Services (\$400/month)	5,000	5,000
Professional Services (enr., acct., legal)	15,000	5,000
Contract Services	15,000	10,000
Miscellaneous	<u>10,000</u>	<u>10,000</u>
<b>Subtotal</b>	<b>\$ 101,000</b>	<b>\$ 66,000</b>

**EQUIPMENT EXPENSES**

Grader (1)	\$ 50,000	\$ -0-
Backhoe (1)	30,000	30,000
Loader for 42 yd <sup>3</sup> Bins (1)	<u>60,000</u>	<u>60,000</u>
	\$ 140,000	\$ 90,000
Amortized 10 years at 9%	\$ 22,000	\$ 14,000
Depreciated over 10 years	<u>14,000</u>	<u>9,000</u>
<b>Subtotal</b>	<b>\$ 36,000</b>	<b>\$ 23,000</b>
<b>TOTAL</b>	<b>\$ <u>153,000</u></b>	<b>\$ <u>105,000</u></b>

The option to haul to a private facility has been extensively investigated by other members of the now dissolved Quad-County Region. In each instance, the point of destination ultimately considered was the Waste Management Facility at West Camden in Benton County. Obviously, the West Camden facility offers benefits not afforded by other facilities, primarily shorter hauling distances.

The costs/fees quoted by Waste Management to potential haulers is \$25.00/ton disposal costs (delivered at their gate) plus an \$11.00/ton transport cost if they haul the waste. Costs associated with transport to a private facility are given as follows:

## HICKMAN COUNTY

### Transport to Disposal Facility

$$11,000 \text{ tons/year} \times \$11.00 = \$ 121,000$$

### Disposal Costs

$$11,000 \text{ tons/year} \times \$25.00 = \$ \underline{275,000}$$

$$\text{TOTAL} \quad \$ \quad 396,000$$

The cost comparison between the two most viable alternatives: 1) hauling to a private facility, and 2) disposal in a Class I, Subtitle D facility within the Hickman County Region - indicates that hauling to a private facility is less expensive. However, numerous tangible factors weigh heavily in favor of maintaining additional options for disposal. They are listed as follows:

- Through the extensive public hearing process conducted in November and December, 1993, and through numerous meetings with County Boards and Commissions, it is apparent that siting a Class I landfill for regional waste disposal in Hickman County will be extremely difficult, and very time consuming. Therefore, it may be unrealistic to assume that Hickman County could ever realistically construct a Subtitle D facility. However, there are other similar facilities within reasonable proximity to Hickman County which may be considered in future contract negotiations.

- The time element involved in the development of a Class I facility is incompatible with the required implementation schedule. It is recommended that disposal at the current facility continue through the 1996 deadline to minimize operating costs. As given in the Proposed Implementation Plan, development of the transfer facility should begin in time to allow transport to the facility by October 1996 (the date the current facility is expected to expire).
- If equipment and personnel are disbursed, then capital costs, depreciation and amortization of new equipment as well as the costs associated with hiring, training and certifying new personnel become prohibitive.
- Perhaps most importantly, if Hickman County relinquishes control of its solid waste processing and disposal, the County becomes part of a "captive market" with little opportunity for fee negotiation or cost control. Contracts for disposal with private facilities are typically structured in one year terms with unstructured inflationary clauses and cost contingencies with almost no margin for negotiation.

#### **11.5 Implementation Schedule**

The implementation schedule for the Hickman County program is given as follows:

- Plan approved by Solid Waste Committee and County Commission
- State approves Regional Plan
- Regional Authority formed
- All required permits approved and on file
- Prepare site survey
- Submit proposed plans to T.D.E.C.
- Secure funding
- Respond to State Review Comments

- Initiate operator training program
- State Review of final documents
- Prepare Bid Documents
- Receive Bids
- Award contract
- Facility construction begins
- Off-site infrastructure development begins
- Off-site infrastructure development complete
- Facility construction complete
- Facility start-up procedures
- Facility in operation

**11.5.1 Summation of Annual Expenses**

**Single County Landfill**

Administration and Equipment	\$ 153,000
Landfill Development/Operation	486,200
Collection Center at Transfer Stations	<u>235,000</u>
<b>TOTAL</b>	<b><u>\$ 874,200</u></b>

**Transport to Private Landfill**

Collection Centers and Transportation	\$ 245,000
Transport to Disposal Facility	121,000
Administration and Equipment	105,000
Disposal Costs	<u>275,000</u>
<b>TOTAL</b>	<b><u>\$ 746,000</u></b>

Numerous alternatives were evaluated for achieving the revenues required to cover annual expenses, including property tax, sales tax or special purpose tax assessments. However, the Authority represents a quasi-governmental entity and should not be dependent on its constituents tax base for revenue. Therefore, the most plausible option and most fair to all customers is the development of a User Charge System. The user charge should distinguish between residential and commercial users to be more representative of actual waste generation rates.

In developing the User Charge System, the following items are considered:

Approximate number of households in Hickman County Region	6,600
Approximate number of commercial properties in Hickman County Region	400
Assumed 10% vacancy	<u>700</u>
Total Customer Base	6,300

Total Annual Revenue Required:

A. Single County Landfill

$$\text{\$ } 874,200/\text{yr} \div 6300 \text{ cust} \div 12 \text{ mo/year} = \text{\$ } 11.56$$

B. Transport to Private Facility

$$\text{\$ } 746,000/\text{yr} \div 6300 \text{ cust} \div 12 \text{ mo/year} = \text{\$ } 9.90$$

## 11.6 Staffing and Training Requirements

Staffing and training requirements can be individualized based on the service provided, as follows:

### A. Administration

1. Director/General Manager (1) - an individual with an employment background in solid waste management. Management and accounting skills are necessary. Training should include associates degree (or equivalent) with a minimum four years experience in management, or high school degree and ten years experience in management. The Director/General Manager must possess a working knowledge of the Solid Waste Management Act of 1991. This person will be responsible to the Hickman County Solid Waste Authority Board of Directors. The Manager is scheduled to be "on-board" during design of the proposed facilities for training and briefing as well as to provide input to the design effort.
2. Administrative Assistant (1) - Secretarial level position. These assistants must be familiar with bookkeeping/accounting procedures. They should have high school degree (minimum) with at least four years experience in office management. They should also be familiar with spreadsheet, word processing, and other applicable software. The administrative assistants are scheduled to be "on-board" during start-up procedures for training.

B. Operations

1. Landfill

- a. Operator (1) - Individual with experience in operation of heavy machinery, particularly excavating equipment. The Operator should be familiar with excavating/grading techniques and equipped to interpret survey notes and grading plans. This person must have a minimum of eight years operating experience and must be familiar with all federal and state criteria for landfill operations, and must have all applicable licenses and certifications required by the T.D.E.C. He/she should also be equipped to provide equipment or vehicle maintenance. The Operator must be familiar with landfill components and their function and operation. This person is scheduled to be "on board" during bidding procedures for safety training.
- b. Assistant Operator (1) - Individual with experience in operation of heavy machinery, particularly excavating equipment. The Assistant Operator should be familiar with excavating/grading techniques and equipped to interpret survey notes and grading plans. This person must have a minimum of four years operating experience and must be equipped to provide equipment or vehicle maintenance. The Assistant Operator is scheduled to be "on board" immediately prior to construction for operator and safety training.

**2. Collection Facilities**

- a. **Operator (1) - Individual with experience in operation of equipment and vehicles utilized in the transportation of solid waste. The Operator should be familiar with operating characteristics of all equipment and vehicles and experienced in their maintenance. This individual must have all appropriate permits and licenses for vehicle operation and must be familiar with all federal, state and local regulations governing their operation. The Operator must have a minimum of eight years experience with some management responsibilities. This person is scheduled to be "on-board" immediately prior to initiation of operation of the first phase of convenience centers for operator and safety training.**
  
- b. **Operator Assistants (1) - Individuals with experience in operation of equipment and vehicles utilized in the transportation of solid waste. The Operator Assistants should be familiar with operating characteristics of all equipment and vehicles and experienced in their maintenance. These individuals must have all appropriate permits and licenses for vehicle operation and must be familiar with all subsequent federal, state and local regulations governing their operation. The Operator Assistants must have a minimum of four years experience. This person is scheduled to be "on-board" immediately prior to the initiation of operation of the second phase of convenience centers for operator and safety training.**

- c. Site Superintendents (4) - These individuals should be familiar with solid waste segregation and recycling. Minor bookkeeping skills may be required. A high school education (or equivalent) is preferred. Positions may involve full-time and/or part-time employment and may require transport among as many as three sites. They must be able to perform policing activities for site and grounds maintenance and be able to supervise disposition of waste in bins. Effective communication skills are required. The Site Superintendents are scheduled to be "on-board" for operations and safety training immediately prior to initiation of operation for each phase of convenience centers.

## **11.7 Funding Sources**

### **11.7.1 Farmers Home Administration**

The Farmers Home Administration (FmHA), an agency of the U.S. Department of Agriculture (USDA), administers loans for community facilities and grants for water and waste disposal facilities through nine district offices in Tennessee.

FmHA's Water and Waste Disposal Loans and Grants are for rural areas and towns of up to 10,000 people. Although priority consideration goes to communities with less than 5,500 people, municipalities, county utility districts, Indian tribes and non-profit corporations are eligible for assistance.

Applicants must be: 1) unable to get funds from other sources at reasonable rates and terms; 2) legally able to borrow and repay, pledge security for loans and operate and maintain facilities; and 3) financially sound and able to manage the facility effectively. The applicant's financial soundness must be based on taxes, assessments, revenues, fees or other satisfactory sources of income to pay all costs associated with the facility.

Loan rates vary. They depend upon market rate and the community's income level and public health problems. Interest rates are lower for an applicant with an income below the nation's poverty level and in violation of a health regulation. The load is for a maximum of 40 years of the useful life of the facility, whichever is shorter.

#### 11.7.2 Community Development Block Grants

The Community Development Block Grant (CDBG) program is federally funded. Nine cities and two counties in Tennessee receive CDBG funds directly from the federal government. Other Tennessee cities and counties may receive CDBG funds administered by the Tennessee Department of Economic and Community Development. Grants are for projects involving community livability, water/sewer/solid waste and housing/neighborhood revitalization projects.

All city and county governments in Tennessee qualify to apply for CDBG grants, except those cities over 50,000 population. Those cities receive funds directly from the federal government.

CDBG funds must: 1) benefit persons of low and moderate income; 2) eliminate or prevent slums and blight; or, 3) eliminate conditions detrimental to health, safety or public welfare. The project selection criteria are objective and quantitative, based on the community need for the project, project feasibility and an assessment community economic level. The level of CDBG assistance is limited by the community's ability to pay.

Maximum grants are \$300,000 for community livability projects and \$500,000 for water/sewer/solid waste and housing rehabilitation/neighborhood revitalization projects. Grants awarded to one applicant cannot exceed \$750,000 in two consecutive years, and a previous year's grant must be 75 percent depleted by the next year's application date.

Applications are due by the annual date set by the program manager, typically around November.

### 11.7.3 Tennessee Local Development Authority

The Tennessee Local Development Authority (TLDA) loan program was established by state lawmakers in 1978. Its major purpose is to make loans to local governments for water, sewer and solid waste projects. Loans also can be made for purposes such as airports, capital projects and rural firefighting equipment. In 1990, the law was amended to let TLDA issue bonds and make the proceeds available for loans to local governments for other capital projects.

County governments, metropolitan governments, incorporated towns or cities and any special districts may borrow money from TLDA for water, wastewater, solid waste and other capital improvements.

Funds are used for water, wastewater and solid waste projects approved by the Tennessee Department of Health and Environment, or for other capital projects approved by other state agencies before final TLDA processing.

The terms for use of TLDA funds are as follows:

- The local government must adopt user rates to cover all costs of operation and maintenance, including debt service and depreciation.
- The local government must authorize the loan and pledge taxes to back the loan in case of deficiency.
- The loan must be backed by sufficient state-shared taxes and by reserve funds set aside by the borrower.
- Monthly payments are required. Interest only is required during construction. Principle repayment begins when the project is operational or when 90 percent of the construction cost is depleted, whichever occurs first.
- The loan period is 30 years or the useful life of the project, whichever is less.
- The interest rate prior to issuing the bond varies. For the past several years, funding for this program has been based on 1-year notes. Since the interest rate to the borrower is based on the interest rate of the notes, it can fluctuate from year to year.
- The cost of issuing the bond is approximately 2 percent.
- A reserve fund is required.

- The local government can prepay a TLDA loan prior to issuing the bond, but cannot prepay after TLA issues the bond.
- Application can be made at any time of the year.

#### 11.7.4 Private Issue Bonds

The various types of bonds include general obligation bonds, special tax bonds, revenue bonds, industrial revenue bonds, and double-barrel bonds. General obligation bonds are backed by the full faith and credit of the local government. The entity pledges its full taxing authority as collateral for payment of the loan. Special tax bonds are financed from special taxes created specifically to pay off the bond. Revenue bonds are contingent upon receipts from specific sources such as water sales or sewer service revenues. Industrial revenue bonds are used to finance the building of an industrial facility to be leased to an industry. The lease money is pledged to pay off the bond. A double-barrel bond is backed by collateral from at least two sources. For example, revenues from water sales and the full taxing authority of the local government could be pledged as collateral for a double-barrel bond.

Any local government authorized to incur debt may qualify to use bonds or a funding source. Local governments should generally consider using bond issues for large, long-term debt - over \$1 million and longer than twelve years. Applicants must be credit worthy or insurable. In other words, they must be ratable by a recognized rating agency such as Moody or Standard and Poor.

Bonds are an unlimited source of money. The local government determines maximum amount of the bonds. They are sometimes used to complement funding from other sources, particularly grant funding.

Terms for bond issues are as follows:

- Bond rates may vary dramatically, depending on an entity's bond rating.
- Applicants must be aware of how federal tax law affects bond issues.
- Applicants should consider the costs associated with issuing bonds, such as legal, insurance, publications and advertising notices, printing, rating agency, bond registration and financial advice. These costs are usually 1 to 3 percent of the bond issue.
- The borrower can lower the interest rate by reducing the amount borrowed; shortening the payback period; taking advantage of arbitrage allowed by federal tax laws and enhancing credit-worthiness. It is advisable to seek legal help on arbitrage and insurance issues.
- It takes about six weeks to issue bonds for a local government that has been through the process before and has established credit. If the local government has not issued bonds previously, the process takes eight weeks to six months.
- It is important to involve a financial adviser early in the process.
- Pitfalls local governments may face in issuing bonds include: 1) user rates may be insufficient to cover debt service; 2) costs incurred on the project before the bond issue may not be covered; 3) inaccurate record-keeping during the project; and 4) inappropriate use of bond money for other than the stated purpose.
- Application may be made at any time of the year.

#### 11.7.5 Summary of Funding Options

The Authority, through its affiliation with its representative county and municipalities, is eligible to apply for up to \$750,000 in CDBG funds. The application and award process, however, is very competitive and funding is not assured. It is therefore recommended that the Authority seek to use CDBG funds to help off-set initial capital costs, but assume that 100% of the finances will be through private bond issue. It should be noted that all projections for expenses assumed 100% loan sources with no grant assistance. The implementation schedule for all of the initial development activities is given in Table 11-6. The implementation program reflecting the 10-year activities is given in Table 11-7.

TABLE 11-1

HICKMAN-COUNTY SOLID WASTE STUDY  
HICKMAN COUNTY POPULATION & WASTE LOAD PROJECTIONS

CONVENIENCE CENTER	1940 POPULATION	1955 POPULATION	1955 WASTE LOAD C.Y./YR.	1955 WASTE LOAD C.Y./WK.	2000 POPULATION	2000 WASTE LOAD C.Y./YR.	2000 WASTE LOAD C.Y./WK.	2005 POPULATION	2005 WASTE LOAD C.Y./YR.	2005 WASTE LOAD C.Y./WK.	2015 POPULATION	2015 WASTE LOAD C.Y./YR.	2015 WASTE LOAD C.Y./WK.
CCL1	3,781	3,878	14,153	272	3,939	14,377	278	4,010	14,836	281	4,093	14,939	287
CCL	1,349	1,373	5,012	96	1,399	5,068	97	1,406	5,133	98	1,427	5,209	100
CCL3	962	1,034	3,776	73	1,081	3,944	76	1,134	4,138	80	1,196	4,365	84
CCL4	685	709	2,588	50	726	2,644	51	742	2,709	52	763	2,785	54
CCL5	1,097	1,145	4,180	80	1,176	4,292	83	1,211	4,422	85	1,253	4,573	88
CCL6	796	822	3,001	56	838	3,057	59	855	3,121	60	876	3,197	61
CCL7	1,181	1,185	4,326	83	1,201	4,382	84	1,218	4,446	86	1,239	4,522	87
CCL8	6,921	7,090	25,879	498	7,198	26,271	505	7,321	26,723	514	7,467	27,255	524
TOTAL	16,754	17,236	62,915	1,210	17,547	64,035	1,228	17,897	65,328	1,257	18,314	66,845	1,285

PREPARED BY: GRESHAM, SMITH & PARTNERS

**TABLE 11-2**

**HICKMAN COUNTY LANDFILL OPTION  
CONVENIENCE CENTERS**

<b>CONVENIENCE CENTER</b>	<b>WASTE LOAD C.Y./WEEK</b>	<b>6 C.Y. BOXES REQUIRED</b>	<b>COST</b>
CCL-1	276	*	\$ 65,000.00
CCL-2	97	16	\$ 50,000.00
CCL-3	76	13	\$ 50,000.00
CCL-4	51	9	\$ 50,000.00
CCL-5	83	14	\$ 50,000.00
CCL-6	59	10	\$ 50,000.00
CCL-7	84	14	\$ 50,000.00
CCL-8	505	*	\$ 100,000.00
<b>TOTALS</b>	<b>1,231</b>	<b>76</b>	<b>\$ 465,000.00</b>

\*USE COMPACTOR

TABLE 11-3

HICKMAN COUNTY SOLID WASTE STUDY  
PRELIMINARY COST ESTIMATE  
FOR  
CONVENIENCE CENTER  
WITH DUMPSTERS

1. Grading	\$ 1,000
2. Access Road	1,000
3. Gravel: 1,700 S.Y. @ \$4.00	6,800
4. Fence: 500 L.F. @ \$10.00	5,000
5. 6 C.Y. Dumpsters (Use existing green boxes)	0
6. Recycle Bins: 2 @ \$5,500	11,000
7. Bulk Bins: 1 @ \$6,000	6,000
8. Building	2,000
9. Lighting & Electrical	2,000
10. Land Acquisition	5,000
11. Miscellaneous	1,200
<b>TOTAL</b>	<b>\$ 41,000</b>

TABLE 11-4

HICKMAN COUNTY SOLID WASTE STUDY  
PRELIMINARY COST ESTIMATE  
FOR  
CONVENIENCE CENTER  
WITH COMPACTOR

1. Grading	\$ 1,000
2. Access Road	1,000
3. Gravel: 1,700 S.Y. @ \$4.00	6,800
4. Fence: 500 L.F. @ \$10.00	5,000
5. Compactor	15,000
6. Bulk Bins: 2 @ \$6,000	12,000
7. Recycle Bins: 2 @ \$5,500	11,000
8. Building	2,000
9. Lighting & Electrical	2,000
10. Land Acquisition	5,000
11. Miscellaneous	4,200
<b>TOTAL</b>	<b>\$ 65,000</b>

**TABLE 11-5**

**HICKMAN COUNTY SOLID WASTE STUDY  
PRELIMINARY COST ESTIMATE  
FOR  
TRANSFER STATION**

1. Grading	\$ 1,500
2. Access Road	1,000
3. Gravel: 3,500 S.Y. @ \$4.00	14,000
4. Fence: 700 L.F. @ \$10.00	7,000
5. Compactor	15,000
6. Bulk Bins: 3 @ \$6,000	18,000
7. Recycle Bins: 2 @ \$5,500	11,000
8. Dock	15,000
9. Building	2,000
10. Lighting & Electrical	5,000
11. Land Acquisition	5,000
12. Miscellaneous	5,500
<b>TOTAL</b>	<b>\$100,000</b>

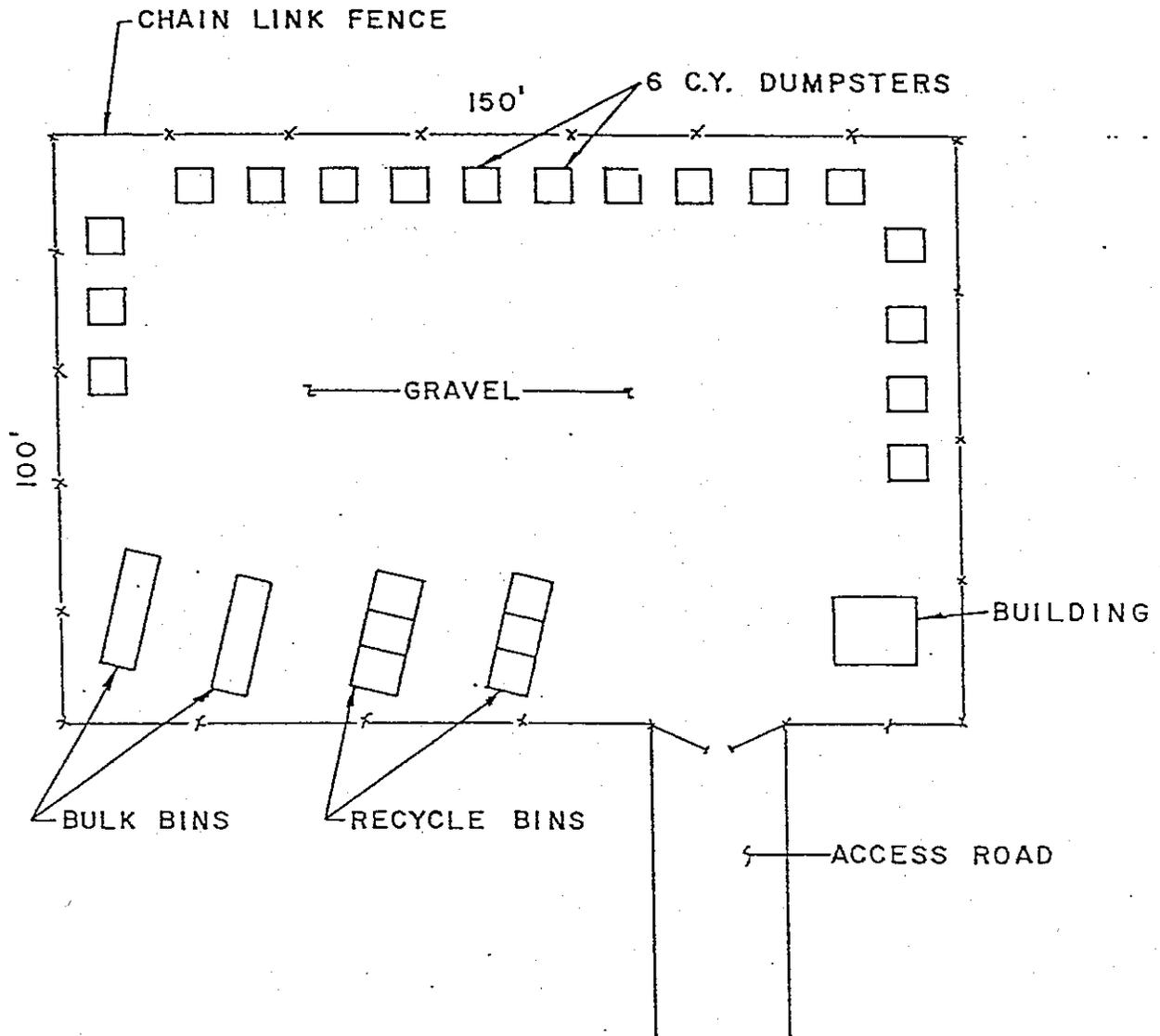




**CONVENIENCE CENTERS**

**OPERATIONS SCHEDULE**

	MONDAY 6:00 am-6:00 pm	TUESDAY 6:00 am-6:00 pm	WEDNESDAY 6:00 am-6:00 pm	THURSDAY 6:00 am-6:00 pm	FRIDAY 6:00 am-6:00 pm	SATURDAY 6:00 am-12:00 pm	SATURDAY 12:00 pm-6:00pm
CCL-1	X	X	X	X	X	X	X
CCL-2	X		X		X		X
CCL-3		X		X		X	
CCL-4	X		X		X		X
CCL-5		X		X		X	
CCL-6	X		X		X		X
CCL-7		X		X		X	
CCL-8	X	X	X	X	X	X	



**CONVENIENCE CENTER (TYP.)  
W/DUMPSTERS**

**SOLID WASTE STUDY  
HICKMAN COUNTY, TENNESSEE**



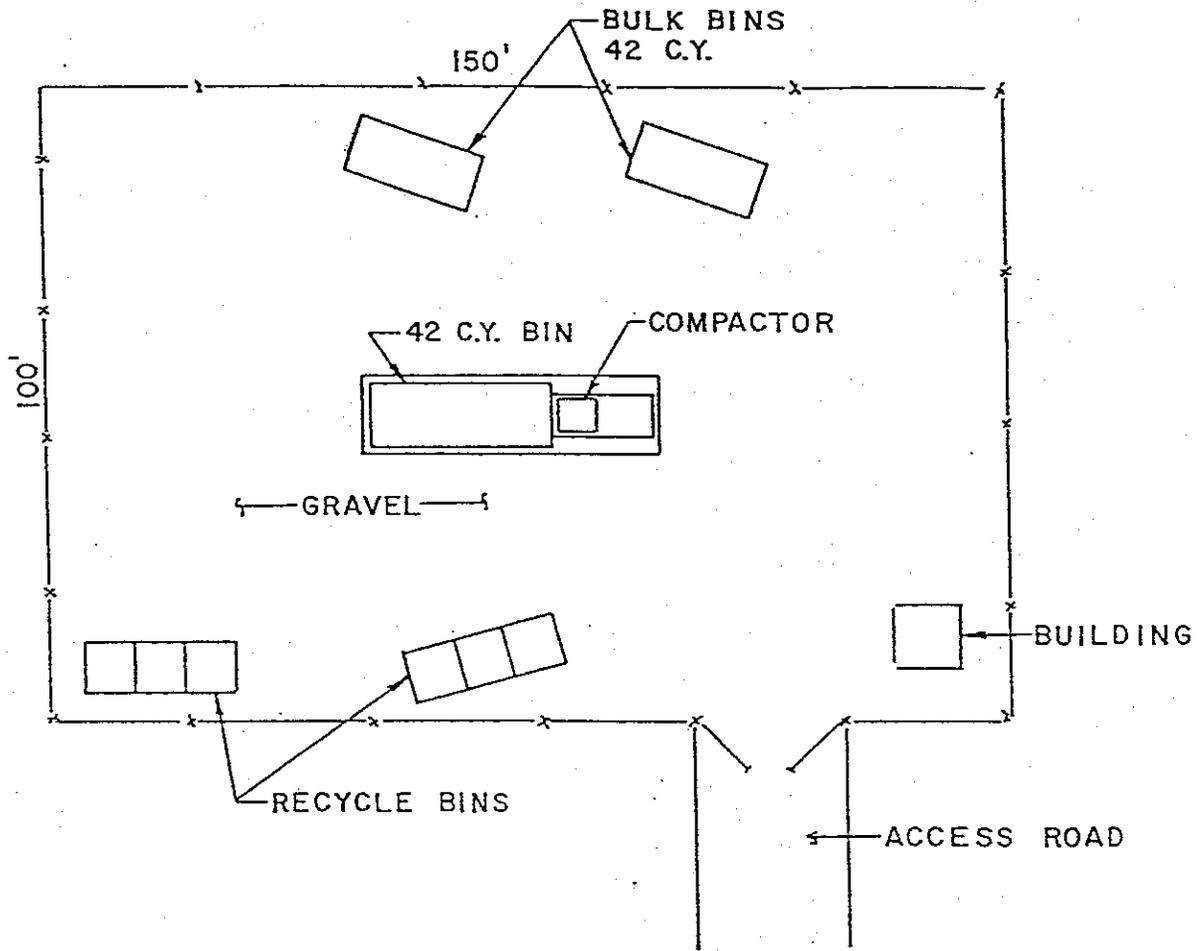
**GRESHAM, SMITH AND PARTNERS**

3310 West End Avenue  
Nashville, Tennessee 37203

DATE: JUNE, 1994

FILE: 16275

**FIGURE 11-1**



**CONVENIENCE CENTER (TYP.)  
W/COMPACTOR**

**SOLID WASTE STUDY  
HICKMAN COUNTY, TENNESSEE**



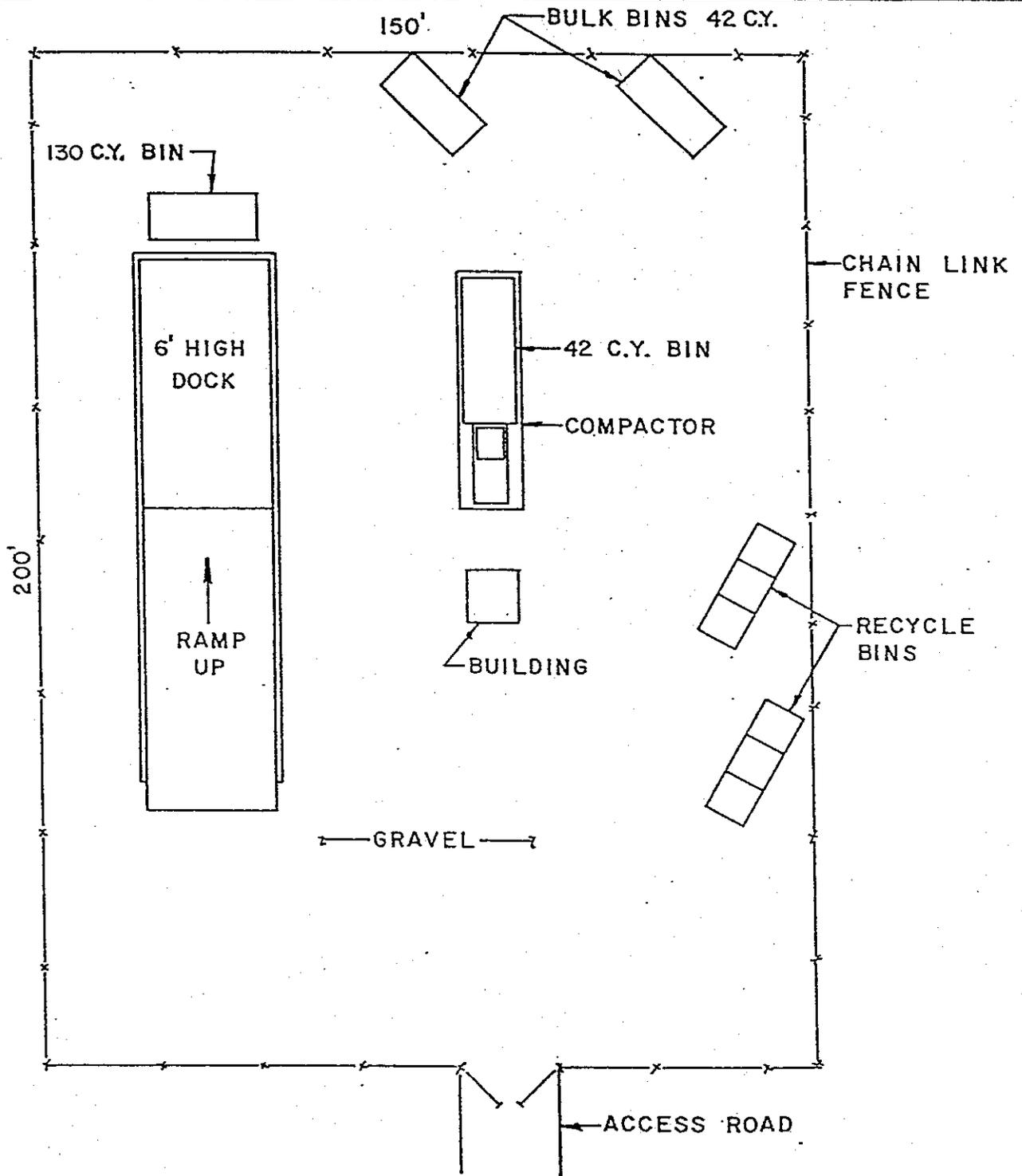
**GRESHAM, SMITH AND PARTNERS**

3310 West End Avenue  
Nashville, Tennessee 37203

DATE: JUNE, 1994

FILE: 16275

**FIGURE 11-2**



**TRANSFER STATION  
(TYPICAL)**

**SOLID WASTE STUDY  
HICKMAN COUNTY, TENNESSEE**



**GRESHAM, SMITH AND PARTNERS**

3310 West End Avenue  
Nashville, Tennessee 37203

DATE: JUNE, 1994

FILE: 16275

**FIGURE 11-3**

## **CHAPTER 12.0**

### **ALLOCATION OF IMPLEMENTATION RESPONSIBILITIES**

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#### **12.1 Plan Adoption and Submission**

Hickman County accepts responsibility for plan adoption and submission.

## CHAPTER 13.0

### FLOW CONTROL AND PERMIT APPLICATION REVIEW

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#### 13.1 Flow Control Measures

The Solid Waste Management Act of 1991 contains strict provisions for the development of solid waste management plans. It applies to each of the solid waste regions which formed following the completion of the Needs Assessments work conducted by the development districts. Upon completion of that regional plan, and following review and approval by the state planning office, the region or solid waste authority, through the provisions of the Act, is granted a means for control of the flow of waste within the planning area or region. The Act permits regions to exercise two types of flow control: (1) the out-of-region waste ban; and (2) intra-region flow control. Authorities formed under this Act are also permitted to exercise broad flow control powers.

These two types of flow control measures are intended to address two separate sets of policy concerns. First, a region or authority may restrict access to any landfills and incinerators which dispose of municipal solid waste by excluding waste originating with persons or entities outside the region. This out-of-region ban is permitted in order to allow a region to carefully monitor and control the capacity of its solid waste management facilities. An out-of-region ban must apply equally to all waste generated outside of the region's boundaries or the ban may be invalid under the Interstate Commerce Clause of the U.S. Constitution. The Act does exclude certain existing waste

source arrangements from the exercise of flow control under a "grandfather" clause and an impairment of contract clause. If a facility within a region has accepted waste from a specific source outside the region prior to July 1, 1991, the region may not prohibit that facility from continuing to accept waste from that source, unless the facility's acceptance of that waste significantly impairs the region's ability to execute its plan.

Intra-region flow control is permitted in order to address public health and safety and transportation management concerns in a coordinated manner, and to permit regions to guarantee a flow of waste as a revenue stream for financing bonds for municipal solid waste management facilities. It may be necessary for a region or authority, by resolution and subsequent adoption of ordinances by the counties and municipalities in the region, to regulate the flow of collected municipal solid waste generated within the region. The region or authority, after completing a public hearing process, must demonstrate in writing to the director of the state planning office that it has considered the utilization of any municipal solid waste management facility in existence within the regions on July 1, 1991, which meets the final federal Resource Conservation and Recovery Act (RCRA) Subtitle D regulations. Because there are no facilities within the Hickman County regional area, the demonstration to the state planning office will key on the following facts:

- existing facilities are environmentally unsound or inadequate to meet the region's ten-year capacity assurance plan;
- costs for the use of such facilities are inconsistent with comparable facilities within the state of Tennessee; or

- the existing facility is operating in a manner that is inconsistent with the plan; and
- the waste subject to flow control will be sent only to a facility or facilities that meet all state and federal regulations

### **13.2 Permit Application Review**

The Act also requires a municipal solid waste planning region with an approved plan, or a solid waste authority formed by the region, to review plans for a new solid waste disposal facility or incinerator to determine whether the proposed facility is consistent with the regional plan. With an approved regional plan in place, the region or authority must approve any application for a solid waste disposal facility or incinerator within the region as is consistent with the region's disposal needs before any permit is issued by the Commissioner of Environment and Conservation. An applicant for a permit for construction or expansion of a solid waste disposal facility or incinerator shall submit a copy of the application to the region at or before the time the application is submitted to the commissioner. The region shall review the application for compliance with the provisions of the Act, and shall conduct a public hearing prior to making the determination of compliance with the regional plan. The public hearing shall afford all interested persons an opportunity to submit written and oral comments, and the proceeding shall be recorded and transcribed. The region shall render a decision on the application within ninety days after receipt of a complete application. The region shall immediately notify the commissioner of its acceptance or rejection of an application.

The region may reject an application for a new solid waste disposal facility or incinerator or expansion of an existing solid waste disposal facility 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 state planning office. The region must document in writing the specific grounds on which the application is inconsistent with the approved plan. Where a region rejects an application, the commissioner shall not issue the permit unless the commissioner finds that the decision of the region is arbitrary and capricious and unsupported in the record developed before the region.

It is important to note also that the Act provides that a region or solid waste authority may not impair the obligations of contracts entered into before the date of approval of the region's plan.