# LEWIS COUNTY
# SOLID WASTE REGION PLAN

PREPARED FOR:
LEWIS COUNTY

PREPARED BY:
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MAY, 1994

# PART I

## EXECUTIVE SUMMARY

### General Description

This Municipal Solid Waste Regional Plan is developed for Lewis County as a single county region. The area is primarily rural covering 282 square miles. Hohenwald is the only incorporated municipality in the region.

Lewis County is approximately 65 miles southwest of Nashville and is accessible by Interstate Highway 65 to State Highway 412. Terrain in the area varies greatly from level farmland to steep hills covered with trees. Much of the land is undeveloped and 7% of the working population is in an agricultural business. Exhibit I-1 is a map showing political boundaries, major roads, railways and waterways in Lewis County.

### 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 later decided to pull out of the Quad County Region and become a single County.

Lewis County's existing landfill space is expired; therefore, they needed to temporarily haul to a private facility. After evaluating their options, Lewis County determined it was in the long term best interest of residents to build a transfer station and haul to a private facility.

**Summary of Regional Needs**

The City of Hohenwald 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, Lewis 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. Lewis County is not a large generator of waste and have 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 Lewis 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.
- Initiate a 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 Hohenwald
2. Convenience Center
3. Transfer Station

B. Disposal

1. Haul to Private Facility

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

The City of Hohenwald will collect solid waste as they have in the past. Waste collected from curb-side service will go directly to the new transfer station. Rural residents can drop their waste off at the new convenience center in Hohenwald or take it directly to the transfer station. The county is responsible for transportation from the convenience center to the transfer station.

Recyclable materials will be collected at both the convenience center in Hohenwald and transfer station site. Recyclable materials will be stored at the transfer station until they are sold. Household Hazardous Waste will have designated days for collection 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.

**Implementation Schedule**

Timetable and Milestones for Construction of Transfer Station

| | |
|---|---|
| • Survey Transfer Station Site | May 15-June 15, 1994 |
| • Environmental Assessments | June 15-30, 1994 |
| • Design Transfer Station | May 20-June 30, 1994 |
| • Submit Design Plans | June 20-30, 1994 |
| • Open bids/Award Contract | July 1-15, 1994 |
| • Construction | July 5-31, 1994 |
| • Start-up | July 15-31, 1994 |
| • Begin Operation | August 1-15, 1994 |

Timetable and Milestones for Construction of Convenience Center

| | |
|---|---|
| • Grant Applications | March 1-9, 1994 |
| • Sites Optioned | July 1-August 31, 1994 |
| • Survey Sites | July 1-31, 1994 |
| • Prepare Environmental Assessments | July 1-15, 1994 |
| • Grants Approved | July 1-15, 1994 |
| • Design Centers | June 1-July 31, 1994 |
| • Submit Design Plans | July 1-31, 1994 |
| • Open bids/Award Contract | August 1-20, 1994 |
| • Construction | August 15-September 30, 1994 |
| • Hire and Train Staff | September 1-30, 1994 |
| • Start-up for Center | September 15-October 15, 1994 |
| • Begin Operation | October 1994 |

**Estimated 10-Year System Costs**

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

**ANNUAL OPERATING EXPENSES FOR 1994-2003**

| Year | Class IV Landfill and Vehicles | Collection Centers | Transport and Disposal | Total |
|---|---|---|---|---|
| 1994 | $ 36,258 | $ 64,959 | $ 140,400 | $ 241,617 |
| 1995 | 72,516 | 129,917 | 280,800 | 483,233 |
| 1996 | 74,691 | 133,815 | 297,648 | 506,154 |
| 1997 | 76,933 | 137,829 | 315,507 | 530,269 |
| 1998 | 79,241 | 141,964 | 334,437 | 555,642 |
| 1999 | 81,617 | 146,223 | 354,504 | 582,344 |
| 2000 | 84,066 | 150,609 | 375,774 | 610,449 |
| 2001 | 86,588 | 155,128 | 398,320 | 640,036 |
| 2002 | 89,186 | 159,782 | 422,219 | 671,187 |
| 2003 | 91,861 | 164,575 | 447,552 | 703,988 |
| TOTAL | $ 772,957 | $ 1,384,801 | $ 3,367,161 | $ 5,524,919 |

# CHAPTER 1.0

## DESCRIPTION OF THE MUNICIPAL SOLID WASTE REGION

### 1.1 General Description

This Municipal Solid Waste Regional Plan is developed for Lewis County as a single county region. The area is primarily rural covering 282 square miles. Hohenwald is the only incorporated municipality in the region.

Lewis County is approximately 65 miles southwest of Nashville and is accessible by Interstate Highway 65 to State Highway 412. Terrain in the area varies greatly from level farmland to steep hills covered with trees. Much of the land is undeveloped and 7% of the working population is in an agricultural business. Exhibit I-1 is a map showing political boundaries, major roads, railways and waterways in Lewis County.

### 1.2 Rationale for Region Formation

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decided to join the group which is now known as the Quad County Regional Authority. Lewis County later decided to pull out of the Quad County Region and become a single County.

Lewis County's existing landfill space is expired; therefore, they needed to temporarily haul to a private facility. After evaluating their options, Lewis County determined it was in the long term best interest of residents to build a transfer station and haul to a private facility.

## 1.3 Institutional Structure

The Administrative Board for this municipal solid waste plan will consist of five members. Three members of the board will be appointed by Lewis County and the remaining two members will be appointed by the City of Hohenwald.

A municipal solid waste planning advisory committee shall 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 Lewis County is 9,096 people. Table I-1 shows the size, population and average population density of Lewis County.

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

| County | Area (Sq. Miles) | Population | Avg. Density Pop./sq.miles |
|---|---|---|---|
| Lewis | 282 | 9096 | 32.26 |
| Regional Total | 282 | 9096 | 32.26 |

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 59% of the population living in non-urban areas. Lewis County's only urban city is Hohenwald. 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:**

| County | URBAN | | RURAL | |
|---|---|---|---|---|
| | Population | % | Population | % |
| Lewis | 3729 | 41 | 5367 | 59 |
| Regional Total | 3729 | 41 | 5367 | 59 |

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-seven percent of the population is under the age of 18, fifty-eight percent is between 18 and 65 and fifteen 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 | 621 | 324 | 52 | 297 | 48 |
| 5-17 | 1858 | 994 | 53 | 864 | 47 |
| 18-44 | 3514 | 1751 | 50 | 1763 | 50 |
| 45-64 | 1858 | 875 | 47 | 983 | 53 |
| 65+ | 1396 | 576 | 41 | 820 | 59 |
| Regional Total | 9247 | 4520 | 49 | 4727 | 51 |

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

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

| | Number | % |
|---|---|---|
| Less than 9th Grade | 1643 | 40 |
| High School (1-4) | 1962 | 48 |
| College (1-4) | 331 | 9 |
| Post Graduate/Professional (>4) | 124 | 3 |
| Regional Total | 4060 | 100 |

The occupancy rate for housing units in this area is 87%. Of those units occupied, 24% are rented and 76% 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 | 2,802 | 2,512 | 2,071 | 441 |
| 1, Attached | 37 | 31 | 10 | 21 |
| MULTI-FAMILY 2 | 98 | 85 | 11 | 74 |
| 3-4 | 105 | 99 | 2 | 97 |
| 5-9 | 61 | 60 | 2 | 58 |
| 10-19 | 9 | 8 | 0 | 8 |
| 20-49 | 0 | 0 | 0 | 0 |
| 50 or more | 0 | 0 | 0 | 0 |
| Institutional (# of people) | 136 | | | |
| Mobile Home/Trailer | 791 | 700 | 553 | 147 |
| Other | 40 | 38 | 29 | 9 |
| Regional Total | 4,079 | 3,533 | 2,678 | 855 |

Over the next ten years the population in Lewis County is expected to decrease by about 5%. 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 |
|---|---|---|---|---|---|---|---|---|---|---|
| Lewis | 9047 | 8998 | 8949 | 8900 | 8852 | 8803 | 8756 | 8691 | 8627 | 8563 |
| Regional Total | 9047 | 8998 | 8949 | 8900 | 8852 | 8803 | 8756 | 8691 | 8627 | 8563 |

## 1.5 Economic Activity

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

Table I-7 shows the basic economic information for Lewis County in 1991. Total earnings for Lewis County were $ 91,968,000. Per capita income in Lewis County was $8,630.

**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 |
|---|---|---|---|---|---|---|
| Lewis | 9,196 | No | 3,798 | 91,968,000 | 8,630 | 21.0 |
| Regional Total | 9,196 | | 3,798 | 91,968,000 | 8,630 | 21.0 |

Most of the people in Lewis County have non-agricultural jobs. Of this component, manufacturing is the largest, with 38% 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 | Manufac-turing | Construc-tion | Trade | Finance | Service | Gov't | Transportation Public Utilities |
|---|---|---|---|---|---|---|---|
| Lewis | 1,349 | 140 | 578 | 196 | 600 | 451 | 213 |
| Regional Total | 1,349 | 140 | 578 | 196 | 600 | 451 | 213 |
| % | 38 | 4 | 16 | 6 | 17 | 13 | 6 |

Table I-9 gives the total number of agricultural employees in Lewis County. Lewis County has a small population employed in the agricultural vocation.

**Table I-9**
**AGRICULTURAL EMPLOYEES**

| County | Employment |
|---|---|
| Lewis | 262 |
| Regional Total | 262 |

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. Lewis County has less than 9,999 people; therefore, businesses with greater than 10 employees are included in the number of waste generators.

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

| County | Screening Criteria Applied | Number of Generators | Estimated Total Quantity of Waste |
|---|---|---|---|
| Lewis | Businesses with > 10 employees | 40 | Not available |
| Regional Total | | 40 | Not Available |

Table I-11 provides information on institutions housing more than 100 people. Lewis County does not have any institutions in this category.

**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 |
|---|---|---|---|
| Lewis | 0 | 0 | n/a |
| Regional Total | 0 | 0 | n/a |

Table I-12 addresses infectious waste management at facilities that have more than 50 beds. Lewis County has two facilities, both located in the City of Hohenwald. They are Lewis County Manor Nursing Home and Lewis County Community 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 | |
| Lewis | 2 | 132 | Offsite | BFI | unknown |
| | | 52 | Offsite | BFI | unknown |
| Regional Total | 2 | 184 | | | |

Sources of local revenues for Lewis 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* |
|---|---|---|---|---|---|---|
| Lewis | 1,106,000 | 739,000 | 0 | 6 | 0 | 0 |
| Regional Total | 1,106,000 | 739,000 | 0 | 6 | 0 | 0 |

Local tax revenues based on fiscal year 1993 are shown in Table I-14. Lewis County has added a wheel tax to their local tax base since 1991.

## 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 |
|---|---|---|---|---|---|---|
| Lewis | 65,130,000 | 1,361,000 | 42,600,000 | 852,000 | 8,200 | 140,000 |
| Regional Total | 65,130,000 | 1,361,000 | 42,600,000 | 852,000 | 8,200 | 140,000 |

*Including public utilities.

# CHAPTER 2.0

## ANALYSIS OF THE CURRENT SOLID WASTE MANAGEMENT SYSTEM

### 2.1 Waste Stream Characterization

Lewis County and the City of Hohenwald generated 9,312 tons or 1.01 tons per capita of solid waste in 1991. The average solid waste generation per person in Tennessee is 1.18 tons per year. Lewis County is 14% below Tennessee's average solid waste generation per person. This county currently does not provide green box service, and uncollected waste accounts for them being below the average.

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

| County | Tons Disposed | Population (1991) | Waste Disposed Per Capita |
|---|---|---|---|
| Lewis | 9,312 | 9,196 | 1.01 |
| Regional Total | 9,312 | 9,196 | 1.01 |

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. The waste stream in Lewis County vs. the State of Tennessee is provided below:

**Exhibit II-1**
**COMPARISON OF WASTE STREAM IN QUAD County REGION**

| Types of Waste | Lewis County | Tennessee |
|---|---|---|
| Residential | 40% | 37% |
| Industrial | 40% | 29% |
| Commercial | 20% | 27% |
| Special | 0% | 3% |
| Other | 0% | 0% |

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

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

| TONS PER YEAR | | | | | |
|---|---|---|---|---|---|
| County | Residential | Institutional/ Commercial | Non-Hazardous Industrial | Special | Other |
| Lewis | 3,725 | 3,725 | 1,862 | 0 | 0 |
| Regional Total | 3,725 | 3,725 | 1,862 | 0 | 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 Lewis County, the removal of yard and demolition waste would achieve a 17% reduction of materials going to Class I landfills.

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

| | Yard Waste (Clippings-leaves-grass) | | Sewage Sludge | | Construction Demolition | | Tires | | White Goods | |
|---|---|---|---|---|---|---|---|---|---|---|
| County | Y/N | Qty | Y/N | Qty | Y/N | Qty | Y/N | Qty | Y/N | Qty |
| Lewis | Y | 652 | Y | 200 | Y | 931 | N | 0 | Y | 93 |
| Regional Total | | 652 | | 200 | | 931 | | 0 | | 93 |

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**

| Waste Category | National % | Calculated Regional Tons |
|---|---|---|
| Paper & paperboard | 40.0 | 3,725 |
| Glass | 7.0 | 652 |
| Ferrous Metals | 6.5 | 605 |
| Aluminum | 1.4 | 130 |
| Other Non-Ferrous Metals | 0.6 | 57 |
| Plastics | 8.0 | 746 |
| Rubber & Leather | 2.5 | 234 |
| Textiles | 2.1 | 197 |
| Wood | 3.6 | 336 |
| Food Waste | 7.4 | 690 |
| Yard Waste | 17.6 | 1,640 |
| Misc. Inorganic Waste | 1.5 | 141 |
| Other | 1.7 | 159 |
| TOTAL MUNICIPAL SOLID WASTE | 100.0 | 9,312 |

Lewis County has areas that are not served by the current waste collection system. It is estimated that these unserved areas generate 758 tons of waste per year. Table II-5 shows quantities of unmanaged waste.

**Table II-5**
**UNMANAGED WASTE**

| County | Potential Waste Generation 1991 tpy | Actual Waste Disposed 1991 tpy | Unmanaged Waste 1991 potential actual tpy | Percent of Potential Total |
|---|---|---|---|---|
| Lewis | 10,070 | 9,312 | 758 | 7.53% |
| Regional Total | 10,070 | 9,312 | 758 | 7.53% |

## 2.2 Waste Collection and Transportation Systems

Collection

The total number of households requiring service is 3,943. Municipal service is provided in the City of Hohenwald for 1,843 homes and 175 businesses. Waste is picked up twice a week from residences and five times a week from businesses. Waste collection is provided by one private company for 160 homes and businesses.

Disposal facility

The City of Hohenwald operates a sanitary landfill located on State Highway 48 South within the city limits of Hohenwald. This facility has reached maximum capacity and is expected to close in the near future.

## 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

Recycle Today was organized in 1989 to collect recyclable materials in Lewis County. They operated three permanent unattended drop-off sites, with twelve 55 gallon drum containers at each site. In 1991, Recycle Today collected 128 tons of material and found markets for everything collected except glass and plastic. Listed below is a breakdown of materials collected.

| MATERIAL | TONS |
|---|---|
| Cardboard | 14 |
| Newsprint | 58 |
| Clear glass | 43 |
| Plastic | 6 |
| Steel Cans | 6 |
| Aluminum | 1 |
| TOTAL | 128 |

During 1992 they continued to collect recycled materials but had a difficult time selling them. Late 1992 they abandoned the program.

In addition to the drop-off sites, Lewis County has three commercial and industrial businesses that participate in recycling. V&W Ready Mix Concrete has been recycling sand, rock and cement since the 1960's. In 1991 they collected 500 tons of these materials and prevented them from disposal in the landfill. Boston Industrial Products diverted most of its waste to Hohenwald Resource Recovery to be boiled and converted to steam. Three hundred and fifty tons of waste were boiled in 1991 and reduced to 60 tons of ash that was disposed of in a Class II landfill. Walmart in the City of Hohenwald recovered 72 tons of cardboard and batteries and put them into the recycling stream.

Lewis County experienced some poor quality in items recovered for recycling. This waste had to be removed from the recycling stream and sent to the local landfill.

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

Composting

Presently there are no composting facilities operating in Lewis 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: Lewis | None | | | | |
| PLANNED: Lewis | None | | | | |
| Regional Total | | | | | |

Waste-To-Energy Incineration

Hohenwald Resource Recovery in Lewis County is a waste-to-energy facility. This facility accepts nonhazardous industrial waste, chipped brush and yard waste to produce steam for a local business. While the design capacity of the incinerator is 29,200 tons per year, it is currently burning 18,250 tons per year. All residuals produced are disposed in a privately owned Class II landfill. This facility has approximately 17 years remaining and will continue to operate in Lewis County. There are no planned facilities in the region.

**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: | | | | |
| Lewis | City of Hohenwald | 29,200 | 18,250 | 17 years |
| PLANNED FACILITIES: | | | | |
| Lewis | None | | | |

## 2.5 DISPOSAL FACILITIES - LANDFILLS AND BALEFILLS

Lewis 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) |
|---|---|---|---|---|---|
| Lewis | City of Hohenwald | Hwy 48 South | unknown | 30 | 3,900 |
| Regional Total | | | | 30 | 3,900 |

Lewis County's municipal solid waste landfill is expected to close in six months. 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 |
|---|---|---|---|---|
| Lewis | City of Hohenwald | 30 | 3,900 | 1994 |
| Regional Total | | 30 | 3,900 | |

Lewis County is not planning to build a new landfill. 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 | | | | | |
| Lewis | 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 | 11,700 | 0 | 11,700 |
| FY 1994 | 3,900 | 0 | 3,900 |
| FY 1995 | 0 | 0 | 0 |
| FY 1996 | 0 | 0 | 0 |
| 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

Lewis County

Total Lewis County

## 2.7 Revenues

Lewis County

Total Lewis County

## 2.8 Public Information and Education Programs

Lewis County has taken steps to make their citizens aware of solid waste issues and the need for recycling. The local newspaper has published articles to inform the

public of solid waste issues and general public education. The efforts put forth by Lewis County to educate their community are described below.

- Recycle Today sponsors educational programs in Hohenwald. This is a voluntary nonprofit organization supported in part by Lewis County and the City of Hohenwald.
- The Lewis County Herald has a circulation of 3191 readers and publishes articles regarding solid waste.
- Several schools participate in recycling aluminum cans. General Assembly school hosts a once a year school cleanup program and recycles school paper.
- Stan Able with Recycle Today has given classroom presentations at Lewis County Elementary.

As can be seen from the above list, Lewis 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

## 2.11 Strengths and Weaknesses of Existing System

A strength of the existing and planned systems is residents in the City of Hohenwald are provided curb-side pickup. Under the current system rural residents are not provided a disposal system since green boxes are not available. The rural areas can contract with a private hauler for waste disposal. In the planned system rural residents will have access to a transfer station/convenience center located at the existing landfill site or a convenience center in the City of Hohenwald. The convenience center meets the minimum requirement for service; however it assumes all rural residents come to Hohenwald on a regular basis.

# CHAPTER 3.0

## GROWTH TRENDS, WASTE PROJECTIONS AND PRELIMINARY SYSTEM STRUCTURE

### 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 |
|---|---|---|---|
| Lewis | 9,211 | 9,096 | 1.03 |
| Total | 9,211 | 9,096 | 1.03 |

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 |
|---|---|---|---|---|---|---|---|---|---|---|
| Lewis | 9161 | 9112 | 9062 | 9012 | 8964 | 8914 | 8866 | 8801 | 8713 | 8649 |
| Total | 9161 | 9112 | 9062 | 9012 | 8964 | 8914 | 8866 | 8801 | 8713 | 8649 |

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 |
|---|---|---|---|---|---|---|---|---|---|---|
| Lewis | 9478 | 9439 | 9400 | 9361 | 9324 | 9286 | 9250 | 9196 | 9122 | 9070 |
| Total | 9478 | 9439 | 9400 | 9361 | 9324 | 9286 | 9250 | 9196 | 9122 | 9070 |

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 |
|---|---|---|---|---|---|---|---|---|---|---|
| Lewis | 8261 | 7294 | 7264 | 7234 | 7205 | 7176 | 7148 | 7106 | 7024 | 6984 |
| Total | 8261 | 7294 | 7264 | 7234 | 7205 | 7176 | 7148 | 7106 | 7024 | 6984 |

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 Lewis County which would affect the waste stream. The final annual solid waste projections for Lewis 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 |
|---|---|---|---|---|---|---|---|---|---|---|
| Lewis | 8261 | 7294 | 7264 | 7234 | 7205 | 7176 | 7148 | 7106 | 7024 | 6984 |
| Total | 8261 | 7294 | 7264 | 7234 | 7205 | 7176 | 7148 | 7106 | 7024 | 6984 |

Based on yearly quantities displayed in Table III-8, the disposal needs for Lewis County over the next ten years is 72,696 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. The selected

means of disposal for Lewis County, is transporting municipal solid waste to a private facility on a permanent basis.

### 3.3 Evaluation Criteria for the Region

Lewis 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 finally withdrew from the region and formed a single county region transporting their waste to a private facility.

# 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 Lewis 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) |
|---|---|---|
| Lewis | 10,700 | 12,480 |
| Regional Total | 10,700 | 12,480 |

The regional per capita waste disposal for the base year 1989 is 1.17 (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 8,998. Twenty-five percent (25%) of the per capita disposal rate is 0.29 (tons/person/year). This means Lewis County must reduce its waste quantity by 2,609 tons for 1995.

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

Lewis County had a recycling program that was active for three years. It was abandoned in 1992 because of difficulty finding markets to sell the recycled material. In October 1994, their first transfer station/convenience center will open and recycle bins will be available at the center. Lewis County is in the process of designing a demolition landfill and will begin diverting demolition and construction waste by 1995.

The long term components of the waste reduction plan include expanded recycling programs which will divert waste from class I landfills and incinerators. Public education is critical to the success of these waste reduction program, 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.

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

| Material | Percent | Quantity |
|---|---|---|
| Paper & Paperboard | 40.0% | 1,044 |
| Glass | 7.0 | 183 |
| Ferrous Metals | 6.5 | 170 |
| Aluminum | 1.4 | 37 |
| Other Non-Ferrous Metals | 0.6 | 16 |
| Plastics | 8.0 | 209 |
| Rubber & Leather | 2.5 | 65 |
| Textiles | 2.1 | 55 |
| Wood | 3.6 | 94 |
| Food Waste | 7.4 | 193 |
| Yard Waste | 17.6 | 459 |
| Misc. Inorganic | 1.5 | 39 |
| Other | 1.8 | 45 |
| Total | 100.0% | 2,609 |

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 | 40 % | 1,044 |
| Industrial | 40 | 1,044 |
| Commercial | 20 | 521 |
| Special | 0 | 0 |
| Total | 100 % | 2,609 |

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 | 2,624 |
| 1995 | 2,609 |
| 1996 | 2,595 |
| 1997 | 2,581 |
| 1998 | 2,567 |
| 1999 | 2,553 |
| 2000 | 2,539 |
| 2001 | 2,520 |
| 2002 | 2,502 |
| 2003 | 2,483 |

Lewis County expects to achieve waste reduction goals by recycling and by diverting waste to a 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 | | 128 | 0 | | | 128 |
| 1992 | | 0 | 0 | | | 0 |
| 1993 | | 0 | 0 | | | 0 |
| 1994 | | 426 | 0 | | | 426 |
| 1995 | | 1,044 | 1,565 | | | 2,609 |
| Subtotal | | 1,598 | 1,565 | | | 3,163 |
| 1996 | | 1,038 | 1,557 | | | 2,595 |
| 1997 | | 1,032 | 1,549 | | | 2,581 |
| 1998 | | 1,027 | 1,540 | | | 2,567 |
| 1999 | | 1,021 | 1,532 | | | 2,553 |
| 2000 | | 1,016 | 1,523 | | | 2,539 |
| 2001 | | 1,008 | 1,512 | | | 2,520 |
| 2002 | | 1,001 | 1,501 | | | 2,502 |
| 2003 | | 993 | 1,490 | | | 2,483 |
| Total | | 9,734 | 13,769 | | | 23,503 |

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

## 4.4 Other Waste Reduction Strategies

### 4.4.1 Diverting Demolition Waste

Lewis County is finalizing plans on a new Class IV demolition landfill. They expect to divert 15% of their waste stream to this new facility. See Table IV-2 for estimated quantities to be diverted each year. The County plans to staff the demolition landfill with the operator from the existing sanitary landfill since it is scheduled to close soon.

### 4.4.2 Capital Costs

**Landfill Construction**

| **Expenses** | **Amount** |
|---|---|
| Clearing and Grubbing | $ 3,000 |
| Cell excavation (assume 20') | 65,000 |
| Buffer Preparation | 10,000 |
| Sedimentation Basins | 15,000 |
| Finish Grade/Cap (18"@$3.00/cu.yd.) | 7,200 |
| Topsoil Cover (12"@$12.00/cu.yd.) | 20,000 |
| Groundcover (seed,fertilizer,etc.) | 1,000 |
| Post-Closure Plan | 3,000 |
| Quality Assurance | 3,000 |
| Site Maintenance (roadways) | 2,000 |
| Sub-total | $ 129,200 |
| **Vehicles** | |
| Dozer (1) | $ 120,000 |
| Total Capital Costs | $ 249,200 |

### 4.4.3. Operating Expenses

Capital expenses for a Class IV Demolition Landfill are reoccurring each year. Lewis County needs 0.33 acres/year developed to handle the construction and demolition waste generated.

| **Expenses** | **Amount** | |
|---|---|---|
| Landfill Construction | | |
| 0.33acres/year x $129,200 | $ 42,636 | |
| Subtotal | | $ 42,636 |
| Vehicles | | |
| Amortization 10 Years @ 8% | $ 17,880 | |
| Depreciation 10 years | 12,000 | |
| Subtotal | | $ 29,880 |
| Total | | $ 72,516 |

Exhibit IV-4 projects operating expenses for a Class IV Construction Demolition Landfill operated by Lewis County.

**EXHIBIT IV-4**
**ANNUAL OPERATING EXPENSES FOR 1994-2003**

| YEAR | CLASS IV LANDFILL | VEHICLES |
|---|---|---|
| 1994 | 21,318 | 14,940 |
| 1995 | 42,636 | 29,880 |
| 1996 | 43,915 | 30,776 |
| 1997 | 45,233 | 31,700 |
| 1998 | 46,590 | 32,651 |
| 1999 | 47,987 | 33,630 |
| 2000 | 49,427 | 34,639 |
| 2001 | 50,910 | 35,678 |
| 2002 | 52,437 | 36,749 |
| 2003 | 54,010 | 37,851 |
| TOTAL | $ 454,463 | $ 318,494 |

## 4.5 Data Collection and Annual Progress Reporting

Lewis County has scales at the landfill facility to weigh demolition waste. 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 Hohenwald provides curb-side 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.

### 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.

### 5.3 Proposed Waste Collection

Under this plan the region will provide curb-side service to the City of Hohenwald, a transfer station/convenience center at the existing landfill and a convenience center in Hohenwald for rural areas.

Curb-side Service

Curb-side service will operate as it has in the past for the City of Hohenwald under this regional plan.

Convenience Center

Only one convenience center is required to meet the minimum level of service. Lewis County has decided to locate their convenience center in Hohenwald, since most

people living in rural areas of the county come to Hohenwald to work or shop. The estimated capital cost for this facility is $50,000.

Transfer Station

A transfer station/convenience center is in the design phase. This facility will be located at the existing landfill site and is estimated to cost $375,000.

## 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 curb-side collection as it has in the past, and provide at least one convenience center. In the Spring of 1994, Lewis County applied for grant money to offset the capital cost of the convenience center. The maximum amount available per county through the grant program is $50,000.

Timetable and Milestones for Construction of Convenience Center

| | |
|---|---|
| • Grant Applications | March 1-9, 1994 |
| • Sites Optioned | July 1-August 31, 1994 |
| • Survey Sites | July 1-31, 1994 |
| • Prepare Environmental Assessments | July 1-15, 1994 |
| • Grants Approved | July 1-15, 1994 |
| • Design Centers | June 1-July 31, 1994 |
| • Submit Design Plans | July 1-31, 1994 |
| • Open bids/Award Contract | August 1-20, 1994 |
| • Construction | August 15-September 30, 1994 |
| • Hire and Train Staff | September 1-30, 1994 |

| | |
|---|---|
| • Start-up for Center | September 15-October 15, 1994 |
| • Begin Operation | October 1994 |

Timetable and Milestones for Construction of Transfer Station

| | |
|---|---|
| • Survey Transfer Station Site | May 15-June 15, 1994 |
| • Environmental Assessments | June 15-30, 1994 |
| • Design Transfer Station | May 20-June 30, 1994 |
| • Submit Design Plans | June 20-30, 1994 |
| • Open bids/Award Contract | July 1-15, 1994 |
| • Construction | July 5-31, 1994 |
| • Start-up | July 15-31, 1994 |
| • Begin Operation | August 1-15, 1994 |

Integration of the Collection System with Recycling and Problem Waste Collection, Storage, and Transportation

The City of Hohenwald will collect solid waste as they have in the past. Waste collected from curb-side service will go directly to the new transfer station. Rural residents can drop their waste off at the new convenience center in Hohenwald or take it directly to the transfer station. The county is responsible for transportation from the convenience center to the transfer station.

Recyclable materials will be collected at both the convenience center in Hohenwald and transfer station site. Recyclable materials will be stored at the transfer station until they are sold. Household Hazardous Waste will have designated days for collection 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

Capital Costs

The estimated initial construction and annual operating costs are developed within this section. A table of annual operating expenses for the ten year planning period is also provided in this section.

**Convenience Center/Transfer Station:**

| | |
|---|---|
| Lewis County | |
| Transfer Station | $ 375,000 |
| Convenience Center with Dumpsters | 50,000 |
| Total | $ 425,000 |

Annual Operating and Maintenance Costs

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

**Collection Center and Transfer Station:**

| | |
|---|---|
| Wages: | |
| Site Superintendents(2) | $ 30,000 |
| Maintenance & Repair | 7,000 |
| Supplies | 1,250 |
| Insurance | 2,500 |
| Fuel | 3,750 |
| Miscellaneous | 2,500 |
| Amort. conven. center and transfer station $333,000 at 8% for 10 yrs. | 49,617 |
| Deprec. conven. center and transfer station $333,000 for 10 yrs. | 33,300 |
| Total | $ 129,917 |

Exhibit V-2 uses 1994 as the base year and projects the annual operating expenses to the year 2003. A 3% inflation rate is used for these projections.

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

| YEAR | COLLECTION CENTERS |
|---|---|
| 1994 | $ 64,959 |
| 1995 | 129,917 |
| 1996 | 133,815 |
| 1997 | 137,829 |
| 1998 | 141,964 |
| 1999 | 146,223 |
| 2000 | 150,609 |
| 2001 | 155,128 |
| 2002 | 159,782 |
| 2003 | 164,575 |
| TOTAL | $ 1,384,801 |

## 5.7 Financing Plan

- financing capital costs

  See Chapter 11 Section 11.6

- funding annual operating costs

All households in Lewis 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 11.

# CHAPTER 6.0

## RECYCLING

### 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 2,609 tons per year or 0.29 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

The transfer station at the existing landfill site is the focal point for recycling in Lewis County. Recyclables will be accepted at both the convenience center and the transfer station. Those collected at the convenience center will be transported to the transfer station and prepared for market. Lewis County needs to develop markets for the recovered materials.

Construction of the planned facilities is summer 1994 with a completion date of October 1994. These facilities are estimated to collect 5,977 tons of solid waste per year. Assuming 15% of the waste is recycled, then 897 tons will be diverted from their waste stream.

The staffing and budget for recycling is incorporated in the costs for the convenience center and transfer station. Refer to Chapter 11 for costs.

## 6.3 Implementation Plan and Progress Assessment

Upon completion of the facilities in October 1994, Lewis County will begin their recycling program. The transfer station is equipped with scales to weigh recycled materials sold to markets. Lewis County will complete the form Quarterly Inventory of Recycling Operations provided by the Division of Solid Waste Assistance to document progress of their recycling efforts.

# CHAPTER 7.0

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

### 7.1 Regional Needs

Lewis 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 transport their municipal solid waste to a private landfill facility.

# CHAPTER 8.0

## DISPOSAL CAPACITY

### 8.0 General

Lewis County has chosen to transport their municipal solid waste to a private landfill facility. Their existing landfill is full and they currently do not have a Subtitle D permitted landfill.

### 8.1 Transport to a Private Landfill

#### 8.1.1 Capital Costs

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

#### 8.1.2 Operating Expenses

| | |
|---|---|
| Transport to Disposal Facility | |
| 7,800 tons x $ 11.00 | $ 85,800 |
| Disposal Costs | |
| 7,800 tons x $ 25.00 | $195,000 |
| Total | $280,800 |

Exhibit VIII-1 projects operating expenses for Lewis County to transport MSW to a private facility. The private facility being considered provides one year contracts only. An inflation rate of 6% is used since costs are likely to escalate in future years.

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

| YEAR | TRANSPORT | DISPOSAL |
|---|---|---|
| 1994 | 42,900 | 97,500 |
| 1995 | 85,800 | 195,000 |
| 1996 | 90,948 | 206,700 |
| 1997 | 96,405 | 219,102 |
| 1998 | 102,189 | 232,248 |
| 1999 | 108,321 | 246,183 |
| 2000 | 114,820 | 260,954 |
| 2001 | 121,709 | 276,611 |
| 2002 | 129,011 | 293,208 |
| 2003 | 136,752 | 310,800 |
| TOTAL | $1,028,855 | $2,338,306 |

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

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

| YEAR | DEMAND: Tons of Waste Requiring Disposal | SUPPLY: Existing & Planned Capacity | Surplus (+) | Shortfall (-) |
|---|---|---|---|---|
| 1993 | 9,517 | 13,417 | 3,900 | |
| 1994 | 9,478 | 0 | | - 5,578 |
| 1995 | 9,439 | 0 | | - 9,439 |
| 1996 | 9,400 | 0 | | - 9,400 |
| 1997 | 9,361 | 0 | | - 9,361 |
| 1998 | 9,324 | 0 | | - 9,324 |
| 1999 | 9,286 | 0 | | - 9,286 |
| 2000 | 9,250 | 0 | | - 9,250 |
| 2001 | 9,196 | 0 | | - 9,196 |
| 2002 | 9,122 | 0 | | - 9,122 |
| 2003 | 9,070 | 0 | | - 9,070 |

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

| YEAR | 1. | 2. | 3. | 4. | 5. | 6. | REGIONAL TOTAL |
|---|---|---|---|---|---|---|---|
| 1993 BASE YEAR | + 3,900 | | | | | | + 3,900 |
| 1994 | - 5,578 | | | | | | - 5,578 |
| 1995 | - 9,439 | | | | | | - 9,439 |
| 1996 | - 9,400 | | | | | | - 9,400 |
| 1997 | - 9,361 | | | | | | - 9,361 |
| 1998 | - 9,324 | | | | | | - 9,324 |
| 1999 | - 9,286 | | | | | | - 9,286 |
| 2000 | - 9,250 | | | | | | - 9,250 |
| 2001 | - 9,196 | | | | | | - 9,196 |
| 2002 | - 9,122 | | | | | | - 9,122 |
| 2003 | - 9,070 | | | | | | - 9,070 |

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

# CHAPTER 9.0

## PUBLIC INFORMATION AND EDUCATION

### 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 Lewis 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 an 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

Lewis 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

### 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

Lewis County will be responsible for the convenience centers.

## 10.2 Waste Tires

Lewis County tire storage site is located immediately adjacent to the existing landfill on land owned by the City of Hohenwald. It is estimated the annual generation of tires is 20,000. The maximum storage capacity is 25,000 tires. Lewis 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 Lewis County's convenience center/transfer station is scheduled for completion fall 1994. Lewis 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). Lewis County has applied for the used oil grant to offset the equipment costs.

## 10.4 Lead Acid Batteries

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

## 10.5 Litter

Lewis County received litter grants in past years. The grant money was mainly used to subsidize salaries of employers who collected litter. The adopt-a-highway program is also active in Lewis 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

### 11.1 System Definition

After significant consideration, the Lewis 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 Lewis 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. However, a motivating factor driving the County's decision is the anticipated expiration date of their existing disposal facility. The City of Hohenwald currently owns and operates the only municipal waste disposal facility in Lewis County, but Hohenwalds landfill is expected to reach maximum capacity by July 15, 1994. Faced with the immediately impending expiration of their existing disposal facility as well as the protracted length of time which would be required to either implement a regional waste plan or develop another local facility which would meet the new Subtitle D requirements, the County opted to maintain its status as a single county region and transport its waste to a private facility for processing and disposal. After evaluating two options for private disposal, the County has tentatively elected to allow Waste Management to transport their municipal waste to the Waste Management Facility in Benton County. Lewis County is in the process of

developing a Class IV facility for disposal of their demolition waste (estimated to be approximately 15% of the total waste stream).

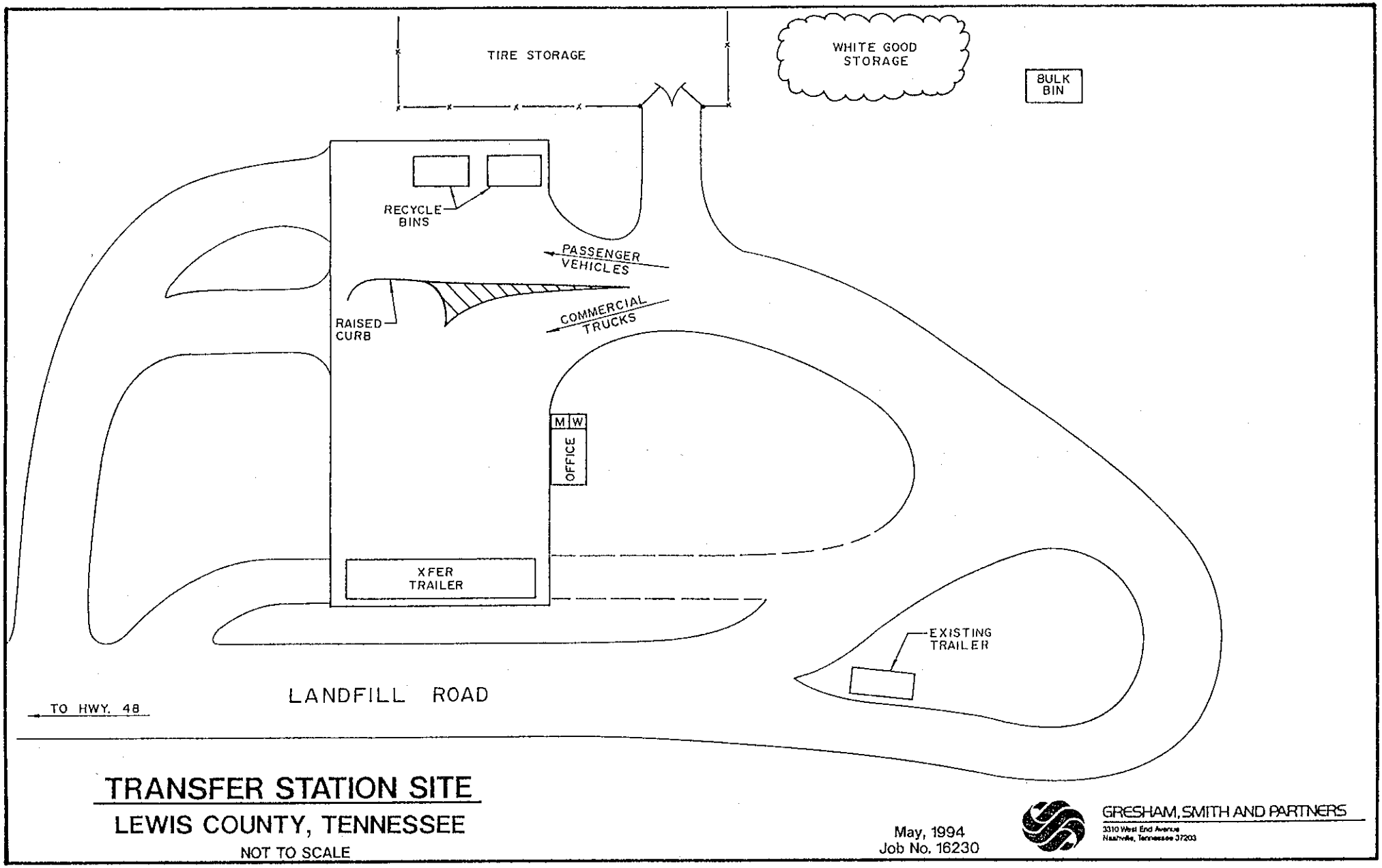
## 11.2 Collection and Transfer

As noted earlier in the report, the demographics and land-use throughout the county is fairly similar. Lewis County is bisected by a series of two-lane state highways (State Routes 48 and 100/20) 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.

In order to provide a facility to enable convenient access for both the existing waste haulers within Lewis County (predominantly the City of Hohenwald) as well as the transfer equipment proposed by Waste Management, the County has elected to construct a transfer station. A preliminary site layout for the proposed transfer station site is shown in Exhibit 11-1.

The transfer station will be constructed at the existing sanitary landfill and will include the following components:

- Bulk bin for large items such as furniture
- Storage area for white goods
- Recycle bins
- Building with tipping floor with separate access for passenger vehicles and commercial trucks
- 130 yard$^3$ transfer trailer
- Office facility for operating personnel




## TRANSFER STATION SITE

LEWIS COUNTY, TENNESSEE

NOT TO SCALE

May, 1994
Job No. 16230

GRESHAM, SMITH AND PARTNERS
3310 West End Avenue
Nashville, Tennessee 37203

# EXHIBIT 11-1

TABLE 11-1

# LEWIS COUNTY SOLID WASTE STUDY

## LEWIS COUNTY POPULATION & WASTE LOAD PROJECTIONS

| CONVENIENCE CENTER | 1990 POPULATION | 1995 POPULATION | 1995 WASTE LOAD C.Y./YR. | 1995 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. |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| TOTAL | 9,247 | 9,892 | 36,110 | 695 | 10,197 | 37,215 | 715 | 10,542 | 38,471 | 740 | 11,107 | 40,545 | 780 |

PREPARED BY: GRESHAM, SMITH & PARTNERS

Utilities are currently available to the site, and the existing access road will be paved to the specification required to support maximum weight hauls.

The estimated project cost for construction of the proposed transfer station is given as follows:

**TABLE 11-2**

**PRELIMINARY COST ESTIMATE**
**FOR**
**LEWIS COUNTY TRANSFER STATION**

| Item | Description | Amount |
|---|---|---|
| 1. | Site Grading and Development | $ 8,000 |
| 2. | Paving | 32,000 |
| 3. | Gravel | 8,000 |
| 4. | Building Pad/Tipping Floor | 50,000 |
| 5. | 130 foot x 60 foot Building | 200,000 |
| 6. | Utilities | 4,000 |
| 7. | Bulk Bins | 12,000 |
| 8. | Recycle Area | 11,000 |
| 9. | Office Area | 25,000 |
| 10. | Landscaping | 5,000 |
| | SUBTOTAL | $ 355,000 |
| | SURVEYING AND ENGINEERING | 15,000 |
| | CONTINGENCIES | 5,000 |
| | **TOTAL** | $ 375,000 |

## 11.3 Convenience Centers

The County has one relatively densely populated area within the corporate limits of the City of Hohenwald. The single urban area is surrounded by rural areas of

moderate to sparse population. However, approximately 60 percent of the population base in the County is spread throughout the rural parts of the county from which there is sometimes significant distance to a major population center. The members of the Sanitation Board have concluded that it will be necessary to construct a convenience center within the Hohenwald corporate limits and in an accessible location to allow county residents to dispose of their waste and to avoid "overloading" the existing bins set aside for existing commercial development. A diagram and a cost estimate for the proposed convenience center are given in Exhibit 11-2 and Table 11-3, respectively.

**TABLE 11-3**

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

| Item | Description | Amount |
|---|---|---|
| 1. | Grading | $ 1,000 |
| 2. | Access Road | 1,000 |
| 3. | Gravel: 1,700 S.Y. at $4.00 | 6,800 |
| 4. | Fence: 500 L.F. at $10.00 | 5,000 |
| 5. | Six (6) C.Y. Dumpsters: 15 at $600.00 | 9,000 |
| 6. | Recycle Bins: 2 at $5,500.00 | 11,000 |
| 7. | Bulk Bins: 1 at $6,000.00 | 6,000 |
| 8. | Building | 2,000 |
| 9. | Lighting and Electrical | 2,000 |
| 10. | Land Acquisition | 5,000 |
| 11. | Miscellaneous | 1,200 |
| | **TOTAL** | $ 50,000 |

## 11.4 Implementation Schedule

### 11.4.1 Individual Convenience Center

The implementation schedule for the Individual Convenience Center is given as follows:

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

### 11.4.2 Lewis County Program

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

- Plan approved by Regional Board and Lewis County Commission
- Facility construction begins
- Off-site infrastructure development begins
- Off-site infrastructure development complete
- Facility construction complete
- Facility start-up procedures
- Facility in operation
- State approves Regional Plan
- Regional Authority formed and responsibility for management transferred

## 11.5 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 college 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 Lewis 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 - 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. Transfer Station

a. Operator (1) - Individual with experience in operation of heavy machinery, particularly excavating equipment. The Operator should be familiar with equipment operating techniques. This person must have a minimum of eight years operating experience and must be familiar with all federal and state criteria for solid waste facility 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 facility components and their function and operation. This person is scheduled to be "on board" during bidding procedures for 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 four 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. 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.

## 11.6 Funding Sources

### 11.6.1 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.

### 11.6.2 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.

### 11.6.3 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.

### 11.6.4 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.

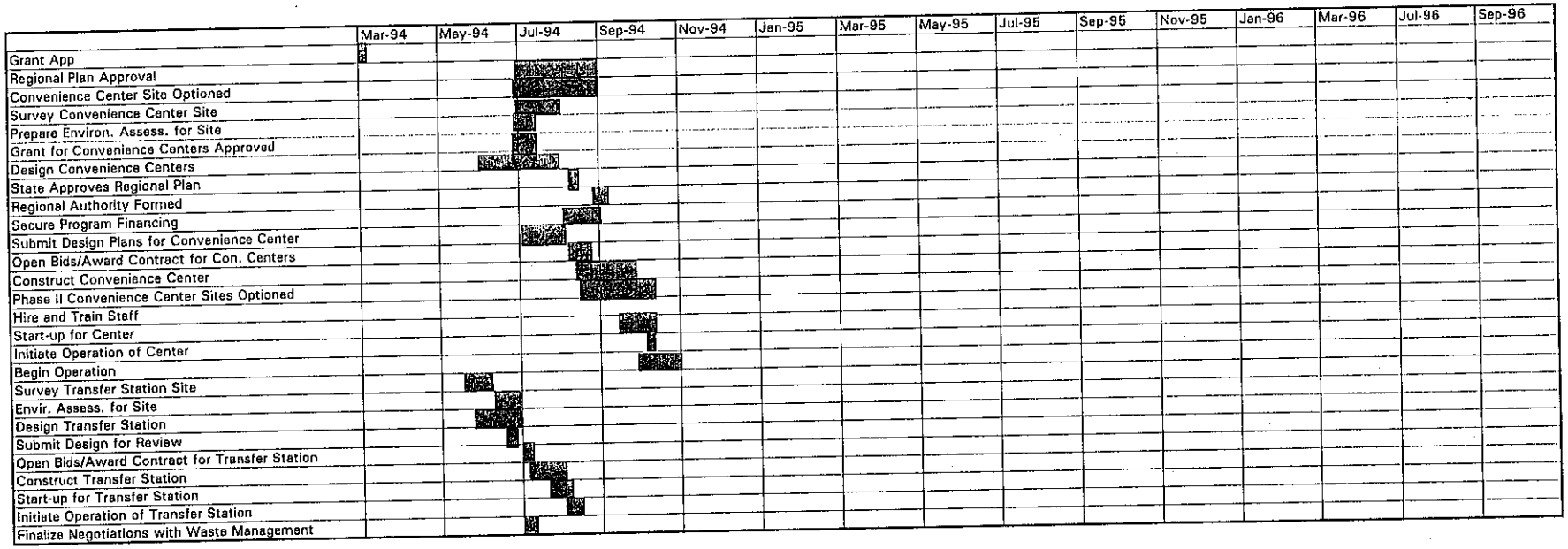
Bonds are an unlimited source of money. The local government determines maximum amount of the bonds. They are sometimes used to complement funding from other sources, particularly grant funding.

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.

### 11.6.5 Summary of Funding Options

Given the immediacy of the solid waste problem confronting Lewis County, there is not sufficient time to apply for state or federal funds which might be available to assist in off-setting the initial capital cost. Therefore, it must be assumed 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 _____. The implementation program reflecting the 10-year activities is given in Table _____.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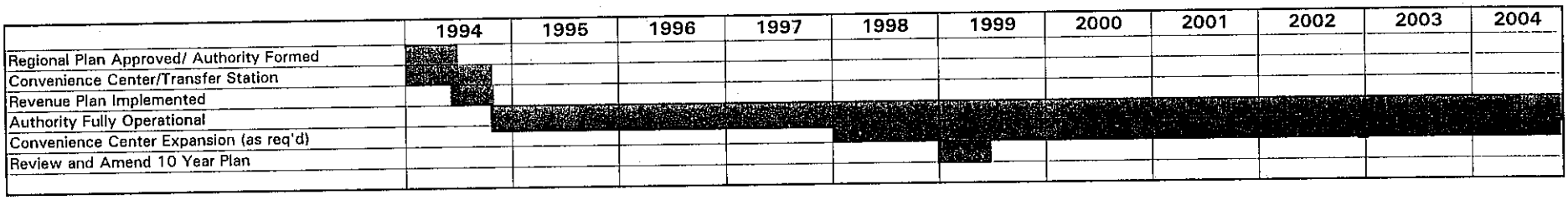
Grant App
Regional Plan Approval
Convenience Center Site Optioned
Survey Convenience Center Site
Prepare Environ. Assess. for Site
Grant for Convenience Centers Approved
Design Convenience Centers
State Approves Regional Plan
Regional Authority Formed
Secure Program Financing
Submit Design Plans for Convenience Center
Open Bids/Award Contract for Con. Centers
Construct Convenience Center
Phase II Convenience Center Sites Optioned
Hire and Train Staff
Start-up for Center
Initiate Operation of Center
Begin Operation
Survey Transfer Station Site
Envir. Assess. for Site
Design Transfer Station
Submit Design for Review
Open Bids/Award Contract for Transfer Station
Construct Transfer Station
Start-up for Transfer Station
Initiate Operation of Transfer Station
Finalize Negotiations with Waste Management

# 10 YEAR IMPLEMENTATION SCHEDULE



# CHAPTER 13.0

## FLOW CONTROL AND PERMIT APPLICATION REVIEW

### 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 Lewis 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 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.

# Lewis County Government

Terry W. Bunch, County Executive

Minutes of Solid Waste Forum

A Solid Waste Forum was held at the Lewis County Courthouse Monday, March 7, 1994 at 6:00 p.m. in the Courtroom. A total of forty-nine people registered in attendance with a few more that failed to sign in. Also in attendence was fifteen County Commissioners.

Terry Bunch, Lewis County Executive, chaired the meeting. Mr. Bunch led the discussion beginning with the passage of the 1991 Solid Waste Plan and continuing through Lewis County's ten year plan of action for managing it's solid waste. Included in the discussion was demographics, waste stream characteristics, and establishment and abandonment of a multi-county region.

Also included in the discussion was a plan on waste reduction to meet our 25% reduction goal. Recycling and other reduction ideas were discussed along with how education will play a big part in Lewis County's plan.

Finally, lengthy discussion was held on actual disposal methods. Explanation was given on three years of planning and consideration on landfilling, incineration, and transferring with a private carrier. The audience agreed that the transportation of waste out of county was the best alternative.

The plan was summed up to include collection, problem waste, reduction education and disposal. After a forty-five minute presentation questions were asked ans suggestions were taken. Meeting adjourned at 6:55 p.m.

# Solid Waste Forum
## 3-7-94

| | NAME | Address |
|---|---|---|
| 1. | TOMMY HASKINS | 106 HIGHLAND ST. HOHENWALD |
| 2 | Michael Traugot | 84 the Farm Summertown |
| 3 | Josh Carroll | 114 Bluebird Road Summertown TN. |
| 4 | Aaron Carroll | 125 Drake Lane Summertown |
| 5 | Dadii Owen | 950 Buffalo Rd. Hoh |
| 6 | Dot Collier | F1737 Waynesboro Hwy |
| 7 | Byrne K. Dunn | 617 Oakdale Dr. |
| 8 | James R. Adams | 1337 summer town Hwy |
| 9 | Dina A. Adams | 1337 Summertown Hwy |
| 10 | Jewell Breece | 1309 Summer Town Hwy |
| 11 | Edna Potts | 428 Drake Lane Summertown T. |
| 12 | Davi Potts | 428 Drake Lane Summertown, Ten |
| 13 | Webb Escue | 201 Webb Road Summertown |
| 14 | Loese Escue | 201 Webb Road Summertown Tn |
| 15 | P. C. Potts | 116 Willard Pigg Rd. Summertown, TN |
| 16 | Sheron Potts | 116 " " " " " " |
| 17 | Wallace Jennings | 263 Drake Lane Summertown Tn |
| 18 | Shelby Jennings | 263 Drake Lane Summertown Tn |
| 19 | Lee Mercer | 478 Old Linden Rd |
| 20 | Randy Mercer | 478 old Linden Rd |
| 21 | Pop Duncan | 1025 Hohenwald. |
| 22 | William Brown | 895 Buffalo Rd Hohenwald |
| 23 | Bill Webb | 854 Buffalo Rd Hohenwald |
| 24 | Irene Mayberry | 612 Beverly Hohenwald |
| 25 | Renee Leonard | P.O. Box 58 Hoh. |
| 26 | Elaine Bromley | 484 Wildcat Hollow |
| 27 | Dorothy Sharpe | 514 W. Main St. Hoh |

28 Wilson Sharpe 514 W. Main Hoh
29 Alton Hinson 572 Buffalo Rd.
30 Ludie Matthews 373 Arkansas Rd.
31 Donald Matthews 373 Arkansas Rd.
32 Arbiedene Foster 773 Tunn Pipe Rd.
33 Betty Jo Stewart 752 Tunn Pipe Rd Lenoy Tenn
34 Cindy Stewart 752 " " " " "
35 John W. Schwendimann P.O. Box 312 Hohenwald, Tn
36 Jerry W. Marshall 423 Swayne Ave Hohenwald
37 Fred Grimes 408 Park Ave N. Hohenwald
38. Michael Dyer Summertown Tenn.
39. Jimmy A. Below 155 Bluebird RD., Summertown, TN. 38483
40. Rosemary E. Below 155 Bluebird Rd. Summertown, TN 38483
41 Sandra Buttler 223 " " " " 38483
42 Braden L. Hinson 182 Charles McCleave Road 38462
43 Ed Hunt 6:39pm Finley, Tn. 37096
44. Ruby Barker 1350 Stanton Hollow Hohenwald
45. Jim Hobbs P.O. Box 421 Hohenwald
46. Billy K. Edwards
47. Mary Bryant Centerville Tenn
48. Valerie Epstein 184 Claude Carroll Rd, Hohenwald
49

STATE OF TENNESSEE
Lewis County

June 20, 1994
DATE

# Lewis County Board of Commissioners

# RESOLUTION

06-08-94
No. _____

**Solid Waste Plan**

WHEREAS, the Lewis County Commission has been involved in the planning and development of the Municipal Solid Waste Regional Plan; and,

WHEREAS, the State of Tennessee passed the "Solid Waste Management Act of 1991" requiring each county to develop a solid waste plan; and,

WHEREAS, this plan meets state requirements and will be used by a municipal solid waste board to ensure to the citizens of Lewis County that our solid waste will be managed properly;

BE IT NOW RESOLVED, by the Lewis County Board of County Commissioners meeting in regular session this 20th day of June, 1994, that the plan composed by Gresham, Smith and Partners entitled Lewis County Solid Waste Region Plan, be and is hereby adopted for Lewis County.

WE, THE UNDERSIGNED COMMISSIONERS, move the adoption of the above resolution.

Commissioner Gene Shockley moved to adopt the resolution

Commissioner Charles T. Tilley seconded the motion

VOTING IN FAVOR 15 VOTING AGAINST 0

ATTEST:

Kenneth R. Turnbow
Kenneth R. Turnbow, County Clerk

APPROVED:

Terry W. Bunch
Terry W. Bunch, County Executive

STATE OF TENNESSEE
LEWIS COUNTY

I, THE UNDERSIGNED COUNTY CLERK, DO HEREBY CERTIFY THIS TO BE A TRUE COPY OF THE ORIGINAL OF THIS INSTRUMENT

Kenneth R. Turnbow
KENNETH R. TURNBOW, COUNTY CLERK