elig. letter sent: 6/1/93

See file for amend 1

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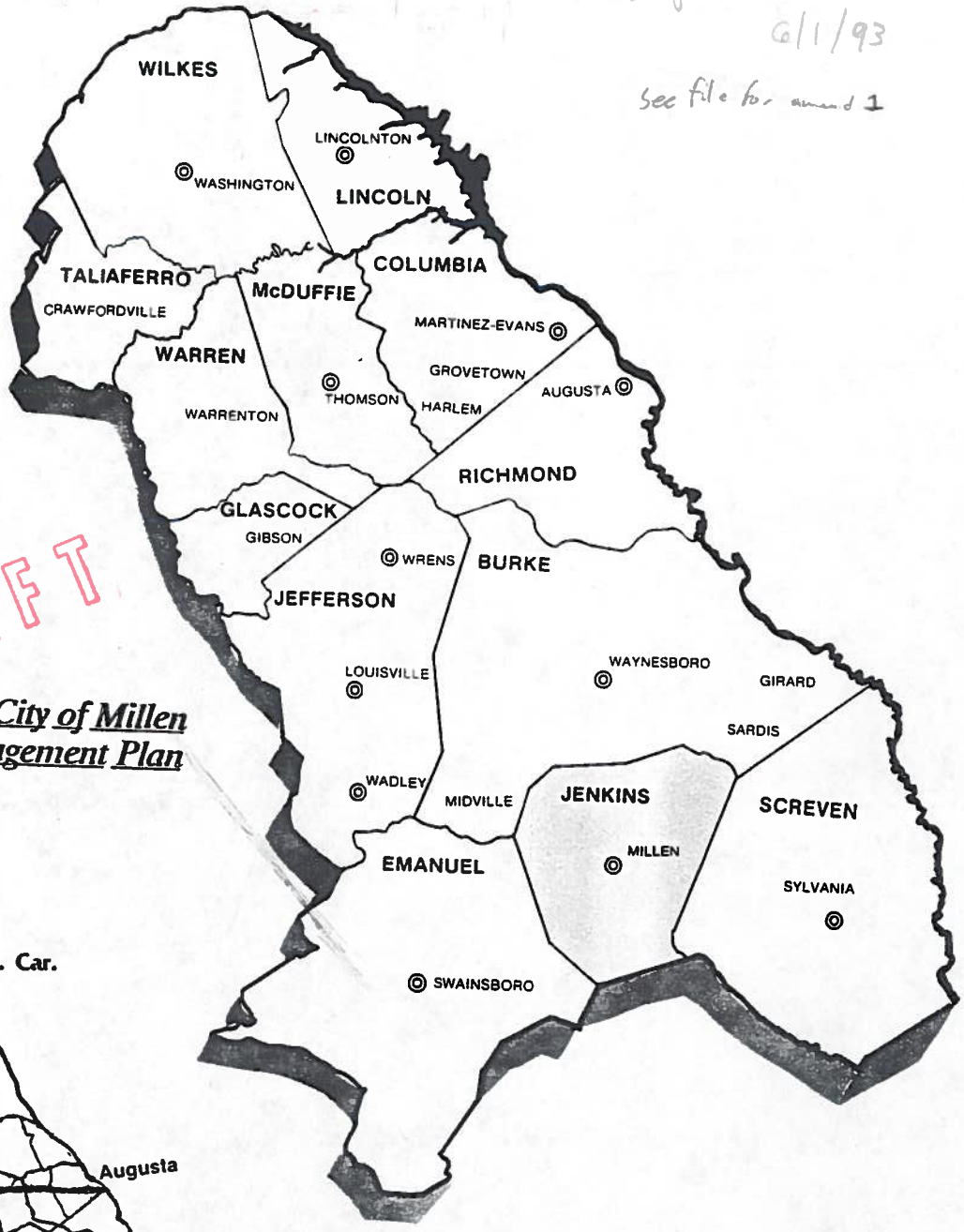
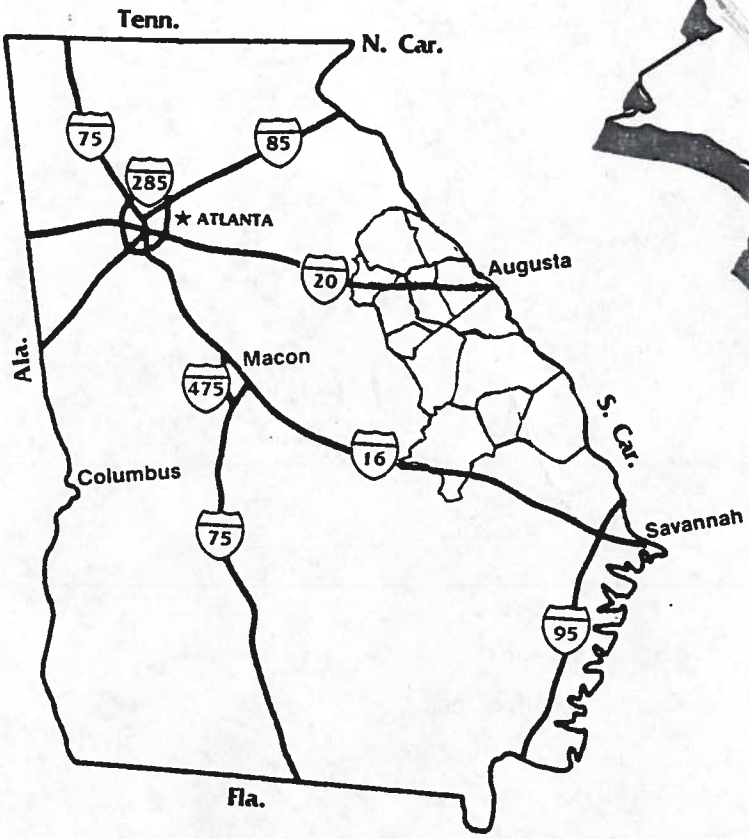
Jenkins County - City of Millen Solid Waste Management Plan





Jenkins County
in the Heart of the
Central Savannah River Area:
"Georgia's Better Alternative"

Joint Jenkins County - City of Millen Solid Waste Management Plan: 1992-2002

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Maps by:
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June, 1992

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NOTE: All Maps are attached at the end of the Plan.

INTRODUCTION

The term "solid waste" includes four categories of waste generated in Jenkins County: municipal (this refers to solid waste in both cities and counties), construction/demolition, inert, and industrial. These types of wastes vary in composition, potential environmental and health related problems, and management requirements. Although each of these will be discussed in this plan, the emphasis is on municipal solid waste in that this waste is currently presenting the most concerns and requires more stringent and expensive management efforts.

Municipal solid waste, or what we commonly refer to as "garbage" or "trash", is more accurately defined as the combined residential and nonresidential (institutional, commercial, governmental, and industrial waste which is co-managed with residential and nonresidential waste) solid waste generated and handled in a given city or county area. It does not generally include other types of solid waste such as industrial or agricultural waste which are handled separately. Municipal solid waste includes food scraps, packaging, material, yard waste, discarded appliances, used tires, and other similar items. In Jenkins County, municipal solid waste is collected by the county and city governments and taken to the Jenkins County Landfill for disposal.

The concern with municipal solid waste is that, if it is not handled properly, it can cause aesthetic, health and environmental problems including diseases, air pollution from fires, and contaminated water resources and unsightly litter. In addition, concern has mounted in recent years over the amount of resources being discarded and the use of expensive landfill capacity for materials which need not be placed in landfills. Consequently, the practice of just "throwing it away" is no longer appropriate.

Georgia Comprehensive Solid Waste Management Act

In 1989, the Georgia General Assembly passed SR 103 creating the Joint Solid Waste Management Study Committee to analyze the status of solid waste management in Georgia and to make recommendations for a comprehensive revision of the 1972 Solid Waste Management Act. The study committee labored during the summer and fall, 1989, and released its report in December of that year. The findings and recommendations in the study committee report were .pn2 drafted as legislation and introduced as an administration bill in the 1990 session

of the General Assembly as SB 533, the Georgia Comprehensive Solid Waste Management Act. The bill unanimously passed both houses of the General Assembly.

SB 533 (the Act) provides a sound framework for comprehensively managing solid waste. The first step in implementing the Act has been the development of the Georgia Solid Waste Management Plan. The purpose of the State plan is essentially threefold:

1. *to present a status report of solid waste management in Georgia.*

2. *to set forth the state strategy for reducing and managing solid waste, and*

3. *to establish the procedures and criteria for local/regional solid waste plans and other components of the local/regional solid waste management strategy.*

This document, the Jenkins County Solid Waste Management Plan, represents the next step in the planning process.

Solid Waste Planning Process

The Minimum Planning Standards and Procedures outline the steps required in preparing a community Solid Waste Management Plan. The intention is to provide a framework for those preparing the plan to follow in looking at the current status of solid waste management within the planning area, determining needs, addressing goals, and deciding on how an effective and comprehensive program of solid waste management will be implemented within the area. The three basic steps in the planning process are as follows:

**Step 1 - Inventory and Assessment*
- What facilities, systems and programs for handling solid waste are currently in place in Jenkins County?
- How much solid waste is being generated? (Municipal solid waste disposal facilities are required to keep accurate written records of all amounts of solid waste, measured in tons, received at the facility, beginning July 1, 1991).
- How much will be generated in the future?
- What is the adequacy of existing facilities and programs to meet future solid waste disposal needs and the 25 percent per capita reduction and 10 year handling capacity goals?

- What is the adequacy of private on-site industrial or biomedical facilities?

**Step 2 - Statement of Needs and Goals*
- Based upon the inventory and assessment, what does Jenkins County need (programs, facilities, etc.) to meet its future solid waste management waste handling requirements?
- Based on the inventory and assessment and needs, what does Jenkins County want as a community to meet these needs? What programs and facilities do you desire?

**Step 3 - Implementation Strategy*
- Based upon the inventory, assessment, and needs and goals, what steps will Jenkins County take to meet its solid waste management goals and its solid waste handling needs?

The Jenkins County Solid Waste Management Plan includes data in seven topical areas or "elements" that are considered critical as components of the solid waste management planning process. These seven elements are:

* *Amount of Waste Element*
* *Collection Element*
* *Waste Reduction Element*
* *Disposal Element*
* *Land Limitation Element*
* *Education and Public Involvement Element*
* *Implementation and Financing Element*

Information is gathered and analyzed for each of these seven elements. This is used in turn to set various local goals for Jenkins County. In addition to local goals, two Statewide goals are required by the Comprehensive Solid Waste Management Act. These goals are as follows:

****Goal 1** - To insure that the amount of solid waste being received at disposal facilities during fiscal year 1992 will be reduced by 25% per capita by July 1, 1996.*

****Goal 2** - To insure that community solid waste management systems will be adequate to meet the ten-year handling capability and capacity needs identified in the local solid waste management plan.*

Public Participation

As required by the minimum solid waste planning standards, two public hearings were held in Jenkins County to elicit community input as to the solid waste needs and goals of Jenkins County. The first public hearing was held prior to preparing the plan on March 24, 1992. The second hearing was held following the completion of the first draft of the plan on July 7, 1992. Comments and suggestions at both of these hearings were taken into consideration and incorporated into the plan. Finally, a regional hearing was held on August 4, 1992 to allow officials from adjacent municipalities as well as state and federal officials to review and comment on the contents of the plan.

General Overview of Jenkins County

Location and Size

Jenkins County and the County seat of Millen are located in east-central Georgia, approximately 50 miles southeast of Augusta. Jenkins County is a densely forested, rural area covering 352.7 square miles.

Local Economy

Jenkins County, like most of the rural CSRA counties, is greatly dependent on manufacturing for its employment. As of 1980, 1,218 of the 3,203 (38%) members of the work force were employed in manufacturing. Because of the limited industry in Jenkins County, a great number of these workers commute to surrounding counties for employment. Table 1 illustrates the employment sectors for Jenkins County persons 16 years and over by industry for 1980.

TABLE 1

INDUSTRY	*NUMBER*
Wholesale Trade	*103*
Retail Trade	*350*
Finance, Insurance, and Real Estate	*107*
Business and Repair Service	*71*
Entertainment and Recreation Service	*112*
Professional and Related Services	*318*
Public Administration	*94*
Agriculture, Forestry, Fisheries, & Mining	*466*
Construction	*167*
Manufacturing	*1,218* -
Transportation	*97*
Communication & Other Public Utilities	*100*

TOTAL	***3,203***

Source: 1980 Census of Population

Population Trends

As of 1980, the population of Jenkins County was 8,841. From 1980 to 1990, this figure dropped to 8,247. Table 2 illustrates population figures over the last 40 years.

TABLE 2

Jenkins County Historic Population Levels
1950-1990

YEAR	*POPULATION*	*% CHANGE*
1950	*10,264*	-
1960	*9,148*	*-10.87%*
1970	*8,332*	*- 8.92%*
1980	*8,841*	*6.11%*
1990	*8,247*	*- 6.72%*

Source: U.S. Census of Population

Based on population changes from 1970 to 1990, projections have been made for the County's population through the year 2002. Table 3 illustrates these annual population projections.

TABLE 3

Population Trends & Projections
Jenkins County (1990-2002)

YEAR	POPULATION	% CHANGE
1990	8,247	
1991	8,165	-0.99%
1992	8,084	-0.99%
1993	8,002	-1.01%
1994	7,921	-1.01%
1995	7,839	-1.04%
1996	7,756	-1.06%
1997	7,673	-1.07%
1998	7,590	-1.08%
1999	7,507	-1.09%
2000	7,424	-1.11%
2001	7,343	-1.09%
2002	7,262	-1.10%

Source: 1990 U.S. Census of Population and CSRA-RDC Population Projections, April, 1992

Based on population changes from 1970 to 1990, projections have been made for the City of Millen population through the year 2002. Table 4 illustrates these annual population projections.

TABLE 4

Population Trends & Projections
City of Millen (1990-2002)

YEAR	POPULATION	% CHANGE
1990	3,808	
1991	3,776	-0.84%
1992	3,745	-0.82%
1993	3,713	-0.85%
1994	3,682	-0.83%
1995	3,650	-0.87%
1996	3,621	-0.79%
1997	3,593	-0.77%
1998	3,564	-0.81%
1999	3,536	-0.79%
2000	3,507	-0.82%
2001	3,489	-0.51%
2002	3,472	-0.49%

Source: 1990 U.S. Census of Population and CSRA-RDC Population Projections, April, 1992

Assuming population projections for Jenkins County and Millen are accurate through 2002, there will be a slow steady decrease in population throughout the solid waste management planning period.

AMOUNT OF WASTE ELEMENT

Introduction

The purpose of this element of the Solid Waste Management Plan is to provide a current waste stream assessment for Jenkins County as well as provide a reasonably accurate future waste stream assessment. Items to be considered in this section are:

***Source** - Where does the waste come from? (i.e. Residential, Commercial, Industrial, etc.)*

***Composition** - What is the waste stream made up of? (i.e. yard waste, household, paper, wood waste, ferrous materials, plastics, etc.)*

***Quantity** - How much solid waste is being produced? (these figures are based on weights taken at landfill scales)*

***Import/Export of Waste** - Is solid waste being taken out of the County or brought into the County from elsewhere? If so, how much?*

This information will be used to determine the amount of solid waste that is being placed into the County disposal facility in fiscal year 1992. The total amount of waste placed in the disposal facility in FY 92 can then be used to determine a per capita waste amount for the citizens of Jenkins County in order to set reduction goals for the County.

Solid Waste Sources and Composition

Inventory

Jenkins County is a rural county with both limited industry and limited commercial activity. By far the largest contributor to the solid waste stream in Jenkins County is the residential sector. This residential waste consists mainly of items typically found in what is commonly called "household garbage". These items include paper products, plastics, glass, aluminum, and ferrous materials.

Commercial areas are limited primarily to the incorporated area of Millen. Industrial waste can be attributed mainly to Bellcrest, Inc. The composition of this commercial and industrial waste consists of items such as corrugated paperboard, construction board debris, and wood product waste.

Assessment

When considering the past and current population and economic trends for Millen and Jenkins County, it is not likely that the primary sources of solid waste will change during the planning period. The residential sector should continue to be the primary contributor to the solid waste stream. If this holds true, the waste composition should also remain virtually the same.

On the other hand, since the county currently has a limited number of major industries contributing to the solid waste stream, the addition of even a single major industry in the county could result in a significant increase in industrial type waste. This should be recognized and allowed for in the community's long range solid waste goals.

Solid Waste Quantity

Inventory

Beginning in November of 1991, Jenkins County began weighing all solid waste coming into the landfill. Weights from three consecutive months were taken and used to calculate an average monthly waste flow in Jenkins County. Included in the monthly waste stream totals from the landfill are the total recyclables recovered at the Jenkins County Service Center. This average figure was in turn used to calculate a daily per capita waste amount for the citizens of Jenkins County. Table 5 illustrates the monthly, daily, and per capita daily waste amounts for Jenkins County.

TABLE 5

Jenkins County-Millen Solid Waste Flow
(January-March, 1992)

	CITY OF MILLEN		JENKINS COUNTY	
	AMOUNT OF WASTE		AMOUNT OF WASTE	
MONTH OF:	POUNDS	TONS	POUNDS	TONS
JANUARY	576,480	288.24	1,422,320	711.16
FEBRUARY	529,340	264.67	1,294,380	647.19
MARCH	639,598	319.80	1,400,160	700.08
	291		709	

1992 pop: Co. 4339 City 3745 8084

AVERAGE POUNDS:		
RECYCLABLES/MONTH	N/A	44,140.00
PER MONTH (LANDFILL)	581,806.00	1,372,286.67 → = 8 lbs/day
TOTAL WASTE/MONTH	581,806.00	1,416,426.67
PER DAY	19,127.87	46,567.45 ÷ 8084 = 5.76
PER CAPITA/DAY	5.11	5.76

How do these 2 relate to each other?

How did they do their calculations?

Source: Jenkins County Solid Waste Weight Records, 1992

In projecting future waste amounts for Jenkins County, it is assumed that the current per capita daily waste of 5.76 pounds will remain consistent. Table 6 illustrates projected waste amounts based on current trends. These figures reflect the projected flow <u>before</u> reduction efforts.

TABLE 6

Jenkins County Projected Solid Waste Flow
1992-2002

YEAR	PROJECTED POPULATION	JENKINS COUNTY PROJECTED WASTE PER MONTH POUNDS	TONS
1992	8,084	1,396,915	698
1993	8,002	1,382,746	691
1994	7,921	1,368,749	684
1995	7,839	1,354,579	677
1996	7,756	1,340,236	670
1997	7,673	1,325,894	663
1998	7,590	1,311,552	656
1999	7,507	1,297,210	649
2000	7,424	1,282,867	641
2001	7,343	1,268,870	634
2002	7,262	1,254,874	627

Source: CSRA-RDC Solid Waste Projections, June, 1992

Assessment

When applying the State mandated 25 percent per capita waste reduction to the citizens of Jenkins County, it can be determined that the per capita daily waste amount must be reduced from 5.76 pounds to approximately 4.32 pounds. Assuming that population projections are accurate, the citizens of Jenkins County must produce no more than 33,506 pounds of solid waste per day by 1996. This translates to 1,005,178 pounds (503 tons) per month or 12,062,131 pounds (6,031 tons) per year. Measures will be taken in the implementation portion of this plan to lay out the framework for achieving this 25 percent reduction goal. At current recycling levels, the Training Center is reducing the waste stream to the landfill by 3.1 percent.

Import and Export of Waste

The Jenkins County Landfill serves both the incorporated and unincorporated areas of Jenkins County. Currently, the County does not accept waste from outside the county. Conversely, it does not export any waste to any surrounding

cities and/or counties. In the future however, Jenkins County, as is the case with most CSRA counties, may find it advantageous to look into the possibility of becoming part of a regional solid waste effort.

COLLECTION ELEMENT

Introduction

This element of the Solid Waste Management Plan will provide an assessment of the existing collection practices and facilities in Jenkins County as well as outline possible improvements in the future. The items to be considered are:

***Service Area** - Number of customers, geographic area, etc.*

***Collection System** - Public vs. Private collection. How is solid waste collected?*

***Vehicles** - How many vehicles are used? What is their type, capacity, and condition.*

***Green Box System** - How many green boxes are used? What is their capacity, type, and condition.*

***Transfer Points** - How many? Where are they located?*

***Existing Multi-jurisdictional Agreements** - Are any in place? If so, explain them. If not, is there a need for one?*

Information for each of the above listed items will be used to determine the adequacy of the solid waste collection system in Jenkins County.

Service Area

Inventory

The Jenkins County Landfill serves the entire 352.7 square miles of Jenkins County. According to the 1990 Census figures, Jenkins County had 8247 persons in 2951 households. Population projections indicate that this customer base should decrease gradually but steadily throughout the solid waste planning period. Currently, Jenkins County has no multi-jurisdictional agreements in place for the purpose of solid waste management. The county has, however, attempted to open discussions with neighboring Screven County concerning regional facility utilization in Jenkins County. This could be a viable option for the county in the near future.

The City of Millen provides collection services for its citizens and businesses within the corporate limits of the city.

Assessment

Based on the current waste stream, the recently permitted county landfills in Jenkins County are projected to last through 30 years for municipal solid waste, and 50 years for inert waste. These life expectancies will be more than adequate to serve the county throughout the planning period.

The scope of services in Millen should remain the same and serve the citizens well throughout the planning period.

Collection System

Inventory

Unincorporated Jenkins County is currently totally dependent on a green box collection system. This green box system is utilized by all residential, commercial, and industrial customers in the unincorporated areas of the county. County collection service is in the form of a single compacter truck that services the 135 green boxes at 75 sites throughout the county. The green boxes in use at the present time are the stationary type. The County owned vehicle collects the waste of these boxes individually, and , when full, proceeds to the landfill site for disposal of their contents.

The City of Millen currently provides weekly residential curbside pickup of solid waste for its citizens, as well as daily greenbox collection at the commercial and industrial establishments. The city uses six trucks (2 compactor trucks, 4 dump trucks) for collection purposes. When the trucks are full, the waste is taken directly to the county landfill for disposal. The City of Millen currently does not pay for waste disposal in the county landfill.

Assessment

Considering the decrease in population projected through 2002, curbside pickup may continue to be impractical in unincorporated Jenkins County. A green box system of some kind should continue to be the most viable option for Jenkins County. Consolidation and reduction of county greenbox sites may be an alternative that provides control of both scheduling and efficiency.

The existing residential curbside collection service in Millen should be adequate through the planning period. Likewise, the existing commercial and industrial greenbox system should continue to be adequate.

Collection Vehicles

Inventory

As mentioned in the above section, Jenkins County has only one truck for its collection purposes. This truck is a 1983 Peterbilt Compactor. The truck collects the waste in each green box and compacts the contents. The truck then proceeds to the disposal site for dumping. Secondarily, the county has two dumptrucks that are used in solid waste disposal.

The City of Millen maintains and uses six trucks (2 compactors, 4 dumptrucks) for its collection purposes. Waste is loaded and delivered to the county landfill for disposal.

Assessment

The one compactor truck currently in use in the county is adequate for the immediate collection needs in Jenkins County; however, replacement of the aging truck will be necessary in the very near future. The greatest efficiency and utility of a new vehicle could be achieved by implementing the aforementioned green box site consolidation plan.

The six collection vehicles in Millen are adequate and should remain adequate for the city's needs throughout the planning period with the exception of one compactor truck, which is likely to be replaced in 1997.

Collection Costs

Inventory

Jenkins County has a solid waste management budget of $113,554.00 set aside for FY 92. According to the county budget expenditure report, approximately 35 percent of this total ($39,743.90) is earmarked for capital costs. The remaining 65 percent ($73,810.10) is used for salaries and operational expenses.

The City of Millen has a budgeted amount of $182,200 dollars in FY 92 for waste collection. A sum of $53,000 (29%) is earmarked for capital expenditures. The City does not currently pay for waste disposal.

Assessment

Based on decreasing population projections for Jenkins County and Millen, waste collection costs for the county and Millen, aside from inflationary increases, should remain relatively constant over the ten-year planning period.

Green Box System

Inventory

Jenkins County currently maintains 135 green boxes at 75 separate sites throughout the county. To the greatest extent possible, county greenboxes are located at or near population nodes. Waste from county green box sites is collected twice per week. Map 1, (attached) illustrates the locations of the green boxes in the county.

As mentioned previously, the City of Millen uses green boxes in its city collection system for commercial and industrial wastes. These green boxes are collected on a daily basis.

Assessment

The green box system in Jenkins County has proven to be quite adequate for the collection of solid waste. The number of boxes as well as the size of them meets the demands of the citizens of the county. The number of sites, however, has created problems with controlling external dumping and site appearance. Again, site consolidation may prove to reduce or alleviate such occurrences.

The green box system in Millen is presently adequate and should continue to serve the city well over the planning period. One problem that has arisen is outside dumping into the commercial/industry boxes. Although somewhat isolated, these occurrences of illegal dumping could impact collection costs over time and should be terminated.

Transfer Points

Inventory

There are currently no transfer points being utilized in the solid waste collection system in Jenkins County. All waste is taken directly from its original collection site to the landfill.

Assessment

Based on current and projected waste amounts in Jenkins County as well as the relatively small geographic area of Jenkins County, it is not anticipated that transfer points will be necessary during the ten-year planning period. If the county should become a part of a multi-jurisdictional agreement, however, then transfer points may be practical in order to transfer the waste to the regional disposal site.

Multi-Jurisdictional Agreements

Inventory

Jenkins County is not currently a part of any multi-jurisdictional agreement for the purpose of solid waste collection and disposal. Efforts are currently under way to establish a multi-jurisdictional relationship with neighboring Screven County. These efforts are in the very first stages of discussion.

Assessment

Jenkins County has an estimated 3.5 year lifespan remaining in the current permitted landfill area. Recently permitted landfill acreage will, however, provide more than adequate landfill space through the planning period. Jenkins County should continue its efforts of becoming a partner in a multi-jurisdictional solid waste agreement. This option, along with the possibility of private landfill management, may prove to be the most viable option for the county from both an ecological and economical standpoint. – 10 YRS.

WASTE REDUCTION ELEMENT

Introduction

The waste reduction element of the solid waste management plan will offer an inventory of all programs in Jenkins County that assist in reducing the amount of solid waste that reaches the landfill. It will also assess the effectiveness of these programs as well as offer recommendations for the future. Items to be considered are:

****Source Reduction** - How can it help in our reduction efforts?*

****Recycling** - What is being recycled now? What can be recycled?*

****Composting** - How can it help in our reduction efforts?*

****Waste Combustion** - Is it a viable option for us?*

As determined earlier in this document, Jenkins County currently disposes of solid waste at the rate of 5.76 pounds per capita/day. In order to meet the mandated 25% reduction goal, this figure must be reduced to 4.32 pounds per capita/day. In order to do this, the citizens of the county must, quite simply, not make as much waste. There are several means of doing this. Reusing certain items, recycling, and composting are some of the options. Currently, there are no such county or city sponsored programs in place.

There is an obvious need for some type of organized reduction effort in Jenkins County. The following sections will look at some possible alternatives.

Source Reduction

Inventory

Source reduction is an approach that precedes waste management and addresses how products are manufactured, purchased, and used. Unfortunately, the consumer has little direct control over manufacturing and packaging of the products they use. There are, however, source reduction options for the consumer. Some of these options are:

**Product reuse - Using reusable products instead of their disposable equivalents reduces the amount of materials that must be managed as waste.*

**Reduced Material Volume - Larger containers can reduce the amount of packaging used. For example, a single 16-ounce can uses 40 percent less metal than two 8-ounce cans.*

**Reduced Toxicity - Source reduction programs should encourage reducing the amount of toxic constituents in products entering the waste stream. For example, substitution for lead and cadmium in inks and paints is a source reduction activity.*

**Increased Product Lifetime - The solid waste stream can be significantly reduced by purchasing products with longer lifetimes over short-lived alternatives designed to be discarded at the end of their useful lives.*

**Decreased Consumption - Consumers can be educated on what materials are difficult to dispose of or are harmful to the environment. Buying practices can be altered (i.e. buying in bulk) to reflect this environmental consciousness.*

Assessment

There are currently no source reduction programs in place in Jenkins County. Implementation of such programs could significantly benefit Jenkins County's waste reduction efforts. As public awareness of source reduction options increases, citizens will then become more capable of using their buying power to influence the packaging decisions of manufacturers of the products they use. Benefits of this "educated purchasing" will be evident in both the short and long term.

Recycling

Inventory

25%?

There are currently no local government sponsored, county wide recycling programs in place in Jenkins County. Recycling is limited strictly to the operations at the Jenkins County Service Center, where a training center for the handicapped is located. Revenues realized from the sale of recycled goods are returned to the state funded program. Currently, records are being kept as to the tonnages of recycled goods returned to buyers. Presently, the program recycles aluminum, newsprint, cardboard, plastics, glass. Reuse of household items and clothing is also a part of the program. Other recycling options are available to the county which could greatly assist in reaching the mandated reduction goals by 1996. Some of the more common recycling options are listed below:

What are the options?

- *Paper*
- *Aluminum*

- *Glass*
- *Ferrous Materials (iron & steel)*
- *Plastics*
- *Batteries*

Jenkins County, over the next 10 years plans to implement a series of recycling efforts. As determined previously in this plan, the waste stream in Jenkins County is primarily household waste. For this reason, items typically found in household waste (newspaper, glass, plastic, aluminum) will be the staples of the Jenkins County recycling effort.

Assessment

Recycling will more than likely be a fundamental part of the Jenkins County Solid Waste Management Plan. Recycling alone may not solve the community's municipal solid waste management requirements, but it can divert a significant portion of the waste stream from disposal in the landfill. This diversion can, in turn be applied to the county's reduction goals. A method of record keeping must be established in order for the county to receive credit for recycling tonnage. The county plans to explore recycling options in an effort to maximize the efficiency of the resources that can be devoted to recycling. Coordination of county and city solid waste collection with the current Jenkins County Service Center efforts will most likely prove to be the most cost efficient method of recycling. In terms of logistics, the preexistence of market contacts and agreements with the Training Center will provide an element of stability to city/county recycling coordination, if that option is deemed appropriate.

City officials plan to explore the feasibility of curbside collection of recyclables along with the normally scheduled residential collection. The simple addition of a trailer to the existing trucks could serve as a recycling receptacle. Again, costs and degrees of success are variables to consider in the program evaluation. Regardless of the curbside decision, the City of Millen will assist the existing and proposed county cooperation with the current recycling at the service center.

Composting

Inventory

Composting is becoming an increasingly popular municipal waste management alternative, as communities look for ways to divert significant amounts of organic wastes away from rapidly filling landfills. Composting is a low cost, low technology operation that can handle large portions of the municipal solid waste stream.

There are several different ways of running a composting operation. Backyard composting is an option in which each citizen is responsible for his/her own composting operation. With this system, individuals install a traditional compost pile on their own property. Backyard composting is a source reduction activity in that materials composted in backyard operations do not have to be managed as municipal waste. Collection and disposal costs are therefore eliminated.

A Centralized Composting Operation is a system in which all yard waste is collected and composted at a central site in the county. This effectively removes the yard waste from the waste stream but it does not eliminate the cost of collection of the waste.

Assessment

There are currently no such composting operations in place in Jenkins County. However, county commissioners and staff plan to explore composting options and implement a program by 1994. Jenkins County currently accepts yard waste at the County Landfill. For this reason, a composting operation would greatly decrease the amount of waste being put into the landfill. County officials have expressed high levels of need and desire for a centralized county sponsored composting effort.

Waste Combustion

Inventory

There is currently no waste combustion facility in Jenkins County or the Jenkins County area.

Assessment

Because of the relatively low population and amount of waste produced in Jenkins County, a waste combustion facility is more than likely not a practical means of waste disposal. Previously discussed reduction methods (source reduction, recycling, etc.) will be much more practical for this community.

DISPOSAL ELEMENT

Introduction

This element of the plan will present an inventory of present practices, environmental controls, costs, capacities, and programs as well as an assessment of their adequacy. Items to be considered include:

***Pre-disposal Treatment** - Shredding, baling, etc.*

***Thermal Treatment Technologies** - Waste to energy, incineration, etc.*

Landfill Utilization

***Facility Mix** - Existing, planned, and projected facilities.*

Private and Public Disposal

***Dedicated Waste Handling Facilities** - Biomedical waste, tires, batteries, etc.*

Environmental controls

Inventory

The Jenkins County Landfill [permit # 082-004D (SL)] is owned and operated by Jenkins County. The county is responsible for all necessary environmental monitoring done on and around the site. The University of Georgia Extension Service is currently monitoring ground water on a quarterly basis. The new solid waste/construction-demolition landfill [permit # 082-0050 (SL)] will be monitored by the same standards.

Assessment

Since the county is greatly dependent on ground water via private wells for its water supply, it is imperative that this monitoring continue to be done to guarantee a safe, potable water supply for the citizens of Jenkins County.

Disposal Costs

Inventory

As of FY 92, Jenkins County had a budget of $113,554 for collection and disposal of solid waste. This budget included salaries for solid waste employees. All solid waste equipment in Jenkins County is relatively old and, therefore, some major capital improvements are anticipated for future budgets. When the solid waste management budget is applied to the estimated amount of waste for FY 92, it can be determined that disposal cost in Jenkins County for FY 92 will be approximately $13.79 per ton of solid waste. This translates to a per capita cost of $14.05 per year.

Is this in projected costs?

The City of Millen currently pays no disposal fees to the county for the use of the county owned landfill. An agreement is in existence that stipulates that the county will own and operate the landfill at no cost to the City of Millen, in exchange for county-wide fire service to be provided by the City of Millen Fire Department.

Assessment

As the county begins the process of building and using the next phase of the newly permitted landfill, the accompanying costs could significantly affect the overall cost of solid waste collection and disposal. This factor coupled with inevitable additional capital costs will more than likely result in a significant increase in the cost of collection and disposal of solid waste. This should be anticipated and allowed for in planning for the county's future needs. Future cost projections are provided later in this document under the Implementation and Financing Element. Serious consideration will be given to private landfill management options in an effort to minimize disposal costs.

Where?

Contingency plan?

Pre-Disposal Treatment

Inventory

There are limited pre-disposal treatment programs under way in Jenkins County. The county recently purchased a baler for corrugated cardboard products. The collection of these goods is coordinated through Mrs. Shirley Boone at the Jenkins County Service Center. Additional programs could help in reaching the county's waste reduction goals. Items currently being taken to the landfill that could be included in such a program include the following:

-Construction/Demolition Waste (lumber scraps, wood pallets)
-Tires

The previously listed items, if chipped or shredded, could be composted, recycled or used for cover material, thus keeping them out of the landfill completely. If they must be put into the landfill, shredding would reduce the amount of space that they would take up.

Compacting is another pre-disposal treatment option that maximizes landfill space. This option is not being used in Jenkins County at the present time.

Assessment

The current cardboard collection program has diverted several tons of goods from the landfill. Additional pre-disposal treatment programs could very well assist Jenkins County in meeting its reduction goals. Such programs should be researched by the city and county officials to determine if the end justifies the means.

Thermal Treatment Technology

Inventory

Thermal treatment equipment (i.e. Waste to energy facility, air curtain destructor, etc.) is not presently being used in Jenkins County.

Assessment

While equipment such as an air curtain destructor will indeed reduce yard and wood waste to a fine disposable ash product, questions have been raised at all levels of government as to the ecological effect of such an operation. It should also be noted that waste burned in such a device may not be applied to the county's reduction goals at this time. The continued legality of such an operation is also in question. These items should be considered before implementing such a program. Additionally, the amount of waste in Jenkins County may not justify or support the costs of such a facility.

Landfill Utilization

Inventory

Currently, solid waste from the city and county is being hauled to the landfill site, and dumped into a cell. The waste is then piled and covered by a bulldozer. Two bulldozers (1989 D6H Caterpillar and 1990 Caterpillar Wheel Tractor) are located at the landfill site.

Assessment

The current system in Jenkins county is being utilized to its fullest. In order to improve landfill utilization, other avenues must be taken. By starting recycling and/or composting programs, and/or by shredding and compacting the solid waste before placing it in the landfill, the space at the landfill could be maximized, thus extending its lifespan. These options should be researched by county officials.

Facility Mix

Inventory

Facilities in Jenkins County are limited strictly to the landfill site and the Jenkins County Service Center, a portion of which serves as a recycling center storage and operations center. The county realizes the need for a coordinated recycling program and plans to begin implementation of such a program in the near future. Permit applications have been made for the operation of a Materials Reduction Facility that would collect tires, batteries, and white goods.

Assessment

In order to reach mandated reduction goals, the county will need to implement some of the above mentioned programs. This will mean the addition of new facilities (composting, recycling, etc.) in the county. The current landfill, coupled with the permitted acreage, will meet the demands of Jenkins County well beyond the ten-year planning period.

Private and Public Disposal

Inventory

All solid waste disposal in Jenkins County is handled by the County at the county landfill. There are no private haulers or private landfills in the county.

Assessment

The county should be able to continue to meet the solid waste demands of its citizens throughout the planning period and beyond. It is not anticipated that private haulers or landfills will be needed. However, the exorbitant costs of constructing and operating the newly permitted landfill acreage, may be beyond the means of Jenkins County. Therefore, the possibility of contracting with a private firm solely for the construction, operation, and management of the landfill is at the forefront of debate in Jenkins County solid waste management.

Dedicated Waste Handling Facilities

Inventory

There is currently no dedicated waste handling facility in Jenkins County for handling items such as biomedical waste, tires, batteries, and other such "hazardous wastes".

Assessment

It is not likely that a demand for biomedical or hazardous wastes will be present to demand such a facility during the planning period in Jenkins County; however, the aforementioned Materials Reduction Facility permit was requested primarily for the white goods collection. Should such other needs arise (i.e. batteries, tires, etc.) the county will be permitted to accommodate the wastes. The county does have one hospital; however, any biomedical waste is a minimal portion of the waste stream. Items such as batteries are not accepted at the landfill and proper disposal of these items is the responsibility of the consumer.

LAND LIMITATION ELEMENT

Introduction

This element of the solid waste management plan will offer an inventory and assessment of land areas which, due to environmental limitations or land use factors, are considered unsuitable for development for a solid waste handling facility. Some of the items to be considered include:

Environmental Limitations:
- ***Floodplains***
- ***Wetlands***
- ***Aquifer Recharge Areas***
- ***Water Supply Watersheds***

Land Use Factors:
- ***Land Use Plan/Zoning Restrictions***
- ***Heavily Developed Areas***
- ***Three Mile Distance from a National Historic Site***
- ***Proximity to Airports***
- ***Jurisdictional Boundaries***
- ***Access***

Environmental Factors

Floodplains

Inventory

Flooding is defined as the temporary covering of soil with water from overflowing streams and by run-off from adjacent slopes. Water left standing after a rainfall, however, is not considered flooding, nor is water in swamps. Flooding is characterized in terms which describe the frequency and duration of the flood and the time of year that the flood occurs.

Development within floodplain areas is discouraged with the exception of very low impact such as recreational facilities (i.e. trails, open fields, etc.). With this type of land use, the floodplains are utilized without disturbing the natural cycles of the floodplain. These areas are not suitable for solid waste facilities.

Floodplains serve 3 major purposes: Natural water storage and conveyance, water quality maintenance, and groundwater recharge. These 3 purposes are greatly inhibited when floodplains are misused or abused through improper and unsuitable land development. For example, if floodplains are filled in order to

construct a building, then valuable water storage areas and recharge areas are lost thus causing unnecessary flooding in previously dry areas.

Jenkins County and the City of Millen do currently participate in the National Flood Insurance Program. This is a federal program which allows property owners within a participating area to purchase federally backed flood insurance. The Federal Emergency Management Agency (FEMA) has mapped flood prone areas of Jenkins County based on the 100 year floodplain. This is the national standard on which flood management and NFIP insurance requirements are based. These maps are available to the public through FEMA.

Carefully monitored development in these areas is essential to guarantee both the functional integrity of the floodplains and the safety, health, and property of all Jenkins County citizens.

Assessment

Because of the rural character of Jenkins County, land demand is not so great as to force development into floodplain areas. The existing landfill site does not lie in a floodplain area. No future landfill permits will be requested during the planning period.

Wetlands

Inventory

Freshwater wetlands are defined by federal law as those areas that are inundated or saturated by surface or groundwater at a frequency and duration sufficient to support, and that under normal circumstances do support, a prevalence of vegetation typically adapted for life in saturated soil conditions. Some examples of wetlands include marshes, swamps, bogs and similar areas. Under natural conditions wetlands help to maintain and enhance water quality by filtering out sediments and other non- point source pollutants from adjacent land uses. In addition to this, they store water and provide habitat for a variety of plant and animal species.

Wetlands are currently being mapped by DNR. Until these maps are available, however, please refer to Map 2 (attached) for the locations of freshwater wetland areas. This information was compiled based on known locations of hydric soil types in Jenkins County.

Land uses in wetland areas should be limited to low impact uses such as timber production and harvesting, wildlife and fisheries management, wastewater

treatment, and recreation. They are not suitable for solid waste facilities. These land uses as well as others are covered in more detail under Section 404 of the Federal Clean Water Act.

For more information, please refer to DNR's "Criteria for Wetland Protection", pp. 10-12 (Appendix A, attached).

Assessment

No solid waste facility in Jenkins County, existing or planned, lies in a freshwater wetland area. Therefore, they pose no threat to the integrity of these wetland areas.

Aquifer Recharge Areas

Inventory

Recharge is the process by which precipitation infiltrates soil and rock to add to the volume of water stored in pores and other openings within them. Aquifers are soils or rocks that yield water to wells. Infiltration and recharge takes place in virtually all soils to some degree. The rate or amount of recharge varies however depending on geologic conditions of the area.

The water supply in Jenkins County comes from ground water sources. Jenkins County is served by the Floridan aquifer system. This system is primarily a system of limestone, dolostone, and calcarious sand and supplies 50 percent of Georgia's groundwater (600 mgd).

The Georgia Department of Natural Resources has mapped all of the recharge areas in the state which are likely to have the greatest vulnerability to pollution of groundwater from surface and near surface activities of man. Map 3 (attached) graphically illustrates the locations of the major aquifer recharge areas within the boundaries of Jenkins County. Development in these areas should be limited to very low impact development in which little to no area is covered with impervious surfaces such as roads, parking lots and building pads. The sub-surface integrity of these areas should also be maintained by avoiding development that may contaminate water supplies (i.e. landfills). For more information, please refer to DNR's "Criteria for Protection of Groundwater Recharge Areas"(Appendix A, attached).

Assessment

No solid waste facility in Jenkins County, existing or planned lies in an aquifer recharge area. Therefore, they pose no threat to the integrity of these recharge areas.

Water Supply Watersheds

Jenkins County and Millen depend entirely on subsurface water sources for its potable water supply. For this reason, aquifer recharge areas are of primary concern to the citizens of Jenkins County. Please refer to the "Aquifer Recharge Area" section of this document for more information. Additionally, no other municipality's water supply watershed(s) are located, wholly or partially, in Jenkins County.

Land Use Factors

Land Use Plan/Zoning Restrictions

Inventory

There are currently no land use codes, plans, or zoning ordinances in effect for Jenkins County. The City of Millen has a zoning ordinance. As required by the Georgia Planning Act of 1989 (HB 215), Jenkins County and Millen must have a Comprehensive Land Use Plan in place no later than September 30, 1995.

Assessment

Based on projected decreases in population figures for Jenkins County through 2001, The required Comprehensive Land Use Plan, upon its completion, should be adequate for controlling growth patterns in the county. Zoning will more than likely not be necessary for Jenkins County. For the purposes of this plan, there are currently no conflicting land use or zoning documents in effect.

Heavily Developed Areas

Inventory

Jenkins County is a very rural county with relatively little development. The most heavily developed area is the City of Millen. Outside of these areas, development is very limited.

Assessment

Because of the rural atmosphere in Jenkins County, there are fewer restrictions for the county when determining the location of a solid waste handling facility. The county should have ample suitable acreage for its future solid waste handling facilities.

Three Mile Distance from a National Historic Site

No existing or planned solid waste facilities fall within these restricted three mile radii. Any future development of solid waste facilities should also avoid these radii. Map 4 (attached) shows the location of these sites as well as circles representing a three mile radius from the sites. The three sites are the Jenkins County Courthouse in Millen, the Birdsville Plantation northwest of Millen, and Camp Lawton north of Millen at Magnolia Springs State Park.

Proximity to Airports

Inventory

There is currently one airport in Jenkins County. The airport is located north of Millen on Highway 25.

Assessment

Proximity to airports is currently not a significant land limitation factor in Jenkins County. The county does not have, nor will it likely have, a demand for another airport facility during the solid waste planning period.

Jurisdictional Boundaries

Inventory

Jenkins County is bordered by Bulloch, Burke, Emanuel, and Screven Counties. The existing landfill, as well as the recently permitted acreage, is shown in Map 1. These waste disposal sites do not touch any of these county boundaries.

Assessment

Until any multi-jurisdictional agreements are made between Jenkins County and its neighboring counties, solid waste facilities should be located in such a way as to not be a detriment to these other jurisdictions. Once again, because of the rural atmosphere of Jenkins County, and the ample supply of open land, this

development criteria should not pose a problem for the county.

Access

Inventory

The existing landfill, as well as the new landfill site, lie on an easily accessible parcel of land with direct road access. The highway system in Jenkins County is well maintained and covers all areas of the county.

Assessment

Access does not present a major hurdle in Jenkins County. Most parcels in the county are easily accessible by road and the roads, while not all paved, are maintained in good condition.

EDUCATION AND PUBLIC INVOLVEMENT ELEMENT

Introduction

The purpose of this element of the plan is to provide an inventory and assessment of existing educational programs and public involvement alternatives available in Jenkins County. Some of the items to be discussed are:

***Local Government Programs**
***Solid Waste Advisory Committee**
***Clean and Beautiful Program**
***School System Programs**
***Litter Control Programs**
***RDC Programs**
Civic, Environmental, Church Group Programs

Existing Programs

Inventory

There are currently no county sponsored programs in place in Jenkins County for the purpose of public education or public involvement in the field of solid waste management. This plan and the goals that are a result of this plan will be the first step in implementing such a program. Some concerned citizens groups have been formed in local churches and offer public speaking and informational services. School recycling and environmental programs exist on a sporadic, voluntary basis. The county plans to utilize the media (i.e. newspaper and radio) to inform citizens of the current recycling operations at the Jenkins County Service Center, as well as future programs.

Assessment

As Jenkins County implements its waste reduction strategies over the next few years, public education and involvement will play a key role in the success or failure of these strategies. In order for the county to meet its reduction goals, it must implement some of the above listed programs. The current lack of public involvement is a hindrance that must be corrected. Participation in the Clean and Beautiful Program or implementation of local school and civic programs will not only be educational, but also provide opportunities for local citizens to participate in County reduction programs.

Future Programs

Inventory

Because of the very rural atmosphere and low population of Jenkins County, public education, to a great extent will be a "word of mouth" process. The County does plan, however, to implement a series of educational programs to inform its citizens as to how they can participate in waste reduction in Jenkins County. Some of these programs are:

1) Circulation of flyers to local schools, churches, businesses, and industry.

2) Advertisements in local newspaper encouraging local participation.

3) Oral presentations to local schools, churches, and civic clubs in which recycling is explained and encouraged.

4) Recycling "competitions"

5) Community cleanup days.

Because of the limited financial resources of Jenkins County and its cities, the County plans to initially budget $1,000.00 annually for educational programs.

IMPLEMENTATION AND FINANCING ELEMENT

Introduction

This element of the solid waste management plan will provide an inventory and assessment of present financing options as well as take a look at what options might be available in the future. Some items that will be considered are:

***Required Capital and Operational Costs**
***Costing and Fee Setting**
***Enterprise Funds**
***Revenue Financing**
Cost Allocation

Once a number of solid waste management alternatives have been identified for Jenkins County and its cities, the financial impact of these alternatives must be examined. Collection and disposal costs have increased dramatically over the past ten years. This increase can be attributed to a number of factors. Equipment costs, rising wages, waste volume, and increasingly stringent environmental standards all contribute to this increase. Also of major significance is the ever rising capital costs due to the need to construct new facilities or upgrade and maintain existing facilities.

It is very important that city and county officials in Jenkins County have a good understanding of the full costs of municipal solid waste management in their county. The state now has in place a full-cost accounting system for solid waste management. For the purposes of this plan, it is the responsibility of Jenkins County and its cities to show some type of compatible cost accounting system. A copy of the state's full-cost accounting system is included as an appendix to this plan (see appendix B).

Existing Financing

Inventory

Jenkins County, for FY 92 has a budget of $113,554 set aside for solid waste collection and disposal. This covers both capital and operational costs for solid waste management in the unincorporated county. Currently, solid waste management funding comes from the county's general fund. There are fees assessed to users of the landfill. The State has recently mandated that one dollar for every ton of waste landfilled be set aside in a separate account. These funds are to be used specifically for solid waste purposes.

As of March 1, 1992, the following tipping fees have been imposed at the Jenkins County Landfill:

- Residential Household Garbage	*No Charge*
- All Appliances: (Refrigerators, freezers, stoves, washers, dryers, etc.)	*No Charge*
- Individuals, Business, Industry	** $1.00 per ton for first two tons/ * $21.00 per ton over two tons/month*

The City of Millen in FY 92 has a budget of $182,200.00 set aside for waste collection. The city budget allows for collection only. The county funds and maintains the disposal facility entirely without city assistance. The agreement between the city and county consists of a compromise that the city will operate a fire department and the county will operate the landfill.

Assessment

The existing means of financing solid waste management is not adequate for the current demands of Jenkins County. As construction of the new disposal site begins, it will be necessary to explore other funding options. Increased user fees will more than likely be the most viable funding option for Jenkins County. Perhaps the aforementioned option of private landfill construction and management under contract with the county would prove to be the method of alleviating the financial burden form the county. At this time, the options are under consideration and no decision is presently expected.

Because the City of Millen budgets for collection of waste only, it is not anticipated that their costs will fluctuate greatly during the planning period unless the County Commissioners deem it necessary to impose user fees on the city for their use of the disposal facility. The existing budget and funding source (general fund) is adequate for current city needs. If disposal facility user fees are imposed by the county, alternate means of funding may be necessary in Millen.

Future Financing

Inventory

The biggest solid waste management cost facing Jenkins County over the next ten years is the startup cost of the new sanitary and inert landfill and installation ~~and installation~~ of ground water monitoring wells at the landfill. Other significant costs include implementation of proposed recycling programs, and public education. These items will add a significant expense to the overall solid waste management budget. Estimates of these costs are provided in the attached ten-year short term work plan. Table 7 below shows projected operational and capital costs for solid waste management in Jenkins County through 2002. These figures reflect the costs to Jenkins County with no privatisation or regional agreements. Should these contracts and/or agreements come into existence, the financial responsibility for Jenkins County would vary accordingly.

Table 7

Jenkins County Projected
Solid Waste Management Cost
1992-2002

YEAR	PROJECTED OPER. COST	PROJECTED CAP. COST	TOTAL COST
1992	$73,810.10	$39,743.90	$113,554.00
1993	$76,024.30	$1,225,000.00	$1,225,076.24
1994	$78,305.03	$1,100,000.00	$1,178,305.03
1995	$80,654.18	$1,100,000.00	$1,180,654.18
1996	$83,073.81	$1,100,000.00	$1,183,073.81
1997	$85,566.02	$1,100,000.00	$1,185,566.02
1998	$88,133.00	$1,100,000.00	$1,188,133.00
1999	$90,776.99	$1,100,000.00	$1,190,776.99
2000	$93,500.30	$1,100,000.00	$1,193,500.30
2001	$96,305.31	$1,100,000.00	$1,196,305.31
2002	$99,194.47	$1,100,000.00	$1,199,194.47

Table 8 outlines projected solid waste management costs for the City of Millen through 2002. Again, these figures reflect collection expenditures only. If privatisation or regional agreements are made, Millen may be required to pay for disposal expenses in the form of tipping fees.

Table 8

City of Millen Projected
Solid Waste Management Cost
1992-2002

YEAR	PROJECTED OPER. COST	PROJECTED CAP. COST	TOTAL COST
1992	$129,200.00	$12,582.00	$141,782.00
1993	$133,076.00	$12,582.00	$145,658.00
1994	$137,068.28	$12,582.00	$149,650.28
1995	$141,180.33	$12,582.00	$153,762.33
1996	$145,415.74	$12,582.00	$157,997.74
1997	$149,778.21	$16,617.74	$166,395.95
1998	$154,271.56	$16,617.74	$170,889.30
1999	$158,899.70	$16,617.74	$175,517.44
2000	$163,666.69	$16,617.74	$180,284.43
2001	$168,576.70	$16,617.74	$185,194.44
2002	$173,634.00	$16,617.74	$190,251.74

The above figures are based on current collection and disposal costs plus anticipated operational and capital costs outlined in the ten-year work program. These figures also assume that the County will continue to bear the cost of providing disposal facilities. Obviously, if user fees are put in place for Millen, some of the disposal cost would be transferred to the City. These figures are in 1992 constant dollars and therefore do not reflect inflation. For a more detailed listing of these costs, please see the attached ten-year short term work program.

In order to more accurately assess and plan for the financing of solid waste management, Jenkins County and its incorporated areas must first identify how much money is going to each element of solid waste management in their city/county. Tables 9 and 10 below breakdown the above listed annual costs into their respective planning elements. These tables contain figures for unincorporated Jenkins County and Millen.

Table 9

Unincorporated Jenkins County
Solid Waste Management Financing Distribution 1992-2002

YEAR	WASTE DISPOSAL	WASTE COLLECTION	WASTE REDUCTION	PUBLIC EDUCATION	TOTAL
1992	$73,810.10	$39,743.90	-0-	-0-	$113,554.00
1993	$1,041,314.80	$183,761.44	$20,000.00	$1000	$1,246,076.24
1994	$1,001,559.28	$176,745.75	$2500.00	$1000	$1,181,805.03
1995	$1,003,556.05	$177,098.13	$2500.00	$1000	$1,184,154.18
1996	$1,005,612.74	$177,461.07	$2500.00	$1000	$1,186,573.81
1997	$1,007,731.12	$177,834.90	$2500.00	$1000	$1,189,066.02
1998	$1,009,913.05	$178,219.95	$2500.00	$1000	$1,191,633.00
1999	$1,012,160.44	$178,616.55	$2500.00	$1000	$1,194,276.99
2000	$1,014,475.26	$179,025.05	$2500.00	$1000	$1,018,154.51
2001	$1,016,859.51	$179,445.80	$2500.00	$1000	$1,199,805.31
2002	$1,019,315.30	$179,879.17	$2500.00	$1000	$1,202,694.47

Table 10

City of Millen
Solid Waste Management Financing Distribution 1992-2002

YEAR	WASTE COLLECTION	WASTE DISPOSAL	WASTE REDUCTION	PUBLIC EDUCATION	TOTAL
1992	$141,782.00	-	-	-	$141,782.00
1993	$145,658.00	-	-	-	$145,658.00
1994	$149,650.28	-	-	-	$149,650.28
1995	$153,762.33	-	-	-	$153,762.33
1996	$157,997.74	-	-	-	$157,997.74
1997	$166,395.95	-	-	-	$166,395.95
1998	$170,889.30	-	-	-	$170,889.30
1999	$175,517.44	-	-	-	$175,517.44
2000	$180,284.43	-	-	-	$180,284.43
2001	$185,194.44	-	-	-	$185,194.44
2002	$190,251.74	-	-	-	$190,251.74

Assessment

Officials in Jenkins County and Millen plan to continue to fund solid waste management primarily from their respective general funds. As costs increase to a point where this is no longer practical, alternate means of funding will need to be sought out by local officials. User fees for citizens of Jenkins County and Millen may be a viable means of supplementing the cost of solid waste management in the near future.

COMMUNITY NEEDS, GOALS, AND RECOMMENDATIONS FOR MILLEN, AND UNINCORPORATED JENKINS COUNTY

The purpose of the Solid Waste Management Plan is to outline a strategy by which the county can: 1) reduce its per capita waste received at the disposal facility by a minimum of 25% by 1996, and 2) guarantee a minimum of ten years landfill capacity for its citizens. Part I of this plan, the Inventory and Assessment, analyzes all existing programs and facilities in the county as to their adequacy.

This section of the plan (Part II) provides a list of community solid waste needs and goals. These goals were compiled based on input received from citizens and public officials at a public hearing held March 24, 1992 as well as ideas presented at a series of meetings by the Jenkins County Solid Waste Committee. This seven person committee was composed of the County Commission members, City Council members, and local citizens of Millen and Jenkins County.

These community goals are designed to realistically meet the above listed state mandated solid waste goals as well as to provide a framework for future solid waste management practices in Jenkins County. Listed below are the City/County goals, organized into seven general categories. These seven categories are: Amount of Waste, Collection, Waste Reduction, Disposal, Land Limitation, Education and Public Involvement, and Implementation and Financing.

AMOUNT OF WASTE ELEMENT

Goal 1: *To continue to weigh solid waste taken to the landfill for disposal as well as items diverted from the landfill (i.e. recyclables, white goods, scrap metal, etc.) in an effort to track waste reduction progress.*

> ***Action 1;*** *Maintain the effective operation of the scale system at the landfill site to adequately measure the waste stream.*
>
> ***Action 2:*** *Follow through with plans to operate a material recovery facility at the landfill site that would initially be dedicated to white goods collection.*
>
> ***Action 3:*** *Continue to weigh recyclables at the Service Center in order to add the amounts to the total waste stream and pursuant reduction analysis.*

Goal 2: *To accurately determine waste composition throughout the planning period in order to track any drastic changes in waste content and/or sources.*

Action 1: *Perform a periodic waste stream analysis at the landfill site in order to pinpoint and document any changes in community disposal habits.*

Action 2: *As composition changes are noticed, "fine tune" reduction strategies accordingly to maintain and maximize waste reduction strategies.*

COLLECTION ELEMENT

Goal 1: *To insure an efficient and effective collection system for the citizens of Jenkins County throughout the ten-year planning period.*

Action 1: *Maintain all equipment in working order.*

Action 2: *Replace equipment that is in poor operating condition.*

Action 3: *Prepare a ten-year capital improvement schedule for solid waste purposes.*

Action 4: *Organize and consolidate county green box sites in such a way as to provide adequate service to county residents, while providing a manageable collection schedule.*

WASTE REDUCTION ELEMENT

Goal 1: *To formulate and implement a coordinated, city-county recycling program that would serve all Jenkins County citizens and include paper, glass, aluminum, ferrous materials, and plastic products as markets dictate.*

Action 1: *Contact neighboring counties of similar size that have already implemented recycling programs and get information regarding recycling methods that have proved to be successful.*

Action 2: *Contact qualified state agencies for information regarding available recycling market options.*

Action 3: *Coordinate all phases of planning and formulation with the existing recycling operations at the Jenkins County Service Center in an effort to alleviate duplicative efforts in collection, storage, and market sale.*

Action 4: *Promote recycling efforts through the local schools and churches as well as through local commercial establishments. Drop-off sites may also be provided at churches and schools.*

Action 5: *Continue to recycle white goods.*

Action 6: *Implement a recycling program for discarded tires and other rubber products.*

Action 7: *Implement a county-coordinated composting operation.*

Action 8: *Establish an industrial recycling policy to be followed by future industry in Jenkins County.*

Goal 2: *To inform the citizens of Jenkins County as to the source reduction options available to them (i.e. product re-use, reduced volume buying, etc.).*

Action 1: *Provide educational materials to citizens of Jenkins County through the local schools and churches.*

Goal 3: *To reduce the overall cost of implementing a recycling program.*

Action 1: *Initiate discussions with surrounding rural counties about the possibility of implementing a multi-jurisdictional recycling effort. This would benefit the participating counties by reducing start up and maintenance costs while providing an effective means of collecting and selling recyclable materials. An agreement of this type will take time to organize and for this reason, local recycling efforts should continue until such an agreement is made.*

DISPOSAL ELEMENT

Goal 1: *To provide adequate solid waste disposal facilities throughout the ten-year planning period for the citizens of Jenkins County and its incorporated areas.*

Action 1: *Begin construction and operation of the recently permitted acreage at the Jenkins County Landfill.*

Action 2: *Continue proposals to neighboring Screven, Emanuel, and Candler Counties to implement a multi-jurisdictional landfill agreement.*

Action 3: *Maximize landfill life expectancy by utilizing the latest shredding and compacting techniques.*

LAND LIMITATION ELEMENT

Goal 1: *To insure that existing and proposed solid waste facilities are located on sites that are suitable from both an environmental and land use perspective.*

Action 1: *Based on projected land use patterns and the enclosed maps identifying unsuitable sites for solid waste facilities, identify the most suitable sites in the county for future solid waste facilities (i.e. material reduction/recovery facilities). It should be noted that the newly permitted Jenkins County Landfills will be more than adequate to meet the county's needs throughout the ten-year planning period. Other sites may need to be identified, however, for the county's long term interests.*

EDUCATION AND PUBLIC INVOLVEMENT ELEMENT

Goal 1: *To make the citizens of Jenkins County aware of county solid waste needs, goals and reduction strategies as well as foster an interest in helping to meet these goals.*

Action 1: *Publicize and promote all proposed solid waste programs (i.e. recycling, source reduction, etc.) through the local schools, churches, local media, and commercial establishments.*

IMPLEMENTATION AND FINANCING ELEMENT

Goal 1: *To determine sources of revenue sufficient enough to implement all reduction strategies as well as to continue a safe, effective solid waste management program in Jenkins County.*

Action 1: *Contact all concerned State and Federal Agencies for information on available solid waste funding sources.*

Action 2: *Allocate necessary city and county funds to implement the proposed solid waste strategies.*

Action 3: *Implement a full-cost accounting system to accurately track dollars invested on solid waste management.*

Action 4: *Initiate a local option sales tax to be dedicated for solid waste management practices.*

Action 5: *Apply revenues derived from any and all solid waste related multi-jurisdictional agreements directly to landfill expenditures.*

Jenkins County Solid Waste Work Program, 1992 - 2002

Activity:	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001	2002	Respon-sibility	Cost	Funding Source
AMOUNT OF WASTE ELEMENT:														
1. Maintain effective waste measuring scale system at the landfill.												County	-----	General Fund
2. Continue recording recyclable weights at the service center for waste reduction credit.												County/ Training Center	-----	Training Center
3. Construct and operate a Material Recovery Facility for white goods and possibly tires and batteries.												County	$5,000	General Fund
COLLECTION ELEMENT:														
1. Maintain equipment in proper working order.												County	$5,000/year	General Fund
2. Replace equipment that is in poor condition (i.e. compactor)												County	$150,000	Grant Options
3. Consolidate Green Box sites and add fences.												County	$5,000	Solid Waste Fund
4. Pickup recycling bins at schools and churches.												County/ Training Center	-----	General Fund
5. Purchase a tub grinder for the Landfill.												City/ County	$75,000	Solid Waste Fund
6. Periodically replace Green Boxes as needed.												County	-----	General Fund
7. Explore options for privatized County collection.												County	-----	-----

Jenkins County Solid Waste Work Program, 1992 - 2002

Activity:	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001	2002	Respon-sibility	Cost	Funding Source
WASTE REDUCTION ELEMENT:														
1. Purchase recycling bins for schools and churches.												County	$15,000	Solid Waste Fund
2. Extractand recycle white goods at the MRF.												County	$ 5,000	General Fund
3. Initiate a County wide composting operation.												County	$ 5,000	Solid Waste Fund
4. Maintain industrial recycling policy.												County	------	------
5. Continue to support Jenkins County Service Center recycling partnership.												County	------	------
DISPOSAL ELEMENT:														
1. Begin construction and operation of 11.5 acre construction and demolition landfill.												County	$862,500	GEFA or other loan/ grant
2. Begin construction of new sanitary landfill.												County	$12 million	GEFA or other loan/ grant
3. Establish regional landfill agreements.												County	------	------
4. Explore options with private management firms.												County	------	------

Jenkins County

Solid Waste Work Program, 1992 – 2002

Activity:	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001	2002	Respon-sibility	Cost	Funding Source
ND LIMITATION ELEMENT														
Comply with all pplicable regulations or future solid waste acility sitings.												County	---	---
. Maintain and continue ll required environmental esting at landfill.												County		General Fund
UBLIC EDUCATION AND INVOLVEMENT ELEMENT:														
1. Begin recycling/ reduction programs at county schools and churches.												County/ School Board	$1,000/year	General Fund/ Schools
2. Advertise recycling programs, sites, and schedules on radio, T.V. newspaper.												County	$1,000/year	General Fund
3. Distribute posters, flyers, etc. at commercial establishments, schools and churches.												County	$500/year	General Fund
4. Organize a network of qualified speakers for organizational recruitment.												City/ County	---	---
IMPLEMENTATION AND FINANCE ELEMENT:														
1. Contact state and federal agencies about funding options.												County	---	---
2. Implement a one cent local option sales tax for solid waste expenses.												County	---	---
3. Maintain and enforce the current tipping fee schedule for individuals and industry.												County	---	---
4. Utilize Regional Agreement revenues for solid waste expenses.												County	---	---
5. Use GEFA solid waste programs to fund landfill												County	---	---
6. Analyze private management as a financial option for disposal.												County	---	---

City of Millen

Solid Waste Work Program, 1992 – 2002

Activity:	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001	2002	Respon-sibility	Cost	Fundir Sourc
AMOUNT OF WASTE ELEMENT:														
1. Continue to record waste quantities taken to the landfill to track reduction.												City/County	0	N/A
COLLECTION ELEMENT:														
1. Maintain all equipment in proper working order.												City	$3,500/year	General Fund
2. Maintain current collection system in Millen.												City	---	General Fund
3. Replace equipment that is in poor condition. (truck)												City	$70,000	Sanitatio Fees
DISPOSAL ELEMENT:														
1. Continue to utilize the Jenkins County landfill.												City/County	$1.50/ton	General Fun
WASTE REDUCTION ELEMENT:														
1. Assist and participate in the county recycling program and composting operation.												City/County	---	General Fund
2. Sponsor periodic recycling contests/ programs												City/County	---	General Fund
3. Collect organic materials on residential routes for composting.												City/County	---	General Fund

City of Millen

Solid Waste Work Program, 1992 – 2002

Activity:	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001	2002	Respon-sibility	Cost	Fundin Sourc
LAND LIMITATION ELEMENT:														
1. Cooperate with County in siting any new solid waste facility to insure public safety.												City/ County	-----	-----
PUBLIC EDUCATION AND INVOLVEMENT ELEMENT:														
1. Sponsor recycling contests/programs.												City/ County	------	County
2. Distribute posters, flyers, etc.												City/ County	------	County
3. Coordinate all public education efforts with the county.												City	------	-----
IMPLEMENTATION AND FINANCE ELEMENT:														
1. Contact all state and federal funding sources.												City	-------	------
2. Implement a full-cost accounting system for solid waste.												City	------	------
In the event of a tipping fee, add fees to sanitation charges.												City	------	------

APPENDIX C

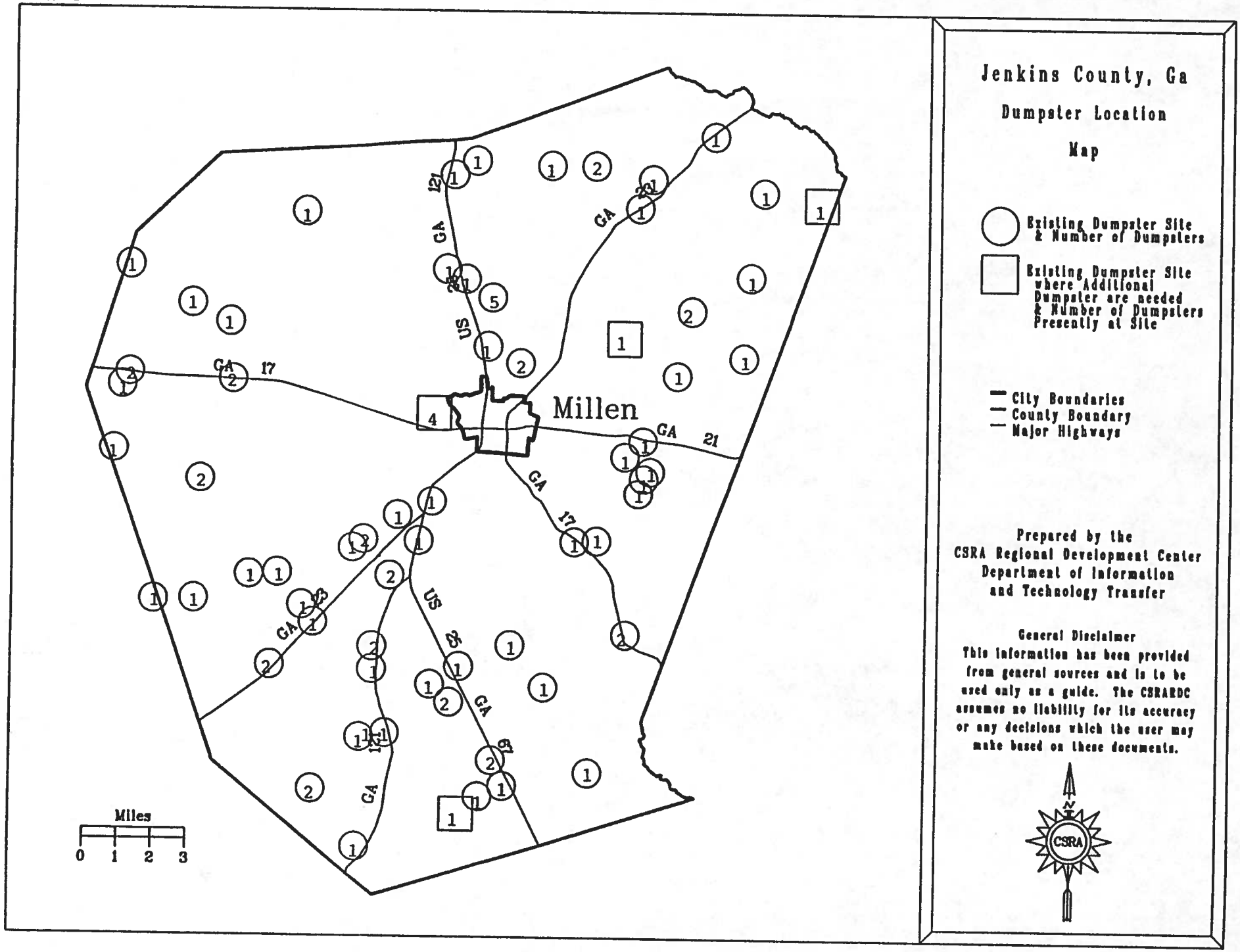
AMOUNT OF WASTE ADDENDUM:
Jenkins County Projected Solid Waste Sources 1992-2002

YEAR	PROJECTED POPULATION	JENKINS COUNTY PROJECTED WASTE PER MONTH POUNDS	TONS	SOURCE PERCENTAGES RESIDENTIAL	INDUSTRIAL	COMMERCIAL	CONSTRUCTION	OTHER
1992	8,084	1,396,915	698	35.0%	45.0%	10.0%	7%	3%
1993	8,002	1,382,746	691	34.5%	46.0%	9.5%	7%	3%
1994	7,921	1,368,749	684	34.0%	47.0%	9.0%	7%	3%
1995	7,839	1,354,579	677	33.5%	48.0%	8.5%	7%	3%
1996	7,756	1,340,236	670	33.0%	49.0%	8.0%	7%	3%
1997	7,673	1,325,894	663	32.5%	50.0%	7.5%	7%	3%
1998	7,590	1,311,552	656	32.0%	51.0%	7.0%	7%	3%
1999	7,507	1,297,210	649	31.5%	52.0%	6.5%	7%	3%
2000	7,424	1,282,867	641	31.0%	53.0%	6.0%	7%	3%
2001	7,343	1,268,870	634	30.5%	54.0%	5.5%	7%	3%
2002	7,262	1,254,874	627	30.0%	55.0%	5.0%	7%	3%

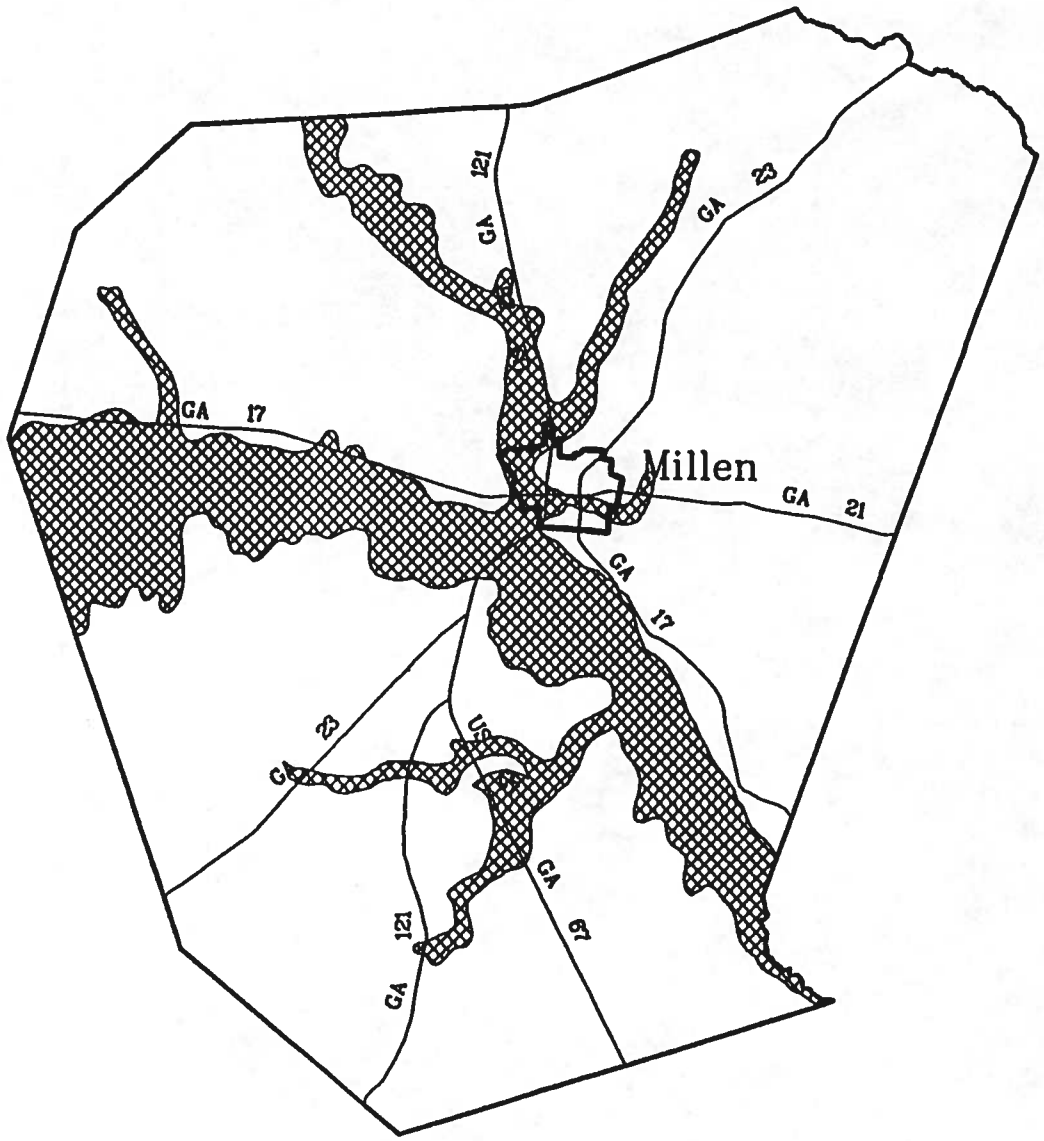
Source: CSRA-RDC Solid Waste Projections, June, 1992

NOTE: 1992 SOURCE PERCENTAGES DERIVED FROM PREVIOUS LANDFILL SURVEY PERIODS AND EXTRAPOLATED GIVEN THE DESIRE FOR INCREASED INDUSTRIALIZATION IN JENKINS COUNTY.

MAP 1


Jenkins County, Ga
Dumpster Location
Map
Existing Dumpster Site & Number of Dumpsters
Existing Dumpster Site where Additional Dumpster are needed & Number of Dumpsters Presently at Site
City Boundaries
County Boundary
Major Highways
Prepared by the
CSRA Regional Development Center
Department of Information
and Technology Transfer
General Disclaimer
This information has been provided from general sources and is to be used only as a guide. The CSRARDC assumes no liability for its accuracy or any decisions which the user may make based on these documents.
Millen
GA 17
GA 21
US 25
GA 121
GA 23
GA 67
Miles
0 1 2 3
N
CSRA

MAP 2



Jenkins County, Ga

Wetlands

Wetlands

City Boundaries
County Boundary
Major Highways

Scale: 1" = 4 miles

Prepared by the
CSRA Regional Development Center
Department of Information
and Technology Transfer

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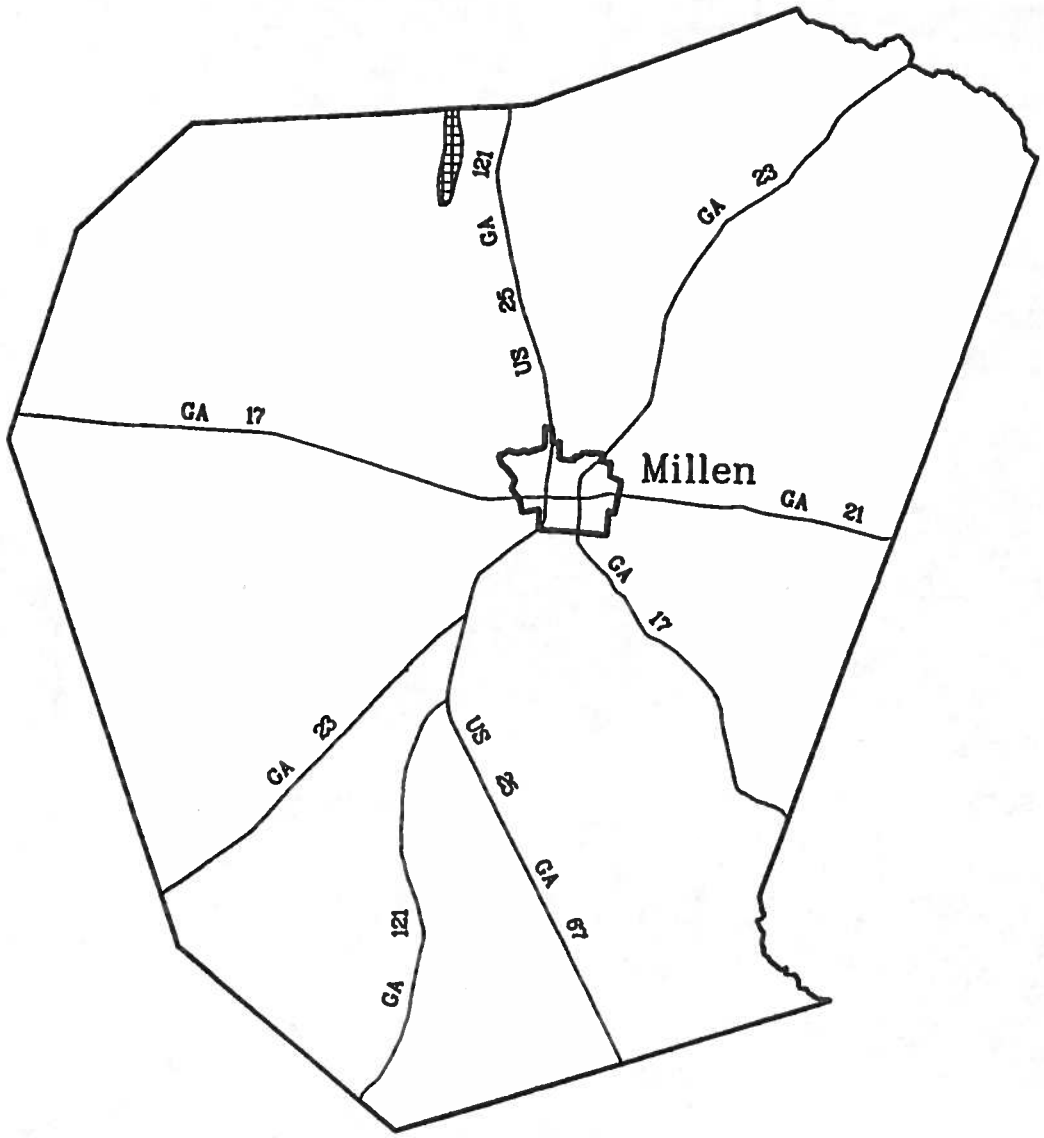
CSRA

MAP 3



Jenkins County, Ga

Aquifer Recharge Areas

Aquifer Recharge Area

City Boundaries
County Boundary
Major Highways

Scale: 1" = 4 miles

Prepared by the
CSRA Regional Development Center
Department of Information
and Technology Transfer

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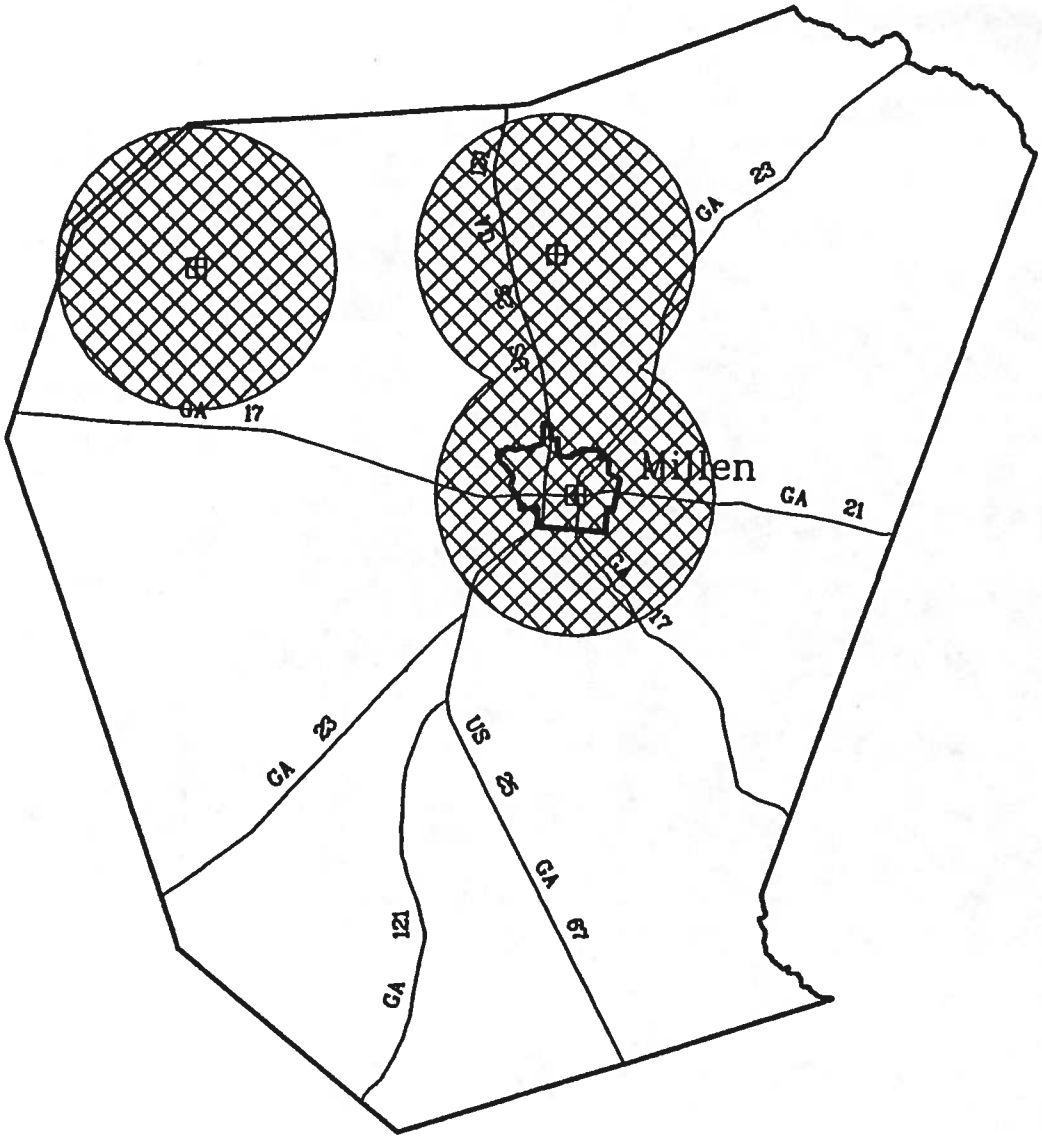
CSRA

MAP 4



Jenkins County, Ga

National Historic Register Sites

3 Mile Radius From National Register Site

City Boundaries
County Boundary
Major Highways

National Historic Register Site

Scale: 1" = 4 miles

Prepared by the
CSRA Regional Development Center
Department of Information
and Technology Transfer

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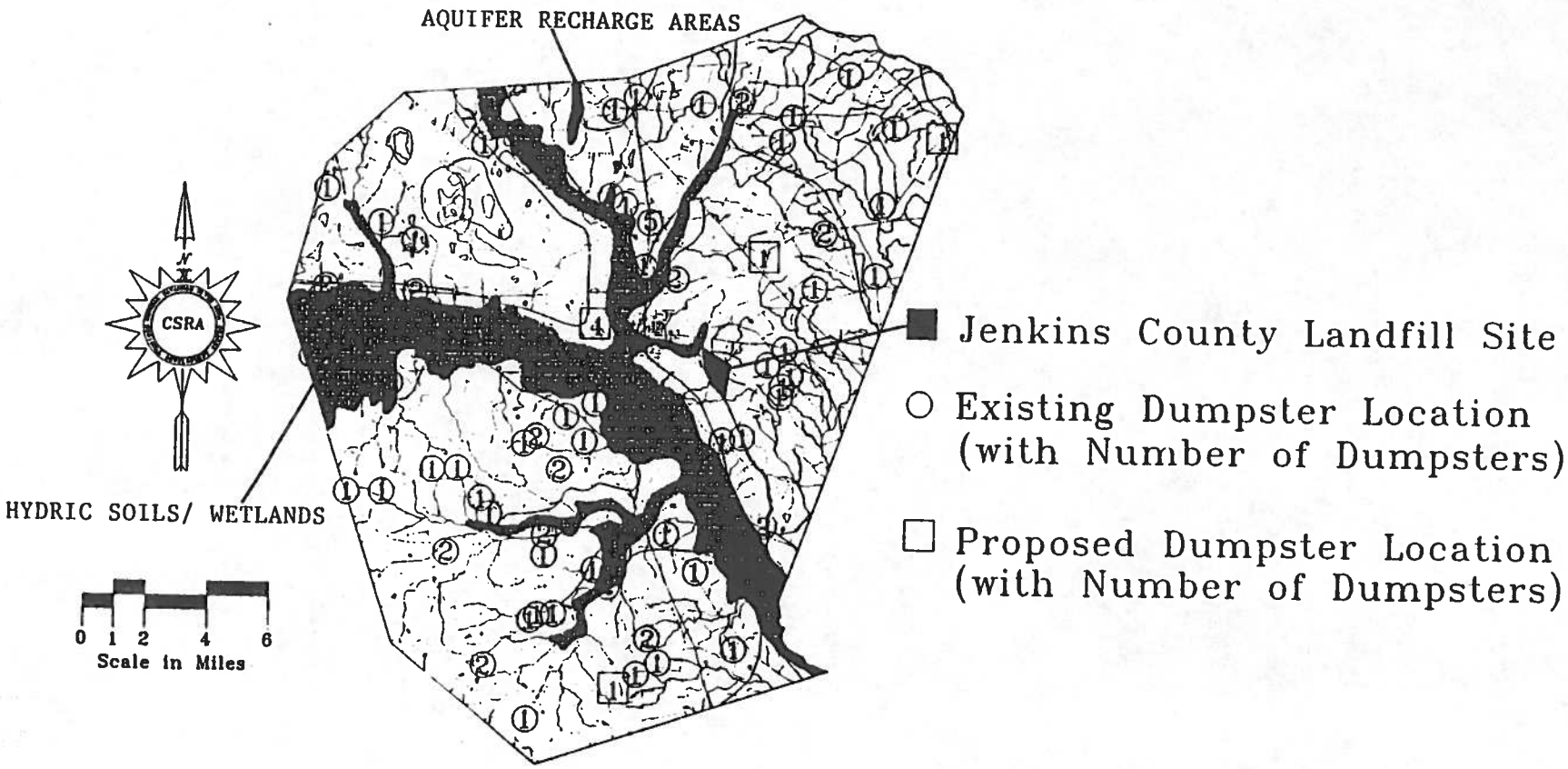
CSRA

MAP 5



Jenkins County Solid Waste Base Map

APPENDIX A

Ratified by General Assembly

Rules of
Georgia Department of Natural Resources
Environmental Protection Division

Chapter 391-3-16
Rules for Environmental Planning Criteria

Table of Contents

391-3-16-.01 Criteria For Water Supply Watersheds

(1) Background.

(a) These criteria establish pursuant to O.C.G.A 12-2-8 a basis to be used by local governments to allow development of a water supply watershed without contaminating the water source to a point where it cannot be treated to meet drinking water standards. The criteria accomplish this by establishing buffer zones around streams and by specifying allowable impervious surface densities within watersheds. The criteria also include protection of water supply reservoirs by buffer zones and management practices to be established by reservoir owners and approved by the Department of Natural Resources.

(b) Large drainage basins are less vulnerable to contamination by land use development than small basins. Therefore, more stringent watershed protection criteria are established for water supply watersheds less than 100 square miles in size. Since existing water supply sources as well as future sources must be protected, the criteria apply to both existing and future water supply watersheds. Watersheds are not identical; consequently alternate criteria may be adopted by local governments to protect water supply watersheds.

(c) The purpose of these criteria is to establish the protection of drinking water watersheds. This protection is necessary for the enhancement of public health, safety and welfare as well as to assure that surface sources of drinking water are of high quality in order to be treated to meet all State and Federal drinking water standards.

(2) Definitions.

(a) Buffer means a natural or enhanced vegetated area with no or limited minor land disturbances, such as trails and picnic areas. Specific buffer uses may be defined by local governments consistent with these criteria.

(b) Corridor means all land within the buffer areas and other setback areas specified in Paragraphs (6) and (7) of these criteria.

(c) Impervious Surface means a man-made structure or surface which prevents the infiltration of storm water into the ground below the structure or surface. Examples are buildings, roads, driveways, parking lots, decks, swimming pools, or patios.

(d) Perennial Stream means a stream which flows throughout the whole year as indicated on a USGS Quad map.

(e) Reservoir Boundary means the edge of a water supply reservoir defined by its normal pool level.

(f) Utility means public or private water or sewer piping systems, water or sewer pumping stations, electric power lines, fuel pipelines, telephone lines, roads, driveways, bridges, river/lake access facilities, storm water systems and railroads or other utilities identified by a local government.

(g) Water Supply Reservoir means a governmentally owned impoundment of water for the primary purpose of providing water to one or more governmentally owned public drinking water systems. This excludes the multipurpose reservoirs owned by the U.S. Army Corps of Engineers.

(h) Water Supply Watershed means the area of land upstream of a governmentally owned public drinking water intake.

(i) Water Supply Watershed Protection Plan is a land use plan prepared and adopted by local governments for the protection of the quality of drinking water obtained from the watershed.

(3) Coverage. These criteria shall apply to all governments located within water supply watersheds. Exceptions to coverage may be allowed for watersheds providing secondary or emergency sources of water only. These criteria do not apply to watersheds not used for public drinking water supply. Standards established in the Metropolitan Rivers Protection Act and the Erosion and Sedimentation Act are not superseded by these criteria.

(4) Local Government Adoption. Local governments shall identify existing and future water supply watersheds and shall adopt water supply watershed protection plans as part of their planning process. These criteria shall be used as the basis for local water supply watershed protection plans. Local governments may refine and enhance the criteria in their water supply watershed protection plans. All existing or proposed withdrawals for public water supply must be approved by the Department of Natural Resources.

(5) Exemptions.

(a) Local governments may exempt land uses existing prior to promulgation of water supply watershed protection plans from the provisions of water supply watershed protection plans.

(b) Local governments may exempt mining activities permitted by the Department of Natural Resources under the Surface Mining Act from the provisions of water supply watershed protection plans.

(c) Local governments may exempt utilities from the stream corridor buffer and setback area provisions of water supply watershed protection plans in accordance with the following conditions if the utilities to be located in the buffer or setback areas cannot feasibly be located outside these areas:

1. The utilities shall be located as far from the stream bank as reasonably possible.

2. The installation and maintenance of the utilities shall be such to protect the integrity of the buffer and setback areas as best as reasonably possible.

3. The utilities shall not impair the quality of the drinking water stream.

(d) Local governments may exempt specific forestry and agricultural activities from the stream corridor buffer and setback area provisions of water supply watershed protection plans in accordance with the following conditions:

1. The activity shall be consistent with best management practices established by the Georgia Forestry Commission or the Georgia Department of Agriculture.

2. The activity shall not impair the quality of the drinking water stream.

(6) Minimum Criteria for Large Water Supply Watersheds.

(a) A large water supply watershed has 100 square miles or more of land within the drainage basin upstream of a governmentally owned public drinking water supply intake.

(b) The stream corridors of a large water supply watershed tributary to the water supply intake shall have no specified minimum criteria for protection, except the stream corridors of the perennial tributaries of a water supply reservoir in a large water supply watershed are protected as described in (c) below.

(c) The corridors of all perennial streams in a large water supply watershed tributary to a water supply reservoir within a seven (7) mile radius of the reservoir boundary are protected by the following criteria:

1. A buffer shall be maintained for a distance of 100 feet on both sides of the stream as measured from the stream banks.

2. No impervious surface shall be constructed within a 150 foot setback area on both sides of the stream as measured from the stream banks.

3. Septic tanks and septic tank drainfields are prohibited in the setback area of 2. above.

(d) The remainder of a large water supply watershed tributary to the water supply intake shall have no specified minimum criteria for protection, except that new facilities, located within seven (7) miles of a water supply intake or water supply reservoir, which handle hazardous materials of the types and amounts determined by the Department of Natural Resources, shall perform their operations on impermeable surfaces having spill and leak collection systems as prescribed by the Department of Natural Resources.

(e) The water supply reservoirs in large water supply watersheds will be managed as described in (8).

(7) Minimum Criteria for Small Water Supply Watersheds

(a) A small water supply watershed has less than 100 square miles of land within the drainage basin upstream of a governmentally owned public drinking water supply intake.

(b) Stream Corridor Criteria for Small Water Supply Watersheds

1. The perennial stream corridors of a small water supply watershed within a seven (7) mile radius upstream of a governmentally owned public drinking water supply intake or water supply reservoir are protected by the following criteria:

(i) A buffer shall be maintained for a distance of 100 feet on both sides of the stream as measured from the stream banks.

(ii) No impervious surface shall be constructed within a 150 foot setback area on both sides of the stream as measured from the stream banks.

(iii) Septic tanks and septic tank drainfields are prohibited in the setback area of (ii) above.

2. The perennial stream corridors within a small water supply watershed and outside a seven (7) mile radius upstream of a governmentally owned public drinking water supply intake or water supply reservoir are protected by the following criteria:

(i) A buffer shall be maintained for a distance of 50 feet on both sides of the stream as measured from the stream banks.

(ii) No impervious surface shall be constructed within a 75 foot setback area on both sides of the stream as measured from the stream banks.

(iii) Septic tanks and septic tanks drainfields are prohibited in the setback areas of (ii) above.

(c) The following criteria apply at all locations in a small water supply watershed.

1. New sanitary landfills are allowed only if they have synthetic liners and leachate collection systems.

2. New hazardous waste treatment or disposal facilities are prohibited.

3. The impervious surface area, including all public and private structures, utilities, or facilities, of the entire water supply watershed shall be limited to twenty-five (25) per cent, or existing use, whichever is greater.

4. New facilities which handle hazardous materials of the types and amounts determined by the Department of Natural Resources, shall perform their operations on impermeable surfaces having spill and leak collection systems as prescribed by the Department of Natural Resources.

(d) The water supply reservoirs in small water supply watersheds are to be managed as described in (8).

(8) Water Supply Reservoirs Management Plans.

(a) The owner of a water supply reservoir shall develop a reservoir management plan for approval of the Department of Natural Resources. If the Department owns the reservoir, the plan shall be prepared in cooperation with the local governments using the reservoir.

(b) A reservoir management plan shall address the recreational use of the reservoir and the maintenance of a buffer around the reservoir.

1. Prohibitions or restrictions on all or some of the following recreational uses shall be addressed in the reservoir management plan to protect the water quality of the reservoir for drinking purposes while optimizing its recreational benefits.

(i) Swimming
(ii) Fishing
(iii) Boating
(iv) Docks
(v) Public Access

2. A buffer shall be maintained for a distance of 150 feet from the reservoir boundary. The allowable buffer vegetation and disturbance shall be specified in the reservoir management plan.

3. Reservoir owners, upon consideration of ground slopes and soil types, may adopt buffers of differing sizes than in 2. above upon approval of the Department of Natural Resources.

(9) Additional Criteria.

(a) Within water supply watersheds, local governments may adopt additional criteria to protect drinking water sources.

(10) Alternate Minimum Criteria for Water Supply Watersheds.

(a) Criteria different than those in (6) and (7) may be presented to the Department of Natural Resources by all of the local governments within a water supply watershed. The Department of Natural Resources may approve such criteria if the Department of Natural Resources deems them to provide an equivalent level of protection to the criteria of (6) and (7), and if they provide at least as much stream corridor buffer and set back area in the watershed as the criteria of (6) and (7).

(b) Land uses, such as the construction of lakes and ponds, which can be shown to enhance the protection of water quality may be included in the alternate criteria.

391-3-16-.02 Criteria For Protection of Groundwater Recharge Areas

(1) Background. Variable levels of recharge area protection can be based upon the State's hydrogeology (e.g., areas such as the Dougherty Plain where a major aquifer crops out would receive a relatively high degree of protection whereas other areas, such as the shale hills of northwest Georgia, would receive a lower degree of protection). Recharge area protection within the significant recharge areas would be further refined, based upon the local susceptibility or vulnerability to human induced pollution (e.g., high, medium, or low). The significant recharge areas have already been identified and mapped (about 22-23% of the State). Pollution susceptibility mapping is ongoing. Existing statutes are adequate for protecting the remaining recharge areas (about 77-78% of the State).

(2) Definitions:

(a) "Aquifer" means any stratum or zone of rock beneath the surface of the earth capable of containing or producing water from a well. (Note: this is the same definition as in the Groundwater Use Act).

(b) "DRASTIC" means the standardized system for evaluating groundwater pollution potential using the hydrogeologic settings described in U.S. Environmental Protection Agency document EPA-600/2-87-035. (Note: the DRASTIC methodology is the most widely used technique for evaluating pollution susceptibility).

(c) "Pollution Susceptibility" means the relative vulnerability of an aquifer to being polluted from spills, discharges, leaks, impoundments, applications of chemicals, injections and other human activities in the recharge area.

(d) "Pollution Susceptibility Maps" means maps of relative vulnerability to pollution prepared by the Department of Natural Resources, using the DRASTIC methodology. Pollution susceptibility maps categorize the land areas of the State into areas having high, medium and low ground-water pollution potential.

(e) "Recharge Area" means any portion of the earth's surface, where water infiltrates into the ground to replenish an aquifer.

(f) "Significant Recharge Areas" means those areas mapped by the Department of Natural Resources in Hydrologic Atlas 18 (1989 edition). Mapping of recharge areas is based on outcrop area, lithology, soil type and thickness, slope, density of lithologic contacts, geologic structure, the presence of karst, and potentiometric surfaces. Significant recharge areas are as follows in the various geologic provinces of Georgia:

1. In the Valley and Ridge and in the Cumberland Plateau, significant recharge areas are outcrop areas of carbonate rock where low slope (less than 8% slope) conditions prevail. Such areas commonly are characterized by karst topography (caves and sinkholes).

2. In the Piedmont and in the Blue Ridge, rocks have little primary porosity, with most groundwater being stored in the overlying soils. The significant recharge areas are those with thicker soils. Field mapping indicates that thick soils in the Piedmont and Blue Ridge are characterized by a density of two or more geologic contacts per four square miles (source: 1976 1:500,000 Geologic Map of Georgia) and slopes lower than 8%.

3. In the Coastal Plain, the significant recharge areas are the surface outcroppings of the large and extensively used drinking water aquifers (e.g., the Floridan, the Clayton, etc.) and soils having high permeability according to the 1976 1:750,000 Soils Association Map of Georgia.

(3) The following criteria pursuant to O.C.C.A. 12-2-8 shall apply in significant recharge areas:

(a) The Department of Natural Resources shall not issue any permits for new sanitary landfills not having synthetic liners and leachate collection systems.

(b) The Department of Natural Resources shall not issue any new permits for the land disposal of hazardous wastes.

(c) The Department of Natural Resources shall require all new facilities permitted or to be permitted to treat, store, or dispose of hazardous waste to perform such operations on an impermeable pad having a spill and leak collection system.

(d) New above-ground chemical or petroleum storage tanks, having a minimum volume of 660 gallons, shall have secondary containment for 110% of the volume of such tanks or 110% of the volume of the largest tank in a cluster of tanks. (Note: These figures are consistent with US EPA rules for oil pollution prevention, 40 CFR 112.1). Such tanks used for agricultural purposes are exempt, provided they comply with all Federal requirements.

(e) New agricultural waste impoundment sites shall be lined if they are within:

1. a high pollution susceptibility area;
2. a medium pollution susceptibility area and exceed 15 acre-feet;
3. a low pollution susceptibility area and exceed 50 acre-feet.

As a minimum, the liner shall be constructed of compacted clay having a thickness of one-foot and a vertical hydraulic conductivity of less than 5×10^{-7} cm/sec or other criteria established by the U.S. Soil Conservation Service.(The average size of existing agricultural waste impoundments in Georgia is about 15 acre-feet; sheeps-foot rollers or pans with heavy rubber tires, which are normal equipment for most Georgia earth moving contractors, should be able to compact clay to the recommended vertical hydraulic conductivity.)

(f) New homes served by septic tank/drain field systems shall be on lots having the following minimum size limitations as identified on Table MT-1 of the Department of Human Resources' Manual for On-Site Sewage Management Systems (hereinafter "DHR Table Mt-1"):

1. 150% of the subdivision minimum lot size of DHR Table MT-1 if they are within a high pollution susceptibility area; and

2. 125% of the subdivision minimum lot size of DHR Table MT-1 if they are within a medium pollution susceptibility area.

3. 110% of the subdivision minimum lot size of DHR Table MT-1 if they are within a low pollution susceptibility area.

(g) New mobile home parks served by septic tank/drain field systems shall have lots or spaces having the following size limitation as identified on Table MT-2 of the Department of Human Resources' Manual for On-Site Sewage Management Systems (hereinafter "DHR Table MT-2")

1. 150% of the subdivision minimum lot or space size of DHR Table MT-2 if they are within a high pollution susceptibility area;

2. 125% of the subdivision minimum lot or space size of DHR Table MT-2 if they are within a medium pollution susceptibility area; and

3. 110% of the subdivision minimum lot or space size of DHR Table MT-2 if they are within a low pollution susceptibility area.

(h) If a local government requires a larger lot size than that required by (f) above for homes or by (g) above for mobile homes, the larger lot size shall be used.

(i) Local governments at their option may exempt from the requirements of (f) or (g) any lot of record on the date of their adoption of these lot size standards.

(j) No construction may proceed on a building or mobile home to be served by a septic tank unless the county health department first approves the proposed septic tank installation as meeting the requirements of the DHR Manual and (f), (g), (h), and (i) above.

(k) Each Regional Development Center is responsible for considering, in its regional plan, the cumulative environmental effects of a significant number of septic tank systems being used in close proximity to each other. In so considering the Regional Development Center shall not approve any local plans which would result in adverse environmental effects on another area. A Regional Development Center may consult with the Department of Human Resources and Department of Natural Resources for technical assistance as to appropriate densities of lots served by septic tanks in significant recharge areas.

(l) New facilities which handle hazardous materials, of types and in amounts determined by Department of Natural Resources, shall perform their operations on impermeable surfaces having spill and leak collection systems, as prescribed by Department of Natural Resources.

(m) The Department of Natural Resources shall require conservative design in any new permits for the spray irrigation of wastewaters or the land spreading of wastewater sludges in areas having high pollution susceptibility. This shall be accomplished by comparing the Department's CRITERIA FOR SLOW RATE LAND TREATMENT (February, 1986 or latest edition) with amendments and other technical publications to site specific information submitted by a registered professional engineer for each project.

(n) Permanent storm water infiltration basins shall not be constructed in areas having high pollution susceptibility.

(o) Exclusive of mining settling basins, new wastewater treatment basins shall have an impermeable liner in areas having high pollution susceptibility.

(4) Local governments having jurisdictional authority over all significant recharge areas shall adopt, implement, and enforce ordinances for recharge area protection at least as stringent as the standards developed by the Department of Natural Resources.

391-3-16-.03 Criteria For Wetlands Protection

(1) Local governments and regional development centers should acknowledge the importance of wetlands for the public good in the land-use planning process as mandated by O.C.G.A 12-2-8. The Department of Natural Resources shall establish a freshwater wetlands database and minimum criteria for local government consideration of wetlands protection in the land-use planning process. DNR's database shall include field checked mapping of wetlands. The criteria are designed to assist in the identification and protection of wetlands, and do not constitute a state or local permit program.

(2) The wetlands permit program under Section 404 of the Clean Water Act provides a federal permit process that may allow activities in wetlands after a public interest review. Most activities in wetlands will require a Section 404 permit from the Corps of Engineers. If wetlands are altered or degraded, mitigation to offset losses will be required as a condition of a Section 404 Permit. Under current federal policy, alterations or degradations of wetlands should be avoided unless it can be demonstrated that there will be no long-term adverse impacts or net loss of wetlands. Section 401 of the Clean Water Act requires certification by the State for any permit issued under Section 404. Other state and federal laws are also applicable to wetlands and wetlands protection.

(3) The following are definitions and criteria for developing local and regional land-use plans with respect to wetlands:

(a) Definition of Freshwater Wetlands. "Wetlands" mean those areas that are inundated or saturated by surface or groundwater at a frequency and duration sufficient to support, and that under normal circumstances do support, a prevalence of vegetation typically adapted for life in saturated soil conditions. Wetlands generally include swamps, marshes, bogs, and similar areas. (33 CFR 32.93) The ecological parameters for designating wetlands include hydric soils, hydrophytic vegetation, and hydrological conditions that involve a temporary or permanent source of water to cause soil saturation. Freshwater wetlands do not include any areas defined as "coastal marshlands" by the State Coastal Marshlands Protection Act.

(b) At a minimum, the following categories of freshwater wetlands and aquatic habitats will be defined, identified and mapped by the State:

1. Open water - areas of open water, primarily reservoirs, ponds, lakes, rivers, and estuaries.

2. Non-forested emergent wetlands - freshwater marshes dominated by a variety of grasses, sedges, rushes, and broadleaved aquatics associated with streams, ponded areas, and tidally-influenced non-saline waters.

3. Scrub/shrub wetlands - non-forested areas dominated by woody shrubs, seedlings, and saplings averaging less than 20 ft. in height; these wetlands may intergrade with forested wetlands, non-forested emergent wetlands, and open water.

4. Forested wetlands - natural or planted forested areas having a dominant tree crown closure of hardwoods, pines, gums, cypress, or any combination of these types. These areas are usually in stream or river floodplains, isolated depressions, and drainways, and contain standing or flowing water for a portion of the year.

   Subcategories:

   (i) Hardwood floodplain forests
   (ii) Coniferous floodplain forests
   (iii) Mixed floodplain forests
   (iv) Non-alluvial forested wetlands

5. Altered wetlands - areas with hydric soils that have been denuded of natural vegetation and put to other uses, such as pasture, row crops, etc., but that otherwise retain certain wetlands functions and values.

(c) Wetlands will be appropriately identified and mapped in the land-use plans developed by local and regional governments. A "minimum area" will be established for identification and mapping of wetlands in land-use plans. The "minimum area" established will be contingent upon the methodology used in developing the State's wetlands database and on other available information, but under no conditions will an identified wetland "minimum area" exceed 5 acres. Land-use plans should address at least the following considerations with regard to wetlands classes identified in the database:

1. Whether impacts to an area would adversely affect the public health, safety, welfare, or the property of others.

2. Whether the area is unique or significant in the conservation of flora and fauna including threatened, rare or endangered species.

3. Whether alteration or impacts to wetlands will adversely affect the function, including the flow or quality of water, cause erosion or shoaling, or impact navigation.

4. Whether impacts or modification by a project would adversely affect fishing or recreational use of wetlands.

5. Whether an alteration or impact would be temporary in nature.

6. Whether the project contains significant state historical and archaeological resources, defined as "Properties On or Eligible for the National Register of Historic Places".

7. Whether alteration of wetlands would have measurable adverse impacts on adjacent sensitive natural areas.

8. Where wetlands have been created for mitigation purposes under Section 404 of the Clean Water Act, such wetlands shall be considered for protection.

(d) Uses of wetlands without long term impairment of function should be included in land use plans. Acceptable uses may include:

1. Timber production and harvesting
2. Wildlife and fisheries management
3. Wastewater treatment
4. Recreation
5. Natural water quality treatment or purification
6. Other uses permitted under Section 404 of the Clean Water Act.

(e) Unacceptable uses may include:

1. Receiving areas for toxic or hazardous waste or other contaminants
2. Hazardous or sanitary waste landfills
3. Other uses unapproved by local governments

Appendix B

SOLID WASTE: FULL COST ACCOUNTING MANUAL

for

Georgia Local Governments

GEORGIA DEPARTMENT OF COMMUNITY AFFAIRS

Office of Governmental Management
1200 Equitable Building
100 Peachtree Street, NW
Atlanta, Georgia 30303
(404) 656-5534

Jim Higdon
Commissioner

An Equal Opportunity Employer

For Further Information

- State Solid Waste Management Plan and general solid waste planning questions should be directed to the DCA Office of Coordinated Planning at (404) 656-7526.

- General information and management assistance requests should be directed to the DCA Office of Governmental Management at (404) 656-5534.

- Information on mediation or the facility siting negotiation process should be directed to the DCA Office of Coordinated Planning at (404) 656-7526.

- Information on reporting requirements and data collection should be directed to the DCA Office of Government Information at (404) 656-3879.

- Requests for information on solid waste permitting and regulatory requirements should be directed to the Environmental Protection Division of the Department of Natural Resources at (404) 656-2836.

FOREWORD

The Department of Community Affairs is pleased to provide Georgia's cities and counties with this manual on Full Cost Accounting to help comply with the various reporting requirements of Georgia's Comprehensive Solid Waste Management Act. In creating the Full Cost Accounting Manual, our goal was to produce a well-researched reference and guide that local officials can easily use in assessing their solid waste costs. The data collected through this process will help local officials make more informed management decisions about their solid waste systems.

The Department of Community Affairs gratefully acknowledges the support and guidance provided by a number of people and organizations during the development of this Manual. The effort would have been impossible without the support and direction provided by the Project Steering Committee, the members of which are listed on the next page. In addition to the Committee, several other people contributed to this effort by graciously agreeing to review and test certain sections of the Manual in their communities. Specifically, we extend our thanks to Mr. Bucky Heys, City Manager of Waycross; Mr. Larry Tolbert, Solid Waste Coordinator for Polk County; and William Wilson, Assistant County Manager for Spalding County. Also, Mr. Jim Shurley, Finance Officer for the City of Tocooa, completed a computerized design for the accounting system. The services of these individuals were invaluable.

We are confident that this Manual will be of benefit to your community and will help you better manage your solid waste system. Thank you.

Jim Higdon
Commissioner

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PROJECT STEERING COMMITTEE

Ms. Faye Beverly
Director of Fiscal Administration
Southeast Georgia Regional
Development Center
Waycross

Mr. John Culpepper
Clarke County Finance Director
Athens

Mr. Dothel Edwards
Athens Public Works Director
Athens

Mr. Timothy Grogg
Assistant Director
Georgia Environmental Facilities
Authority
Atlanta

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Gwinnett Clean and Beautiful
Lawrenceville

INTRODUCTION

The Georgia Comprehensive Solid Waste Management Act addresses solid waste problems in Georgia on a broad scale and calls for specific actions by both the State and the state's 735 city and county governments. Its objective is to strengthen solid waste management practices and to achieve a 25 percent reduction in the amount of solid waste disposed of in landfills and by thermal combustion units by the year 1996.

Among the Act's various provisions designed to improve the solid waste management practices of city and county governments is one requiring them to report annually to the Georgia Department of Community Affairs the cost of providing solid waste services and to make this information available to the public. Commonly referred to as the "Full Cost Accounting Requirement," this provision is spelled out in the Act (O.C.G.A. 12-8) as follows:

> *"...effective January 1, 1992, each city and county shall be required to report to the Department of Community Affairs the total annual cost of providing solid waste management services and to disclose this information to the public. The Department of Community Affairs shall develop the forms, rules, and procedures necessary for cities and counties to meet the requirement...."*

This Full Cost Accounting Manual has been prepared by the Georgia Department of Community Affairs' Office of Governmental Management for use by local governments in meeting the Act's cost reporting mandate. It is based on current professional practice in capturing and reporting costs for local solid waste operations and is designed to be a workable system appropriate for both large and small jurisdictions. The system consists of a set of forms and procedures that, when put into operation, will provide a continuous flow of accurate cost data.

It is to be emphasized that the system is designed to capture all costs. As such, it covers: (1) the direct costs for solid waste collection, handling and disposal; (2) the indirect administrative costs, such as for shared central services; (3) the billable costs (external and internal); and (4) costs for debt retirement and interest expense.

The Full Cost Accounting System's elements and procedures are based on Generally Accepted Governmental Accounting Principles, and local officials should experience little difficulty incorporating them into their existing accounting systems. Should questions or problems arise, however, assistance can be obtained by contacting the Georgia Department of Community Affairs.

The immediate objective of the Full Cost Accounting System presented in this manual is to assist local government officials in complying with the reporting requirements of the Georgia Comprehensive Solid Waste Management Act. Beginning in 1992, each local government in Georgia will have to complete an annual report on the status of solid waste management in its jurisdiction. By employing the Full Cost Accounting System, local officials will be in a position to supply the financial information called for by that report. Reporting forms will be sent to all local governments in the summer of 1992 for the first reporting year.

A second, and equally important reason for using the Full Cost Accounting System is simply that it represents a sound, common sense approach to financial management. With the financial data produced by the system, local policy makers and governmental managers will be able to make informed and intelligent decisions. Without it, they will be forced to rely on guesswork.

In addition to these two fundamental reasons supporting use of the Full Cost Accounting System, several other benefits deserve to be noted. They are:

- Once data is collected, it can be accumulated over a period of time and consolidated to form a data base that will be useful for establishing operational standards of performance and efficiency. The historical data provided in this data base will allow a government to determine high or irregular costs and their causes, and it will provide a firm basis for determining the levels of user service fees for solid waste services.

- Administration of the system will allow a local government to readily identify those individuals responsible for various levels of work at the work sites, as well as other personnel involved, equipment utilized and operations conducted. It will also provide the local government with the ability to "Red Flag" financially troubled areas.

- Consistent collection of data will assist the local government in its short-range and long-range planning and in formulating capital improvement and operating budgets for the solid waste department. The information can also be used to determine system needs such as facilities, equipment, land and manpower.

- By using these forms to collect financial data, information can be grouped according to standard accounting classifications. This grouping will facilitate analysis of relative performance levels and operational changes.

- The financial data produced by the full cost accounting system, when made public, can play an important role in educating citizens and gaining their support for any needed improvements in the local solid waste management system, and encouraging them to participate in recycling, composting and anti-litter programs.

THE FULL COST ACCOUNTING SYSTEM

This Full Cost Accounting System is a management tool for local officials. It is designed to help determine, in an on-going fashion, the full cost of the local solid waste management systems. As a tool, it provides for systematic collection of necessary data. It was developed after analyzing the origins of solid waste costs and defining the subsequent costs incurred by Georgia's local governments.

It is important to point out that the full cost accounting system presented herein is not intended to replace the accounting system a local government now has in place. Rather, it is intended to be used in conjunction with a local government's existing accounting system. It is up to each local government to determine which parts — all or perhaps only a few — of the full cost accounting system need to be used to obtain the necessary solid waste management data.

The foundation of any accounting system is the development of a general list of cost centers (or series of accounts) relating to the services performed. They serve as the basis for grouping, analyzing and reporting information to elected officials and the public. Of equal importance, there is a system of forms for recording and collecting critical financial data.

This full cost accounting system provides a series of forms to accomplish the collection and reporting of all solid waste costs. These are:

- **Solid Waste Management Services Total Cost Report** (Form 1) - This report, which is in four parts, collects the financial information local governments are required to report annually to the Department of Community Affairs in accordance with the Georgia Comprehensive Solid Waste Management Act. As such, completion of the report represents the culmination of the full cost accounting process. This report is shown on pages 9 and 10.

- **Solid Waste Management Services Full Cost Accounting Summary of Costs Report** (Form 2) - This report serves to periodically assemble and analyze solid waste costs and is an internal report to assist in financial management. At year end, the figures in the **Solid Waste Management Services Full Cost Accounting Summary of Costs Report** (Form 2) are further summarized and used to complete the **Solid Waste Management Services Total Cost Report** (Form 1). The **Solid Waste Management Services Full Cost Accounting Summary of Costs Report** is displayed on page 13.

- Several data collection forms, labeled A through G, are to be used by managers and supervisors for recording day-to-day and periodic solid waste management costs. (Form H is provided for use by only a limited number of governments.)

The interrelationship of the two reports with the eight data collection forms is displayed graphically on page 6. To further assist local officials in identifying the appropriate data collection forms to use, a simple chart is depicted on page 7 which identifies the forms to be used for each type of local government solid waste management system. The accurate flow of the data generated by this cost accounting system is completely dependent upon the reliable and timely completion of all reports and forms. Failure to record properly can lead to guesswork and estimates that will not provide data at the accuracy level required by the Act. Diligent completion of these forms can lead to ease of budgeting and a realization of the actual costs of providing solid waste services.

INDIRECT COST CONSIDERATIONS

Most local governments can readily document the direct costs of specific services. These are the costs directly and clearly attributable to a specific service. An example is police officers' salaries in the operation of a police department.

Before proceeding to employ the Full Cost Accounting System, it is important for local government officials to be aware of the necessity for identifying and allocating indirect costs.

Indirect costs are government expenditures that support general services (as opposed to department specific services) such as personnel administration, central purchasing, auditing and accounting, legal services, and building maintenance. A portion of these general government expenditures is directly related to the cost of providing solid waste management services.

In order to develop a true picture of the full cost of providing solid waste management services, indirect costs must be identified and an allocation methodology must be adopted. Indirect costs appear as line items on a number of the forms, and recommended formulas and procedures for allocating indirect costs can be found on pages 11 and 12.

SOLID WASTE TONNAGE

The Georgia Comprehensive Solid Waste Management Act requires local governments to report, in addition to solid waste costs, the tonnage of solid waste disposed of in their jurisdictions. This Full Cost Accounting System therefore provides for tonnage to be reported on several of its forms. The Act allows local governments to use a representative sample to estimate tonnage. For information on representative weighing, see Department of Natural Resources (DNR) Rule 391-34.17 or contact DNR at 656-2836.

Where private vendors are responsible for providing solid waste services, weight information will be collected by DNR as part of its permitting process. DNR will make this information available to local governments quarterly.

IMPLEMENTATION CONSIDERATIONS

Implementing the Full Cost Accounting System in a city or county government will require the participation and cooperation of various employees in several different departments. It is therefore suggested that local government managers conduct orientation sessions for all employees involved and that a task force approach be employed to implement the system. A task force approach, which involves as many staff as possible, creates a sense of personal involvement and responsibility for carrying out new procedures and can serve to facilitate coordination and cooperation between individual departments.

In implementing the system, it is further suggested that the following steps be taken:

- Review and evaluate current accounting and management procedures
- Review ordinance and procedural practices
- Identify accounting areas that need to be addressed
- Collect and review relevant accounting forms currently in use
- Prepare the new accounting process and forms
- Implement the new system and train staff in its use
- Review and revise the system annually as appropriate.

FOUR SIMPLE STEPS FOR USING THIS MANUAL

In summary, there are four simple steps for using this manual. After reviewing the entire manual:

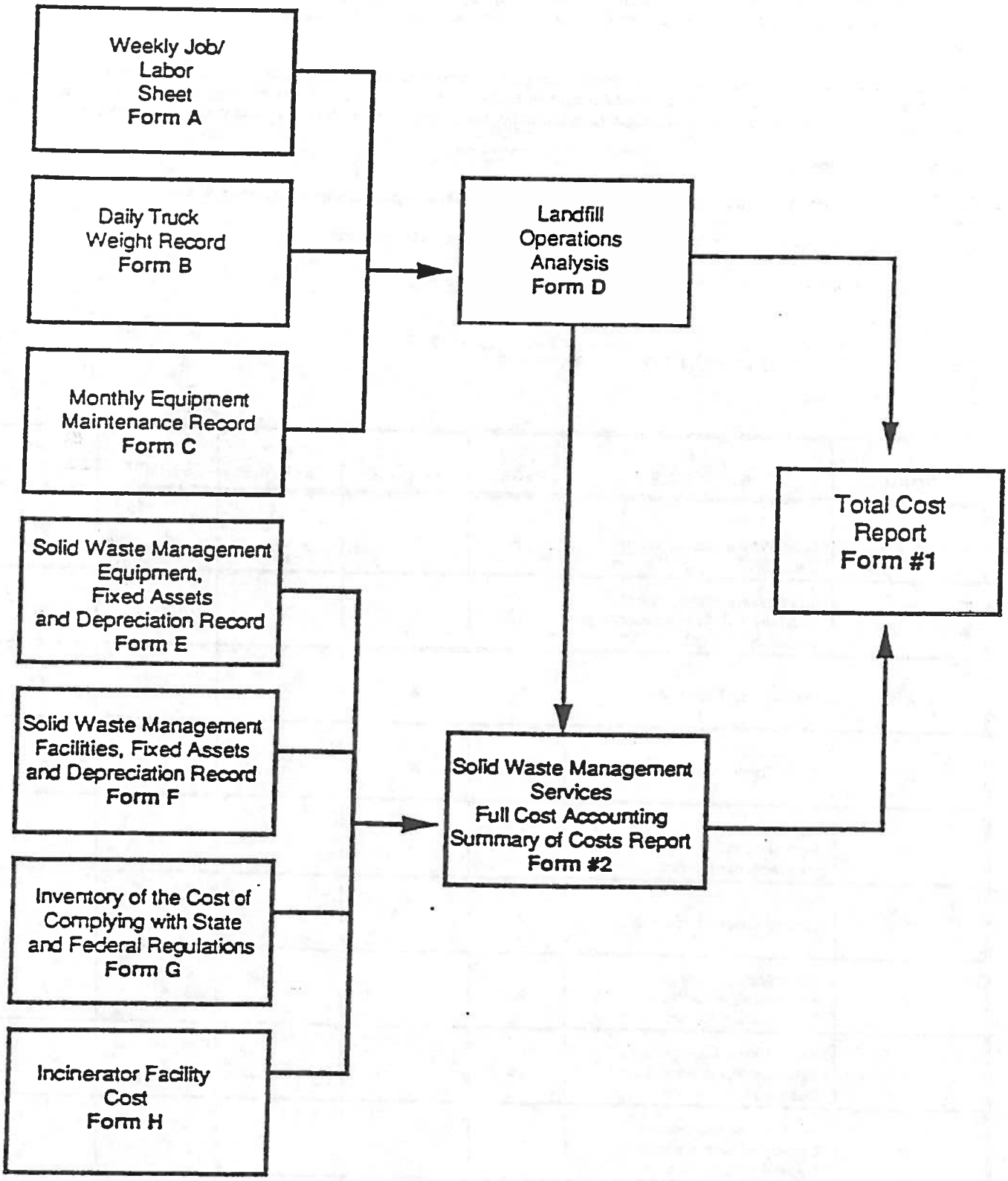
1. Examine the matrix on page 7 to determine the data collection forms to be used for your jurisdiction's particular type of solid waste management system.

2. Establish a data collection system by assigning to appropriate staff the responsibility for recording the data collected by the forms. A major administrative official, perhaps the jurisdiction's chief financial officer, should be given the responsibility for coordinating all data collection activities.

3. Periodically, either monthly or quarterly, prepare the **Solid Waste Management Services Full Cost Accounting Summary of Costs Report** (see page 11) using the data collected to that date. Be sure to allocate indirect costs as may be appropriate.

4. At year end, prepare the **Solid Waste Management Services Total Cost Report** (see page 9 and 10) by using the cumulative data gathered for the year and as shown in the final **Solid Waste Management Services Full Cost Accounting Summary of Costs Report.**

FULL COST ACCOUNTING DATA COLLECTION AND REPORT FLOW CHART



HOW TO SELECT THE CORRECT FORM:

Local governments providing solid waste collection, recycling and composting, and disposal services will need to evaluate whether their existing rec keeping system allows the full cost of solid waste management to be isolated. In some instances, new data collection instruments, as well as r summary work sheets, may be required.

The following chart has been prepared to assist those local governments needing to expand or otherwise alter their existing data collection and rec keeping systems or choosing to use this Full Cost Accounting System in its entirety. The forms are suggested methods for capturing information that produce the cost per ton and cost per capita data as required by the Georgia Comprehensive Solid Waste Management Act.

Description of Service Types:

Type 1 - Local collection only (curbside, green box, etc.) with disposal at a private site or another jurisdiction's disposal facility

Type 2 - Local collection (curbside, green box, etc.) and disposal at own landfill facility

Type 3 - Landfill operation only; no collection

Type 4 - Incineration

Type 5 - Materials Recovery (recycling, salvaging, composting, etc.)

FORM	FORM TITLE	PAGE #	TYPE 1 SERVICE	TYPE 2 SERVICE	TYPE 3 SERVICE	TYPE 4 SERVICE	TYPE 5 SERVICE
# 1	Solid Waste Management Services Total Cost Report	9	X	X	X	X	
# 2	Solid Waste Management Services Full Cost Accounting Summary of Costs Report	13	X	X	X	X	X
A	Weekly Job/Labor Sheet	15	X	X	X	X	X
B	Daily Truck Weight Record	17	X	X	X	X	X
C	Monthly Equipment Maintenance Record	19	X	X	X	X	X
D	Landfill Operations Analysis Form	21		X	X		
E	Solid Waste Management Equipment, Fixed Assets and Depreciation Record	23		X	X	X	X
F	Solid Waste Management Facilities, Fixed Assets and Depreciation Record	25		X	X	X	X
G	Inventory of the Cost of Complying with State and Federal Regulations	27		X	X	X	
H	Incinerator Facility Cost	29				X	

SOLID WASTE MANAGEMENT SERVICES
TOTAL COST REPORT
FORM 1

The reporting format shown on the following two pages - **SOLID WASTE MANAGEMENT SERVICES TOTAL COST REPORT for Collection, Recycling and Composting, Education and Disposal** - calls for the information that is necessary to satisfy the requirements of the Act. Completion of this four-part report is contingent upon which services are provided by your government. If your government has all of the necessary financial data available to complete the report, you do not need to read any further. If not, use of the remainder of this manual for the preparation of this cost information may be helpful.

Completion of this report requires that a local government have data available depicting the total number of tons of solid waste disposed of during the reporting year. It also requires an aggregate figure for the total costs for the provision of each of the solid waste management services.

DISPOSAL

PERIOD OF REPORT 1/90 THROUGH 12/90

SITE(S): LANDFILL #1

DATA	FOR THIS PERIOD	BUDGETED THIS PERIOD	YEAR-TO-DATE	BUDGETED YEAR-TO-DATE
TONS OF SOLID WASTE DISPOSED	708 TONS	667 TONS	8496 TONS	8000 TONS
TOTAL ANNUAL COST	$25600/mo.	$25,000	$307,600	$300,000
COST PER TON (ANNUAL COST ÷ TONS DISPOSED)	$36.16/T	$37.50/T	$36.16/T	$37.50/T
TONS PER CAPITA (TONS DISPOSED ÷ TOTAL POPULATION)	.07 TONS	.06 TONS	.82 TONS	.77 TONS
COST PER CAPITA (TOTAL COST ÷ TOTAL POPULATION)	$ 2.47	$ 2.41	$ 29.69	$ 28.96

___ Scales on Site ✓ Contractual Scales ___ Representative Sample

SOLID WASTE MANAGEMENT SERVICES
TOTAL COST REPORT

COLLECTION

SITE(S): _____ PERIOD OF REPORT _____ THROUGH _____

DATA	FOR THIS PERIOD	BUDGETED THIS PERIOD	YEAR-TO-DATE	BUDGETED-YEAR-TO DATE
TOTAL ANNUAL COST				
COST PER CAPITA (TOTAL COST ÷ TOTAL POPULATION)				

Notes:
- FOR GOVERNMENTS THAT COLLECT SOLID WASTE
- USE POPULATION FIGURES PROVIDED BY DCA

RECYCLING AND COMPOSTING

SITE(S): _____ PERIOD OF REPORT _____ THROUGH _____

DATA	FOR THIS PERIOD	BUDGETED THIS PERIOD	YEAR-TO-DATE	BUDGETED YEAR-TO DATE
TOTAL ANNUAL COST				
COST PER CAPITA (TOTAL COST ÷ TOTAL POPULATION)				

Notes:
- USE POPULATION FIGURES PROVIDED BY DCA
- SUPPORTING DOCUMENTS MUST BE MAINTAINED

EDUCATION

SITE(S): _____ PERIOD OF REPORT _____ THROUGH _____

DATA	FOR THIS PERIOD	BUDGETED THIS PERIOD	YEAR-TO-DATE	BUDGETED YEAR-TO DATE
TOTAL ANNUAL COST				
COST PER CAPITA (TOTAL COST ÷ TOTAL POPULATION)				

Notes:
- USE POPULATION FIGURES PROVIDED BY DCA
- SUPPORTING DOCUMENTS MUST BE MAINTAINED

DISPOSAL

SITE(S): _____ PERIOD OF REPORT _____ THROUGH _____

DATA	FOR THIS PERIOD	BUDGETED THIS PERIOD	YEAR-TO-DATE	BUDGETED YEAR-TO-DATE
TONS OF SOLID WASTE DISPOSED				
TOTAL ANNUAL COST				
COST PER TON (ANNUAL COST ÷ TONS DISPOSED)				
TONS PER CAPITA (TONS DISPOSED ÷ TOTAL POPULATION)				
COST PER CAPITA (TOTAL COST ÷ TOTAL POPULATION)				

_____ SCALES ON SITE _____ CONTRACTUAL SCALES _____ REPRESENTATIVE SAMPLE

Notes:
- FOR GOVERNMENTS THAT MAINTAIN A SANITARY LANDFILL OR USE AN INCINERATOR
- REPORT ONLY DISPOSAL DATA HERE
- USE POPULATION FIGURES PROVIDED BY DCA
- MAINTAIN DOCUMENTATION DETAILING THE WEIGHTS AND METHODS USED TO CALCULATE WEIGHTS ENTERED

SOLID WASTE MANAGEMENT SERVICES
FULL COST ACCOUNTING
SUMMARY OF COSTS REPORT
FORM 2

This **Solid Waste Management Services Full Cost Accounting Summary of Costs Report** collects all of the pertinent costs of operations in a periodic statement. Information can be summarized regularly and used to report to local elected officials. Each of the four cost areas: (1) direct costs; (2) indirect costs; (3) billable costs; and (4) all other costs, can be combined in this report. The data in this report is used to complete the **Solid Waste Management Services Total Cost Report** (Form 1) at the end of the year.

Many of the smaller local governments will be able to complete this summary report using their regular record keeping system. Most of these governments will have only one disposal location and just a few employees working in the solid waste disposal process. If they can supply all of the data requested by the summary report form, they will have no need to use Forms A - H. Generally, these forms have been provided for larger governments with more complex solid waste management services.

ALLOCATION OF INDIRECT COSTS

There are two recommended and accepted methods for allocating indirect costs. The following examples show the steps to be taken, for each method, in determining and allocating indirect costs.

METHOD I
Allocation by Manpower

Step 1: Determine the total number of employees in solid waste management services.

Step 2: Determine the total number of employees of the local government.

Step 3: Divide the total number of direct employees in solid waste management services by the total number of employees of the government to get a manpower percentage figure.

Step 4: Determine the total expenditures of the local government departments providing supporting services to the solid waste management area (ie., purchasing, general administration, maintenance, finance, engineering, etc.) and add these together.

Step 5: Apply the percentage obtained in Step 3 to the amounts determined in Step 4. The resulting number is the indirect cost based upon the Allocation by Manpower method.

Example Method I

Costs?

Step 1. 15 Solid Waste Management Employees

Step 2. 100 Total Employees of the Government

Step 3. 15 divided by 100 = 15% or .15

Step 4. Total costs for departments contributing supporting services: $160,000

Step 5. 15% of $160,000 = $24,000 (indirect cost by Allocation of Manpower Method)

METHOD II
Allocation by Actual Costs of Solid Waste Management

(This calculation calls for the use of actual costs. Budgeted costs, however, can be used by management for internal purposes.)

Step 1. Determine the total governmental operating costs for the local government in a specific fiscal year.

Step 2. Determine the total solid waste management services operating costs for the local government for the same fiscal year.

Step 3. Divide the solid waste management services operating costs by the total governmental operating costs for the local government to get a cost percentage figure.

Step 4. Subtract the solid waste management services operating costs from the total operating costs for the local government to get a net local government operating cost.

Step 5. Apply the percentage obtained in Step 3 to the net operating cost obtained in Step 4 to determine the indirect cost allocation based upon the Allocation by Actual Costs of Solid Waste Management Method.

Example Method II

Step 1. Total governmental operating cost is $1,000,000

Step 2. Total solid waste management services operating cost is $64,000

Step 3. Divide solid waste management services costs by total governmental operating cost: $64,000 divided by $1,000,000 = 6.4% or .064

Step 4. Subtract solid waste management services cost from total governmental operating cost = $ 936,000

Step 5. .064 X $936,000 = $59,904 (indirect cost by Allocation by Actual Costs of Solid Waste Management Method)

SOLID WASTE MANAGEMENT SERVICES
FULL COST ACCOUNTING
SUMMARY OF COSTS REPORT

PERIOD OF REPORT _____, 19___ THROUGH _____, 19___

PART 1

OPERATING COSTS (DIRECT COST)

PERSONNEL	$ _____
FRINGE BENEFITS	$ _____
INCLUDES: (FICA, WORKERS COMP., INSURANCE, UNEMPLOYMENT)	
TRAINING/CERTIFICATION	$ _____
OFFICE SUPPLIES	$ _____
BUILDING (STRUCTURE)	$ _____
EQUIPMENT	$ _____
DEPRECIATION (INCLUDES EQUIPMENT REPLACEMENT)	$ _____
OIL, GAS, FUEL	$ _____
PARTS/SUPPLIES	$ _____
INSURANCE	$ _____
LANDFILL:	
COVER MATERIAL	$ _____
LINERS	$ _____
MONITORING EQUIPMENT	$ _____
LAB/TESTING	$ _____
LAND PURCHASES	$ _____
DEPLETION	$ _____
PERMITS/PENALTIES	$ _____
COMPLIANCE (REGULATORY)	$ _____
CLOSURE	$ _____
PART (1) TOTAL	$ _____

PART 2

INDIRECT COSTS:

ADMINISTRATION	$ _____
FINANCE (PURCHASING & AUDITS)	$ _____
PERSONNEL	$ _____
EDUCATION	$ _____
ENFORCEMENT	$ _____
PART (2) TOTAL	$ _____

PART 3

BILLABLE COSTS (INTERNAL & EXTERNAL)

ENGINEERING (INTERNAL OR OUTSIDE)	$ _____
CONTRACTUAL SERVICES	$ _____
PROFESSIONAL SERVICES	$ _____
SCALES (OUTSIDE)	$ _____
INTERNAL/CENTRAL SERVICES	$ _____
PART (3) TOTAL	$ _____

PART 4

OTHER COSTS:

DEBT RETIREMENT:

BOND	$ _____
LONG-TERM LEASE	$ _____
OTHER DEBT	$ _____
INTEREST	$ _____
POST CLOSURE CARE	$ _____
FINANCIAL ASSURANCE	$ _____
PART (4) TOTAL	$ _____

SUMMARY OF TOTALS:

PART 1 - DIRECT COST	$ _____
PART 2 - INDIRECT COST	$ _____
PART 3 - BILLABLE COSTS	$ _____
PART 4 - OTHER COSTS	$ _____
TOTAL COST	$ _____

FULL COST ACCOUNTING REPORTING SYSTEM
FORMS A - H

Forms A - H have been developed to assist larger local governments in collecting the information necessary to satisfy the requirements of the Act. Each form is designed to collect specific information.

Many governments will not need to use all of the forms but will find that using them can provide a check and balance of their existing accounting system.

Others will need to complete each form, as indicated in the directions, in order to collect the information necessary to complete the **Solid Waste Management Services Full Cost Accounting Summary of Costs Report.**

WEEKLY JOB/LABOR SHEET
FORM A

This form should be completed in duplicate for each of the employees involved in the solid waste process. This includes all sanitation employees involved in trash and garbage collection, recycling and composting, as well as those employees involved in the operation of the landfill.

One copy of the form is used for accounting purposes to compute the weekly wages, overtime and benefits of each employee. The other copy should be maintained by the unit supervisor and used to compute the total labor hours and work assignment of job/labor activities necessary to complete solid waste collection, disposal and recycling.

EMPLOYEE IDENTIFICATION	MONDAY		TUESDAY		WEDNESDAY		THURSDAY		FRIDAY		SATURDAY		SUNDAY		TOTAL FOR WEEK	REASON FOR OVERTIME OR ABSENTEEISM
	HRS	JOB	HRS	JOB	HRS	JOB	HRS	JOB	HRS	JOB	HRS	JOB	HRS	JOB		
000-10-0001	8	W	8	W	8	W	8	W	8	W					40	EQUIP. REPAIR
000-20-1001	8	M	8	M	8	M	8	M	8	M	3	M			43	
000-20-1002	8	S	8	S	8	S	8	S	8	S					40	
000-10-1003	8	BM	8	BM	8	BM	8	BM	8	BM					40	

WEEKLY JOB/LABOR SHEET

PERIOD OF REPORT_____, 19_____ THROUGH _____, 19_____

SITE: _____

SIGNATURE: _____

NAME (PRINTED OR TYPED) _____

EMPLOYEE IDENTIFICATION	MONDAY		TUESDAY		WEDNESDAY		THURSDAY		FRIDAY		SATURDAY		SUNDAY		TOTAL FOR WEEK	REASON FOR OVERTIME OR ABSENTEEISM
	HRS	JOB	HRS	JOB	HRS	JOB	HRS	JOB	HRS	JOB	HRS	JOB	HRS	JOB		
TOTALS																

HRS = HOURS WORKED PER DAY. LIST ALL EMPLOYEES BY WORK SITE/LOCATION

JOB (POSITION) =TD (TRACTOR OR TRUCK DRIVER) TC (TRASH COLLECTOR W (WEIGHT MASTER)
M (MAINTENANCE MAN) BM (BUILDING MAINTENANCE) OS (OFFICE STAFF/SECRETARY)
S (SUPERVISOR)

NOTE: THIS FORM NEEDS TO BE FILLED OUT DAILY BY THE SOLID WASTE OR LANDFILL SUPERVISOR AND TURNED IN WEEKLY TO ACCOUNTING (PAYROLL) AND TO THE SOLID WASTE OFFICE FOR OFFICIAL RECORDS.

DAILY TRUCK WEIGHT RECORD
FORM B

This form is designed to record the quantities, sources and types of solid-waste collected by a local government (or its private collector) and disposed of at the disposal facility. Cover material and "dirt" used at each disposal site should be recorded in tonnage or cubic yards if it is delivered from off-site.

If a community has more than one disposal site, a separate truck weight record should be maintained for each location. If a landfill does not have a scale, trucks can be weighed off-site. If a jurisdiction has multiple disposal sites (one for tires, one for hazardous waste, or more than one landfill), truck weights should be recorded by disposal site. A separate form should be used for each county or city from which the waste load originates.

Note: This form should not be used for transfer sites.

DATE: 4/30/90

SIGNATURE: Willie Lane

WEIGH SITE: LANDFILL #1

DISPOSAL SITE: LANDFILL #1

TRUCK IDENTIFICATION			WASTE				AMOUNT DELIVERED	
TRUCK ID	TRUCK TYPE	TIME	SOURCE	TYPE	WEIGHT IN	WEIGHT OUT TARE WEIGHT	SOLID WASTE	COVER MATERIAL
11-012	MACK	9:15 AM	R	H	54,300	31,000	23,300	0
08-111	WHITE	9:20 AM	I	B	32,500	16,000	16,500	
11-012	MACK	12:25 PM	C	D	55,600	31,000	24,600	
08-111	WHITE	12:35 PM	R	H	21,200	16,000	0	5,200

DAILY TRUCK WEIGHT RECORD

FOR _____
(CITY/COUNTY OF ORIGIN OF WASTE)

DATE: _____

WEIGH SITE: _____

SIGNATURE: _____

DISPOSAL SITE: _____

TRUCK IDENTIFICATION			WASTE				AMOUNT DELIVERED	
TRUCK ID	TRUCK TYPE	TIME	SOURCE	TYPE	WEIGHT IN	WEIGHT OUT TARE WEIGHT	SOLID WASTE	COVER MATERIAL
TOTALS:								

INSTRUCTIONS: TO BE COMPLETED BY WEIGH MASTER FOR EACH TRUCK EVERY DELIVERY.

SOURCES: R = RESIDENTIAL I = INDUSTRIAL C = COMMERCIAL A = AGRICULTURAL

TYPES: H = HOUSEHOLD REFUSE T = TIRES D = DEMOLITION/CONSTRUCTION WASTE B = BULKY WASTE (FURNITURE, WHITE GOODS, EQUIPMENT, ETC.) I = INDUSTRIAL C = COMMERCIAL CP = COMPOSTING

MONTHLY EQUIPMENT MAINTENANCE RECORD
FORM C

This form should be completed in duplicate for each piece of equipment involved in the solid waste collection, recycling and composting, and disposal process. Proper completion of this report will facilitate the detailed collection of equipment operations data and other related cost data. Entries should be made at a regularly scheduled intervals, either daily, weekly or monthly. One copy of the completed form should be submitted to the accounting or financial management department and the other should be maintained by the landfill supervisor, the sanitation supervisor or the department overseeing solid waste collection and administration of the landfill.

TE: GARAGE EQUIPMENT IDENTIFICATION: 11-012 PERIOD: FROM 4/1, 1990 THROUGH 4/30, 1990

DAY	HOURS OPER-ATED	FUEL COST	TYPE OF REPAIR OR SERVICE	HOURS DOWN	LABOR HOURS	LABOR COST	PARTS COST	EXTER-NAL COST	TOTAL COST
1	6	$34—	CLUTCH OUT	2	3.5	$38.50	$195—		$267.50
2	7	$34—	BLOWN TIRE	1	.5	$5.50	$75—		$114.50
3	8	$34—	—	0	0	0	0		$34—
4	8	$35.15	—	0	0	0	0		$35.15
5	7	$33.10	OIL CHANGE	0	1	$11.00	$18.00		$62.10
6				1					
7									

MONTHLY EQUIPMENT MAINTENANCE RECORD
(ONE PIECE OF EQUIPMENT PER FORM)

SITE:_____ EQUIPMENT IDENTIFICATION:_____ PERIOD: FROM _____, 19___ THROUGH _____, 19__

DAY	HOURS OPER-ATED	FUEL COST	TYPE OF REPAIR OR SERVICE	HOURS DOWN	LABOR HOURS	LABOR COST	PARTS COST	EXTER-NAL COST	TOTAL COST
1									
2									
3									
4									
5									
6									
7									
8									
9									
10									
11									
12									
13									
14									
15									
16									
17									
18									
19									
20									
21									
22									
23									
24									
25									
26									
27									
28									
29									
30									
31									
TOTAL									

INSTRUCTIONS: THIS SHEET TO BE COMPLETED EACH DAY BY SUPERVISOR OR OFFICE STAFF. MAINTENANCE ENTRIES SHOULD MADE AS THEY OCCUR. THIS SHEET IS ONLY FOR ONE PIECE OF EQUIPMENT. ONE SHEET PER PIECE OF OPERAT EQUIPMENT.

LANDFILL OPERATIONS ANALYSIS
FORM D

This form is a separate summary form that should be maintained for each disposal site. It can be used by the financial management director, department head or supervisor for operations cost control. In addition, it provides information that can be used for the evaluation of the system utilization and control of costs, since it includes all of the information and calculations necessary for establishing both unit costs and efficiency factors.

E: LANDFILL #1

PERIOD OF REPORT: FROM 4/1, 1990 THROUGH 4/30, 1990

	DATE	ACTUAL THIS PERIOD	%VARIANCE FROM BUDGET	%VARIANCE FROM LAST PERIOD	%VARIANCE THIS PERIOD LAST YEAR
TOTALS	TOTAL TONS RECEIVED	708 T	+1.0 %	+.5 %	+2.0%
	TOTAL OPERATING COST	$25,600	+ .5 %	+.7 %	+3.8 %
	TOTAL OPERATING COST/TON	$36.16/T	- .01 %	+1.1 %	+1.1 %
UNIT COST**	LABOR/ TONS	$12.77/T	0	0	+.5%
	COVER MATERIAL/TON				
	EQUIPMENT OPERATION/TON				

LANDFILL OPERATIONS ANALYSIS

SITE: _____

PERIOD OF REPORT: FROM _____, 19___ THROUGH _____, 19__

	DATE	ACTUAL THIS PERIOD	%VARIANCE FROM BUDGET	%VARIANCE FROM LAST PERIOD	%VARIANCE THIS PERIOD LAST YEAR
TOTALS	TOTAL TONS RECEIVED				
	TOTAL OPERATING COST				
	TOTAL OPERATING COST/TON				
UNIT COST**	LABOR/ TONS				
	COVER MATERIAL/TON				
	EQUIPMENT OPERATION/TON				
EFFICIENCY FACTORS **	COVER MATERIAL UTILITY				
	OVERTIME HOURS/TOTAL LABOR HOURS				
	LABOR EFFICIENCY				
	EQUIPMENT % DOWNTIME				
	EQUIPMENT UTILIZATION				
	EQUIPMENT EFFICIENCY				

INSTRUCTIONS:

TO BE COMPLETED BY ACCOUNTING DEPARTMENT AND FURNISHED TO LANDFILL SUPERVISOR. INFORMATION TO COMPLETE FORM C BE FOUND ON THE WEEKLY JOB/LABOR SHEET (FORM A), DAILY TRUCK WEIGHT RECORD (FORM B), AND ON MONTHLY EQUIPM MAINTENANCE RECORD (FORM C)

** CALCULATIONS:

1) UNIT COST = AGGREGATE COST / TONS SOLID WASTE RECEIVED (DO NOT INCLUDE COVER MATERIAL)
2) COVER MATERIAL UTILIZATION = COVER MATERIAL USED/TONS OF SOLID WASTE RECEIVED
3) LABOR EFFICIENCY = TONS RECEIVED / LABOR HOURS
4) EQUIPMENT % DOWNTIME = TOTAL HOURS DOWN / TOTAL EQUIPMENT HOURS
5) EQUIPMENT UTILIZATION = TONS RECEIVED / EQUIPMENT HOURS
6) EQUIPMENT EFFICIENCY = EQUIPMENT COST / EQUIPMENT HOURS

SOLID WASTE MANAGEMENT EQUIPMENT, FIXED ASSETS AND DEPRECIATION RECORD

FORM E

This form can be used for inventory control, as well as for recording the actual cost of landfill equipment and assets. It should be completed for a specific period of time (weekly, monthly or annually) and be submitted to the financial management officer for posting and proper depreciation of current equipment. If the government has more than one disposal site, equipment should be listed by location.

RECOMMENDATION - Use straight line depreciation or depletion - Generally Accepted Accounting Principles (GAAP) allow for depreciation of capital assets (land) over the useful life while maintaining any residual value the asset may have.

REASONING:

1) it is a simple method
2) it allows for the use of a constant replacement figure in the annual budget

EXAMPLE

Front End Loader Purchase Cost - $205,000
Useful Life Expectancy - 8 years
Residual Value (at end of the useful life) - $15,000

APPLY ANNUAL DEPRECIATION FORMULA:

$205,000 - $15,000 = $190,000
(cost) - (residual value) = (amount to be depreciated)
$190,000\ 8 years = $ 23,750 (amount depreciated annually)

TYPE	MODEL NUMBER	MODEL YEAR	MANUFACTURER'S NAME	DATE OF PURCHASE	$ COST	ESTIMATED LIFE	% TIME USED BY OTHER DEPT.	ANNUAL DEPRECIATION	MONTHLY DEPRECIATION
11-012	SP-1000	90	MACK	1/2/90	$40,000	5	0	$7000	$583.33
11-100	D-12	89	CATERPILLAR	2/1/89	$205,000	8	0	$23,750	$1250.00

SOLID WASTE MANAGEMENT EQUIPMENT, FIXED ASSETS AND DEPRECIATION RECORD

SITE: _____

DATE OF REPORT: _____ 19 _____

TYPE	MODEL NUMBER	MODEL YEAR	MANUFACTURER'S NAME	DATE OF PURCHASE	$ COST	ESTIMATED LIFE	%TIME USED BY OTHER DEPT.	ANNUAL DEPRECI-ATION	MONTHLY DEPRECI-ATION
TOTALS									

INSTRUCTIONS: TO BE FILLED OUT BY ACCOUNTING DEPARTMENT. ESTIMATED LIFE PERTAINS TO EQUIPMENT THAT MAY BE USE BUT HAS NOT BEEN SET UP ON A DEPRECIATION SCHEDULE. DEPRECIATION SCHEDULES MAY BE CALCULATED O STRAIGHT-LINE METHOD. USE OF EQUIPMENT BY OTHER DEPARTMENTS SHOULD BE CALCULATED ON TH PERCENTAGE OF TIME IT IS AWAY FROM THE LANDFILL SITE. ANNUAL DEPRECIATION COST SHOULD BE SET ASID IN A SPECIAL CAPITAL REPLACEMENT ACCOUNT TO DEFRAY THE COST OF PURCHASING EQUIPMENT IN SUBSEQUEN YEARS.

SOLID WASTE MANAGEMENT FACILITIES, FIXED ASSETS AND DEPRECIATION RECORD

FORM F

This form provides an inventory of all landfill property, fixed assets and equipment. This information can be used to determine facility property costs and any depreciation, either monthly or annually, as well as the cost of replacement. The form can also be used to track the useful life of the existing fixed assets and equipment.

DATE OF REPORT: 4/30 19 89

SITE: LANDFILL #1

CATEGORY	DESCRIPTION	DATE PUT IN USE	NEW OR REPLACEMENT COST	ESTIMATED TOTAL LIFE	OTHER COMMENTS	ANNUAL DEPRECIATION	MONTHLY DEPRECIATION
BUILDINGS	METAL BLDG.	1/1/89	(N) $110,000	30 YRS		$3666.00	$305.50
GARAGES	WOOD FRAME	3/14/80	(R) $ 90,000	30 YRS		$3,000.00	$250.50
COMPACTORS							

SOLID WASTE MANAGEMENT FACILITIES, FIXED ASSETS AND DEPRECIATION RECORD

SITE: _____

DATE OF REPORT: _____ 19

CATEGORY	DESCRIPTION	DATE PUT IN USE	NEW OR REPLACEMENT COST	ESTIMATED TOTAL LIFE	OTHER COMMENTS	ANNUAL DEPRECIATION	MONTHLY DEPRECIATION
BUILDINGS							
GARAGES							
COMPACTORS							
DUMPSTERS							
OTHER							
" LAND "							
ROADS							
LIGHTS							
FENCES							
SURVEYS							
CLOSURE							
POST CLOSURE							
OTHERS							
" TOTALS "							

INSTRUCTIONS: TO BE COMPLETED BY LANDFILL SUPERVISOR AND ACCOUNTING DEPARTMENT. ESTIMATED LIFE NEEDS TO BE BAS ON REMAINING LIFE, BUT LAND SHOULD BE RECORDED AT ORIGINAL PURCHASE PRICE. DEPRECIATION NEEDS BE CALCULATED ON THE STRAIGHT-LINE METHOD. THE ACCOUNTING SYSTEM SHOULD INCORPORATE THE VA OF THE ANNUAL DEPRECIATION INTO A REPLACEMENT FUND FOR CAPITAL PURCHASES.

INVENTORY OF THE COST OF COMPLYING WITH STATE AND FEDERAL REGULATIONS FOR SOLID WASTE MANAGEMENT

FORM G

This form gathers information about the costs to the local government of certain mandated state and federal regulations governing the solid waste disposal process. Each of the primary items has been addressed in recent legislation and has been listed separately so that a local government will be able to properly record the actual cost of compliance with these new regulations.

PERIOD OF REPORT 1/1, 1990 THROUGH 4/30, 1990

FIXED ASSETS	DESCRIPTION	SERVICE OR INSTALLATION DATE	COST OF REGULATION		OTHER SPECIAL COMMENTS
			MONTHLY	YEAR-TO-DATE	
INCINERATORS	NINGENHILD-BRN.	3/1/90 INSTALLED	$1,000	$4,000	INST. TOTAL $215M
LAND (ACQUISITIONS)	LANDFILL #2	1/1/89 PUR.	$5,000	$20,000	2ND YR. OF FUNDING
-- LINERS --	LANDFILL #2	2/1/90 INST.	$2500	$10,000	EXPANSION
GROUND WATER MONITORING SYSTEM					

INVENTORY OF THE COST OF COMPLYING WITH STATE AND FEDERAL REGULATIONS FOR SOLID WASTE MANAGEMENT

PERIOD OF REPORT _____, 19___ THROUGH _____, 19___

FIXED ASSETS	DESCRIPTION	SERVICE OR INSTALLATION DATE	COST OF REGULATION		OTHER SPECIAL COMMENTS
			MONTHLY	YEAR-TO-DATE	
INCINERATORS					
LAND (ACQUISITIONS)					
** LINERS **					
GROUND WATER MONITORING SYSTEM					
LEACHATE COLLECTION SYSTEM					
LICENSE/PERMITS					
DISPOSAL PREPARATION (TREATMENT)					
LAB TESTS					
INSPECTION COST					
POST CLOSURE CARE					
CLOSURE					
** SPECIAL ** LABOR					
OTHER					

INCINERATOR FACILITY COSTS
FORM H

Only one local government in Georgia is actively engaged in the use of incineration as a solid waste disposal technique; however, several are contemplating this procedure as a disposal option. We have included Form H - **Incinerator Facility Costs** - so that governments will have informational guidelines to determine the full cost of this disposal technique.

DATE OF REPORT: 4/30 19 90

CATEGORY	DATE IN USE	MONTHLY COST/DEBT SERVICE	MONTHLY CAPACITY	MONTHLY USE
LAND	1/1/86	$ 2,500	N/A	N/A
CONSTRUCTION	1/30/86	$10,416	100 TONS	85 TONS
COMPACTOR	2/1/88	$ 4,450	8 TONS	5 TONS
DUMPSTERS	10/1/89	0	5 YARDS	5 YARDS
TRUCKS				

INCINERATOR FACILITY COSTS

DATE OF REPORT: _____ 19 _____

CATEGORY	DATE IN USE	MONTHLY COST/DEBT SERVICE	MONTHLY CAPACITY	MONTHLY USE
LAND				
CONSTRUCTION				
COMPACTOR				
DUMPSTERS				
TRUCKS				
EQUIPMENT				
TONS DISPOSED				
LICENSES/PERMITS				
INSPECTIONS				
EMISSIONS CONTROL				
ELECTRICITY				
OTHER UTILITIES				
OPERATORS				
LABOR COST				
ASH AND BYPASS DISPOSAL				
OTHER COSTS				

APPENDIX I

SOLID WASTE ENTERPRISE FUND TRIAL BALANCE SHEET, SOLID WASTE DEPARTMENT SOURCES OF REVENUE and SOLID WASTE MANAGEMENT SERVICES FULL COST ANALYSIS

The following **Solid Waste Enterprise Fund Trial Balance Sheet** has been designed for any government that does not currently operate its solid waste department either as an enterprise fund or as a general fund program. While the Georgia Comprehensive Solid Waste Management Act does not require the use of an enterprise fund, the successful funding and management of a local government solid waste system is highly dependent on enterprise fund principles. An enterprise fund, or any utility fund designed to be self supporting, collects revenue sufficient to meet its expenditures. This trial balance sheet has been designed to highlight those operating revenues, expenditures and debt allocations local governments should anticipate for solid waste disposal.

The second page of this appendix, **Solid Waste Department Sources of Revenue**, is included to enable the user to further define the various sources of operating income, such as tipping fees, recycling revenues and interest income, that can be anticipated in any solid waste operation.

The third form, **Solid Waste Management Services Full Cost Analysis**, is designed to help local governments analyze the four phases of the solid waste management system through Full Cost Accounting. While this report is similar to the **Solid Waste Management Services Total Cost Report** (Form 1) contained earlier in this manual, it will, in addition, allow the user to complete a more thorough analysis of the system. Specifically, each of the four sections - Collection, Recycling and Composting, Education and Disposal - provides a detailed solid waste analysis for both cost and weight (tonnage) per capita.

SOLID WASTE ENTERPRISE FUND
TRIAL BALANCE SHEET

	DR	CR
-CASH	$_____	$_____
-INVESTMENTS	_____	
-INTEREST RECEIVABLE (INVESTMENTS)	_____	
-ACCOUNT RECEIVABLE	_____	
-RESIDENTIAL	_____	
-COMMERCIAL	_____	
-INDUSTRIAL	_____	
-CONTRACT COMMERCIAL	_____	
-INDIVIDUAL	_____	
-ALLOWANCES FOR UNCOLLECTIBLE ACCOUNTS	_____	
-DUE FROM GENERAL FUND	_____	_____
-RESTRICTED ASSETS	_____	
-BONDS	_____	
-CONSTRUCTION	_____	
-DEBT	_____	
-LAND	_____	
-BUILDING	_____	
-ACCUMULATED DEPRECIATION - BUILDING	_____	
-CAPITAL IMPROVEMENT		_____
-EQUIPMENT/MACHINERY	_____	
-ACCUMULATED DEPRECIATION	_____	
-CONSTRUCTION IN PROGRESS		_____
-ACCOUNTS PAYABLE	_____	
-BONDS PAYABLE		_____
-INTEREST PAYABLE		_____
-DUE TO OTHER FUNDS (GENERAL)		_____
-DUE TO OTHER FUNDS (ACCOUNTING, COMPUTER)		_____
-PROFESSIONAL SERVICES PAYABLE		_____
-CAPITAL LEASES PAYABLE		_____
-CONTRIBUTED CAPITAL		_____
-GOVERNMENT		_____
-CUSTOMER		_____
-INTER-GOVERNMENTAL		_____
-RETAINED EARNINGS FOR BONDS		_____
-RETAINED EARNING DEBT		_____
-RETAINED EARNING FOR (CAPITAL OR REPLACEMENT)		_____
-OPERATING REVENUES		_____
-NON-OPERATING REVENUES	_____	
-OPERATING EXPENSES	_____	
-OPERATING ADMINISTRATIVE EXPENSES		_____
-OPERATING DEPRECIATION (REPLACEMENT) EXPENSES		_____
-NON-OPERATING - INTEREST - REVENUE		_____
-NON OPERATING - INTEREST - EXPENSE	_____	
-NON OPERATING EXPENSE - SALES OF FIXED ASSETS		_____
-EXTRA ORDINARY ITEM - GAIN ON DEBT RETIREMENT		_____
	_____	
TOTAL	$_____	$_____

SOLID WASTE DEPARTMENT
SOURCES OF REVENUE

REVENUES	$$
WASTE FEES COLLECTED:	
•RESIDENTIAL	$ _____
•COMMERCIAL	$ _____
•INDUSTRIAL	$ _____
•COMPOSTING	$ _____
ON-SITE TIPPING FEES COLLECTED:	
•COMMERCIAL HAULERS	$ _____
•OTHER PRIVATE HAULERS	$ _____
•INDIVIDUALS (CARS/SMALL TRUCKS)	$ _____
RECYCLING REVENUES:	
•PAPER	$ _____
•PLASTIC	$ _____
•ALUMINUM	$ _____
•WHITE GOODS	$ _____
•TIRES	$ _____
•BATTERIES	$ _____
OTHER REVENUES:	
•RESOURCE RECOVERY	$ _____
•OTHER REVENUES	$ _____
•INTEREST EARNED	$ _____
TOTAL	$ _____

This form will be helpful in defining the various sources of operating income, such as tipping fees, recycling revenue and interest income, that can be anticipated in any solid waste operation.

FULL COST ANALYSIS

COLLECTION

SITE(S): _____

PERIOD OF REPORT_____THROUGH_____

DATA	FOR THIS PERIOD	BUDGETED THIS PERIOD	YEAR-TO-DATE	BUDGETED YEAR-TO-DATE
TONS OF SOLID WASTE COLLECTED				
TOTAL ANNUAL COST				
COST PER TON (ANNUAL COST ÷ TONS COLLECTED)				
TONS PER CAPITA (TONS COLLECTED ÷ TOTAL POPULATION)				
COST PER CAPITA (TOTAL COST ÷ TOTAL POPULATION)				

NOTES:
- FOR GOVERNMENTS THAT COLLECT SOLID WASTE
- REPORT ONLY COLLECTION DATA HERE
- USE POPULATION FIGURES PROVIDED BY DCA
- MAINTAIN DOCUMENTATION DETAILING THE WEIGHTS AND METHODS USED TO CALCULATE WEIGHTS ENTERED

RECYCLING AND COMPOSTING

SITE(S): _____

PERIOD OF REPORT_____THROUGH_____

DATA	FOR THIS PERIOD	BUDGETED THIS PERIOD	YEAR-TO-DATE	BUDGETED YEAR-TO-DATE
TONS OF SOLID WASTE RECYCLED OR COMPOSTED				
TOTAL ANNUAL COST				
COST PER TON (ANNUAL COST ÷ TONS RECYCLED OR COMPOSTED)				
TONS PER CAPITA (TONS RECYCLED OR COMPOSTED ÷ TOTAL POPULATION)				
COST PER CAPITA (TOTAL COST ÷ TOTAL POPULATION)				

NOTES:
- REPORT ONLY MATERIAL RECYCLED OR COMPOSTED
- POPULATION DATA WILL BE FURNISHED BY DCA
- SUPPORTING DOCUMENTS MUST BE MAINTAINED

EDUCATION

PERIOD OF REPORT_____THROUGH_____

SITE(S): _____

DATA	FOR THIS PERIOD	BUDGETED THIS PERIOD	YEAR-TO-DATE	BUDGETED YEAR-TO DATE
TOTAL ANNUAL COST				
COST PER CAPITA (TOTAL COST ÷ TOTAL POPULATION)				

NOTES: - USE POPULATION FIGURES PROVIDED BY DCA
- SUPPORTING DOCUMENTS MUST BE MAINTAINED

DISPOSAL

PERIOD OF REPORT_____THROUGH_____

SITE(S): _____

DATA	FOR THIS PERIOD	BUDGETED THIS PERIOD	YEAR-TO-DATE	BUDGETED YEAR-TO DATE
TONS OF SOLID WASTE DISPOSED				
TOTAL ANNUAL COST				
COST PER TON (ANNUAL COST ÷ TONS DISPOSED)				
TONS PER CAPITA (TONS DISPOSED ÷ TOTAL POPULATION)				
COST PER CAPITA (TOTAL COST ÷ TOTAL POPULATION)				

_____SCALES ON SITE _____CONTRACTUAL SCALES _____REPRESENTATIVE SAMPL

NOTES: - FOR GOVERNMENTS THAT MAINTAIN A SANITARY LANDFILL OR USE AN INCINERATOR
- REPORT ONLY DISPOSAL DATA HERE
- USE POPULATION FIGURES PROVIDED BY DCA
- MAINTAIN DOCUMENTATION DETAILING THE WEIGHTS AND METHODS USED TO CALCULATE WEIGHTS ENTERED

APPENDIX II

DEFINITIONS

BASE YEAR - The starting point for the 25 percent solid waste reduction goal established by the Georgia Comprehensive Solid Waste Management Act. As specified in the Act, the base year shall be Fiscal Year 1992 (July 1, 1991 through June 30, 1992). The weight of solid waste disposed of in the base year will be used as the base to measure a government's progress toward the statewide goal.

CLOSURE - A procedure approved by the Department of Natural Resources' Environmental Protection Division which provides for the cessation of waste receipt at a solid waste disposal site.

COMBUSTION - The process of thermal treatment to reduce waste volume (the act of burning).

COMMERCIAL WASTE - The waste resulting from business activities.

COLLECTION - The act or process of picking up solid waste from all locations. This includes residential pickup, dumpster pickup, industrial pickup or commercial pickup.

COMPOSTING - The controlled biological decomposition of organic matter into a stable, odor-free humus.

DEPLETION - The using up or destruction of capital assets, especially natural resources (land). Term is used for depreciating land at the solid waste disposal location. All disposal sites should be capitalized - including land preparation - and depreciated over the useful life of the disposal site.

DEPRECIATION - The decrease in value of property through wear, deterioration or a decrease in usefulness (obsolescence).

DISPOSAL FACILITY - Any facility or location where the final placement of solid waste occurs and includes but is not limited to landfilling and solid waste thermal treatment technology facilities.

DIVERSION - Removing waste from the waste stream before it is deposited in the permitted disposal facility. Usually applied when discussing the removal of recyclables and other compostable materials before disposal.

FINANCIAL ASSURANCE - Funds set aside to pay for environmental protection needs during the fiscal year (example: contamination).

FULL COST ACCOUNTING - The use of an accounting system that isolates, and then consolidates for reporting purposes, the direct and indirect costs that relate to the operation of the solid waste management system.

GENERATOR - Any person, business or group that creates solid waste.

INCINERATION - See "Combustion".

INCINERATOR - A thermal treatment facility in which the combustion of solid waste takes place without energy recovery.

LANDFILL - An area of land on which, or an excavation in which, solid waste is placed for

permanent disposal and which is not a land application unit, surface impoundment, injection well, or compost pile.

LEACHATE - The liquids that filter down through the waste at landfills.

LEACHATE COLLECTION SYSTEM - System at a landfill (normally a plastic liner) for the collection of the leachate which may percolate through the waste and into the soils surrounding the landfill.

MATERIALS RECOVERY FACILITY - A solid waste handling facility that provides for the extraction from solid waste of recoverable materials, materials suitable for use as a fuel or soil amendment, or any combination of such materials.

MINIMUM PLANNING STANDARDS AND PROCEDURES FOR SOLID WASTE MANAGEMENT - Part of the State Solid Waste Management Plan developed by the Department of Community Affairs that must be used by local governments as a minimum requirement in the preparation of a local or regional solid waste management plan.

MUNICIPAL SOLID WASTE - Any solid waste resulting from the operation of residential, commercial, governmental, or institutional establishments except such solid waste disposed of in a private industry solid waste disposal facility. The term includes yard waste but does not include solid waste from mining, agricultural, or silvicultural operations.

OPERATOR - The person stationed on the site who is in responsible charge of, and has direct supervision of daily field operations of, a municipal solid waste disposal facility to ensure that the facility operates in compliance with the approved permit.

PER CAPITA - Per unit of population or per person.

PERMITTED CAPACITY - The amount of life, in terms of years, that a disposal facility (landfill) has before it is considered full. This calculation is prepared by the Georgia Department of Natural Resources as a part of the facility permitting process.

PERMITTED DISPOSAL FACILITY - A landfill or incinerator that has been recognized and permitted by the Georgia Department of Natural Resources.

PROCESSING - The handling and removal of certain waste from the waste stream prior to disposal. As used in the Act, this includes recycling and composting.

PRIVATE VENDORS - Commercial businesses that provide solid waste management services for many local governments in the state.

RECOVERED MATERIALS - Those materials which have known use, reuse, or recycling potential; can be feasibly used, reused, or recycled; and have been diverted or removed from the solid waste stream for sale, use, reuse, or recycling whether or not requiring subsequent separation and processing.

RECYCLING - 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.

REUSE - Taking a component of solid waste and, possibly with some slight modification (e.g., cleaning, repair), using it again for its original purpose (e.g., refillable beverage bottles).

REPLACEMENT FUND (escrow) - Funds set aside to finance future capital expenditures (machinery, equipment, land, buildings, etc.). These funds should be maintained in a separate account and not combined with the general operating funds of the solid waste management system. Funds set aside for annual depreciation or depletion should be placed in this fund annually as the depreciation occurs.

SOLID WASTE - Discarded putrescable and nonputrescable waste, except water carried body waste and recovered materials, and shall include garbage; rubbish, such as paper, cartons, boxes, wood, tree branches, yard trimmings, furniture and appliances, metal, tin cans, glass, crockery, or dunnage; ashes; street refuse; dead animals; sewage sludge; animal manures; industrial waste, such as waste materials generated in industrial operations; residue from solid waste thermal treatment technology; food processing waste; demolition waste; abandoned automobiles; dredging waste; construction waste; and any other waste material in a solid, semisolid, or liquid state not otherwise defined in the part. Such terms shall not include any material which is regulated pursuant to Article 2 of Chapter 5 or this title, the Georgia Waste Control Act, or Chapter 9 of this title The Georgia Air Quality Act of 1978.

SOLID WASTE MANAGEMENT SERVICES - Includes all activities that are involved with trash and other waste collection, transportation, recycling and processing, and disposal.

TARE WEIGHT - Means the weight of the load minus the weight of the transport vehicle.

THERMAL TREATMENT - See "Combustion".

THERMAL TREATMENT FACILITY (technology) - Any solid waste handling facility; the purpose of which is to reduce the amount of solid waste to be disposed of through a process of combustion (burning) with or without the process of waste to energy.

TIPPING FEES - A fee for the unloading or dumping of waste at a landfill, transfer station, recycling center, or waste-to-energy facility usually stated in dollars per ton; also called a disposal or service fee.

TRANSFER STATIONS - A permanent place where waste materials are taken from smaller collection vehicles and place in larger vehicles for transport, including truck trailers, railroad cars, or barges. Recycling and some processing may also take place at transfer stations.

USER FEES - A fee imposed for the use of a facility.

WASTE STREAM - The total flow of solid waste from homes, businesses, institutions and manufacturing plants that must be recycled, burned, or disposed of in landfills or any segment thereof, such as the "residential waste stream" or the "recyclable waste stream."

WASTE-TO-ENERGY FACILITY - A solid waste thermal treatment facility that provides for extraction and utilization of energy from municipal solid waste through a process of combustion.