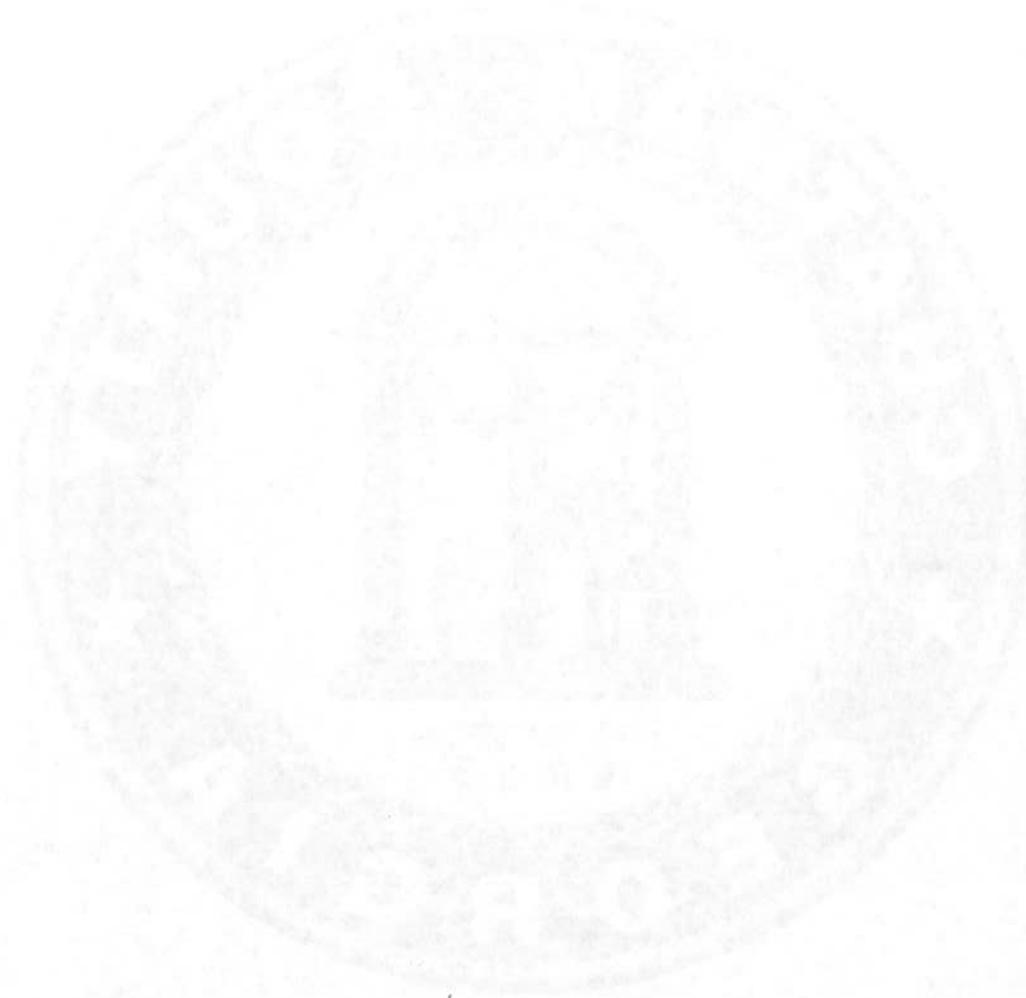


Solid Waste Management Plan

Chatham County
Public Works & Park Services



2008



**ENVIRONMENTAL OFFICE of
PUBLIC WORKS & PARK SERVICES**

**SOLID WASTE MANAGEMENT PLAN
Chatham County Department of Public Works**

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- Appendix A – Public Education Materials
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- Appendix C – Capacity Assurance Letter
- Appendix D – Litter Control
- Appendix E – Sanitation Code

Section 1 INTRODUCTION

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This Solid Waste Management Plan updates the original Chatham County Solid Waste Management Plan, adopted in 1992. This Plan was written to meet Chapter 110-4-3 of the rules of the Georgia Department of Community Affairs, Minimum Planning Standards and Procedures for Solid Waste Management, as revised in 2004. It addresses the five core planning elements specified by the Minimum Planning Standards and Procedures, including:

- Waste Reduction;
- Collection;
- Disposal;
- Land Limitation; and
- Education and Public Involvement.

In addition, the Plan includes a waste disposal stream analysis and an implementation strategy.

The Chatham County Department of Public Works & Park Services initiated the development this Solid Waste Management Plan. The Metropolitan Planning Commission (MPC) provided data about the existing conditions in unincorporated Chatham County.

1.2 Person Responsible for the Plan

The person responsible for the updated Chatham County Solid Waste Management Plan is:

David A. Nash

Chatham County Department of Public Works & Park Services

P.O. Box 8161, 7235 Sallie Mood Drive

Savannah, Georgia 31412

(912) 652-6856

(912) 652-6845 FAX

danash@chathamcounty.org

Any questions regarding the plan or requests for additional information can be directed to Mr. Nash.

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This Solid Waste Management Plan covers the unincorporated areas of Chatham County. The eight incorporated cities in Chatham County: Bloomingdale, Garden City, Pooler, Port Wentworth, Savannah, Thunderbolt, Tybee, and Vernonberg, submit their own Solid Waste Management Plans and thus, are not included in this Plan.

The unincorporated areas of Chatham County cover an area of 440.4 square miles. The location of Chatham County in the State of Georgia is shown in Figure 1-1. The location of the unincorporated area of Chatham County, which this Plan covers, is shown as the non-shaded areas in Figure 1-2.

Location of Chatham County in the State of Georgia

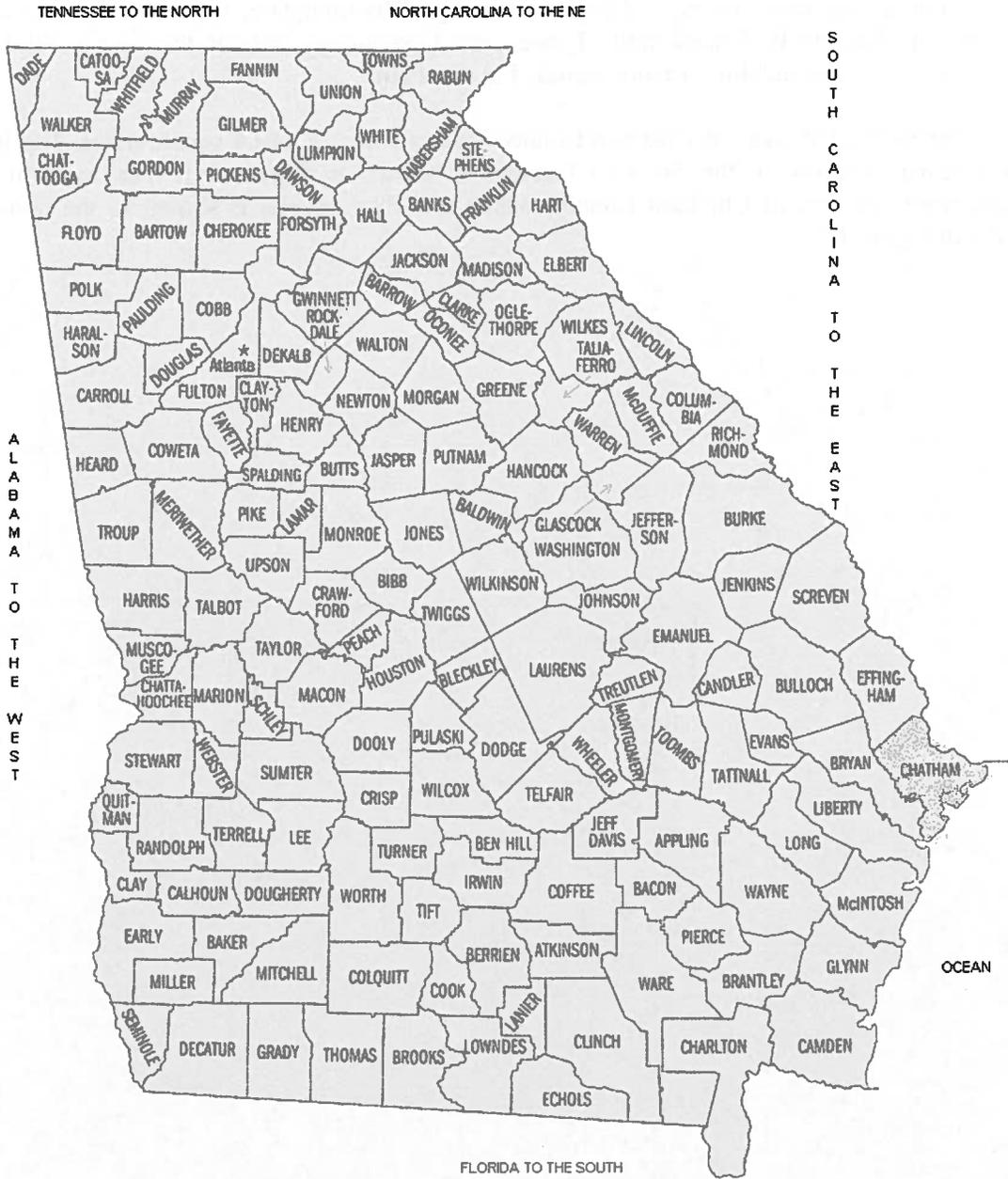


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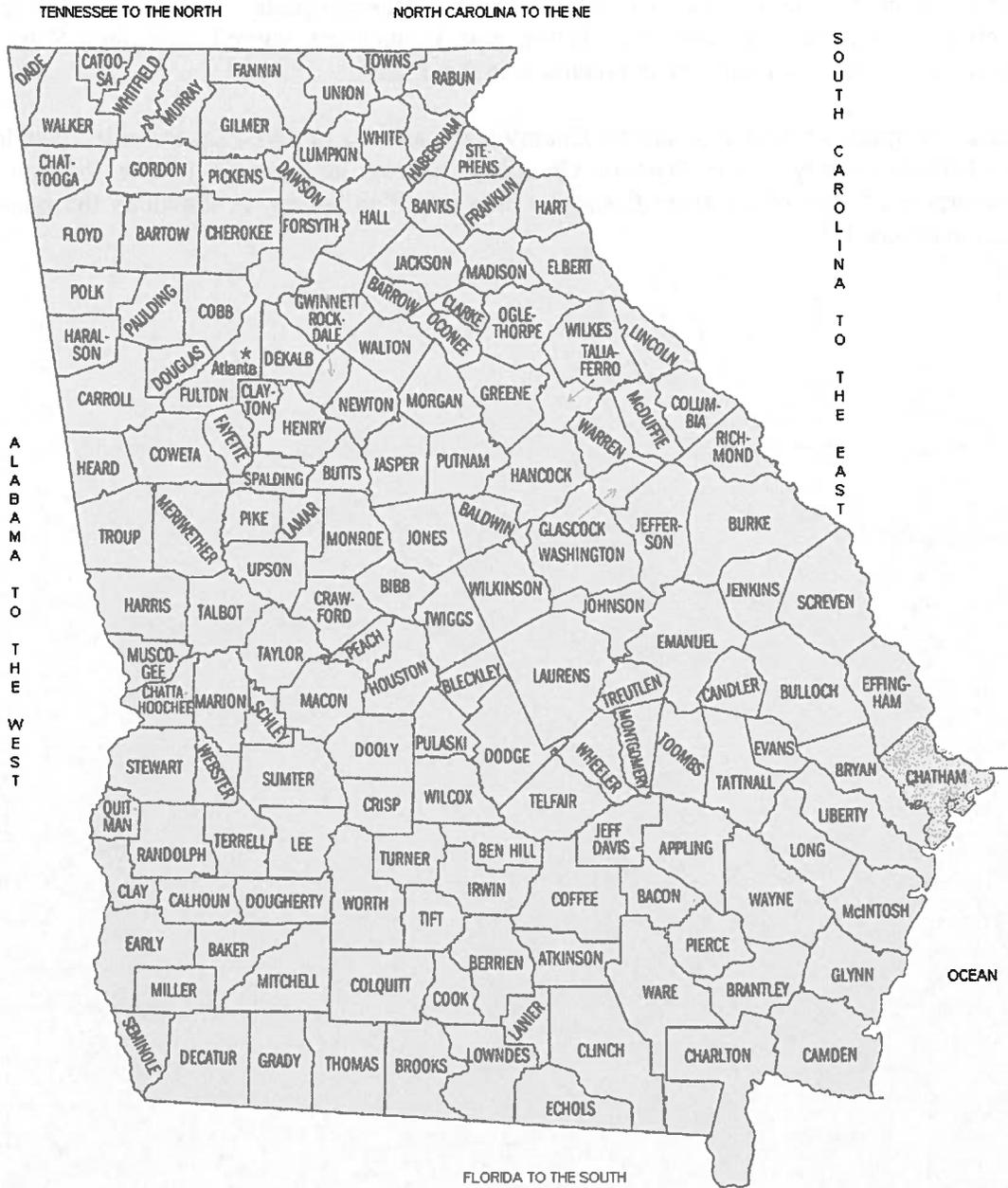


Figure 1-1: Chatham County

Unincorporated Chatham County

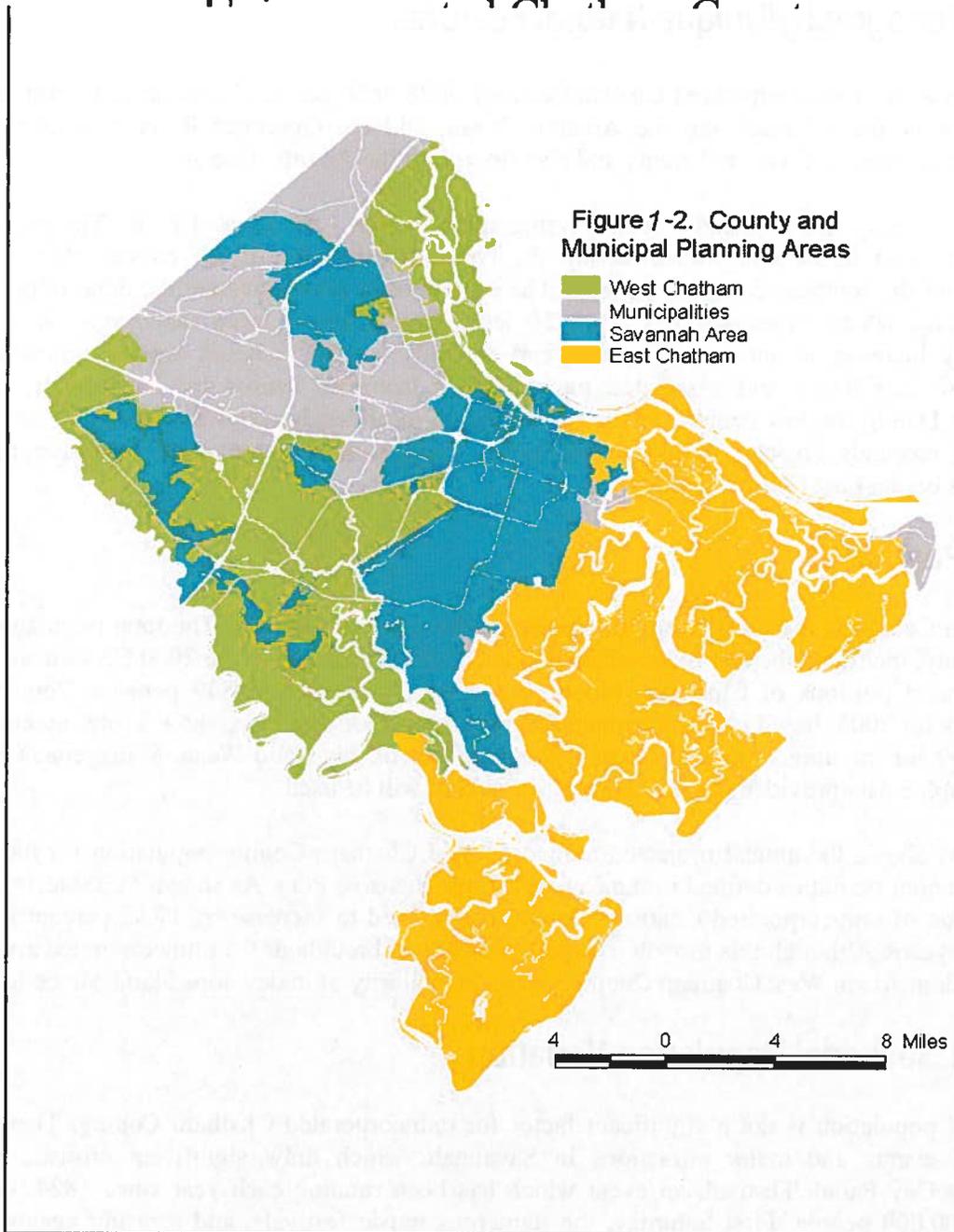


Figure 1-2: Chatham County

Chatham County Planning Areas

1.3.1 Topography/Unique Natural Features

The total area of unincorporated Chatham County is 281,856 acres. The Savannah River flows along the northern border into the Atlantic Ocean, and the Ogeechee River runs along the Southern boarder of Chatham County and also flows into the Atlantic Ocean.

Chatham County is comprised of one physiographic district - the Coastal Plain. The region is very flat, with minor exceptions, having the typical topography of the coastal plain found throughout the southeastern United States. The only notable exceptions are the dune ridges and river bluffs, where elevations may reach 30 feet or more above mean seal level. Elevations gradually increase as one moves inland, and the only natural contours are the remnants of prehistoric sea levels and associated movement of materials caused by ice formation and thawing. Due to the low contour of the region, rivers meander, having many miles of bending, winding channels creating oxbow lakes, broad floodplains and the most extensive marsh wetlands on the East Coast.

1.3.2 Population

Chatham County is the most populous county on the coast of Georgia. The total population of the County, including the incorporated areas was 232,048 according to the 2000 US Census. The incorporated portions of Chatham County had a population of 160,849 persons. Population estimates for 2005, based on the Chatham County Comprehensive Plan, show a total population of 71,199 for the unincorporated County. For purposes of this Solid Waste Management Plan, demographic data provided in the Comprehensive Plan will be used.

Table 1-1 shows the annual projected unincorporated Chatham County population for the ten-year planning period as defined in the County Comprehensive Plan. As shown in Table 1-1, the population of unincorporated Chatham County is expected to increase by 11.32 percent in the next ten years. Although this growth is expected to occur throughout the unincorporated areas, it is most dramatic in West Chatham County where the majority of undeveloped land can be found.

1.3.2.1 Seasonal Population Variation

Seasonal population is not a significant factor for unincorporated Chatham County. There are seasonal events and major attractions in Savannah, which draw significant crowds. Saint Patrick's Day Parade/Festival, an event which has been running each year since 1824, draws about 500,000 people. First Saturday, the numerous music festivals, and sporting events also draw large crowds into Chatham County throughout the year. The majority of these events and attractions are located within incorporated city limits, such as in the City of Savannah, and may have little seasonal effect on the population of the unincorporated areas.

Unincorporated Chatham County

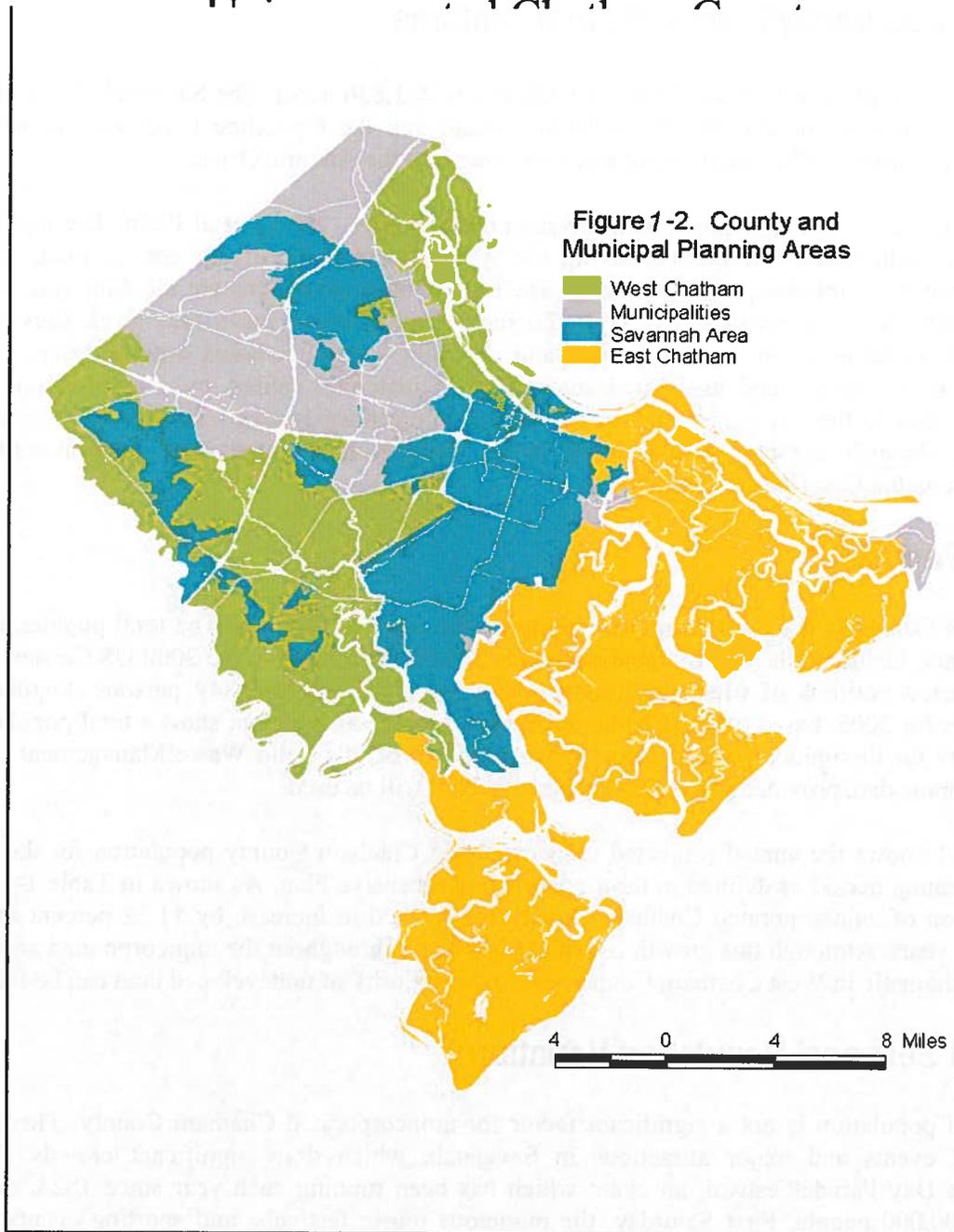


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**Table 1-1
Population and Projections for Unincorporated Chatham County**

Total Unincorporated County	Year 2008	Year 2009	Year 2010	Year 2011	Year 2012	Year 2013	Year 2014	Year 2015	Year 2016	Year 2017	Year 2018
	78,521	79,482	80,442	81,177	81,911	82,646	83,381	85,202	85,937	86,671	87,406

1.3.2 Number of Households

The total number of households in the unincorporated County in 2000 was 71,199. Table 1-2 shows the number of households from the 2000 U.S. Census.

Table 1-2

**Housing Units in
Unincorporated Chatham County, 2005
Planning Area Number of Households**

TOTAL 31,592

1.3.3 Economic Activity

The region has a diverse economy that includes manufacturing, service, government and military, tourism, port-related distribution, and a burgeoning number of creative and technical businesses. The region has an available workforce and exceptional training opportunities, with more than 44,000 college students all within an hour's drive of the coast.

Chatham County and Savannah are the regional hub of an 11-county labor draw area. The region, within a 45- minute drive, has a population of 642,155 and a labor pool of 294,680. The workforce is as diversified as the economy, from software developers to freight handlers. The region is not only a top tourist destination but also an ideal place for businesses and families. People want to live and work in the Coastal Empire.

The unemployment rate in the region is consistently lower than the national average, but the underemployment rate is high. According to a study conducted by the Georgia Southern University Bureau of Business Research and Economic Development, approximately 9 percent of the local workforce is underemployed — a great indicator for growth.

1.4 Public Involvement During the Planning Process

Chatham County met the Minimum Planning Standards requirement for holding two Public Hearings and advertising public notification for the Solid Waste Management Plan. The County held it's initial public hearing in February 2008 to obtain public input prior to the planning process. The County then held a final public hearing in March 2008 to obtain public comment on the draft Plan. In addition to these two public hearings, the County conducted the following public education activity.

- A one-page fact sheet was developed and distributed to citizens attending the Public Hearings. The fact sheet provided a succinct overview of the SWMP process.

The project fact sheet and the draft Solid Waste Management Plan was made available electronically through the County website.

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WASTE DISPOSAL STREAM ANALYSIS

2.1 Waste Disposed Analysis

It is very important to have a good picture of waste quantity and composition. It is this knowledge that provides the foundation upon which the solid waste plan is built. In the next few pages, we will show the relationship of waste composition as determined by paper, plastic, glass, metal, organic, C&D, inorganic and the volumes created by each.

Sources and Quantities

There are two MSW facilities in Chatham County and one industrial facility where solid wastes are disposed. Any complete analysis of the planning area's waste stream must take into account wastes disposed at these facilities. These facilities are the Superior Landfill, City of Savannah Landfill and Republic Landfill.

To determine the source of the solid waste entering Chatham County's Landfills, Coastal Georgia RDC conducted a waste assessment of the solid waste at the regional landfills. The results of this waste assessment for the area's solid waste management planning effort are shown below:

In-County Wastes

Table 2a --Waste Sources Composition to Landfills within Chatham County

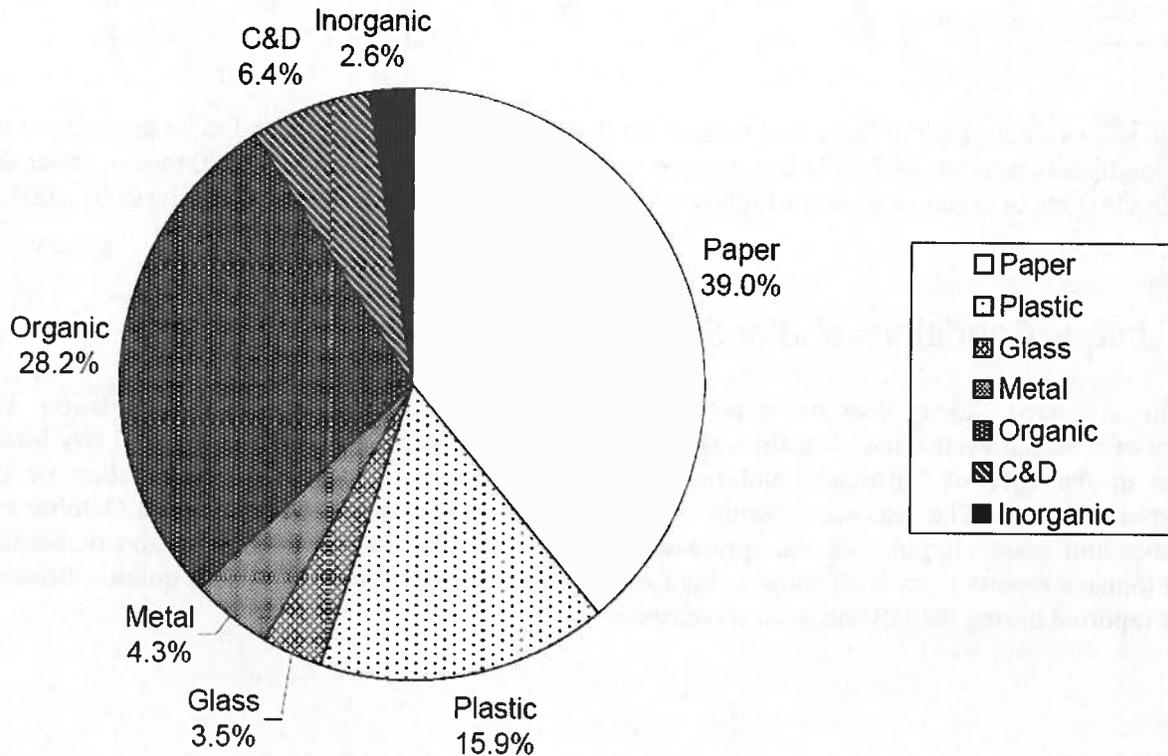


Table 2b Coastal Georgia RDC MSW Tons Disposed

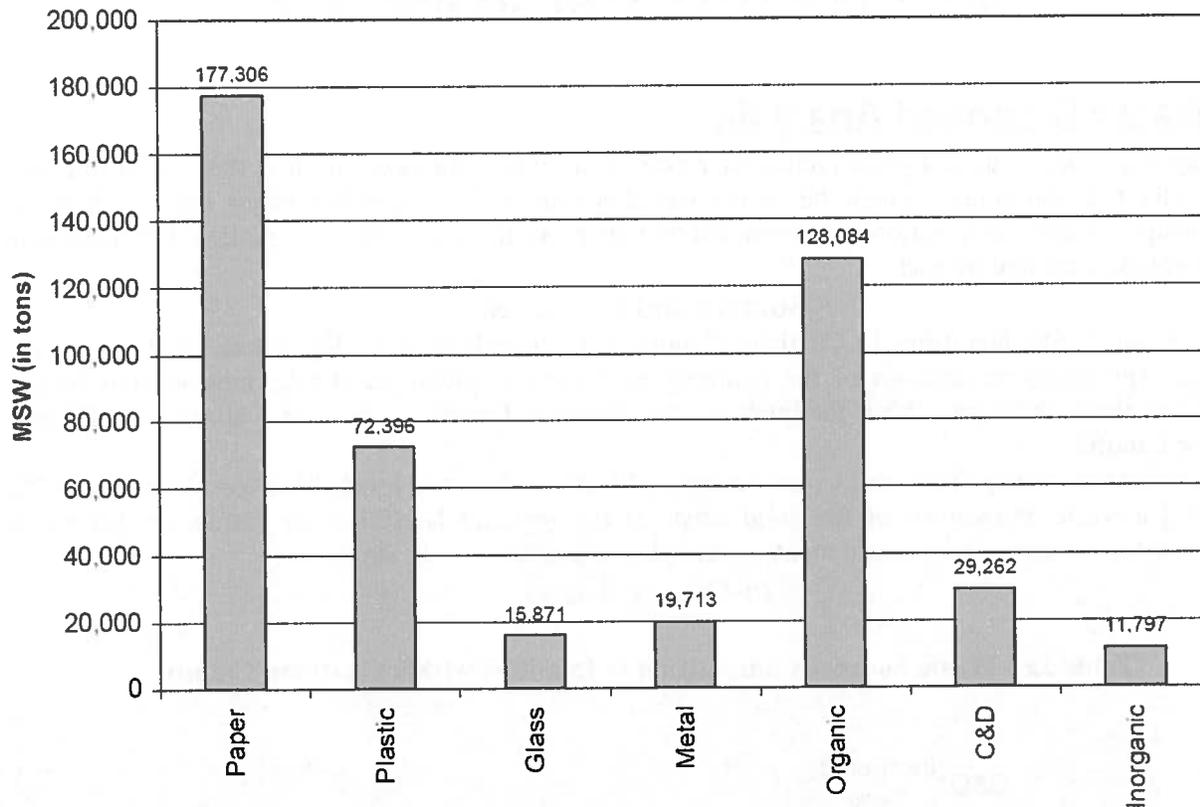


Table 2b shows a bar graph of the actual tons of the RDC's waste that are estimated to be disposed in the State's landfills (based on 2003 EPD facility reports). In absolute terms, nearly 180,000 tons of paper and over 128,000 tons of organics were the highest tons of material disposed in the RDC during 2003-2004.

2.1.1 Unique Conditions and/or Seasonal Variations

The unincorporated County does not experience any significant seasonal changes in population. The majority of seasonal events and attractions that draw visitors are located within incorporated city limits, such as in the City of Savannah, and may have little seasonal effect on the population of the unincorporated areas. The seasons do bring a variation in yard trimmings, with leaves in October and November and grass clippings in the spring and summer months. EPD construction and demolition landfill tonnage reports from 2007 show a slight reduction in tonnage during the winter quarter, from the amount reported during the fall and summer seasons.

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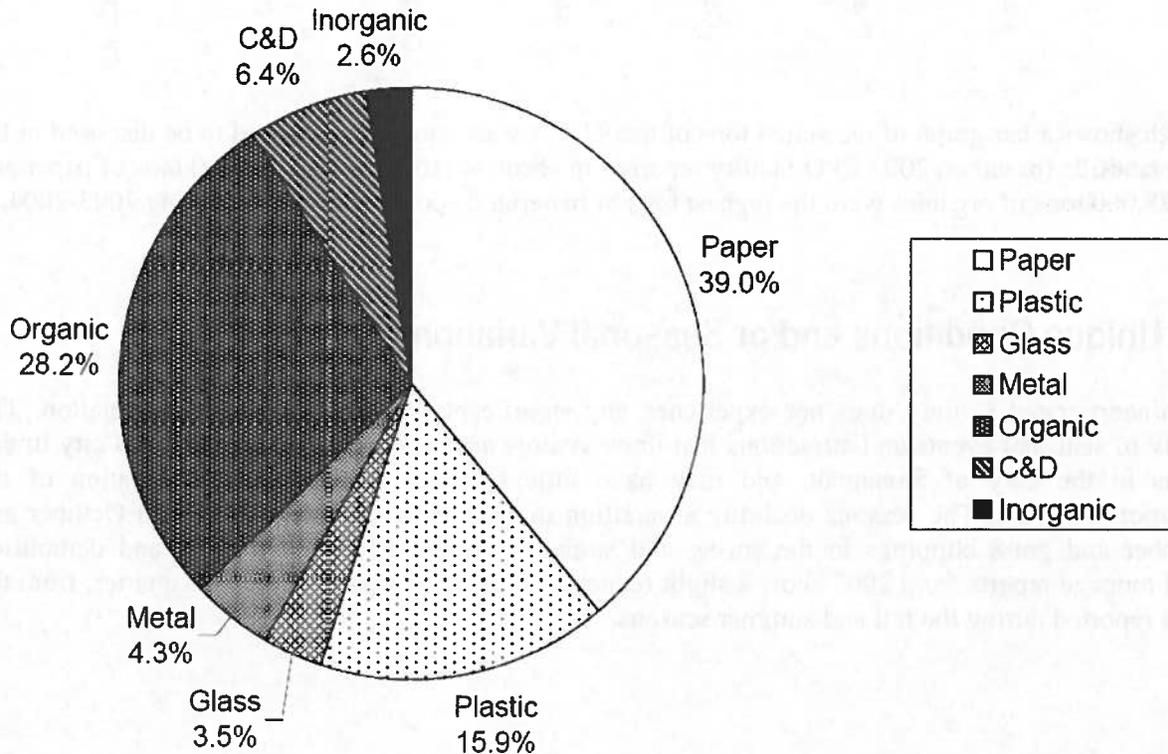


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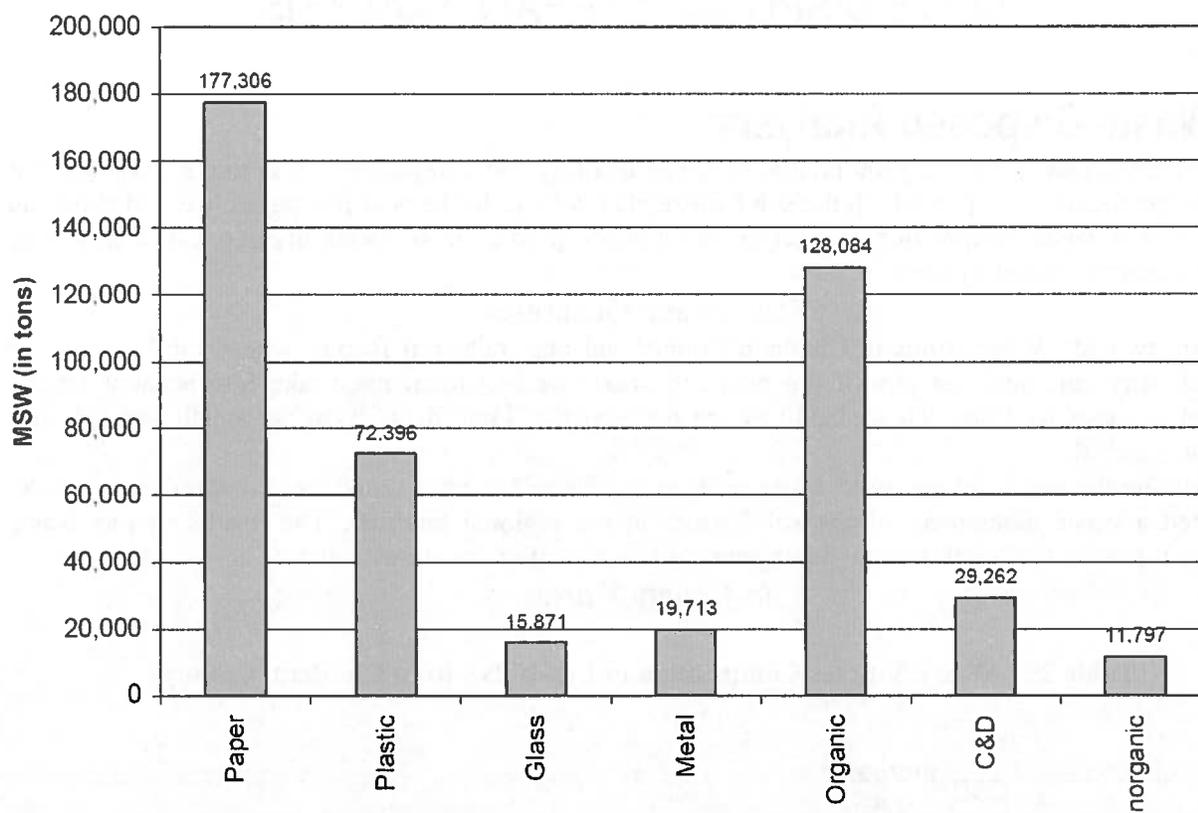


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2.1.2 Waste Generating Disasters

Without knowing the type and degree of the unanticipated disasters, Chatham County can not project the additional amount of waste that would require management for such an incident. However, based on experience elsewhere, it is clear that a major disaster could result in many times more waste to be disposed than in an average year. The sections on collection and disposal outline the approach that the County would take to deal with waste resulting from disasters.

2.2 Disposal Rate

Chatham County knows that some of the 734,497 tons attributed to Chatham County in 2007 landfill reports to EPD is coming from other areas, most notably out of state and out of County. For this report we will use 6.5 pounds per person per day. Thus, this is the disposal rate that will be used in this Plan.

Chatham County is investigating options to better identify where waste collected in the unincorporated areas is being delivered and how the source of that waste is being reported at the landfills and subsequently to EPD. Any strategy the County implements depends on the cooperation of the haulers in reporting the source of their waste. This may be difficult to monitor, as the County may have little to no control over how haulers servicing the incorporated Cities within and out of the County report the source of their waste to the landfills.

2.3 Waste Characterization

Waste characterization from the DCA sampling study show the percentage of each type of material in the commercial and residential waste disposed of in an MSW landfill, shown in Table 1a. This waste characterization is specific to the Coastal Regional Commission (CRC) Regional Development Center (RDC). Regional results suggest that 67.2% percent of the residential and commercial waste disposed of in Chatham County (incorporated, unincorporated, out of State & County areas) is paper or organic material.

Projected waste in tons to be disposed over the planning period

2008	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018
255.2	258.3	261.4	263.8	266.2	268.6	271	277	279.3	281.9	284.1

2.4 Projection of Waste to be Disposed

As described in Section 2.2, it is estimated that 6.5 pounds per capita per day of MSW was disposed from the unincorporated County in 2007. The County has set a goal of continuing to reduce the amount of MSW disposed per capita by 10% over the next ten years.

2.5 Commonly Recycled Materials Disposed

The *Georgia waste characterization study* mentioned states information that cannot be overlooked in this Plan. Over 24 percent of all materials disposed in this area are made from commonly recycled products, such as paper, news paper, corrugated cardboard. These materials were found to be disposed in significant quantities in the community.

WASTE REDUCTION ELEMENT

3.1 Inventory and Assessment of Waste Reduction Programs

3.1.1 Source Reduction & Programs

Source reduction is just that, reducing the amount of waste at the source before it enters the waste stream, and is primarily encouraged through public education programs. Chatham County Public Works & Park Services Environmental Office along with the Metropolitan Planning Commission promote source reduction through a number of media campaigns, workshops, events, and school programs listed in Section 7.

It is very difficult if not impossible to catalog the number of residents and students who have an active source reduction program in their homes and class rooms, though many probably do some type of source reduction without realizing it.

3.1.2 Recycling Programs and Facilities

Currently unincorporated Chatham County's Solid Waste Collection and Disposal Ordinance does not require private haulers to register with the County. Haulers that provide residential service do not offer curbside collection of recyclables. The ordinance does not specify the collection of any recyclable materials. Haulers do not have to offer recycling service to their commercial customers either.

Chatham County does provide drop-off centers, mulching, and recycling services for residents in both the incorporated cities and unincorporated areas of the County. The Wilmington Island Drop off Center, located at 7022 Concord Road. The facility is owned by Chatham County and operated under a contract. Wilmington Island accepts recyclables from residents of Chatham County. The center is open to residents, 7 days per week. Materials accepted for recycling include paper, aluminum and steel/tin cans, glass (clear, green, and brown), telephone books, corrugated cardboard (OCC), chip board, magazines, scrap metal, and plastics. In addition to accepting recyclables, this facility serves as a comprehensive drop-off point for, bulk waste, yard waste, and appliances. Through a partnership with SP Recycling, the Recycling Center also provides 150 remote satellite recycling bins in the Chatham County area, placed at shopping centers, apartment complexes, and businesses. The bins are primarily used to capture newspaper and magazines. SP Recycling is responsible for servicing the bins on a scheduled basis.

The Sharon Park and Chevis Road Drop Off Centers, mulching, and bulk-waste drop-off facilities are located at 50 Kelly Hill Road & 763 Chevis Road. These facilities are owned by Chatham County and operated by a private company. Recyclables accepted at this facility include scrap metal, steel and aluminum cans, glass (brown, green & clear) newspapers, and telephone books. In addition to accepting recyclables, these facilities serve as a comprehensive drop-off point for bulk waste, yard waste, and appliances.

Markets for most materials are not so plentiful in southeast Georgia although the economics of accessing these markets varies. It is likely that many recyclables generated in the County ends up at markets located outside of the County.

3.1.3 Yard Trimmings Programs and Facilities

2.1.2 Waste Generating Disasters

Without knowing the type and degree of the unanticipated disasters, Chatham County can not project the additional amount of waste that would require management for such an incident. However, based on experience elsewhere, it is clear that a major disaster could result in many times more waste to be disposed than in an average year. The sections on collection and disposal outline the approach that the County would take to deal with waste resulting from disasters.

2.2 Disposal Rate

Chatham County knows that some of the 734,497 tons attributed to Chatham County in 2007 landfill reports to EPD is coming from other areas, most notably out of state and out of County. For this report we will use 6.5 pounds per person per day. Thus, this is the disposal rate that will be used in this Plan.

Chatham County is investigating options to better identify where waste collected in the unincorporated areas is being delivered and how the source of that waste is being reported at the landfills and subsequently to EPD. Any strategy the County implements depends on the cooperation of the haulers in reporting the source of their waste. This may be difficult to monitor, as the County may have little to no control over how haulers servicing the incorporated Cities within and out of the County report the source of their waste to the landfills.

2.3 Waste Characterization

Waste characterization from the DCA sampling study show the percentage of each type of material in the commercial and residential waste disposed of in an MSW landfill, shown in Table 1a. This waste characterization is specific to the Coastal Regional Commission (CRC) Regional Development Center (RDC). Regional results suggest that 67.2% percent of the residential and commercial waste disposed of in Chatham County (incorporated, unincorporated, out of State & County areas) is paper or organic material.

Projected waste in tons to be disposed over the planning period

2008	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018
255.2	258.3	261.4	263.8	266.2	268.6	271	277	279.3	281.9	284.1

2.4 Projection of Waste to be Disposed

As described in Section 2.2, it is estimated that 6.5 pounds per capita per day of MSW was disposed from the unincorporated County in 2007. The County has set a goal of continuing to reduce the amount of MSW disposed per capita by 10% over the next ten years.

2.5 Commonly Recycled Materials Disposed

The *Georgia waste characterization study* mentioned states information that cannot be overlooked in this Plan. Over 24 percent of all materials disposed in this area are made from commonly recycled products, such as paper, news paper, corrugated cardboard. These materials were found to be disposed in significant quantities in the community.

Section 3

WASTE REDUCTION ELEMENT

3.1 Inventory and Assessment of Waste Reduction Programs

3.1.1 Source Reduction & Programs

Source reduction is just that, reducing the amount of waste at the source before it enters the waste stream, and is primarily encouraged through public education programs. Chatham County Public Works & Park Services Environmental Office along with the Metropolitan Planning Commission promote source reduction through a number of media campaigns, workshops, events, and school programs listed in Section 7.

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Markets for most materials are not so plentiful in southeast Georgia although the economics of accessing these markets varies. It is likely that many recyclables generated in the County ends up at markets located outside of the County.

3.1.3 Yard Trimmings Programs and Facilities

Chatham County currently collects yard trimmings once per week from approximately 29,900 homes in unincorporated Chatham County, and collects approximately 576 tons of yard trimmings per week from residential customers. Chatham County Mulches all of the yard trimmings collected from unincorporated Chatham County. None of the yard trimmings collected in this program is disposed in inert landfills. Therefore, based on tonnage the County diverts 29,952 tons of yard trimmings annually from the MSW waste stream through its curbside collection and mulching program, but this number does not represent the thousands of tons of yard waste that is brought to Chatham County's drop off centers directly by residents monthly.

3.1.4 Special Materials Recycling

Chatham County Public Works & Park Services Environmental Office offers electronic (computer) scrap recycling as part of an annual collection event. Since 2005, Chatham County has collected 355,000 pounds of electronics that were collected, transported, and recycled through a electronics recycler. Other nontraditional recyclables, such as rechargeable batteries and cellular phones are collected at the event on a annual basis.

The County also provides once per week curbside residential collection of bulk waste to approximately 29,900 households in Chatham County in 2007, an average of 185 tons per month. Any white goods collected were sold directly to a scrap metal dealer.

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3.1.5 Private efforts

In addition to the public recycling efforts, there are numerous private recycling and buy-back centers in Chatham County that will accept such items as aluminum, metals, paper, corrugated cardboard, and scrap metal to sell in the open market.

3.1.6 Contingency Strategy

In the event of a natural disaster or emergency situation that interrupted the County's regular operations for providing waste reduction and recycling services, the County has several options. Because of the County's geographical location, there are not many public and private recycling facilities within a 50 mile radius. The County may chose to contact individual markets for each commodity. The County can negotiate with these private companies to provide a collection and marketing option for recyclable materials on an "as needed" basis.

3.2 Needs and Goals

Goal: To reduce the per capita amount of waste disposed by 10% over the next ten years.

According to the available data, it is unclear if the County has reduced disposal volumes since 1998. The County's goal is to reduce disposal rates over the next ten years by a total of 10 percent, from 6.5 pounds per person per day to 5.85 pounds per person per day. To do this, the County has the following needs:

1. To develop a better way to determine how much waste is actually being disposed of from unincorporated Chatham County versus the County as a whole.
2. To consider licensing or franchising for the County's private haulers.
3. Create a Collection and Disposal Ordinance that contains provisions to encourage recycling by private haulers.
4. To ensure that the Wilmington Island Residential Drop-Off and Recycling Center remains open and available to all residents of the County.
5. To evaluate options for additional drop off centers for collection of recyclables in unincorporated areas of the County.
6. To determine the availability of recycling services to businesses in unincorporated Chatham County and complement as needed.
7. To promote the availability of recycling programs offered at the drop-off centers and by private recyclers.

Future waste reduction efforts will continue to focus on yard trimmings and paper since, according to DCA's waste composition study, they comprise two-thirds of the waste disposed in MSW landfill in this region of the State. At the same time, Chatham County will encourage efforts to reduce and recycle construction and demolition debris since disposal rates for these materials are higher than for MSW.

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COLLECTION ELEMENT

4.1 Inventory and Assessment of Collection Programs

Collection services are available to all residents and businesses in the unincorporated County, primarily through private haulers. Drop-off centers and private transfer stations also operate in the County.

4.1.1 Waste Haulers

All unincorporated Chatham County residents must choose which private waste hauler they want to use (the County has NO involvement). The County has no ownership of the waste it's residents create.

ABC Waste	Curbie Sanitation	Republic Waste	City of Savannah	Savannah Sanitation
Savannah Waste	Waste Management	Waste Pro	Waste Watchers	

4.1.2 Drop-Off Locations and Transfer Stations

The County does not offer residents the option of delivering house hold solid waste to drop-off centers. Residents can deliver recyclables, appliances, scrap metal, bulk items and yard waste to the transfer stations.

4.1.3 Yard Trimmings and Bulk Item Collection

All yard trimmings in Chatham County are collected separately from bulk as required in the County's Solid Waste Collection Management Ordinance. There is no charge to residents who deliver their materials to a drop-off center.

4.1.4 Illegal Dumping/Littering

The County does not perceive illegal dumping to be a significant problem, perhaps because most residents have curbside collection of solid waste, yard trimmings, and bulky materials. The County has a litter control ordinance that prohibits illegal dumping and littering. Violations are referred to the Chatham County Sheriff's Office. The County does not have an Environmental Court.

In addition to enforcement, public education efforts are operated by the Metropolitan Planning Commission and Public Works and Park Services Environmental Office to discourage littering and illegal dumping.

4.1.5 Contingency Strategy

Because there are several private haulers operating in the unincorporated County, the County can offer several options to residents and businesses as a contingency strategy should one hauler no longer provide service. The waste hauler must notify the Chatham County Public Works & Park Services for any break in service provided to its residents. The waste hauler must provide an estimated time that service will resume regular service. The waste hauler will have a Memorandum Of Agreement (MOA) with at least one other waste hauling company to provide service in times when the waste hauler cannot. If an MOA is not established and there is a break in service the waste hauler will be subject to any and all reimbursement of fines and penalties levied on its customers by Chatham County inspectors and health department officials because of failed service (household waste piled at the curb and not collected, because of any break in service on the waste haulers part).

Once a resident notifies the County that hauler is no longer in business, the County can send inspectors out to notify residents that they must find a new hauler within a five (5) days or the resident will be subject to a monetary penalty. The County will offer references from the phonebook or place a request to a hauler to assist stranded residents.

In the event of a natural disaster, or an emergency situation that would alter the current collection and disposal system for the unincorporated area, the County has several options in place for residential solid waste and yard debris collection and disposal. For residential solid waste, the County would continue to utilize private haulers and vendors to collect residential waste. It would be the responsibility of the hauler to find a disposal facility.

Montenay Savannah – In process of closing
Savannah Regional Industrial Landfill, Inc – Industrial waste (refused to supply data)
Savannah-Dean Forest Rd (SL) - Municipal Solid Waste (seven year capacity)
Superior Landfill - Municipal Solid Waste (ten year capacity)

To facilitate this process, the County may consider putting contracts in place to ensure that these contractors are available to assist in collecting debris should a disaster occur.

In addition the County has a contract with Ashbritt a debris removal company. This contract allows Ashbritt to clear, remove, transport, and store/dispose of vegetative waste. Locations have been documented that the County would utilize as a staging area for excessive debris that will result from a disaster.

4.2 Needs and Goals

Goal: To provide universal access to drop-off center services for solid waste and recyclables to all citizens in Chatham County.

With the number of competitive private haulers who provide residential and commercial garbage to unincorporated Chatham County, there are ample services for collection in the County. However, the County does have a goal of ensuring that these services are consistent and efficient and the County needs

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access to sufficient information to ensure that this is the case. To accomplish these goals, the County has the following needs:

1. Consider a Solid Waste Collection and Disposal Ordinance, specifically those that require a licensing or franchise and to report to the County quarterly.
2. Develop better communications between landfill operators and the County
3. Evaluate whether current Solid Waste ordinance achieves County's goals for collection and waste reduction and consider alternative collection approaches, if necessary.
4. Consider contracting with collectors and disposal facilities to provide services in case of disaster.
5. Expand recycling opportunities

DISPOSAL ELEMENT

5.1 Inventory and Assessment of Facilities Located in County

5.1.1 Landfills

One public and two private landfills operate in Chatham County, along with one private waste to energy facility, according to the EPD's database. Two are MSW landfills, one is an Industrial landfill, and a waste to energy facility, identified in Table 5-1. The location of these landfills, along with transfer stations and recycling centers, are shown in Figure 5-1. EPD's database also lists 29 inert landfills permitted by rule in Chatham County.

Table 5-1
Permitted facilities & Landfills in Chatham County, 2007

<u>Facility Name</u>	<u>Permit Number</u>	<u>Waste Accepted</u>
Montenay Savannah Limited Partnership	025-059P(INC)	Waste To Energy Facility
Savannah Regional Industrial Landfill, Inc	025-072D(L)(I)	Industrial Landfill
Savannah-Dean Forest Rd (SL)	025-051D(SL)	Municipal Solid Waste Landfill
Superior Landfill & Recycling Center	025-070D(MSWL)	Municipal Solid Waste Landfill

Montenay Savannah – In process of closing

Savannah Regional Industrial Landfill, Inc – Industrial waste (refused to supply data)

Savannah-Dean Forest Rd (SL) - Municipal Solid Waste (seven year capacity)

Superior Landfill - Municipal Solid Waste (ten year capacity)

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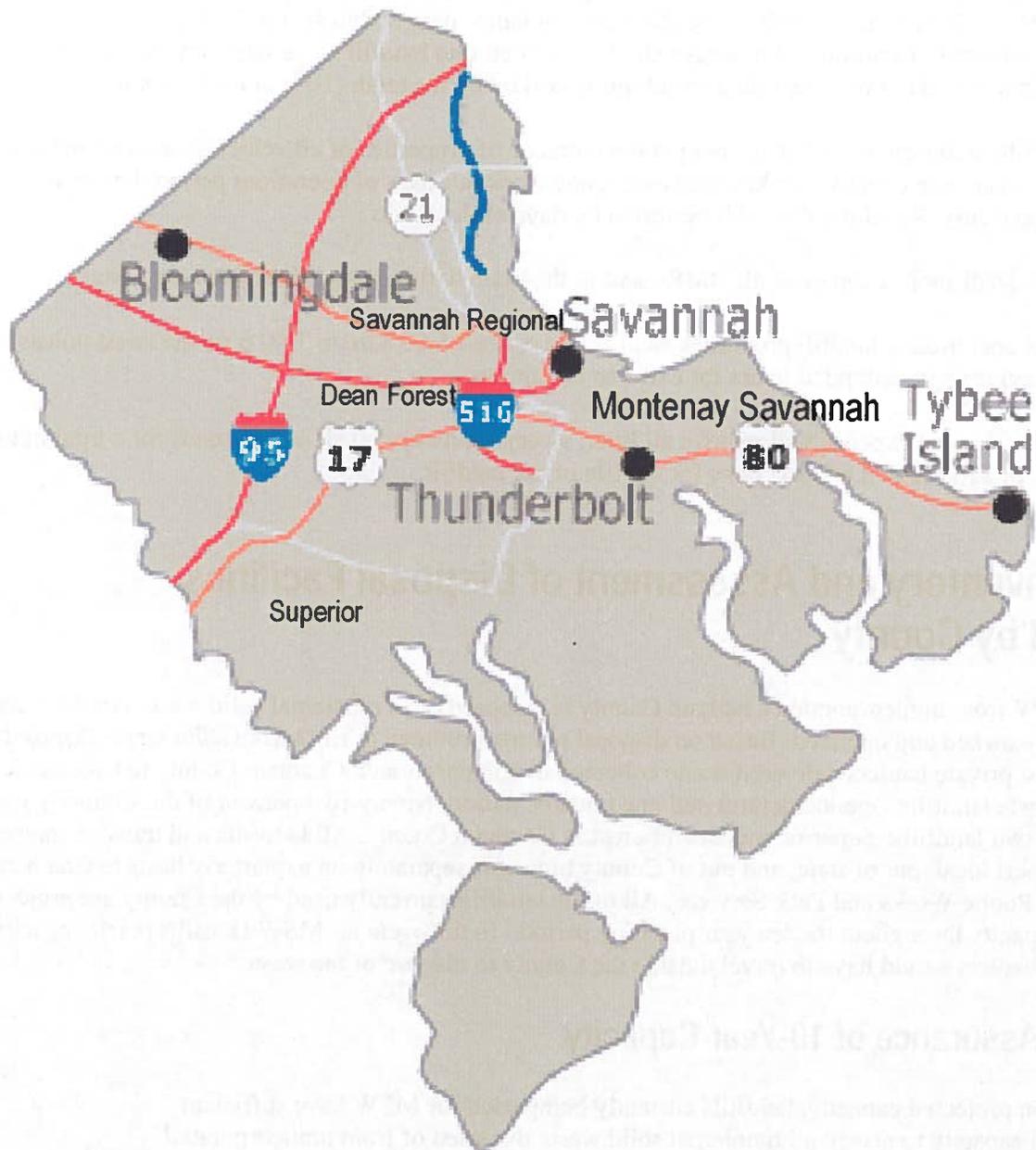
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All landfills not owned by the County are subject to Host (education, recycling, and resource protection) Fees for waste not put into landfills or recycled within the boundaries of Chatham County; of no less than one dollar (\$1.00) per ton. Additionally waste brought in from out of State will be subject to the same one dollar (\$1.00) per ton.

Site monitoring shall be as set forth in the EPD permit, and copies of all reports going to the State must be sent to the County along with any requested compliance data within seven (7) days of request/submittal. Reporting of tonnages shall be divided into landfill or transfer station and in County, out of County and out of State this data submittal will be by the tenth (10th) of each month.

All landfills will perform a traffic count at the entrance of properties of all vehicles entering and exiting once per year. The count will take place over a one week (all days of operation) period during the months of June and July. Resulting data will be sorted by days of the week.

Landfills shall submit copies of all DMRs sent to the State within seven (7) days of submittal.

Hours of operation at landfill properties shall be the earliest 5:00 a.m. to 7:00 p.m. the latest unless the County agrees with extended hours for extreme conditions.

Landfill at its own expense will remove all litter, sweep roadways on all access roads for a minimum distance of 2000 feet in all directions for the life of the landfill.

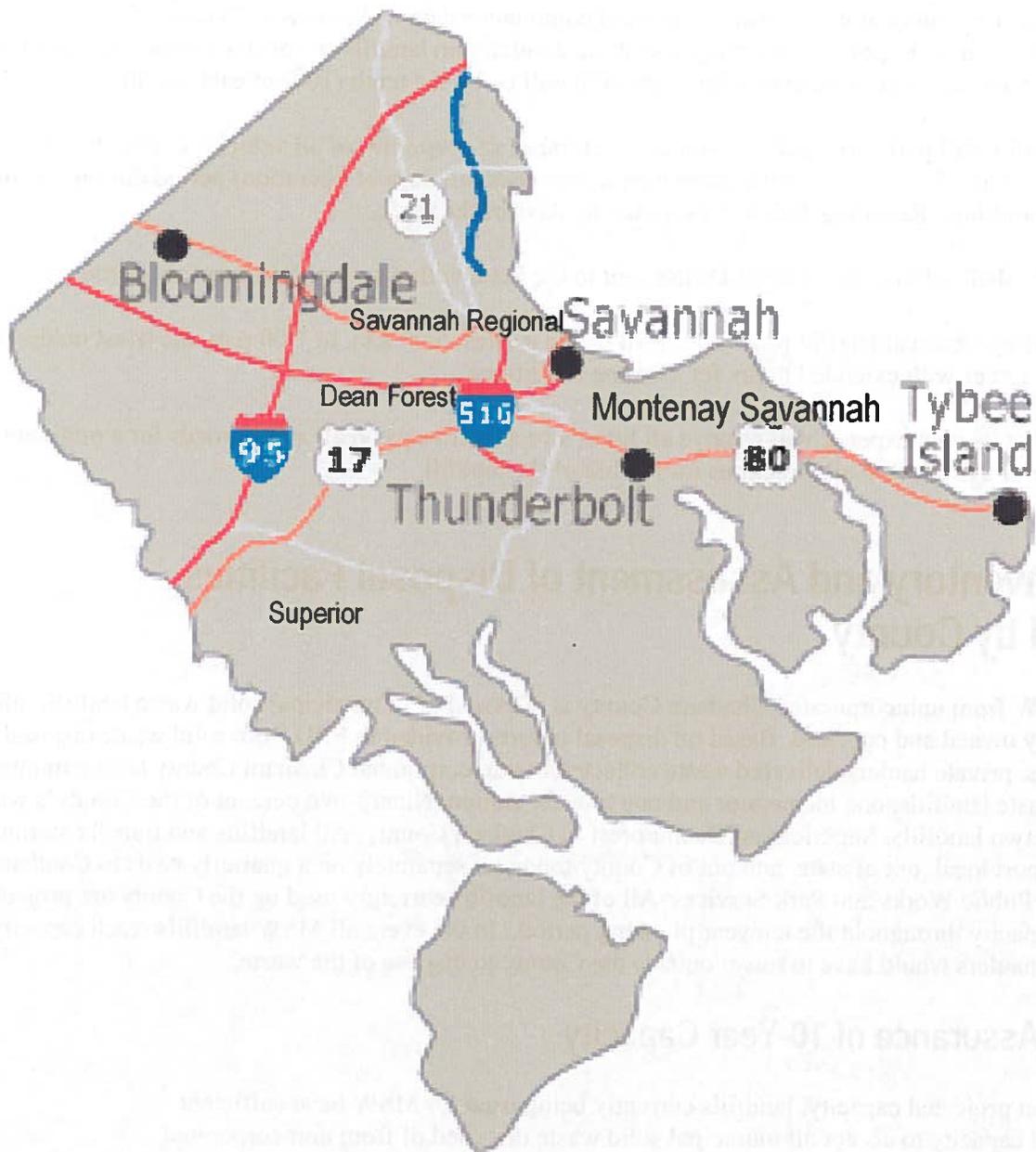
5.2 Inventory and Assessment of Disposal Facilities Used by County

All MSW from unincorporated Chatham County is disposed of in municipal solid waste landfills, all are privately owned and operated. Based on disposal reports provided to EPD from solid waste disposal facilities, private haulers delivered waste collected in unincorporated Chatham County to two municipal solid waste landfills, one incinerator and one transfer station. Ninety-two percent of the County's waste went to two landfills: Superior and Dean Forest in Chatham County. All landfills and transfer stations shall report local, out of state, and out of County tonnages separately on a quarterly basis to Chatham County Public Works and Park Services. All of the landfills currently used by the County are projected to have capacity throughout the ten year planning period. In the event all MSW landfills reach capacity private haulers would have to travel outside the County to dispose of the waste.

5.2.1 Assurance of 10-Year Capacity

Based on projected capacity, landfills currently being used for MSW have sufficient disposal capacity to accept all municipal solid waste disposed of from unincorporated Chatham County for the planning period (2008 -2018). However, it is likely that private haulers may deliver some of the MSW elsewhere depending on market forces.

5.2.2 Public Notification



2.2.2 Public Notification

All landfills not owned by the County are subject to Host (education, recycling, and resource protection) Fees for waste not put into landfills or recycled within the boundaries of Chatham County; of no less than one dollar (\$1.00) per ton. Additionally waste brought in from out of State will be subject to the same one dollar (\$1.00) per ton.

Site monitoring shall be as set forth in the EPD permit, and copies of all reports going to the State must be sent to the County along with any requested compliance data within seven (7) days of request/submittal. Reporting of tonnages shall be divided into landfill or transfer station and in County, out of County and out of State this data submittal will be by the tenth (10th) of each month.

All landfills will perform a traffic count at the entrance of properties of all vehicles entering and exiting once per year. The count will take place over a one week (all days of operation) period during the months of June and July. Resulting data will be sorted by days of the week.

Landfills shall submit copies of all DMRs sent to the State within seven (7) days of submittal.

Hours of operation at landfill properties shall be the earliest 5:00 a.m. to 7:00 p.m. the latest unless the County agrees with extended hours for extreme conditions.

Landfill at its own expense will remove all litter, sweep roadways on all access roads for a minimum distance of 2000 feet in all directions for the life of the landfill.

5.2 Inventory and Assessment of Disposal Facilities Used by County

All MSW from unincorporated Chatham County is disposed of in municipal solid waste landfills, all are privately owned and operated. Based on disposal reports provided to EPD from solid waste disposal facilities, private haulers delivered waste collected in unincorporated Chatham County to two municipal solid waste landfills, one incinerator and one transfer station. Ninety-two percent of the County's waste went to two landfills: Superior and Dean Forest in Chatham County. All landfills and transfer stations shall report local, out of state, and out of County tonnages separately on a quarterly basis to Chatham County Public Works and Park Services. All of the landfills currently used by the County are projected to have capacity throughout the ten year planning period. In the event all MSW landfills reach capacity private haulers would have to travel outside the County to dispose of the waste.

5.2.1 Assurance of 10-Year Capacity

Based on projected capacity, landfills currently being used for MSW have sufficient disposal capacity to accept all municipal solid waste disposed of from unincorporated Chatham County for the planning period (2008 -2018). However, it is likely that private haulers may deliver some of the MSW elsewhere depending on market forces.

5.2.2 Public Notification

In times of emergency the residents of Chatham County will be notified how to handle household waste via radio, newspaper, and the County education channel.

5.2.3 Transfer Stations

All transfer stations not owned by the County are subject to Host (education, recycling, and resource protection) Fees for waste not put into landfills or recycled within the boundaries of Chatham County; of no less than one dollar (\$1.00) per ton. Additionally waste brought in from out of State will be subject to the same one dollar (\$1.00) per ton.

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All Transfer stations will perform a traffic count at the entrance of properties of all vehicles entering and exiting once per year. The count will take be over a one week (all days of operation) period during the months of June and July. Resulting data will be sorted by days of the week.

All transfer station leachate discharge must go to a sanitary sewer. Transfer station shall submit copies of all DMRs sent to the State within seven (7) days of submittal.

Hours of operation at transfer station properties shall be the earliest 5:00 a.m. to 7:00 p.m. the latest unless the County agrees with extended hours for extreme conditions.

Transfer stations at its own expense will remove all litter, sweep roadways on all access roads for a minimum distance of 2000 feet in all directions for the life of the transfer station.

5.3 Statement of Needs and Goals

Goal: Ensure sufficient disposal capacity to handle the amount of waste projected to be disposed for the next ten years.

Goal: Ensure that existing and proposed solid waste handling facilities located in the unincorporated County will not negatively impact the natural environment or public health and safety.

Goal: Generate sufficient revenue to support County's solid waste management activities.

Specifically, the County's needs with regard to disposal include:

1. Continue to monitor capacity of landfills in the region to ensure that there remains sufficient capacity to handle Chatham County's MSW.

2. Work with neighboring communities, private haulers, and landfill operators to ensure sufficient capacity in construction and demolition landfills to handle the waste generated in the region, including a strategy to handle debris generated by a disaster.

3. Evaluate sufficiency of “host fee” collected from disposal facilities operating in the County.

4. Ensure that all solid waste handling facilities are operated in a manner that protects public health and the environment and is consistent with solid waste plan.

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LAND LIMITATION ELEMENT

On the coast Chatham County is the most densely populated county. Population density, zoning, and land use factors, as well as natural environmental limitations limit the amount of land suitable for development of new landfills or other solid waste facilities.

Solid waste disposal facilities and other solid waste handling facilities should be located where they have minimum adverse effects on the community and the environment. This section outlines the limitations that the County will consider when a new solid waste management facility or the expansion of an existing solid waste management facility is proposed. The limitations identified below do not exclude the development of a facility in an area where the limitations occur; rather, the limitation or concern *must* be considered, and if possible, mitigated when siting a facility.

6.1 Natural Environmental Limitations

Federal, State, and County policy contain restrictions on where in Chatham County solid waste facilities can be sited and, in some cases, the design required to site facilities in a specific area, based on natural environmental features. This section discusses the restrictions in more detail. Figure 6-1, provided by DCA, indicates the areas in Chatham County impacted by some of these restrictions, as well as those impacted by some of the land use restrictions described in Section 6.2.

6.1.1 Floodplains

DNR Rule 391-3-4-.05(1)(d) stipulates that any solid waste landfill located in the 100-year floodplain shall not restrict the flow of the 100-year flood, reduce the temporary water storage capacity of the flood plain, or result in a washout of solid waste so as to pose a threat to human health of the environment. Chatham County requires applicants proposing to develop in a wetland or floodplain to obtain a Section 404 permit or a determination of no jurisdiction from the Army Corps of Engineers prior to obtaining a LDP.

6.1.2 Wetlands

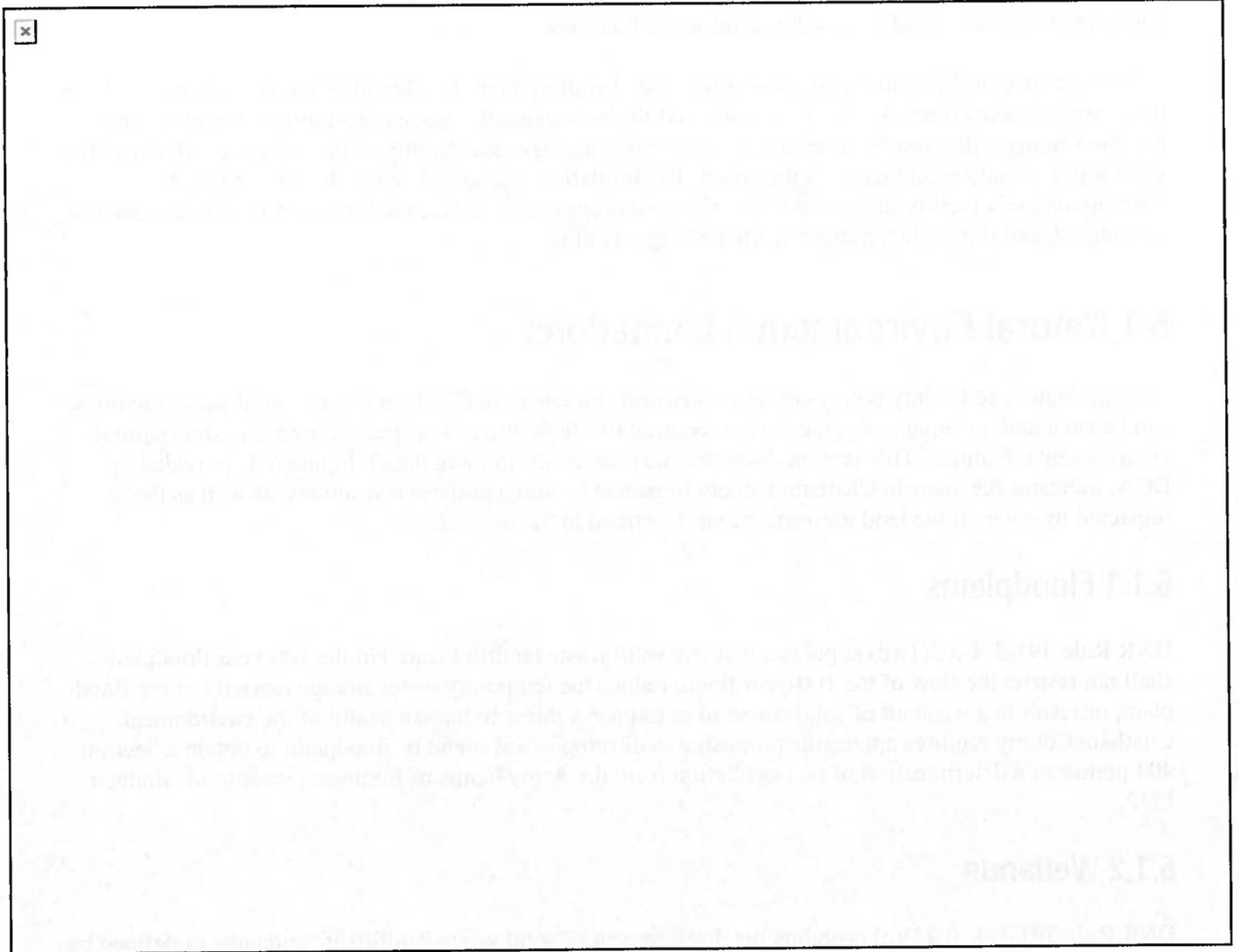
DNR Rule 391-3-4-.05(1)(e) prohibits the development of solid waste landfills in wetlands, as defined by the U.S. Army Corps of Engineers, unless evidence is provided by the applicant that use of the wetland has been permitted or otherwise authorized under all other applicable state and federal laws and rules.

6.1.3 Water Supply Watersheds

DNR Rule 391-3-16-.10(7)c1 requires that at any location within a small water supply watershed, new solid waste landfills must have synthetic liners and leachate collection systems. Two large watershed areas exist in Chatham County, the Savannah River basin and the Ogeechee River Basin.

6.1.4 Groundwater Recharge Areas

DNR Rule 391-3-16-.02(3)(a) requires that in significant groundwater recharge areas, DNR shall not issue permits for new solid waste landfills not having synthetic liners and leachate collection systems. Chatham County considers all ground water recharge areas significant.



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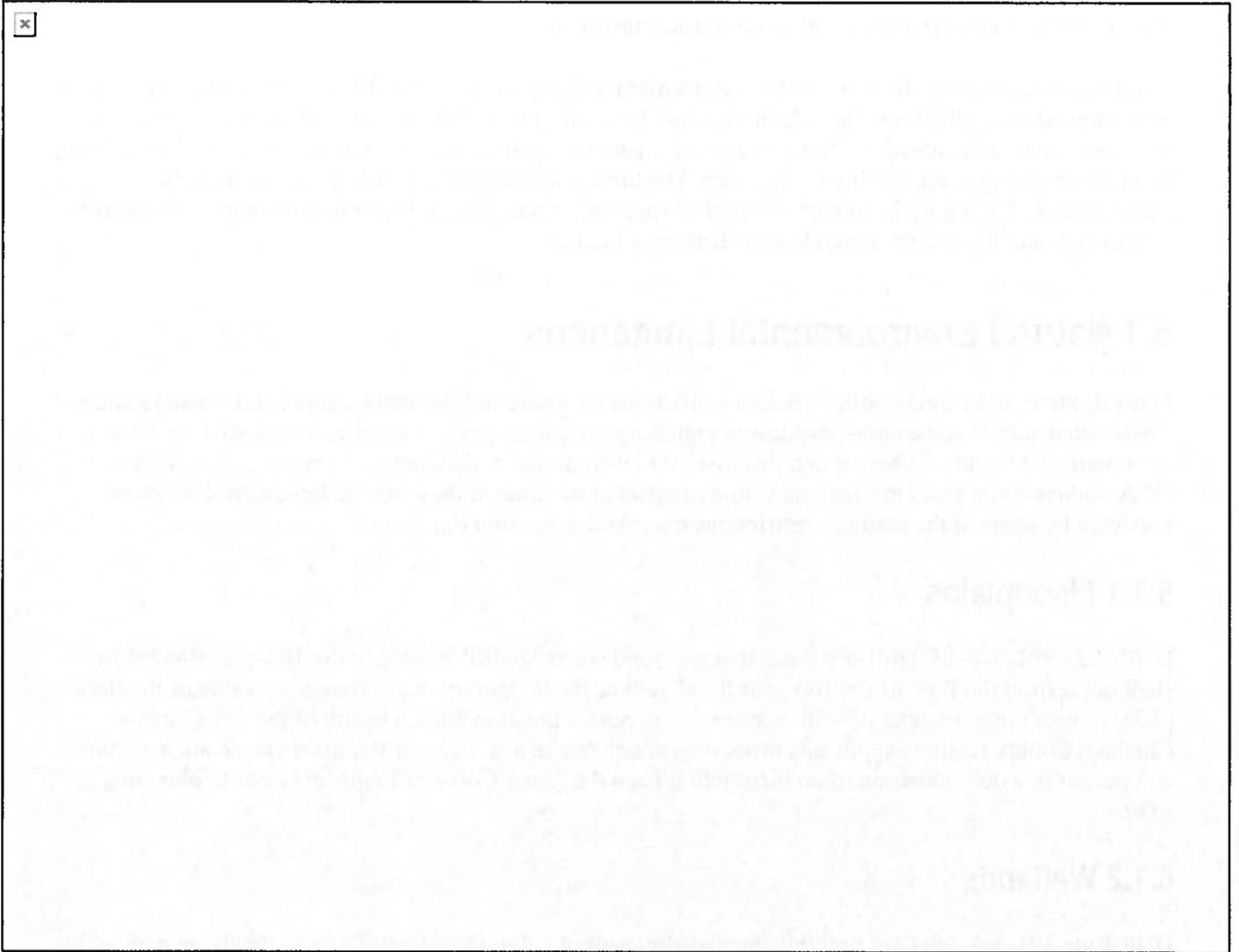
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6.1.5 River Corridors

DNR Rules prohibit the development of new solid waste landfills within protected river corridors. The Savannah River and the Ogeechee River corridor are protected.

6.1.6 Fault Zones, Seismic Impact Zones, and Unstable Areas (Karst Areas)

A hydrogeological assessment must be conducted at the location of any proposed solid waste disposal facility. Such an assessment must be performed under the direction of a registered geologist or professional engineer. Technical issues which involve seismic activity, fault lines, unstable areas, such as karst areas must be evaluated in the preliminary site selection phase. Any condition that would likely result in a release of pollution from a site may not receive EPD approval during the solid waste handling permitting process, unless mitigating or supplemental protection is provided.

DNR Rule 391-3-4-.05(1)(f) focuses on fault areas and requires that new landfill units and lateral expansions of existing landfills not be located within 200 feet of a fault that has had a displacement in Holocene time, unless an alternative setback distance of less than 200 feet will prevent damage to the structural integrity of the landfill and will protect human health and the environment.

DNR Rule 391-3-4-.05(1)(g) prohibits the development of new landfills and lateral expansions of existing landfills in seismic impact zones, unless all landfill containment structures, including existing landfill liners, leachate collection systems, and surface water control systems, are designed to resist the maximum horizontal acceleration in lithified earth material for the site.

According to DNR Rule 391-3-4-.05(1)(h), existing landfills and lateral expansions of existing landfills located in an unstable area must demonstrate that engineering measures have been incorporated into the landfill's design to ensure that the integrity of the structural components of the landfill will not be compromised.

6.2 Land Use and Zoning Limitations

6.2.1 Zoning Restrictions

DNR Rule 391-3-4-.05(1)(a) requires that solid waste facility sites must conform to all local zoning/land use ordinances. The Chatham County Zoning Resolution specifies the allowable districts and other criteria for siting solid waste handling facilities in the unincorporated County. Municipal solid waste landfills and transfer stations can only be sited in areas zoned heavy industrial.

6.2.2 National Historic Sites

MSW landfills are not permitted within 5,708 yards of a National Historic Site.

6.2.3 Archaeological Sites

The Archaeological Resources Protection Act of 1979 requires federal agencies or local governments utilizing federal funds to conduct archaeological investigations on lands under their jurisdiction to determine the nature and extent of the protected cultural resources present. Therefore, no solid waste handling facility should be located so as to negatively impact an area of concentrated or known archaeological sites on file with the Georgia Archaeological Site File (GASF). Located at the University of Georgia, the GASF is the official repository for information about known archaeological sites in the state of Georgia. Because specific information concerning the location and contents of archaeological sites is protected by Georgia Law (O.C.G.A . 50-18-72 [a][10]), direct access to the complete information held by the GASF is restricted to qualified archaeologists and archaeology students. If a facility siting has the potential to impact an area of concentrated or known archaeological sites, then consultation with the State Archaeologist and the SHPO would be required.

6.2.4 Surface Water Intake

According to the Georgia DNR Rule 391-3-16-.01, solid waste landfills must have engineered modifications such as liners, leachate collection systems, and groundwater monitoring systems if they are to be located within 2 miles of a surface water intake for a public water source. Unless such a location is the only feasible location, other locations should be considered.

6.2.5 Airport Safety

DNR Rule 391-3-4-.05(1)(c) requires that new solid waste landfill units or lateral expansions of existing units shall not be within 10,000 feet of any runway planned or used for piston-type aircraft or within 20,000 feet of any runway planned or used for turbo-jet or piston-type aircraft.

6.2.6 Political Subdivisions

The Georgia Comprehensive Solid Waste Management Act prohibits the siting of a MSW landfill within one half mile of another County's borders without the approval of the jurisdiction's governing authority. Unincorporated Chatham County borders two other counties.

6.2.7 Other Land Use Issues

Solid waste handling facilities generate considerable in and out of county truck traffic and should be located near major roads. Because of the severe impact to the environment a fee shall be levied at an additional one dollar a ton which is subject to increase 0.25 per year. Odor and noise are also associated with solid waste handling facilities. Therefore, a minimum 200 foot wide buffer is required of landfills adjacent to residential districts and uses and a minimum of 50 foot wide buffer adjacent to public rights of way. In addition, a minimum fence of eight feet in height is required inside the buffers adjacent to property zoned of developed for residential uses. Access through any residential subdivision is prohibited.

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6.3 Local Procedures for Siting Solid Waste Facilities

In Chatham County, the Board of Commissioners must approve the application before it precedes, to acquire the proper zoning and pertinent use, administrative, and land use permits are required prior to construction and operation of a landfill. The Chatham County Zoning Resolution allows for two types of landfills - Inert Waste and Solid Waste. According to EPD, C&D landfills are a subset of MSW landfills. Because of this determination, C&D landfills fall under the zoning restrictions the County has for MSW landfills. Landfill operators must also show their Georgia Solid Waste Handling and Disposal permit prior to obtaining a Chatham County Land Disturbance Permit (LDP).

The County is establishing a formal process for approving transfer stations in unincorporated Chatham County. All companies interested in constructing a transfer station in Chatham County must:

- Obtain a use permit from the County;
- Provide a detailed environmental impact report to the County;
- Receive approval of the environmental impact report from the County Board of Commissioners;
- Receive approval for a use permit from the County Board of Commissioners;
- Meet all zoning restrictions and requirements;
- Be consistent with and meet the requirements of the Long Term Land Use Plan.
- Shall report, separately, local, out of state, and out of County tonnages quarterly to Chatham County Public Works and Park Services.

In addition, the requirements noted above, all new solid waste handling facilities must meet the following performance standards and requirements:

- ❖ Entrances and exits shall be through gates monitored by the solid waste handling facility operator
- ❖ Construct and maintain an asphalt or concrete exit roadway from the right-of-way of the state or county highway on which egress from the landfill occurs back to the solid waste handling facility operation. The exit roadway shall be maintained in good and clean condition by the operator.
- ❖ Be a good neighbor; sweep and collect litter along the state or county highway on which traffic travels to the landfill entrance from the surrounding communities for a total of five miles or pay the county seventy-five thousand dollars annually for the upkeep to be paid the first week of August every year.
- ❖ Prepare a fire prevention control plan which shall be submitted to and approved by the county engineer. The fire prevention plan shall demonstrate the procedures and safeguards implemented by the operator for preventing and controlling fires at the solid waste handling facility site.
- ❖ The public will be notified by news paper and TV ads
- ❖ Submit an environmental protection plan that will:
 - Prevent scavenging and scattering of any windblown litter and keep the premises in good condition
 - Prevent contamination in and around the facility site that includes the description and location of the monitoring systems.
 - Capture any leachate or runoff from the waste feed areas (and ash storage areas for incineration facilities), and areas in which trucks, equipment, containers, and tools that have come into contact with the waste.
- ❖ Submit a site closure plan for the facility that includes:

- Anticipated date of closure.
- Estimated closure cost.
- Anticipated need for post closure care.
- Post closure costs.

6.3.1 Consistency with the Solid Waste Management Plan

In addition to the process described above for approving transfer stations, any entity requesting a renewal or issuance of a solid waste handling permit (or notifying EPD in the case of a permit by rule) for any type of solid waste management facility must demonstrate that the facility or facility expansion is consistent with Chatham County's Solid Waste Management Plan by following the process described below.

At least *60 days* prior to filing for a solid waste handling or C&D permit, or notifying EPD in the case of a solid waste handling facility that is permitted by rule, the applicant must submit to the Chatham County Commission, copying the Chatham County Director of Public Works, a written statement documenting the following:

1. How the proposed facility or facility expansion will meet the specific goals and/or needs identified in the Solid Waste Management Plan, including identification of:
 - a) the impact upon the collection capability within the planning area;
 - b) the impact upon disposal capacity identified in the planning area; and
 - c) meeting the County's recycling and waste reduction goals in the planning area

2. How the proposed facility or facility expansion and its operation will impact the community, including:
 - a) the impact to vehicle traffic and public safety around the proposed facility and throughout the planning area (the Chatham County Zoning Resolution specifically indicates operating hours, type of road access, buffer zones, etc. for each type of solid waste facility that must be adhered to);
 - b) the impact to the financial viability of the existing solid waste management system within the planning area;
 - c) the impact to individual and business solid waste management rates;
 - d) the impact of the proposed facility or facility expansion to other natural or cultural resources within the planning area; and
 - e) the impact of the proposed facility or facility expansion to the current solid waste management infrastructure (collection, transfer, and disposal) within the planning area, both public and private.

3. How the owner/operator of the proposed facility (and any subsequent owner/operators if sold) will provide financial assurance to address potential environmental liability.

4. That the proposed facility or facility expansion is sited in an area deemed suitable according to the criteria listed in the plan.

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4. That the proposed facility or facility expansion is sited in an area deemed suitable according to the criteria listed in the plan.

5. That the proposed facility or facility expansion is sited in a location that is consistent with local zoning ordinances.
6. Place a sign on the property identifying the purpose and the date, time and location of the hearing no less than 45 days prior the date of the public hearing.
7. At the public hearing, the applicant will have 10 minutes to present his/her arguments for plan consistency; others in audience for plan consistency will have a total of 10 minutes combined to present their arguments; those in the audience opposed to plan consistency will have 10 minutes total to present their arguments; and finally, the applicant will have 5 minutes for rebuttal.
8. After hearing all the arguments for and against Plan Consistency and taking into consideration the applicant's and staff's analysis reports, the respective governing body will vote either for or against Plan Consistency utilizing the standards in the plan.

Within 30 days of making their determination the Board shall notify the developer whether or not the proposed facility or facility expansion is consistent with the Plan. If the proposed facility is not consistent with the Plan, the developer may address the inconsistencies and resubmit their request for another review. No proposed facility or facility expansion will be sited in the County without a letter from the County Commission stating that the facility is consistent with the Solid Waste Management Plan.

6.4 Needs and Goals

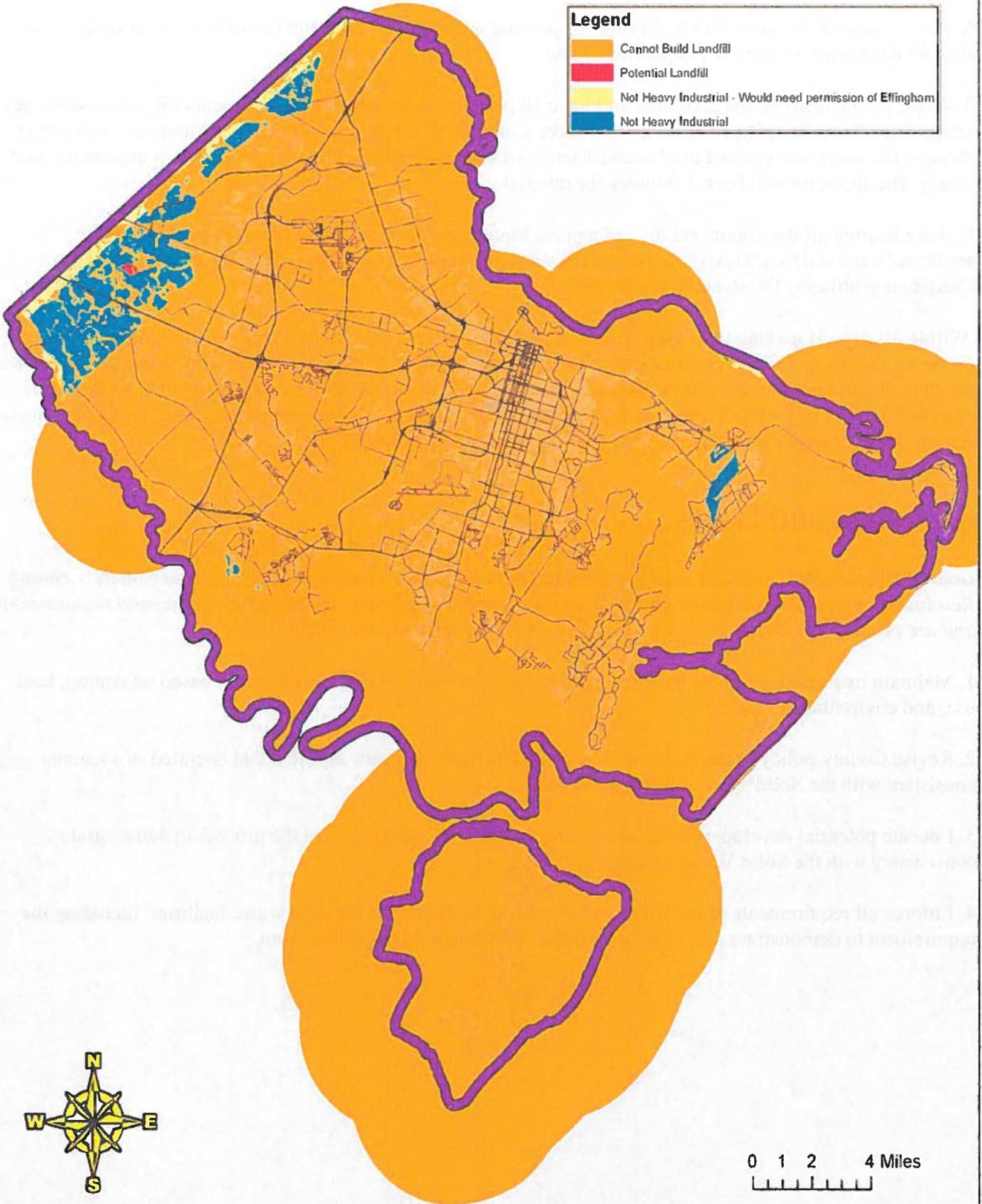
Goal: *To ensure that proposed solid waste handling facilities are consistent with Chatham County's Zoning Resolution, compatible with surrounding land uses, meet federal, State and local environmental requirements, and are consistent with the County's Land Use and Solid Waste Management Plans.*

1. Maintain maps indicating the land excluded from solid waste facility development based on zoning, land use, and environmental factors.
2. Revise County policy as needed to ensure that solid waste facilities are sited and operated in a manner consistent with the Solid Waste Management Plan.
3. Educate potential developers about the County's siting requirements and the process to demonstrate consistency with the Solid Waste Management Plan.
4. Enforce all requirements of the siting and operating requirements for solid waste facilities, including the requirement to demonstrate consistency with the Solid Waste Management Plan.

LANDFILL LIMITATIONS

Legend

- Cannot Build Landfill
- Potential Landfill
- Not Heavy Industrial - Would need permission of Effingham
- Not Heavy Industrial



5. That the proposed facility or facility expansion is sited in a location that is consistent with local zoning ordinances.
6. Place a sign on the property identifying the purpose and the date, time and location of the hearing no less than 45 days prior the date of the public hearing.
7. At the public hearing, the applicant will have 10 minutes to present his/her arguments for plan consistency; others in audience for plan consistency will have a total of 10 minutes combined to present their arguments; those in the audience opposed to plan consistency will have 10 minutes total to present their arguments; and finally, the applicant will have 5 minutes for rebuttal.
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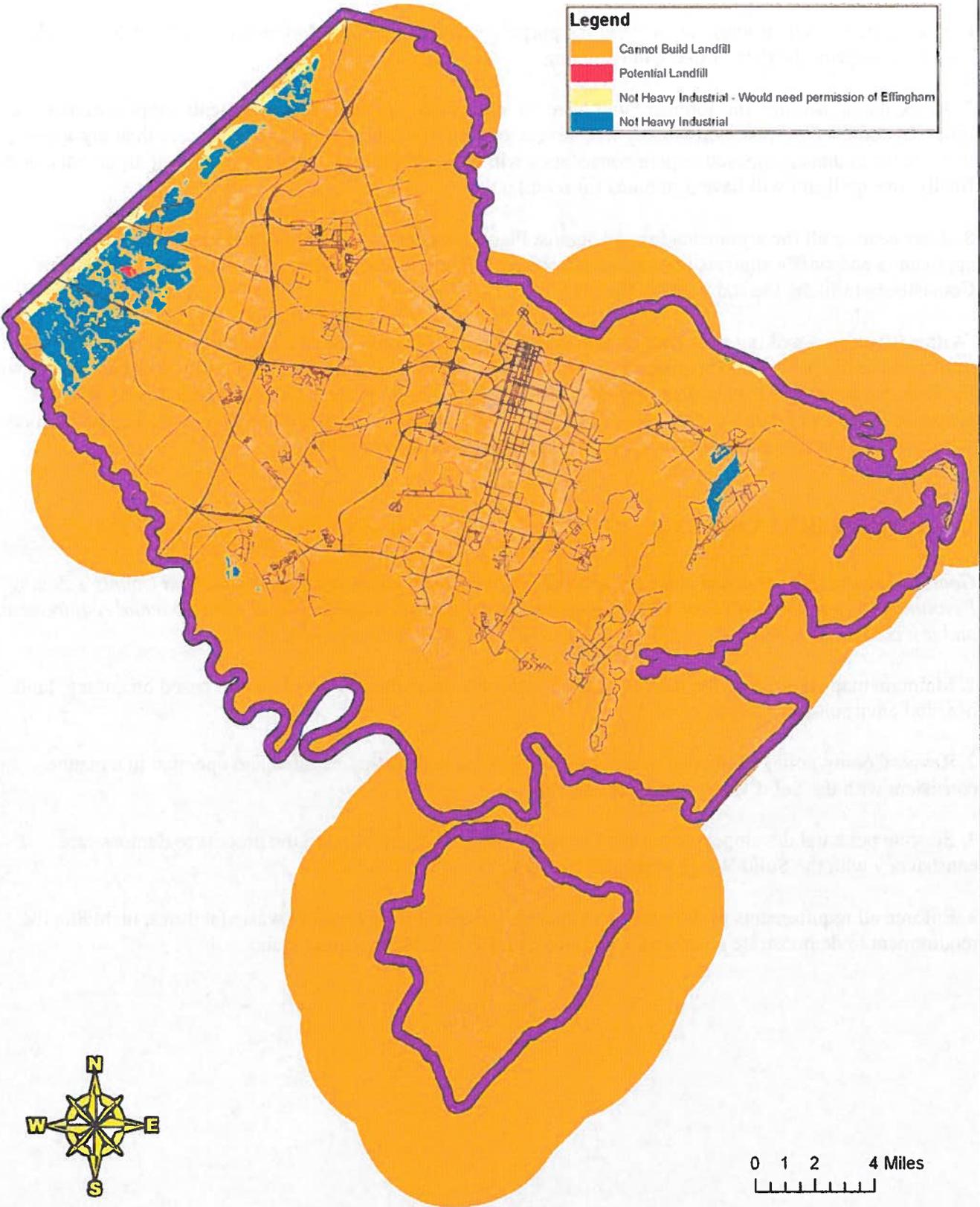
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LANDFILL LIMITATIONS

Legend

- Cannot Build Landfill
- Potential Landfill
- Not Heavy Industrial - Would need permission of Effingham
- Not Heavy Industrial



Section 7

EDUCATION AND PUBLIC INVOLVEMENT ELEMENT

7.1 Inventory and Assessment of Public Education and Involvement

Chatham County dedicates significant funding and staff resources to public education and involvement on solid waste issues. The County maintains a list of haulers, recycling opportunities, and information about the County's solid waste management plan. The County funds Metropolitan Planning Commission (MPC) to assist and implement education and public involvement programs that extend to residents, businesses and schools.

Through the MPC community outreach and education includes Adopt-A-Stream workshops, Water Quality Workshops, Storm Drain Stenciling Events, kids recycling program, reuse recycle art program, Water Conservation /Lawncare /Xeriscape workshops, Household Hazardous Waste education, Clean Water Campaign workshops, composting workshops, and other special environmental events.

Chatham County Public Works and Park Services' Environmental Office, is currently funded by Chatham County, and provides extensive waste reduction, beautification and litter prevention programs such as Adopt-A-Roadway and storm drain stenciling. The Environmental Office and MPC also hosts annual waste reduction and recycling events like Bring One for the Chipper (holiday tree recycling), The Great American Clean-up, Rivers Alive, Electronics collection Puppet People, and America Recycles Day.

In addition, as described above, the County has an active educational and enforcement program to address illegal dumping and littering. Citizens can report littering on a County Hotline. Public education efforts operated by the Public Works Environmental Office and MPC discourage littering and illegal dumping.

Education/Public Involvement:

- Puppet Show
- Recycle Campaign
- Billboards
- Ads in local paper
- TV and radio PSAs
- Brochures and promotional flyers
- Videos
- TV and radio talk shows
- Earth Day event
- Brown bag lunch-n-learn

Litter Prevention

Adopt a roadway
Rivers alive

Great American Clean-up

Solid Waste Minimization

Three Drop-Off Centers

Bring one for the chipper (holiday tree recycle)

Grind all unincorporated yard waste into mulch

Telephone book recycling

Electronic recycling

ink/toner recycling

rechargeable battery recycling

plastics recycling

7.2 Needs and Goals

Goal: Work with municipalities and non-profits to ensure that all residents of the County have access to information about waste reduction and solid waste management in Chatham County.

Goal: Expand local government involvement in solid waste management education and public involvement efforts.

1. Expand the Environmental Office's educational program on the benefits of solid waste minimization and litter control by increasing the number of PSAs, radio and TV interviews, community and neighborhood exhibits, classroom presentations and brochure distribution.
2. Amplify Programs, such as the puppet show that teaches 3rd graders the importance of recycling. The show also provides lesson plans and other materials that are presented to the students prior to the show date.
3. Continue to work with Chatham County's Parks Department programs to reach into the unincorporated areas of the County.
4. Continue to work with local municipalities, MPC and other non-profits organizations to educate and involve to residents and businesses in Chatham County in solid waste management issues.
5. Ensure that public education and information focuses on all aspects of solid waste management, including costs.

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3. Continue to work with Chatham County's Parks Department programs to reach into the unincorporated areas of the County.
4. Continue to work with local municipalities, MPC and other non-profits organizations to educate and involve to residents and businesses in Chatham County in solid waste management issues.
5. Ensure that public education and information focuses on all aspects of solid waste management, including costs.

Section 8

DISASTER DEBRIS MANAGEMENT PLAN

8.1 Introduction

To minimize the possible loss of lives and property during a disaster, local governments in coordination with the state spend endless hours in disaster preparedness. One of the most important aspects of disaster recovery is dealing with the collection and disposal of large volumes of waste created in the aftermath of a disaster.

Disaster debris can have both short-term and long-term impacts. In the short term debris will be an impediment to critical transportation and emergency services, as well as be a potential threat to health and safety to emergency personnel and citizens. While in the long-term, if not properly addressed, disaster debris can create potential problems for commerce and for public health and safety related to fires in wood debris and decay of household or industrial-type waste. If available the public will be notified and updated by what means are available.

Standards for Solid Waste Management Plan procedures for the collection and disposal of residential and commercial debris generated by natural and man-made disaster, procedures for waste reduction of this debris, and public notification of the local disaster debris management process.

The types of debris created by natural and man-made disasters that should be managed include:

- **Vegetation**- Tree parts and other vegetative materials
- **Household Waste**- white goods, furniture, and food waste
- **Hazardous Waste** - Household & commercial
- **Construction & Demolition Waste**- Materials from homes & businesses
- **The Dead** - Human & Animal
- **Sediment** - Deposited by floodwater and wind
- **Recyclable Material** - Metals, cement/brick, plastics, & paper

8.2 MANAGEMENT STRUCTURE

The Chatham County Office of Emergency Management (CEMA) is responsible for the coordination of mitigation, preparedness, response, and recovery efforts pertaining to a major natural and man-made disasters. In response to disaster debris management, the CEMA director will coordinate with leadership to implement the procedures set fourth within the disaster recovery plan and Chatham County Solid Waste Department will coordinate the first push then bring in a Contractor to lead the clean-up.

Chatham County CEMA Office

Director

124 Bull Street, Savannah GA

912-652-4505

Section 9 IMPLEMENTATION STRATEGY

9.1 Summary of Needs and Goals

This Section provides an implementation strategy to meet the goals and needs identified in the Waste Reduction, Collection, Disposal, Land Limitation, and Public Education and Information Sections of this Plan. The needs and goals on which this implementation strategy is based, taken from the previous sections of this Plan, are summarized in the Table below.

**Table 9-1
Summary of Fulton County Goals and Needs**

WASTE REDUCTION	
Goal: To reduce the per capita amount of waste disposed by 10% over the next ten years.	
Need	Jurisdiction
Develop a better way to determine how much waste is actually being disposed of from unincorporated Chatham County versus the County as a whole.	Chatham County
Propose requirements of the Collection and Disposal companies to be permitted haulers to collect and recover recyclables and to document quarterly that this is being done.	Chatham County
Evaluate whether the proposed Collection and Disposal Ordinance should contain additional provisions to encourage recycling by private haulers.	Chatham County
Promote the availability of recycling programs offered at the drop-off centers and by private haulers.	Chatham County
COLLECTION	
Goal: To provide universal access to drop-off center services for solid waste and recyclables to all citizens of unincorporated Chatham County.	
Need	Jurisdiction
Determine whether County policy needs to be amended to ensure transfer stations operate in a manner consistent with Chatham County objectives.	Chatham County
Consider contracting with collectors and disposal facilities to provide services in case of disaster.	Chatham County
Consider regulatory oversight of private haulers.	Chatham County
DISPOSAL	

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Consider regulatory oversight of private haulers.	Chatham County
DISPOSAL	

Goal: Ensure sufficient disposal capacity to handle the amount of waste projected to be disposed for the next ten years.

Goal: Ensure that any proposed solid waste handling facility located in the unincorporated County will not negatively impact the natural environment or public health and safety

Goal: Generate sufficient revenue to support County's solid waste management activities.

Need	Jurisdiction
Continue to monitor capacity of landfills in the region to ensure that there remains sufficient capacity to handle Chatham County's MSW.	Chatham County
Work with neighboring communities, private haulers, and landfill operators to ensure sufficient capacity in construction and demolition landfills to handle the waste generated in the region, including a strategy to handle debris generated by a disaster.	Chatham County
Evaluate sufficiency of host fee collected from disposal facilities operating in the County.	Chatham County
Ensure that all solid waste handling facilities are operated in a manner that protects public health and the environment and is consistent with solid waste management plan.	Chatham County

LAND LIMITATION

Goal: To ensure that proposed solid waste handling facilities are consistent with Chatham County's Zoning Resolution, compatible with surrounding land uses, meet federal, State and local environmental requirements, and are consistent with the County's Land Use and Solid Waste Management Plans.

Need	Jurisdiction
Maintain maps indicating the land excluded from solid waste facility development based on zoning, land use, and environmental factors.	Chatham County
Educate potential developers about the County's siting requirements and the process to demonstrate consistency with the Solid Waste Management Plan.	Chatham County
Enforce all requirements of the siting and operating requirements for solid waste facilities, including the requirement to demonstrate consistency with the Solid Waste Management Plan.	Chatham County
Conduct site suitability assessment of land in unincorporated Chatham County that meets the criteria for siting of C&D landfills.	Chatham County
Define the process for reviewing proposals for solid waste handling facilities in Chatham County	Chatham County

EDUCATION AND PUBLIC INVOLVEMENT

Goal: Work with municipalities and non-profits to ensure that all residents of the County have access to information about waste reduction and solid waste management in Chatham County.

Need	Jurisdiction
Ensure that the effective education program continues to offer public education and public involvement activities to City residents as well as residents of unincorporated Chatham County.	Chatham County
Continue to work with the media to reach into the unincorporated areas of the County.	Chatham County
Continue to work with non-profits organizations to educate and involve to residents and businesses in Chatham County in solid waste management issues.	Chatham County
Ensure that public education and information focuses on all aspects of solid waste management, including costs.	Chatham County

9.2 Activities in Implementation Strategy

The implementation strategy, included as Table 8-2 identifies the activities that the County will undertake to meet these goals and needs over the next ten years, from 2008 through 2018. No activity will occur the last two months of 2008. Activities in the first five years constitute the Short Term Work Program. Some of the activities entail continuing existing programs while other involve changes in policy or implementation of new programs. Table 8-2 includes a summary of each of the proposed activities and programs listed by planning element (i.e. waste reduction, collection, disposal, land limitation and education and public involvement). The Table indicates the year that the activity will be implemented, the responsible party, the projected annual cost, and the potential source of funds to implement the activity.

Goal: Ensure sufficient disposal capacity to handle the amount of waste projected to be disposed for the next ten years.

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Activity	Year to Be Implemented										Responsible party	Est.Cost (if any)	Funding Sources			
	8	9	10	11	12	13	14	15	16	17				18		
	WASTE REDUCTION															
Goal: To reduce the per capita amount of waste by 10% over the next ten years																
Work with waste haulers, landfills, and municipalities to develop an approach to better quantify the waste disposed from the unincorporated County.	X	X	X	X	X	X	X	X	X	X	X	X	X	DPW	Staff time in Budget	DPW
Educate private haulers on the benefits of recycling.	X	X	X	X	X	X	X	X	X	X	X	X	X	DPW	Staff time in Budget	DPW
Ensure all County Drop-Off Centers remain open to all residents of Chatham.	X	X	X	X	X	X	X	X	X	X	X	X	X	DPW	Staff time in Budget	DPW
Work with the City of Savannah to promote the use of its new recycling center and provide support as needed.	X	X	X	X	X	X	X	X	X	X	X	X	X	DPW	Staff time in Budget	DPW
Promote recycling programs available to residents and businesses.	X	X	X	X	X	X	X	X	X	X	X	X	X	DPW	Staff time in Budget	DPW
COLLECTION																
Goal: To provide residents with information on private haulers and require collection data from haulers.																
Install reporting requirements into solid waste ordinance	X	X	X	X	X	X	X	X	X	X	X	X	X	DPW	Staff time in Budget	DPW
Require haulers collecting from the commercial sector also adhere to reporting requirements.	X	X	X	X	X	X	X	X	X	X	X	X	X	DPW	Staff time in Budget	DPW
Evaluate whether current County policy achieves County's goals for collection and waste reduction and consider alternative collection approaches, if necessary.				X										DPW	Staff time in Budget	DPW
Continue to accept MSW, yard trimmings, recyclables, and bulky items from residents at County Drop-Off Centers.	X	X	X	X	X	X	X	X	X	X	X	X	X	DPW	Staff time in Budget	DPW
Reevaluate the geographic area where the County should provide additional Drop-Off Centers.	X	X	X	X										DPW	Staff time in Budget	DPW
Enforce requirements that contractors must remove debris from residential property and educate residents and contractors on this.	X	X	X	X	X	X	X	X	X	X	X	X	X	DPW	Staff time in Budget	DPW
Continue community clean-ups to control illegal dumping	X	X	X	X	X	X	X	X	X	X	X	X	X	DPW	Staff time in Budget	DPW
Consider entering into contract with hauler to provide rapid debris collection service in case of disaster.	X	X	X	X	X	X	X	X	X	X	X	X	X	DPW	Staff time in Budget	DPW

Activity	Year to Be Implemented										Responsible party	Est. Cost (if any)	Funding Sources	
	8	9	10	11	12	13	14	15	16	17				18
	DISPOSAL													

Goal: To ensure sufficient disposal capacity to handle the amount of waste projected to be disposed in the next ten years.
Goal: To ensure that any existing or proposed solid waste handling facility located in the unincorporated County will not negatively impact the natural environment or, public health and safety, or be inconsistent with this Solid Waste Management Plan.

Monitor capacity at MSW and C&D landfills.		x	x	x	x	x	x	x	x	x	x	x	x	x	x	DPW	Staff time in Budget	DPW
Work with neighboring communities, private haulers, and landfill operators to ensure sufficient capacity in C&D landfills.		x	x	x	x	x	x	x	x	x	x	x	x	x	x	DPW	Staff time in Budget	DPW
Maintain compliance with the landfill post closure care regulations as required by State law.		x	x	x	x	x	x	x	x	x	x	x	x	x	x	DPW	Staff time in Budget	DPW
Collect host fee on all solid waste handling facilities operating in unincorporated County		x	x	x	x	x	x	x	x	x	x	x	x	x	x	DPW	Staff time in Budget	DPW
Develop firm basis for host fee and recalculate amount and applicable facilities		x	x	x	x	x	x	x	x	x	x	x	x	x	x	DPW	Staff time in Budget	DPW

Activity	Year to Be Implemented										Responsible party	Est. Cost (if any)	Funding Sources	
	8	9	10	11	12	13	14	15	16	17				18
	PUBLIC EDUCATION AND INVOLVEMENT													

Goal: Work with municipalities and non-profits to ensure that all residents of the County have access to information about waste reduction and solid waste management in Chatham County.

Continue to operate existing public education and involvement programs related to solid waste		x	x	x	x	x	x	x	x	x	x	x	x	x	x	DPW	Staff time in Budget	DPW
Ensure that public education and information focuses on all aspects of solid waste management, including costs.		x	x	x	x	x	x	x	x	x	x	x	x	x	x	DPW	Staff time in Budget	DPW
Educate residents and businesses on changes in solid waste management policy through web site, flyers to neighborhood associations, water bills		x	x	x	x	x	x	x	x	x	x	x	x	x	x	DPW	Staff time in Budget	DPW
Work with the City of Savannah to promote the use of its new recycling center and provide support as needed.		x	x	x	x	x	x	x	x	x	x	x	x	x	x	DPW	Staff time in Budget	DPW

Activity	Year to Be Implemented										Responsible party	Est. Cost (if any)	Funding Sources			
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	WASTE REDUCTION															
Goal: To reduce the per capita amount of waste by 10% over the next ten years																
Work with waste haulers, landfills, and municipalities to develop an approach to better quantify the waste disposed from the unincorporated County.	X	X	X	X	X	X	X	X	X	X	X	X	X	DPW	Staff time in Budget	DPW
Educate private haulers on the benefits of recycling.	X	X	X	X	X	X	X	X	X	X	X	X	X	DPW	Staff time in Budget	DPW
Ensure all County Drop-Off Centers remain open to all residents of Chatham.	X	X	X	X	X	X	X	X	X	X	X	X	X	DPW	Staff time in Budget	DPW
Work with the City of Savannah to promote the use of its new recycling center and provide support as needed.	X	X	X	X	X	X	X	X	X	X	X	X	X	DPW	Staff time in Budget	DPW
Promote recycling programs available to residents and businesses.	X	X	X	X	X	X	X	X	X	X	X	X	X	DPW	Staff time in Budget	DPW
COLLECTION																
Goal: To provide residents with information on private haulers and require collection data from haulers.																
Install reporting requirements into solid waste ordinance	X	X	X	X	X	X	X	X	X	X	X	X	X	DPW	Staff time in Budget	DPW
Require haulers collecting from the commercial sector also adhere to reporting requirements.	X	X	X	X	X	X	X	X	X	X	X	X	X	DPW	Staff time in Budget	DPW
Evaluate whether current County policy achieves County's goals for collection and waste reduction and consider alternative collection approaches, if necessary.				X										DPW	Staff time in Budget	DPW
Continue to accept MSW, yard trimmings, recyclables, and bulky items from residents at County Drop-Off Centers.	X	X	X	X	X	X	X	X	X	X	X	X	X	DPW	Staff time in Budget	DPW
Reevaluate the geographic area where the County should provide additional Drop-Off Centers.	X	X	X	X										DPW	Staff time in Budget	DPW
Enforce requirements that contractors must remove debris from residential property and educate residents and contractors on this.	X	X	X	X	X	X	X	X	X	X	X	X	X	DPW	Staff time in Budget	DPW
Continue community clean-ups to control illegal dumping	X	X	X	X	X	X	X	X	X	X	X	X	X	DPW	Staff time in Budget	DPW
Consider entering into contract with hauler to provide rapid debris collection service in case of disaster.	X	X	X	X	X	X	X	X	X	X	X	X	X	DPW	Staff time in Budget	DPW

Activity	Year to Be Implemented										Responsible party	Est. Cost (if any)	Funding Sources		
	8	9	10	11	12	13	14	15	16	17				18	
	DISPOSAL														
<p>Goal: To ensure sufficient disposal capacity to handle the amount of waste projected to be disposed in the next ten years. Goal: To ensure that any existing or proposed solid waste handling facility located in the unincorporated County will not negatively impact the natural environment or, public health and safety, or be inconsistent with this Solid Waste Management Plan.</p>															
Monitor capacity at MSW and C&D landfills.	x	x	x	x	x	x	x	x	x	x	x	x	x	DPW	DPW
Work with neighboring communities, private haulers, and landfill operators to ensure sufficient capacity in C&D landfills.	x	x	x	x	x	x	x	x	x	x	x	x	x	DPW	DPW
Maintain compliance with the landfill post closure care regulations as required by State law.	x	x	x	x	x	x	x	x	x	x	x	x	x	DPW	DPW
Collect host fee on all solid waste handling facilities operating in unincorporated County	x	x	x	x	x	x	x	x	x	x	x	x	x	DPW	DPW
Develop firm basis for host fee and recalculate amount and applicable facilities	x	x	x	x	x	x	x	x	x	x	x	x	x	DPW	DPW
<p>Activity</p> <p style="text-align: center;">Year to Be Implemented</p>															
	8	9	10	11	12	13	14	15	16	17	18	Responsible party	Est. Cost (if any)	Funding Sources	
PUBLIC EDUCATION AND INVOLVEMENT															
<p>Goal: Work with municipalities and non-profits to ensure that all residents of the County have access to information about waste reduction and solid waste management in Chatham County.</p>															
Continue to operate existing public education and involvement programs related to solid waste	x	x	x	x	x	x	x	x	x	x	x	x	x	DPW	DPW
Ensure that public education and information focuses on all aspects of solid waste management, including costs.	x	x	x	x	x	x	x	x	x	x	x	x	x	DPW	DPW
Educate residents and businesses on changes in solid waste management policy through web site, fliers to neighborhood associations, water bills	x	x	x	x	x	x	x	x	x	x	x	x	x	DPW	DPW
Work with the City of Savannah to promote the use of its new recycling center and provide support as needed.	x	x	x	x	x	x	x	x	x	x	x	x	x	DPW	DPW

9.3 Review and Enforcement of County Policies

An integral part of Chatham County's solid waste management plans for the first couple of years of the planning period is to make sure that current policies allow the County to achieve its solid waste management goals and that these policies are enforced. In 2009, the County will conduct a process of building consensus regarding the County's role in solid waste management, a process begun as part of this solid waste planning process. Then, the Collection and Disposal Ordinance, the Litter Ordinance, and all other solid waste management policies will be reviewed to determine whether they are sufficient to allow the County to achieve its goals. This review will include the County's Zoning Resolution and use permit process to determine whether they are sufficient to allow the County to ensure the solid waste handling facilities sited in the County are consistent with this Solid Waste Management Plan. Policies related to solid waste management will be revised and consolidated, as needed, to meet the goals of the County.

In addition, as part of this planning process, the County has identified the need to more consistently enforce the policies that are in place and those that will be developed as part of the process described above.

9.4 Methods of Financing

In 2007, Chatham County Solid Waste operated on a budget of just over \$3.3 million per year. Activities related to solid waste were performed by the Solid Waste Department, and Solid Waste Restricted. Most of the funding for the Restricted account comes from a Solid Waste Enterprise Fund which is supported by the following sources:

- Host fees at disposal facilities located in the County. Currently the County collects \$1 per ton from municipal solid waste landfills (including those that accept construction and demolition debris) in the County, as authorized under the Georgia Solid Waste Management Act.
- Funds from general revenues transferred into the Solid Waste Fund. The County also has a Special Service Districts (SSD). In the SSD, a portion of the property taxes collected support post-closure care of the closed landfills located in these geographic areas. In addition a portion of the SSD revenue is used to pay for collecting bulky waste and yard trimmings throughout the unincorporated areas.
- Approximately \$1,678,100 of the property taxes collected in these SSDs was used for solid waste management in 2007.
- Funds from general revenues transferred into the Solid Waste Fund. The County also has a Maintenance and Operations fund. In the M&O, a portion of the property taxes collected support Drop Off Centers and their operations and management.
- Approximately \$1,626,849 of the property taxes collected in these M&O was used for solid waste management in 2007.

The cost to dispose of waste from the unincorporated County is primarily borne by residents and businesses that pay their private haulers to collect and dispose of waste. A portion of that payment is transferred to disposal facilities that accept the waste.

9.5 Plan Updates and Amendments

The implementation strategy will be reviewed on an annual basis as the County prepares its Annual Solid Waste Management Survey and Full Cost Report to submit to the Georgia Department of Community Affairs. The County will take this opportunity to determine if the goals or needs of the County have changed in a way that would require changes to the implementation strategy. In addition, the County will update the implementation strategy as part of the Short Term Work Program update. At the end of the ten-year planning period, the entire Chatham County Solid Waste Management Plan will be updated.

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Appendix A

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What is the Chatham County Solid Waste Management Plan Project?

The Chatham County Solid Waste Management Plan Project – 2008 is an initiative in which Chatham County will update its Solid Waste Management Plan, according to State requirements. The Solid Waste Management Plan outlines a 10 year plan to effectively manage solid waste in unincorporated Chatham County, taking into account projected population growth, waste disposal and reduction, landfill needs, Georgia Environmental and Protection Division (EPD) requirements, and solid waste management options such as mulching, recycling, and public education efforts. The plan answers the questions:

- What resources does the County have to effectively and efficiently provide for the solid waste management needs of the citizens of unincorporated Chatham County?
- Where can improvements be made and what goals should be achieved?
- How will the County implement this management plan?

How long will the process take?

The process will take a little less than a year. Over this year, the process will include:

π Public hearings: a meeting at the beginning of the project, and a meeting once a final draft of the plan has been completed • Gathering of data • Inventory and resources assessment • determination of Needs and Goals • Implementation schedule development • Finalized draft plan • public hearings for citizens' feedback • Submittal to Coastal Regional Commission (CRC) and the Georgia Department of Community Affairs (DCA) for review • County resolution to adopt final plan

How will the Solid Waste Management Plan benefit the citizens of unincorporated Chatham County?

- Gives citizens a better understanding of how much waste is currently being disposed, how current solid waste, waste reduction, and recycling programs are working, and how much money is needed to cover collection and disposal cost for the next 10 years

How can citizens stay informed of the process of this project, and get clarification if questions develop?

To stay informed of progress, take advantage of opportunities for input, ask questions or provide comments regarding this project, citizens can call David Nash, Chatham County Public Works (912) 652-6840, e-mail at danash@chathamcounty.org.

Appendix A

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Appendix B

**Chatham County Solid Waste Management Plan
Public Hearing**

Meeting Minutes:

February 11, 2008

Metropolitan Planning Commission

6:00 pm – 7:00 pm

The first meeting:

Zero (0) Chatham County Residents attended the Public Hearing:

Meeting Minutes:

April 25, 2008

Metropolitan Planning Commission

1:00 pm – 2:00 pm

The Second meeting:

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6:00 pm – 7:00 pm

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Meeting Minutes:

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1:00 pm – 2:00 pm

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Appendix C



SUPERIOR LANDFILL & RECYCLING CENTER, INC.
A WASTE MANAGEMENT COMPANY

3001 Little Neck Rd.
Savannah, GA 31419
(912) 927-6113
(912) 927-2166 Fax

October 14, 2008

Mr. David Nash
Chatham County
7235 Sallie Mood Drive
Savannah, Georgia 31406

Dear Mr. Nash:

This letter serves as a disposal capacity assurance for waste generated by Chatham County for 2008 through 2018 at Superior Landfill. During which time it is anticipated that Chatham County will generate 568,139 tons of waste. The Georgia EPD permit number for this facility is 025-070D(MSWL).

We thank Chatham County for their business partnership and look forward to providing environmentally sound waste disposal options for the foreseeable future.

Sincerely,
Superior Landfill and Recycling Center

Robby White
District Manager

Appendix C

[The following text is extremely faint and illegible due to low contrast and blurring. It appears to be a list or table of contents, possibly containing names, dates, and page numbers.]



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A handwritten signature in black ink, appearing to read 'Robby White', written over a horizontal line.

Robby White
District Manager

Appendix D

§21-312 Litter; Definitions.

1. The word litter means nonputrescible waste material from the construction, remodeling and repair operations in houses, commercial buildings and other structures, abandoned appliances and furniture, tree branches, grass, leaves, concrete, bricks, plaster, lumber shavings, sawdust, paper, cardboard, crates, metal, rubber, junk, etc., and also nonputrescible industrial waste, such as rejected building materials, rolls of paper and similar items, refuse, garbage.
2. The phrase public property means the rights-of-way of any road or highway, public parks, public playgrounds, public buildings, public refuge, conservation recreation areas. The phrase "private property" means residential or farm properties, timberlands or forests.
3. The word person means any person, firm, partnership, corporation, association or agency. (#486, 2/15/74, Sec. 1)

§21-313 Same; Prohibition. It shall be unlawful for any person or persons to violate the provisions of this article or to dump, deposit, throw or leave, or to cause or permit the dumping, depositing, placing, throwing or leaving of litter on any public property or private property in Chatham County, Georgia, without the corporate limits of any municipality therein, unless: (Amended 10/19/90)

1. Such property is designated by the County or any of its agencies for the disposal of such litter;
 2. Such person has obtained an unrevoked permit from the Zoning Administrator of Chatham County and conforms to the standards set forth; or
 3. Unless the act is done by the owner or the tenant all in a manner that will not adversely affect neighboring property owners.
- (#486, 2/15/74, Sec. 2)

21-21

§21-314 Same; Violations. Failure to comply with any of the requirements and provisions of these regulations including violation of conditions and safeguards established in connection with grants of variance or special exception, shall constitute a violation of this Code Article. Any person who violates this Code Article or fails to comply with any of its requirements shall, upon conviction thereof, be fined not more than \$500 or imprisoned more than 30 days, or labor on the work gang for not more than 60 days for any single offense, or any combination thereof, and in addition, shall pay all costs and expenses involved in the case. Each day such violation continues shall be considered a separate offense. Nothing herein contained shall prevent Chatham County from taking such other lawful action as is necessary to prevent

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or remedy any violation of this Code Article. (Amended 10/19/90)

§21-315 Title. The title of this Ordinance shall be Dumping Charges for Commercial Operators and Municipalities at County Landfills.

§21-316 Purpose. The purpose of this Ordinance shall be to provide for a charge for dumpings made at the County landfill by commercial operators and municipalities. A non-commercial pickup truck may unload without charge. Pick-up truck shall mean a truck with a 3/4 ton capacity body with single rear wheels. (5/14/82)

§21-317 Duty of Finance Department. The Finance Department is hereby authorized to establish a line of credit or coupons for those commercial operators or municipalities seeking the same, based upon criteria developed by the Finance Department and approved by the Commissioners.

§21-318 Fees. A Fee Collection system shall be enacted whereby

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The County of Chatham
Georgia



FEB 6 '09 PM 2:20

Resolution

A RESOLUTION TO ADOPT

WHEREAS, the Georgia Comprehensive Solid Waste Management Act requires county and municipal governments to prepare a local solid waste management plan and periodic update; and

WHEREAS, the County of Chatham, Georgia, has compiled, reviewed and modified an update to the Solid Waste Management Plan for the County of Chatham; and

WHEREAS, the County of Chatham, Georgia, has complied with the Rules of Georgia Department of Community Affairs Minimum Planning Standards and Procedures for Solid Waste Management (Chapter 110-4-3) including public participation requirements.

NOW THEREFORE, BE IT RESOLVED by the County of Chatham Board of Commissioners that the document entitled Solid Waste Management Plan 2008 – 2018 be officially approved and adopted.

SO RESOLVED, this 16th day of January, 2009.

Pete Liakakis

Pete Liakakis, Chairman
Board of Commissioners of
Chatham County, Georgia

ATTEST:

Sybil E. Tillman
Sybil E. Tillman, County Clerk



THE UNIVERSITY OF CHICAGO

PHYSICS DEPARTMENT

PHYSICS 311

PROBLEM SET 10

Due: Friday, November 10, 2017

1. A particle of mass m moves in a potential $V(x) = \frac{1}{2}kx^2$. Find the energy levels.

2. A particle of mass m moves in a potential $V(x) = \frac{1}{2}kx^2 + \frac{1}{4}bx^4$. Find the energy levels.

3. A particle of mass m moves in a potential $V(x) = \frac{1}{2}kx^2 + \frac{1}{4}bx^4 + \frac{1}{6}cx^6$. Find the energy levels.

4. A particle of mass m moves in a potential $V(x) = \frac{1}{2}kx^2 + \frac{1}{4}bx^4 + \frac{1}{6}cx^6 + \frac{1}{8}dx^8$. Find the energy levels.

5. A particle of mass m moves in a potential $V(x) = \frac{1}{2}kx^2 + \frac{1}{4}bx^4 + \frac{1}{6}cx^6 + \frac{1}{8}dx^8 + \frac{1}{10}ex^{10}$. Find the energy levels.