

# Solid Waste Management Plan



State of Georgia

Adopted May 3, 2006



Department of Community Affairs  
Department of Natural Resources  
Environmental Protection Division  
Pollution Prevention Assistance Division  
Georgia Environmental Facilities Authority

R. W. BECK  
**SOLID WASTE MANAGEMENT PLAN**  
State of Georgia

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(Not adopted by DCA Board, to be developed by MOU Team Members)

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## 1.1 Solid Waste Management in Georgia – An Overview

In 1990, the Georgia General Assembly passed the Georgia Comprehensive Solid Waste Management Act, which set a path toward improved solid waste management in the state. Some of the key provisions of the law<sup>1</sup> (and amendments) are described below:

### Planning and Reporting

- Solid waste management planning at the state and local levels.
- Annual reporting of solid waste management activities and full costs by local governments, with a compilation of these reports to be prepared by the Georgia Department of Community Affairs

### Waste Reduction

- A statewide per capita municipal solid waste reduction goal of 25 percent by July 1, 1996, with 1992 as the base year. This goal was removed in the 2005 session of the General Assembly, restating the legislative intent of the reduction goal: “It is the intent of the General Assembly that every effort be undertaken to reduce on a state-wide per capita basis the amount of municipal solid waste being received at disposal facilities.”
- Recycling by State agencies in State owned buildings.
- Ban on yard trimmings from lined and vertically expanded landfills starting in September 1996 (1992 amendment).
- Ban on lead acid vehicle battery and tire disposal in all Georgia landfills. Shredded or chopped tires can be landfilled if no other end markets are available.

### Collection

- Through the local government planning and reporting processes, ensuring that solid waste management (SWM) plans provide for adequate collection systems.

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<sup>1</sup> Official Code of Georgia Annotated (OCGA) 12-8-20

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### Disposal

- Throughout the local government planning and reporting processes, ensuring that SWM plans provide for 10 years of disposal capacity.
- Certification for landfill operators, requiring at least one certified landfill operator on site.
- Mechanism for regional ownership and operation of solid waste management facilities.
- Improved management and record keeping at solid waste handling facilities
- Creation of a State Solid Waste Trust Fund, financed through a \$1 fee collected on each new passenger tire sold within the state.
- Local user fees of at least \$1 per ton of solid waste, paid to host local government of solid waste management facility.

### Land Limitation

- A facility issues negotiation process designed to facilitate discussion among interested parties on conflicts related to the operation of solid waste management facilities, such as hours of operation, protection of property values and traffic routing.

### Education and Public Involvement

- Public education to be undertaken by the Georgia Department of Community Affairs and its Keep Georgia Beautiful program.

There are four state agencies directly involved with Georgia's solid waste management programs and activities:

- Environmental Protection Division of the Georgia Department of Natural Resources (EPD)
- Georgia Department of Community Affairs (DCA)
- Pollution Prevention Assistance Division of the Georgia Department of Natural Resources (P<sup>2</sup>AD)
- Georgia Environmental Facilities Authority (GEFA)

The solid waste management related responsibilities of these agencies are authorized under the Comprehensive Solid Waste Management Act or through other specific enabling legislation. Responsibilities and relationships have been further defined through a Memorandum of Understanding (MOU) signed by all four agencies.

In summary, the agencies are responsible for the following programs and activities:

EPD

- Permitting of landfills and other solid waste handling facilities
- Compliance inspection of existing landfills
- Oversight of closure and post-closure of landfills
- Encouraging the reduction, reuse, and recycling of solid waste
- Administering the Solid Waste Trust Fund, including solid waste enforcement and education grants and the scrap tire pile cleanup reimbursements
- Providing regulatory compliance support and evaluating new solid waste management technologies
- Assisting local governments with planning and assessments, code development, solid waste enforcement programs, and evaluation of grant funding

DCA

- Serving as the lead state agency for municipal solid waste recycling, waste reduction, and public education efforts
- Administering an annual local government solid waste management survey and preparing an annual report of statewide solid waste management activities to the Governor and General Assembly
- Maintaining local government solid waste planning standards and reviewing local plans and amendments for consistency with such standards
- Coordination of the review and revision of the state solid waste management plan and updates
- Providing solid waste management technical assistance to local governments with a focus on solid waste fee structures and financing approaches, local ordinances and procurement efforts, all aspects of recycling, yard trimmings diversion/composting, facilitation of partnerships, and identification of exemplary solid waste/recycling practices and programs
- Providing training to local recycling coordinators
- Implementing the Keep Georgia Beautiful program
- Providing public information, education, and training of educators in solid waste management/recycling/litter prevention

P<sup>2</sup>AD

- Developing programs to encourage commercial, industrial, and institutional solid waste generators to implement waste reduction measures
- Serving as the lead state agency for the reduction of all forms of solid wastes from all commercial, industrial, and institutional sectors

### GEFA

- Acting as a conduit through which the State provides solid waste related financial assistance to local governments for solid waste management efforts
- Operating the solid waste facilities loan program
- Administering a recycling and waste reduction grant program with funds provided from the Solid Waste Trust Fund

## 1.2 Planning Area Defined: Physical and Demographic Context for Plan

### 1.2.1 Physical Characteristics

Georgia, located in the Southeastern United States, covers 59,441 square miles making it the 24<sup>th</sup> largest state in the US and the largest state east of the Mississippi River. It is bordered on the north by Tennessee and North Carolina, on the east by South Carolina and the Atlantic Ocean, on the south by Florida, and on the west by Alabama.

The northern third of the state is characterized by gradually increasing mountainous terrain as foothills give way to the base of the Great Smokey Mountains. The terminus of the Appalachian Trail can be found in Fannin County in north central Georgia. The highest point, Brasstown Bald, is in northeast Georgia and rises to 4,784 feet above sea level. Limestone, marble, gold and talc have been mined from this area of the state.

Central and southern Georgia fall into the rolling Piedmont geologic zone and the flatter Coastal Plain geologic zone. Granite, soapstone and Georgia red clay are indicative of the Piedmont region while limestone, quartz, kaolin, and deposits of titanium rich ores can be found in the Coastal Plain region. Due to its soft geological composition, groundwater is more plentiful in the Coastal Plains region than in the northern regions of the state, which rely more on surface water sources.

Many rivers cross the state including the Chattahoochee, the Flint, the Apalachicola, the Coosa, the Tallapoosa, the Altamaha, the Oconee, Ogeechee, the Ocmulgee, the Savannah, and Suwanee rivers. Major lakes, all of which are man-made, dot the state and include Lake Lanier, Lake Hartwell, Lake Alatoona, Lake Sinclair, Lake Oconee, West Point Lake, Lake Blackshear, Lake Burton, Lake Jackson, and Clark Hill Lake. Figure 1-1 shows the major river systems in Georgia, and Figure 1-2, the state's 52 large watershed areas.

# Georgia's 14 River Basins



Map prepared by Georgia Department of Community Affairs, 2003

Figure 1-1 Georgia's River Basins



Figure 1-2 Georgia's Large Watersheds

## 1.2.2 Demographic and Economic Characteristics

As of July 1, 2004, Georgia's population was estimated to be at 8,829,383, moving the state up from 10<sup>th</sup> most populous to 9<sup>th</sup>. Atlanta is the state capital and, in terms of population, is also the largest city in the state. After Atlanta, the top ten most populated cities are the consolidated government of Augusta-Richmond County, City of Columbus, City of Savannah, the consolidated government of Athens-Clarke County, City of Sandy Springs, City of Macon, City of Roswell, City of Albany, City of Marietta, and Warner Robbins.

According to 2004 census estimates, approximately 78% (6,897,023) of Georgia's population lives in the northern third of the state. In fact, of the top eleven most populous cities, Sandy Springs, Roswell and Marietta are in the metropolitan Atlanta area, and eight of these eleven are located above the "fall line." The "fall line" is the line dividing the state, delineating where boats were prevented from traveling any farther north on the rivers due to water falls – from Columbus over to Macon then roughly across to Augusta.

Georgia has a broad economic base that includes agriculture, timber, and textiles. Agriculturally, Georgia produces poultry and eggs, cattle, hogs, dairy products, vegetables and is the number one producer of peanuts, pecans, and peaches. Industrial output includes textiles and apparel, carpet, paper products, lumber, pulpwood, resins, turpentine, transportation equipment, food processing, chemical products, and electrical equipment. Mineral resources include kaolin, marble, and granite. Tourism is another valuable component of Georgia's economic base.

The following statistical profile of Georgia was derived from the U.S. Census Bureau, using 2000 Census data except where noted.

- Population: 8,186,453 (2004 update: 8,829,383)
- Population change, 1990 to 2000: + 26.4%
- Number of Households: 3,006,369
- Population in occupied housing units: 7,952,631
- Owner occupied housing units: 2,029,154
  - Population in owner-occupied housing units: 5,501,265
- Renter occupied housing units: 977,215
  - Population in renter occupied housing units: 2,451,366
- Median household income, 1999: \$42,433
- Per capita money income, 1999: \$21,154
- Persons below poverty, percent, 1999: 13.0%

## 1.3 State Planning Efforts – Background

“Georgia’s most urgent need concerning solid waste is an effective mechanism for coordinating state, local, and private responsibilities in managing these wastes in a manner consistent with optimum public health and environmental quality criteria. Meeting this need will require a carefully conceived, thoroughly planned, and vigorously executed program based on clearly defined authority and adequate resources for both state and local government participation.”

From: “*A Comprehensive State Plan for Solid Waste Management, Georgia – 1971*”

As indicated in the above quote, Georgia has long recognized the value of actively managing its solid waste, and the importance of involving local participation in the process.

The Georgia Comprehensive Solid Waste Management Act of 1990 (the Act) was a milestone in carrying out this vision. The Act provided legislative support for the establishment of more environmentally protective landfill standards, consistent with the requirements of the federal Resource Conservation and Recovery Act (RCRA) Subtitle D. It also set a statewide goal for reducing the amount of municipal solid waste being disposed in these facilities. The resulting Georgia Solid Waste Management Plan of 1990 provided for a state strategy for reducing and managing solid waste, while developing a framework for state and local participation in implementing those strategies.

In 1997, the state plan was revised. While recognizing the need to continue the implementation of many key programs and initiatives, three major shifts in direction were incorporated:

- **Evolving Role of Local Governments** – Local governments’ roles in solid waste management had changed, so the nature of the State’s assistance to them needed to change as well. For example, the number of county-owned and operated landfills was reducing, and the need was growing for assistance with procurement and contracting techniques and practices.
- **Focus Beyond Residential Reductions** - Understanding that commercial and industrial generators produced approximately 60% of the solid waste being disposed, mechanisms were put into place to encourage waste reduction by these generators.
- **Improved Methods for Monitoring, Reporting, and Tracking Waste Reduction Progress** – Improvements to measurement techniques and reporting requirements were implemented to improve the accuracy of the State’s solid waste reduction data.

In addition to these formal solid waste plans, the DCA, EPD, P<sup>2</sup>AD, and GEFA collaborated in 2002 to develop a long-range strategic plan on how the projected Solid Waste Trust Fund (SWTF) revenues should be spent. The “Interagency Dialogue in Solid Waste Management and the Solid Waste Trust Fund” created a frame of

reference for use by the agencies in making decisions concerning SWTF projects. In summary, this document established eight areas of focus for SWTF projects:

1. Planning;
2. Litter Management;
3. Environmental Education;
4. Technology and Innovation;
5. Economics and Market Development for Source Reduction and Recycling;
6. Regulatory Developments and Enforcement;
7. Collection, Disposal, and Capacity; and
8. Funding.

## 1.4 Purpose of this Plan

The purpose of this plan is to chart the course for the combined efforts of the state and local governments to manage the state's solid waste in an environmentally sound and cost-effective manner over the next ten years. The focus of the plan is on municipal solid waste (MSW), as it is defined in state law. As such, it includes household and commercial solid wastes, as well as yard trimmings and construction and demolition waste, but does not include solid waste from mining, agricultural, or silvicultural operations or industrial processes or operations.

The format of the Plan is consistent with the Minimum Planning Standards required for local government solid waste planning efforts. The Plan follows an approach that begins with a description of the solid waste being disposed in the State. It then describes for each element of solid waste management (waste reduction, collection, disposal, land limitation, and education & public involvement) the following information:

- **Inventory and Assessment**

This summarizes the inventory of existing programs at the state and local levels, describing current practices and trends

- **Identification of Needs and Goals**

This describes the various opportunities that are available to help address the statewide effort to reach its goals.

- **Identification of an Implementation Strategy**

This describes the actions proposed to be taken by state government, including providing assistance to local governments.



## 1.5 Agency Responsible for the Plan

The Department of Community Affairs, with cooperation from the Environmental Protection Division and the Georgia Environmental Facilities Authority shall annually report to the Governor and General Assembly on the status of solid waste management in the state and revise the state solid waste management plan as necessary.

The agencies involved with the preparation of this Plan are:

Department of Community Affairs  
Office of Environmental Management  
60 Executive Park South, N.E.  
Atlanta, Georgia 30329-2231  
[www.dca.state.ga.us](http://www.dca.state.ga.us)

Georgia Department of Natural Resources  
Environmental Protection Division  
2 Martin Luther King Jr. Drive,  
Suite 1152 East Tower  
Atlanta, GA 30334  
[www.gaepd.org](http://www.gaepd.org)

Georgia Department of Natural Resources  
Pollution Prevention Assistance Division  
7 Martin Luther King Jr. Drive, Suite 450,  
Atlanta, GA 30334  
[www.p2ad.org](http://www.p2ad.org)

Georgia Environmental Facilities  
Authority  
233 Peachtree Street, N.E.  
Harris Tower, Suite 900  
Atlanta, GA 30303-1911  
[www.gefa.gov](http://www.gefa.gov)

The Georgia state agencies with primary solid waste management responsibilities (Department of Natural Resources' Environmental Protection (EPD) and Pollution Prevention Assistance (P<sup>2</sup>AD) divisions, Department of Community Affairs (DCA) and Georgia Environmental Facilities Authority (GEFA)) came together in January 1997 to clarify their respective roles and disbursement of Solid Waste Trust Fund dollars.

Broadly speaking, the MOU stated that:

- DCA would serve as the lead agency for municipal solid waste recycling, waste reduction and public education efforts;
- EPD would permit solid waste handling facilities and administer the Solid Waste Trust Fund;
- P<sup>2</sup>AD would serve as the lead agency for waste reduction efforts relating to the commercial, industrial and institutional sectors;
- GEFA would serve as a conduit through which the State provides solid waste related financial assistance to local governments.

R. W. Beck, Inc. assisted with the development and preparation of this Plan, under the direction of the Georgia Department of Community Affairs.,

## Section 2

# WASTE STREAM DISPOSAL ANALYSIS

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The purpose of the Waste Disposal Stream Analysis Section is to provide an inventory of waste disposed within the State by sector (e.g. residential, commercial, industrial, C&D, etc.) and the types of waste disposed (e.g., paper, plastic, metal, etc.). The results of the waste disposal stream analysis can be used to establish needs and goals for the remainder of the Plan.

### 2.1 Amount of Waste Disposed

The State gathers information about the amount of waste disposed from landfills throughout the State. Each quarter, every MSW landfill and C&D landfill is required to report the amount of waste it accepts as well as the jurisdictions from which the waste was received. The landfills, for the most part, depend on the haulers delivering waste to their landfill to identify the jurisdiction where that waste was collected.

Reports from landfills submitted to the Georgia Department of Natural Resources Environmental Protection Division (EPD) indicate that 11,916,124 tons of solid waste was disposed in MSW landfills and 3,604,049 tons were disposed in C&D landfills in FY 2004 throughout the State.<sup>1</sup> Table 2-1 estimates the amount of the waste disposed in MSW and C&D landfills by sector and/or type, based on a telephone survey of landfills in the state of Georgia conducted by R.W. Beck, Inc.<sup>2</sup> This telephone survey indicated that one-third of the waste disposed in MSW landfills in 2004, or nearly 4 million tons, was not MSW (defined as waste generated by the residential or commercial sector). Fourteen percent was industrial waste; 12.3 percent was construction and demolition debris; and 7.1 percent was sludge and biosolids from wastewater treatment plants. Of the two-thirds that is indeed MSW, 59 percent is residential and 41 percent is commercial according to the first season of sampling for the Georgia Department of Community Affairs (DCA) waste composition study.<sup>3</sup>

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<sup>1</sup> Georgia Department of Community Affairs Annual Solid Waste Report, 2004. This does not include MSW incinerated or composted. EPD reported 102,460 tons of MSW incinerated and 496,335 tons of MSW composted during FY2004.

<sup>2</sup> R.W. Beck, Inc., Non-MSW Survey Results, conducted for the DCA, June 2002.

<sup>3</sup> R.W. Beck, Inc. Waste Characterization Study, conducted for the DCA, 2005.

Table 2-1  
 Reported Waste Disposed by Sector (2004)  
 State of Georgia

Sector	Tons to MSW Landfill	Tons to C&D Landfill	Total Tons
Residential	4,680,300		4,680,300
Commercial	3,255,850		3,255,850
Industrial	1,668,257		1,668,257
C&D	1,465,677	3,604,049	5,069,726
Sludge and Biosolids	846,040		846,040
<b>TOTAL</b>	<b>11,916,124</b>	<b>3,604,049</b>	<b>15,520,173</b>

Georgia Department of Community Affairs Annual Solid Waste Report, 2004.  
 Georgia Waste Characterization Study, conducted for the DCA by R.W. Beck, Inc, 2004

These figures represent the waste that is disposed in MSW and C&D landfills. However, solid waste is handled in other ways within the state of Georgia. Approximately 401,000 tons per year go to other solid waste handling facilities in the state that report tonnage: 252,000 tons were disposed in two industrial landfills (one in Whitfield and one in Chatham County); 46,325 tons were processed at an MSW composting facility in Cobb County; and 102,460 tons were incinerated at a facility in Chatham County in 2004. In addition, some types of waste, primarily yard trimmings, are disposed in inert landfills, which do not have scales nor do they report tonnages disposed to EPD. An unknown quantity of industrial waste is disposed in “captive” landfills, that is, on-site landfills that only dispose of waste that is generated by the industry that owns the captive landfill. Finally, an unknown amount of solid waste is burned in burn barrels, discarded as litter, or deposited in unauthorized dumps.

### 2.1.1 Changes in the Amount of Waste Disposed

The amount of waste disposed in MSW landfills in Georgia has increased by more than 50 percent over the past ten years, as shown in Figure 2-1. In FY1994, it was estimated that just over 7 million tons was disposed in MSW landfills, compared to 11.9 million in FY2004. According to landfill records, waste disposed in C&D landfills in Georgia has also increased, from about 1 million tons in FY1994 to 3.6 million in FY2004. It should be noted that much of the reported increase may be attributed to the increase in the number of permitted C&D landfills over the past ten years.

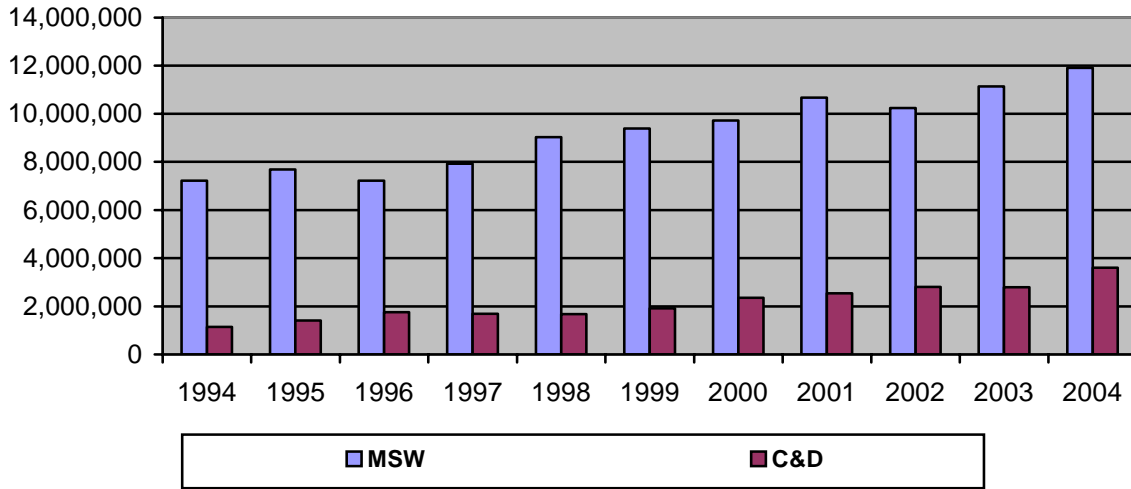


Figure 2-1: Tons of Waste Disposed, FY 1994 -2004<sup>4</sup>

A portion of the increase in the amount of waste disposed in MSW landfills can be attributed to waste imported from other states into Georgia landfills. This increase is especially notable in the past six years. The amount of waste brought to Georgia from other states in FY2004 was eight times greater than it was in FY1998, as seen in Figure 2-2. Waste imports rose from 1,197,686 tons in FY2003 to 1,633,182 tons in FY2004, the biggest single year increase ever. Out of state waste imported into Georgia landfills represented 13.5 percent of the waste disposed in Georgia’s MSW landfills in FY2004; having the equivalent of 1.01 lbs/person/day of waste disposal in the state.

<sup>4</sup> Georgia Department of Community Affairs (DCA), *Solid Waste Annual Report – 2004*. Note that this analysis does not include industrial waste, since no data is gathered about the quantities disposed.



Figure 2-2: Waste Imported to Georgia

### 2.1.2 Per Capita Disposal Rate

To account for the population growth in Georgia, the amount of solid waste disposed is evaluated on a per capita, per day basis. The basis for measuring waste reduction is the per capita disposal rate for municipal solid waste disposed in landfills in the state whether imported or generated in Georgia.

Since FY 1994, the per capita waste disposal rate in MSW landfills has climbed from 5.66 lbs/person/day to 7.39 lbs/person/day in FY2004, as shown in Table 2-2. However, when the amount of waste imported from other states is excluded, the per capita disposal rate in MSW landfills was 6.38 lbs/person/day in FY 2004. This represents an increase of just under one pound per person per day over the past ten years. Imported waste has

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## Waste Stream Disposal Analysis

grown from representing 0.13/lb/person/day in FY1998 to 1.01 lbs/person/day in FY2004 (as shown in Table 2-2).

Table 2-2 Amount Disposed in MSW Landfills in Georgia, 1994-2004  
(Tons per Year)<sup>5</sup>

Year	Tons Per Year			Pounds per Person per Day		
	Generated in GA	Imported from Other States	Total	Generated in GA	Imported from Other States	Total
1994	7,083,345	138,946	7,222,291	5.55	.11	5.66
1995	7,534,790	149,481	7,684,271	5.77	.11	5.88
1996	7,062,499	160,000	7,222,499	5.28	.12	5.40
1997	7,753,072	172,150	7,925,222	5.66	.13	5.79
1998	8,832,259	193,819	9,026,078	6.31	.13	6.44
1999	8,928,747	453,875	9,382,622	6.24	.31	6.55
2000	9,213,264	511,472	9,724,736	6.17	.34	6.51
2001	9,785,329	893,651	10,678,980	6.55	.60	7.15
2002	9,282,913	950,779	10,233,692	6.05	.63	6.68
2003	9,937,787	1,197,686	11,135,473	6.38	.76	7.14
2004	10,282,942	1,633,182	11,916,124	6.38	1.01	7.39

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<sup>5</sup> Derived from 2004 Solid Waste Annual Report, DCA

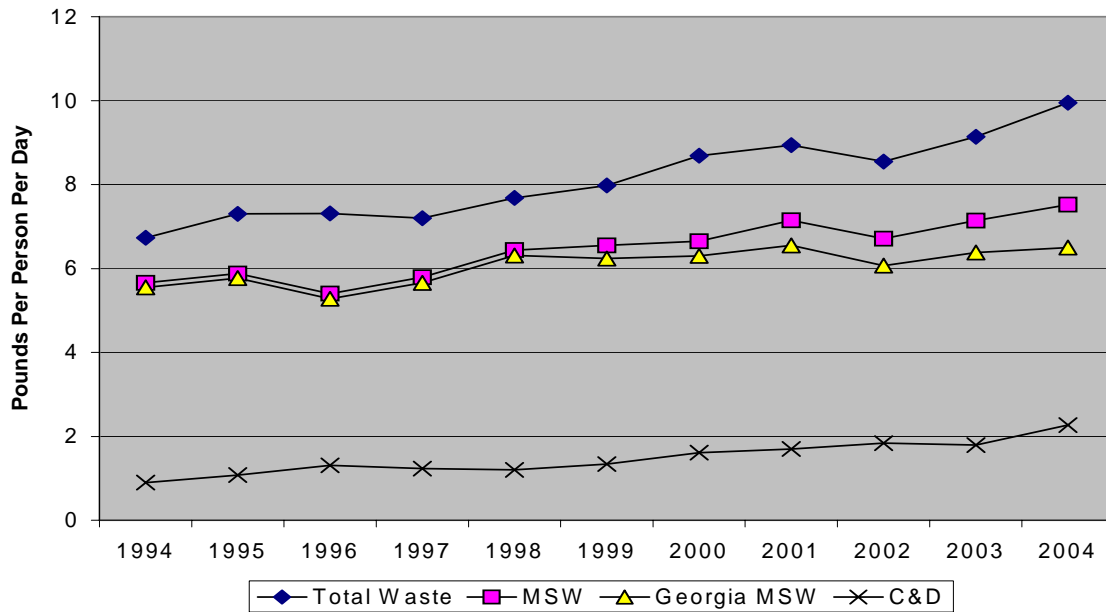


Figure 2-3: Per Capita Disposal by Waste Type 1994-2004

When reviewing the disposal trends over the past decade, there are several findings worth noting:

1. In 1996, the per capita disposal rate in MSW landfills came very close to meeting the state’s 25% waste disposal reduction goal which was in place at the time and has since been removed from the Solid Waste Management Act. There may be two primary factors influencing this reduction: 1) the 1996 yard trimmings ban became effective in 1996 and 2) this was the target year for the state’s 25% per capita waste reduction disposal goal. Many local governments added or significantly expanded their residential recycling programs in an effort to achieve the goal.
2. The waste reduction and recycling programs in the state appear to have checked the growth of Georgia’s per capita disposal rate in MSW landfills. While the rate of per capita disposal rose steadily over the past decade, the growth in Georgia’s per capita disposal rate in MSW landfills leveled-off in 1998 and has remained fairly flat since then with the exception of a dip in 2002, which is more than likely attributable to a sluggish economy.
3. The per capita disposal rate in waste delivered to C&D landfills has risen steadily since 1998, a factor which may also be contributing to the leveling-off of the disposal rate for Georgia waste in MSW landfills. The increased use of C&D landfills is not surprising given the price differential in MSW and C&D tipping fees and the increased distances many communities must ship their waste for disposal at the larger, more regional MSW landfills in the state.

### 2.1.3 Unique Conditions and/or Seasonal Variations

In some areas of the State, unique conditions or seasonal impacts may change the amount and/or type of waste disposed. Throughout most of the State, the amount of yard trimmings disposed in MSW and other facilities is likely to be higher in the fall and spring than in the winter months. Some areas of the State, in particular the areas impacted by tourism such as coastal Georgia, may experience an increase in the amount of waste disposed during the tourist season. The amount of waste in some areas of the State is impacted by annual or one-time events, such as Augusta during the Master's and Atlanta when hosting national events such as the Super Bowl or national political conventions.

To date, few local governments have quantified changes in the amounts or types of waste resulting from unique conditions or seasonal variation. However, local plans should take these variations into account when planning for waste reduction, collection, disposal, and public information and education programs.

### 2.1.4 Waste Generating Disasters

Although impossible to predict the magnitude, natural and human-made disasters can have a tremendous impact on the amount of waste requiring reduction, collection, and disposal. In FY1998, debris equaling one-fourth of Georgia's average annual waste stream, greater than 4 million cubic yards, was generated by several individual storm events, including tornados in Gainesville and North Atlanta and floods in Albany. In Escambia County, Florida alone, Hurricanes Ivan and Dennis generated 13 million cubic yards of debris, challenging collection infrastructure and disposal capacity.

Some of the debris-generating natural disasters most likely to hit Georgia include flooding, tornados, ice storms, and hurricanes. Local government solid waste management plans and disaster management plans should address how disaster generated debris will be managed and its long-term impact on solid waste infrastructure.

## 2.2 Ten Year Waste Projections

### 2.2.1 MSW Projections

Section 2.1.2 described that more than 11.9 million tons of waste was disposed in MSW landfills in the state in 2004, or 7.39 pounds per person per day. Table 2-3 indicates the amount of waste to be disposed in MSW landfills if 1) the per capita disposal rate continues to increase at the same rate that it increased between 2004 and 1994 and 2) the tonnage of imported waste disposed in MSW landfills continues to increase at the same



## Section 2

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rate as it did in 1994 through 2004. The result is that a total of over 148 million tons is projected to be disposed in MSW landfills between 2006 and 2015.

In Table 2-4, the per capita disposal rate was projected to be reduced each year, starting in 2006, so that a 25% reduction in that rate would be achieved in 2015. With imported MSW continuing to increase (at the same rate of increase as the past ten years), the total amount of waste disposed in MSW landfills during the ten year period is projected to be slightly more than 125 million tons.

Comparing the two projections, it can be seen that the projected 25% reduction in the amount of waste generated in Georgia that is disposed in MSW landfills would essentially offset the projected amount of approximately 22 to 23 million tons of imported MSW during the same period.

**Table 2-3 Ten-Year Projection of Disposal in MSW Landfills At Historic Rate of Increase**

Year	Population	GA.MSW (lbs/person/day) <sup>6</sup>	GA. MSW (tons)	Imported MSW (tons) <sup>7</sup>	Total MSW
2006	9,059,743	6.70	11,080,506	1,592,085	12,672,591
2007	9,193,057	6.80	11,404,313	1,735,694	13,140,007
2008	9,325,827	6.89	11,732,098	1,879,303	13,611,401
2009	9,457,857	6.99	12,063,583	2,022,912	14,086,495
2010	9,589,080	7.08	12,398,641	2,166,521	14,565,162
2011	9,719,339	7.18	12,737,026	2,310,130	15,047,156
2012	9,848,769	7.28	13,078,865	2,453,739	15,532,604
2013	9,977,201	7.37	13,423,889	2,597,348	16,021,237
2014	10,104,512	7.47	13,771,876	2,740,957	16,512,833
2015	10,230,578	7.56	14,122,597	2,884,566	17,007,163
<b>Totals</b>			<b>125,813,394</b>	<b>22,383,255</b>	<b>148,196,649</b>

**Table 2-4 Ten-Year Projection of Disposal in MSW Landfills with 25% Reduction in Per Capita Disposal of Waste Disposed from Georgia**

Year	Population	GA. MSW (lbs/person/day) <sup>8</sup>	GA. MSW (tons)	Imported MSW (tons) <sup>9</sup>	Total MSW
2006	9,059,743	6.70	11,080,506	1,592,085	12,672,591
2007	9,193,057	6.51	10,928,566	1,735,694	12,664,260
2008	9,325,827	6.33	10,769,646	1,879,303	12,648,949
2009	9,457,857	6.14	10,600,878	2,022,912	12,623,791

<sup>6</sup> This disposal rate was projected by continuing the trend in the increase in pounds per person per day documented between 1994 and 2004.

<sup>7</sup> The tons-to-be-disposed was projected by continuing the trend in total imported tonnage disposed in Georgia between 1994 and 2004.

<sup>8</sup> This disposal rate was projected by reducing the pounds per person per day disposed by 25% between 2006 and 2015.

<sup>9</sup> The tons-to-be-disposed was projected by continuing the trend in total imported tonnage disposed in Georgia between 1994 and 2004.

2010	9,589,080	5.96	10,422,265	2,166,521	12,588,786
2011	9,719,339	5.77	10,233,722	2,310,130	12,543,852
2012	9,848,769	5.58	10,035,485	2,453,739	12,489,224
2013	9,977,201	5.40	9,827,474	2,597,348	12,424,822
2014	10,104,512	5.21	9,609,672	2,740,957	12,350,629
2015	10,230,578	5.02	9,382,079	2,884,566	12,266,646
<b>Totals</b>			<b>102,890,293</b>	<b>22,383,255</b>	<b>125,273,550</b>

### 2.2.2 C&D Projections

A total of 3,604,049 tons of waste was disposed in C&D landfills in FY2004, resulting in a per capita disposal rate of 2.24 pounds per person per day. If the amount of waste disposed in C&D landfills continues to increase at the rate at which it increased between 1994 and 2004, Table 2-5 shows that a total of over 50 million tons will be disposed in C&D landfills over the ten year planning period.

Table 2-5

Ten-Year Projection of Disposal in C&D Landfills at Current Disposal Rate

Year	Population	C&D Landfill Disposal Rate (lbs/person/day)	C&D Landfill Disposal (tons)
2006	9,059,743	2.31	3,817,557
2007	9,193,057	2.43	4,071,095
2008	9,325,827	2.54	4,330,104
2009	9,457,857	2.66	4,594,455
2010	9,589,080	2.78	4,864,065
2011	9,719,339	2.90	5,138,800
2012	9,848,769	3.01	5,418,672
2013	9,977,201	3.13	5,703,530
2014	10,104,512	3.25	5,993,239
2015	10,230,578	3.37	6,287,648
<b>Totals</b>			<b>50,219,165</b>

## 2.3 Waste Characterization

Identifying the type of waste that is currently being disposed in Georgia’s landfills can play a critical role in solid waste system planning and design. This type of information can be used to identify materials to target for additional diversion and can serve as baseline for measuring progress. More specifically, data generated from waste

composition studies can be used in determining the quantity of material available for recovery, measuring the effectiveness of existing recycling programs, and right-sizing solid waste and recycling facilities.

The Georgia Department of Community Affairs commissioned a waste characterization study, completed in 2005, that provides a comprehensive view of the composition of Georgia's municipal solid waste. Data were compiled not only statewide, but also regionally for 13 of the 16 Regional Development Centers (RDC) in the State. These data can be used by local governments as they prepare their solid waste management plans. Local governments can access these data at:

<http://www.dca.state.ga.us/development/EnvironmentalManagement/programs/wastemanage.asp>

### 2.3.1 Composition of MSW Disposed

Figure 2-4 shows that nearly two-thirds of the MSW disposed in landfills in the State of Georgia is paper (38.6% of the total) or organic matter (27.1% of the total). Plastics are the third most common material, by weight, at 15.8%.

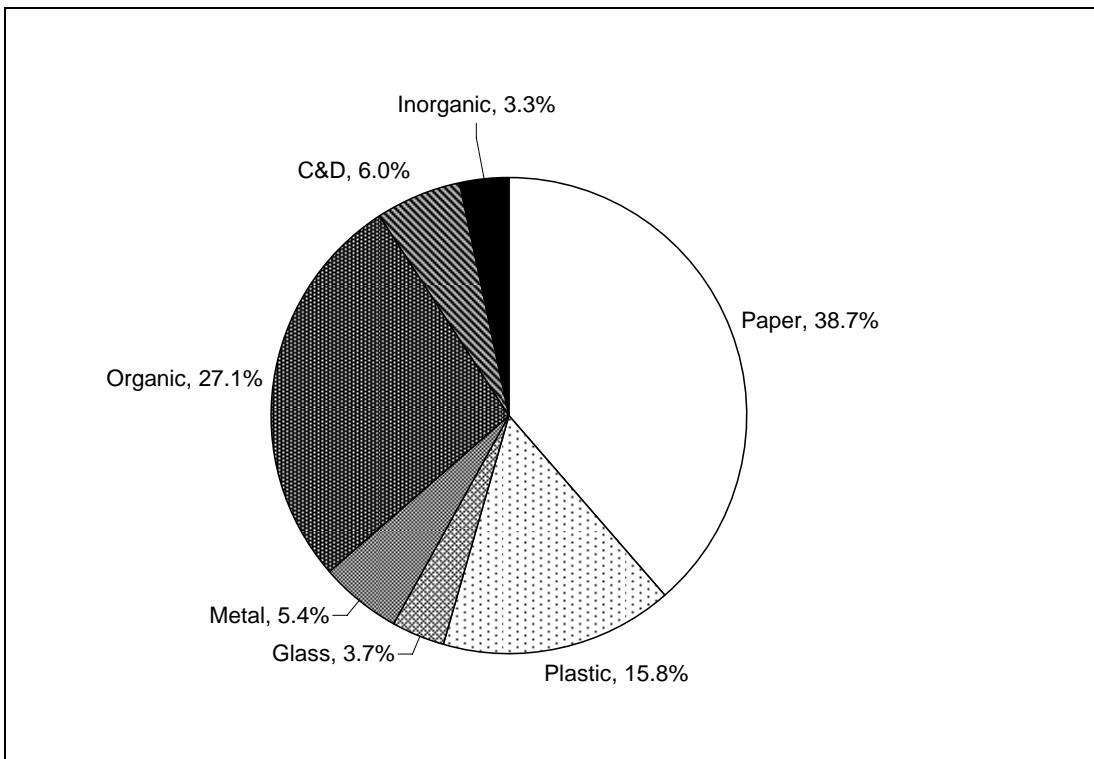


Figure 2-4: Composition of Waste Disposed in MSW Landfills in Georgia by Weight

Table 2-6 shows more detailed waste composition results based on the total amount of MSW disposed in FY 2004. Since the waste composition results apply only to the 66.6% of waste disposed in MSW landfills that was actually MSW (according to the definition

of MSW in State law) that is, commercial and residential waste, the percentage of each material is applied to the total amount of commercial and residential waste disposed in FY2004 according to the estimates in Table 2-1. These results indicate that the three most abundant components of the waste stream in Georgia, by weight, are food waste (12%), corrugated cardboard (11%), and non-recyclable paper (10.5%). Despite a statewide ban on the disposal of yard trimmings in lined MSW landfills and the efforts of cities and counties throughout the state to divert yard trimmings, approximately 2.7% of the MSW disposed in MSW landfills was yard trimmings.

**Table 2-6  
Detailed Composition of MSW Disposed in Landfills in Georgia  
(Tons and % of Total Weight)**

Group	Material	Tons of MSW Disposed	Statewide Aggregated Average
<b>Paper</b>	Newspaper	380,935	4.80%
	Corrugated Cardboard	872,977	11.00%
	Office	269,829	3.40%
	Magazine/Glossy	206,340	2.60%
	Paperboard	269,829	3.40%
	Mixed (Other Recyclable)	238,085	3.00%
	Other (Non-recyclable)	833,296	10.50%
	<b>Total Paper</b>	<b>3,071,290</b>	<b>38.70%</b>
<b>Plastic</b>	#1 PET Bottles	103,170	1.30%
	#2 HDPE Bottles	87,298	1.10%
	#3-#7 Bottles	15,872	0.20%
	Expanded Polystyrene	111,106	1.40%
	Film Plastic	587,275	7.40%
	Other Rigid Plastic	349,191	4.40%
	<b>Total Plastic</b>	<b>1,253,912</b>	<b>15.80%</b>
<b>Glass</b>	Clear	134,915	1.70%
	Green	31,745	0.40%
	Amber	95,234	1.20%
	Other	31,745	0.40%
	<b>Total Glass</b>	<b>293,638</b>	<b>3.70%</b>
<b>Metal</b>	Steel Cans	103,170	1.30%

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Group	Material	Tons of MSW Disposed	Statewide Aggregated Average
	Aluminum Cans	55,553	0.70%
	Other Ferrous	206,340	2.60%
	Other Non-Ferrous	55,553	0.70%
	<b>Total Metal</b>	<b>428,552</b>	<b>5.40%</b>
<b>Organics</b>	Yard Waste	214,276	2.70%
	Wood (non-C&D)	150,787	1.90%
	Food Waste	952,338	12.00%
	Textiles	317,446	4.00%
	Diapers	198,404	2.50%
	Fines	222,212	2.80%
	Other Organics	103,170	1.30%
	<b>Total Organic</b>	<b>2,150,697</b>	<b>27.10%</b>
<b>C&amp;D</b>	Drywall	31,745	0.40%
	Wood	198,404	2.50%
	Inerts	31,745	0.40%
	Carpet	111,106	1.40%
	Other C&D	95,234	1.20%
	<b>Total C&amp;D</b>	<b>476,169</b>	<b>6.00%</b>
<b>Inorganics</b>	Televisions	7,936	0.10%
	Computers	7,936	0.10%
	Other Electronics	142,851	1.80%
	Tires	15,872	0.20%
	HHW	31,745	0.40%
	Other Inorganics	63,489	0.80%
	<b>Total Inorganics</b>	<b>261,893</b>	<b>3.30%</b>
	<b>TOTAL</b>	<b>7,936,150</b>	<b>100.00%</b>

The waste composition data were gathered for 13 RDCs in the state and the results for each RDC are shown in Table 2-7. The composition of waste varies by region, especially in some of the categories that represent the largest portion of the MSW disposed. For example, paper comprised 41.6% of the waste stream, by weight, in the Georgia Mountains but only 28.6% of the waste in the McIntosh Trail. On the other hand, organics comprised 33.5% of the waste stream in McIntosh Trail but only 23.6% of the waste stream in the Georgia Mountains. These differences may indicate the need for different targets for waste reduction and different approaches to waste management generally in different regions of the State. For example, in coastal Georgia, where corrugated cardboard comprises 15% of the waste disposed in MSW landfills, a commodity for which viable markets exist in the region, the development of collection

and processing infrastructure for this material may make more sense than in Coosa Valley, where corrugated cardboard comprises less than 5% of the waste stream.



**Table 2-7  
Composition of Waste Disposed in MSW Landfills in Georgia, by RDC**

<b>Material</b>	<b>Atlanta</b>	<b>Central Savannah River</b>	<b>Chat. Flint</b>	<b>Coastal Georgia</b>	<b>Coosa Valley</b>	<b>Georgia Mountains</b>	<b>Heart of Georgia</b>	<b>Lower Chatt.</b>	<b>McIntosh Trail</b>	<b>Middle Georgia</b>	<b>Northeast Georgia</b>	<b>South Georgia</b>	<b>Southeast Georgia</b>
Paper	40.0%	36.0%	40.0%	39.0%	34.6%	41.6%	32.3%	38.7%	28.5%	35.5%	40.3%	32.4%	35.3%
Plastic	15.8%	17.6%	16.0%	15.9%	16.4%	14.7%	14.9%	14.0%	13.4%	16.4%	16.2%	17.9%	14.5%
Glass	3.8%	5.1%	4.3%	3.5%	4.4%	2.5%	3.1%	3.0%	4.1%	1.7%	4.6%	5.1%	3.3%
Metal	5.6%	4.9%	7.4%	4.3%	4.4%	4.4%	5.9%	5.2%	7.9%	5.3%	5.7%	6.2%	5.3%
Organic	26.2%	31.2%	25.2%	28.2%	33.0%	23.6%	30.9%	28.5%	33.5%	27.2%	26.6%	27.3%	33.1%
C&D	5.5%	3.2%	4.2%	6.4%	4.8%	10.0%	8.1%	8.8%	5.1%	8.0%	3.1%	8.6%	4.8%
Inorganics	3.2%	2.1%	2.9%	2.6%	2.4%	3.2%	4.9%	1.7%	7.6%	5.8%	3.4%	2.6%	3.6%
<b>TOTAL</b>	<b>100.0%</b>	<b>100.0%</b>	<b>100.0%</b>	<b>100.0%</b>	<b>100.0%</b>	<b>100.0%</b>	<b>100.0%</b>	<b>100.0%</b>	<b>100.0%</b>	<b>100.0%</b>	<b>100.0%</b>	<b>100.0%</b>	<b>100.0%</b>







## Section 3

# WASTE REDUCTION ELEMENT

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## 3.1 Inventory and Assessment of Waste Reduction Programs

The purpose of the Waste Reduction Element section of the Plan is to inventory, describe, and assess the waste reduction programs implemented throughout the state. Both public and private programs and facilities for source reduction, recycling, composting/mulching, and special material handling are inventoried. They are then assessed to determine if they are targeting the appropriate waste generating sector and waste stream, based on the Waste Disposal Stream Analysis, to contribute to achievement of the State's waste disposal reduction effort and mitigate any potential environmental risk.

The definition of various words and phrases used in this section of the Plan were derived from the Georgia Comprehensive Solid Waste Management Act (O.C.G.A. 12-8-20) and from the Rules of the Georgia Department of Community Affairs (Chapter 110-4-3) and of the Georgia Department of Natural Resources Environmental Protection Division (Chapter 391-3-4). For the purposes of this Plan, the words or phrases below have following meanings:

- “Waste Reduction” means the reduction and minimization to the greatest extent possible the amount of solid waste which requires collection, treatment, or disposal, through source reduction, reuse, composting, recycling, and other methods.
- “Source Reduction” means actions taken to prevent the generation of waste in the first place.
- “Recycling” means any process by which materials that would otherwise become solid waste are collected, separated, or processed and reused or returned to use in the form of raw materials or products.
- “Composting” means the controlled biological decomposition of organic matter into a stable, odor-free humus.

### 3.1.1 Local Programs

The Minimum Planning Standards that guide the development of all local solid waste management plans embrace the above waste reduction definition by requiring information in the “Waste Reduction Element” section of the plan on source reduction, recycling, yard trimmings mulching/composting, and special management items (such as electronics, household hazardous waste, etc.). The information that follows

provides data and case studies that illustrate local waste reduction efforts throughout the state in both the private and public sectors.

### 3.1.1.1 Source Reduction and Reuse

Source reduction and reuse programs are by their nature difficult to inventory since they are actions that lead to the avoidance of waste generated for recycling or disposal. However, local governments, as well as business and industry in the state, implement programs that lead to the generation of less waste, usually in conjunction with recycling and other environmental programs. Some of these are public education programs, for example, encouraging residents to compost food waste at home or encouraging employees to copy on both sides of paper or use ceramic rather than disposable cups. Other examples are industrial changes that lead to less waste, such as changing the machinery in carpet mills to reduce the width of selvedge (scrap trimmed off the edges of the carpet).

The Georgia Pollution Prevention Assistance Division of DNR provides technical assistance to the commercial and industrial sector on pollution prevention, including source reduction activities. As part of this technical assistance, it prepares case studies on successful projects and activities that have been implemented around the State. Some of these examples, including those that employ source reduction measures, can be found in Appendix A of this Solid Waste Management Plan.

- *ScrapMatchGA* - P<sup>2</sup>AD worked closely with Georgia Tech's Economic Development Institute to implement ScrapMatchGA, a program that helps companies recover and reuse some of their waste materials. The goals of ScrapMatchGA are to increase the competitive advantage of Georgia businesses, to protect our environment by reducing the amount of waste going to landfills, and to encourage the sustainable use of our natural resources. Approximately 425 Georgia companies have enrolled in the voluntary program.
- *EnviroShare* ([www.enviroshare.org](http://www.enviroshare.org)) - EnviroShare, operated by Hall County, is an information-sharing, networking, site visit/waste self-audit, and materials exchange program aimed at helping businesses and residents to reduce solid waste.
- *Earth911.org* (<http://www.earth911.org/master.asp?s=ls&a=Recycle&cat=1&serviceid=>) - This website enables users to enter their ZIP code and find locations to recycle or reuse a wide variety of products and commodities. It also has a business oriented component, "Earth911 Business," that provides information about business-related waste reduction techniques and opportunities, including links to dozens of waste exchanges throughout the nation.
- *Southern Waste Information Exchange (SWIX)* ([www.wastexchange.org](http://www.wastexchange.org)) - This is a non-profit clearinghouse and repository for industry concerning information on:
  - Market development
  - Recycled products
  - Solid and hazardous waste management

- Current regulations/legislation
- Alternative and emerging waste management technologies
- Trade journals and associations
- Technical reports
- The availability of and demand for waste materials; and
- Waste management services and products
- [The Global Recycling Network \(http://www.grn.com\)](http://www.grn.com) - The Global Recycling Network is an electronic information exchange that specializes in the trade of recyclables reclaimed in MSW streams, as well as the marketing of eco-friendly products. This site provides a reference library, recycling directories, industry newsletters and books, trade associations, funding and grant sources, current prices for recyclables, recycling stock market watch, and a virtual marketplace.

### 3.1.1.2 Recycling

The Waste Characterization Study described in Section 2 - Waste Disposal Stream Analysis, provides data about the types and quantities of materials that are entering Georgia landfills. This information can be used to estimate the quantity of potentially recoverable materials still being disposed and their economic value. According to an analysis by DCA, the value of recyclable materials disposed is estimated at almost \$223 million per year<sup>1</sup>. In other words, the market value of commodities disposed in Georgia landfills in 2005, based on prevailing market prices, is nearly \$223 million as shown in Table 3-1.

**Table 3-1  
Estimated Value of Certain Recyclables Being Disposed Annually in Georgia Landfills**

Material	Tons Landfilled in Georgia	Market Price (\$/Ton)	Estimated Value as Recyclables
Old Newspaper (ONP)	322,001	\$80	\$25,760,080
Old Corrugated Cardboard (OCC)	733,866	\$80	\$58,709,280
Aluminum	48,148	\$1,200 <sup>2</sup>	\$57,777,600
Glass, Clear	112,492	\$30	\$3,374,760
Glass, Brown (amber)	79,405	\$15	\$1,191,075
#1 PET Plastic	89,577	\$440	\$39,413,880
#2 HDPE Plastic	73,460	\$500 <sup>3</sup>	\$36,730,000
TOTAL	1,458,949	-	\$222,956,675

Section 4.1.2.3 describes how recyclables are collected throughout the State. During FY 2003, 444 local governments reported they provided or arranged for residential recycling services in their communities. This number has declined from a high of 465 local governments in 1999. Newspaper and aluminum were the most commonly

<sup>1</sup> To estimate the values of the recyclables that are going into the landfills, staff used tonnages from the Waste Characterization Study and quoted recyclable commodity prices as of July 2005, per DCA.

<sup>2</sup> Aluminum priced at 60 cents per pound

<sup>3</sup> Averaged estimated price of natural and pigmented HDPE

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collected items from the residential sector while plastic was the most commonly collected materials from the commercial sector according to annual reports from local governments.

Local governments were also asked about processing facilities serving their residents and businesses. As shown in table 3-2, in FY2003 217 local governments reported that a processing facility for recyclables was available for residential recyclables. Most of these facilities accepted materials source-separated, that is, the materials are separated before being collected, typically by the consumer, or into the collection vehicle during collection. Commingled collection means that material is delivered in one or two (paper and all containers) streams and the material is sorted at a processing facility, often by paid staff, inmates or probationers.

Table 3-2  
Processing of Residential Recyclables, FY2003<sup>4</sup>

Method of Processing	2001		2002		2003	
	City	County	City	County	City	County
Source-separated	158	82	158	82	142	75
Commingled	52	13	52	13	41	12
Both	29	28	29	28	32	35
Unknown	85	12	85	12	94	11

### 3.1.1.3 Yard Trimmings Processing and Beneficial Use

Georgia banned yard trimmings from lined MSW landfills in 1996, as part of an effort to extend landfill disposal capacity. Effective September 1, 1996, each city, county and solid waste management authority was required to impose restrictions on yard trimmings generated in or disposed within their jurisdiction. The restrictions required that yard trimmings:

- Not be placed in or mixed with municipal solid waste;
- Be sorted and stored for collection to facilitate composting or other handling;
- To the maximum extent feasible be sorted, stockpiled or chipped for composting or used as a mulch or for other beneficial purposes; and
- Be banned from disposal at MSW disposal facilities having liners and leachate collection systems.

Annually, DCA surveys local governments to determine how yard trimmings are collected, processed and used within their communities. During FY 2003, 55 cities and 41 counties reported actively promoting source reduction and reuse practices such as

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<sup>4</sup> Solid Waste Annual Report – 2004, DCA

home composting or beneficial reuse of yard trimmings. Also during FY 2003, 253 cities and 67 counties reported that yard trimmings were collected for diversion from MSW landfills. Details of yard trimmings collection services available to citizens of the state are described in more detail in Section 4 – Collection.

The data in Table 3-2 suggest that handling of yard trimmings has not substantially changed over the three years that are reported. The majority of local governments who reported that yard trimmings were collected from their citizens reported that these materials were either ground or shredded for use as mulch, however 137 local governments reported that the collected materials were disposed in an inert landfill. Composting and burning were also reported as common processing methods. The map in Figure 3-1 displays public composting and mulching locations throughout the State.

Yard trimmings, when processed properly, have numerous beneficial uses in a community. The use of compost and mulch is extremely beneficial for slowing storm water runoff and retaining moisture around plants. Many local governments use processed yard trimmings as mulch for their landscaping and civil engineering applications or report offering the processed yard trimmings to their citizens for residential landscaping.

Table 3-3  
Yard Trimmings Management – Processing and Beneficial Reuse  
FY2001-2003<sup>5</sup>

	2001		2002		2003	
	City	County	City	County	City	County
<b>Processing Methods</b>						
Composting	55	8	55	12	46	11
Solid waste landfill	37	7	35	5	40	8
Inert landfill	106	47	100	49	91	46
Grind/chip into mulch	178	45	174	55	173	55
Own a chipper/shredder	142	23	127	20	132	23
Contract out chipping/shredding	37	22	35	31	39	28
Use another local government's chipper/shredder	19	4	20	5	19	5
Burning	32	3	28	3	30	3
Other	19	4	20	8	23	8
<b>Beneficial Use</b>						
Give away	181	49	176	49	171	49
Sell	6	4	9	7	8	9
Used by local government	101	25	95	26	92	29
Becomes property of private contractor	12	6	13	11	12	8

<sup>5</sup> *ibid*

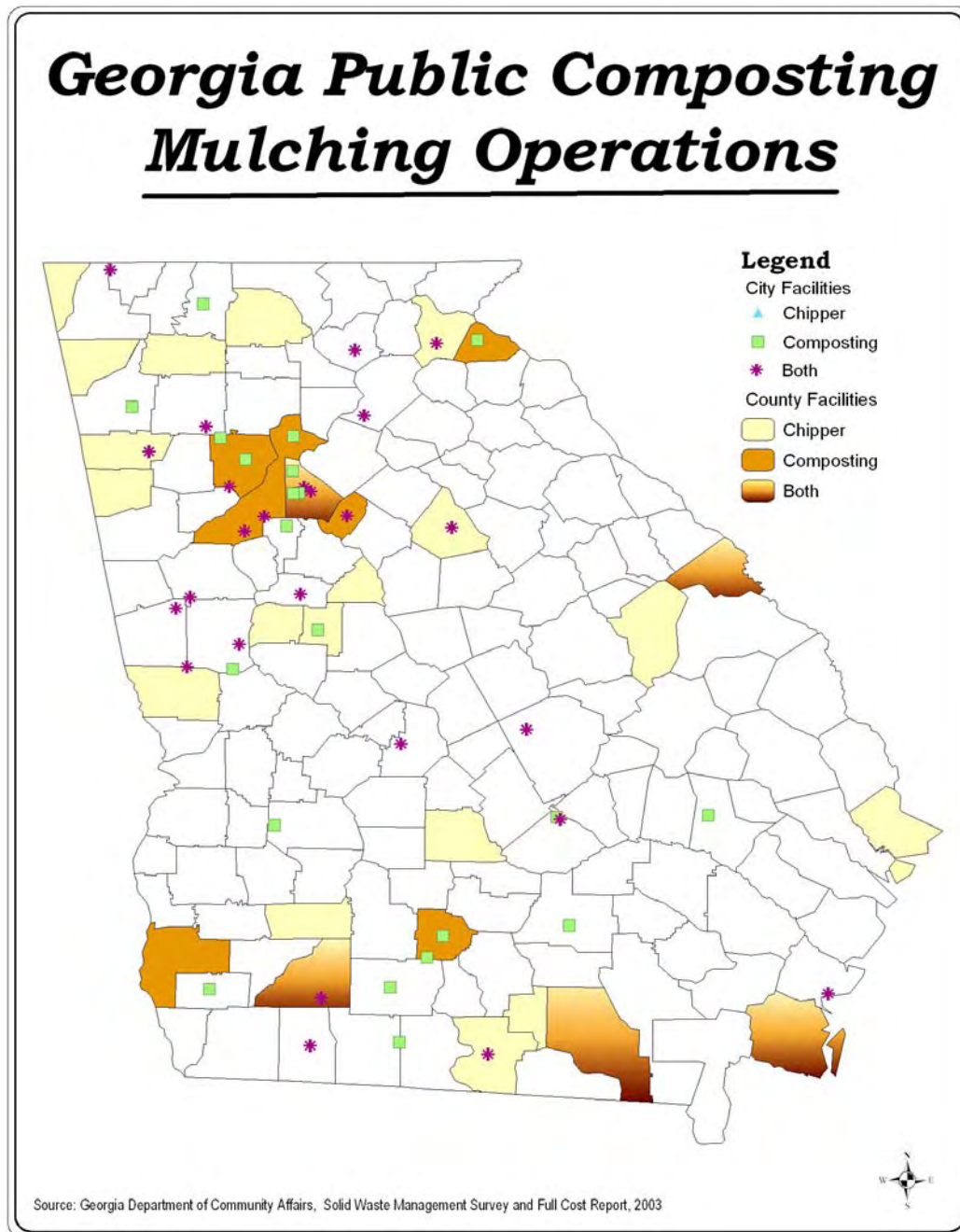


Figure 3-1: Georgia Public Composting and Mulching Operations<sup>6</sup>

<sup>6</sup> *ibid*



## 3.1.2 State Programs and Resources

State agencies provide a wide variety of sources of information, as well as technical assistance, to assist residents, local governments, businesses, agriculture, and other institutions and organizations in their waste reduction efforts.

### 3.1.2.1 P<sup>2</sup>AD Solid Waste Reduction Related Program Descriptions

The Pollution Prevention Assistance Division (P<sup>2</sup>AD) of the Department of Natural Resources provides waste reduction assistance through its P<sup>2</sup>AD Partnership Program and through the provision of technical assistance primarily to businesses and institutions.

#### P<sup>2</sup>AD Partnership Program

P<sup>2</sup>AD has established the P<sup>2</sup>AD Partnership Program to foster environmental leadership and recognize superior environmental performance. The P<sup>2</sup>AD Partnership Program is a provided service of P<sup>2</sup>AD and open to any business or organization in Georgia. The Program encourages businesses to systematically identify opportunities to reduce waste, conserve natural resources and continually improve their operations. The Program recognizes that each business is different and allows flexibility in how they improve their environmental performance. The Program provides assistance to those facilities that are just beginning to implement an environmental program. It also recognizes those facilities that have an environmental management system and have achieved superior environmental performance. In addition to focusing on meeting environmental goals, facilities must also commit to participate in community outreach and volunteer activities in their community.

#### Technical Assistance

P<sup>2</sup>AD assists Georgia manufacturers, institutions, and commercial businesses with finding ways to reduce, reuse, and recycle solid waste. The technical assistance staff of P<sup>2</sup>AD and its Partners provide assistance using a variety of approaches including:

- On-site assessments,
- Team facilitation,
- Telephone assistance, and
- Workshops.

Priority assistance is given to members of the P<sup>2</sup>AD Partnership Program. For the purposes of this planning document, all of the programs described below are considered technical assistance programs.

#### *Resource Recovery*

P<sup>2</sup>AD assists businesses in finding reuse and recycling options for their waste streams. In FY04 alone, P<sup>2</sup>AD responded to 400 requests from manufacturers, commercial businesses and institutions. This assistance not only diverts materials from landfills, but it also saves companies money. For example, P<sup>2</sup>AD helped two Georgia businesses divert scrap plastic from their facilities, resulting in 5, 375 tons of plastic

diverted from the landfill and an avoided disposal cost of \$160,000 per year. In addition, one of the companies generates estimated revenue of \$165,000 per year from the sale of the material. P<sup>2</sup>AD also assisted a produce packing company in diverting 1080 tons of waxed coated cardboard a year to Enviro-Log, described in Appendix A of the Plan.

P<sup>2</sup>AD worked closely with Georgia Tech's Economic Development Institute (EDI) to develop ScrapMatchGA, also described earlier in this section. This program helps companies that are located near each other in their efforts to recover and reuse some of the waste materials they generate. While there are scores of "waste/materials exchanges" on the Internet, they are primarily useful to large companies that either want to sell or buy extremely large quantities of materials. Since transportation cost is usually the largest barrier to materials recycling/reuse, ScrapMatchGA has been specifically designed to assist companies operating within the same geographic regions. The goals of ScrapMatchGA are to increase the competitive advantage of Georgia businesses, protect our environment by reducing waste going to landfills, and enhance sustainable use of our natural resources.

### *Sustainable Construction*

The demands of the state's growing population include not only more housing and amenities but also new and improved infrastructure. Such construction generates a significant quantity of debris. To divert construction and demolition debris from landfills, P<sup>2</sup>AD focused on expanding recycling markets for construction and demolition debris, conducting research on the beneficial reuse of C&D, providing training on sustainable construction practices, and assisting contractors in finding recycling markets for their materials.

P<sup>2</sup>AD also supports voluntary initiatives, such as EarthCraft House (see Appendix A) and the U.S. Green Building Council's Leadership in Energy and Environmental Design (LEED™), that provide frameworks for resource-efficient buildings. It is estimated that through the participation in the EarthCraft House program, over 1,150 tons of wood and 459 tons of drywall have been diverted from landfills since July 2001.

### *Health Care*

Because of the potential for waste reduction, EPA attention, and numerous regulatory issues, health care is a priority for P<sup>2</sup>AD. P<sup>2</sup>AD continues to be involved in the American Hospital Association/EPA's Hospitals for a Healthy Environment (H2E) initiative to identify waste reduction options for hospitals. In February 2002, P<sup>2</sup>AD joined the H2E initiative as an H2E Champion. Champions pledge to educate health care facilities about the benefits of waste reduction, conduct workshops, and disseminate technical resources to encourage facilities to participate in the H2E initiative.

P<sup>2</sup>AD will focus its efforts on reducing solid waste and mercury at health care facilities. When requested, staff will provide facilities with onsite assistance in characterizing their waste streams, identifying sources of mercury, and providing recommendation to eliminate or reduce mercury products and solid waste.

### *Higher Education*

P<sup>2</sup>AD staff provides assistance to colleges and universities in Georgia to expand their pollution prevention and recycling programs. P<sup>2</sup>AD will pursue the best approaches to promote the adoption of environmentally preferable procurement practices and environmental management systems. Staff will also participate in a national effort to accelerate the transformation of colleges and universities into models of sustainability.

In 2001, P<sup>2</sup>AD entered into a partnership with the Board of Regents (BOR), to promote pollution prevention within the university system. As part of the partnership, P<sup>2</sup>AD promotes and facilitates the adoption of environmental management systems on college and university campuses. In 2005 and 2006, P<sup>2</sup>AD will assist BOR with implementing an EPA Resource Conservation Grant: Statewide Logistical Model for Collection and Transportation of Construction and Demolition (C&D) Debris for State Agencies.

### *Hospitality*

P<sup>2</sup>AD encourages the industry to reduce its solid waste streams in addition to other wastes. P<sup>2</sup>AD will provide individual assistance to hotels that are interested in taking initial steps to “green” their property or become certified in the Green Seal Program. P<sup>2</sup>AD will encourage properties to enroll as “Yellow Level” partners in the P<sup>2</sup>AD Partnership Program, which is designed to move companies toward becoming environmental leaders.

### *Sustainable Office Tool Kit*

The Sustainable Office Tool Kit contains best available practices and references for office waste reduction, including case studies, fact sheets, Internet sites, and periodicals. Staff continues to create materials for the tool kit. The tool kit will be given to businesses that request information on establishing or expanding waste reduction programs. The toolkit is available in limited paper copies and by Internet download.

### *Electronics “E-Scrap” Recycling*

Staff provided written reports, technical research, and resource support for the Computer Equipment Disposal and Recycling Council that was created by HB2 in 2002. Staff will oversee the logistics research on reverse production systems being conducted by the Georgia Tech School of Industrial Systems and Engineering on electronics recycling. P<sup>2</sup>AD staff speaks to groups on best management practices for end-of-life and unwanted electronic equipment.

### *Georgia Environmental Partnership (GEP)*

GEP combines the resources of P<sup>2</sup>AD, Georgia Tech’s Economic Development Institute and the University of Georgia’s Engineering Outreach Service. The GEP leverages its members’ financial and human resources to drive environmental performance and economic development in the state of Georgia by:

- Assisting businesses and institutions with integrating environmental concerns into their business plans and implementing Environmental Management Systems (EMS),
- Focusing the efforts of organizations to make more efficient use of resources,
- Helping businesses understand the concept of waste as an unnecessary business expense, and
- Encouraging the use of renewable resources.

### *Agricultural Pollution Prevention Program (Ag P<sup>2</sup>)*

The Ag P<sup>2</sup> program educates and provides technical assistance to agricultural and horticultural professionals in best management practices, waste minimization techniques, beneficial reuse, and sustainable production practices. In 2006, the Ag P<sup>2</sup> Program will be unveiling the Agriculture Track of the P<sup>2</sup>AD Partnership Program, a voluntary environmental leadership program for Georgia farmers and producers. The program is designed to recognize and encourage the efforts of farmers and producers to incorporate environmental stewardship and pollution prevention into daily operations and decisions.

### *Department of Defense Sustainable Installations Program*

The Department of Defense (DoD) is one of the largest employers in Georgia and one of the largest generators of waste. Since 1998, P<sup>2</sup>AD has partnered with DoD to focus on solid waste/recycling issues facing installations in Georgia. P<sup>2</sup>AD developed a Solid Waste and Recycling Resource Guide to help bases expand their recycling programs, sponsored green building training, produced outreach materials, and assisted bases in finding markets for their waste streams. In addition, P<sup>2</sup>AD assisted Ft. Gordon project to deconstruct more than 20 WWII warehouses as described in Appendix A.

The partnership also serves as a mechanism for P<sup>2</sup>AD to promote partnerships between bases and local communities to address environmental issues. Partnership meetings provide an opportunity for base personnel to share lessons learned, transfer technology, and receive regulatory updates in order to foster the proper management of solid waste with an emphasis on source reduction.

### *Demonstration Projects -- reuse*

Georgia Power has initiated a demonstration project to use CCPs as fill in large scale construction projects. This project would resolve the ongoing problem of how to utilize ash that has no value. In addition, the market to utilize this ash is very limited due to regulatory constraints. The long-term goal of the project is to determine if rule changes providing for an ash use exemption are acceptable and technically defensible, thereby facilitating future commercial fill applications, and reducing the need for landfills, land consumption, and natural resources. Members of the project team include Georgia Power, Southern Co., EPA, EPD, and DOT

### 3.1.2.2 DCA Waste Reduction Programs

The waste reduction programs of DCA are targeted primarily toward Georgia citizens and their local governments. DCA does this by gathering and sharing information, sponsoring/organizing special events and providing technical assistance, particularly to local governments.

#### Recycling (General)

##### *Georgia Recycling Market Directory*

DCA offers an on-line market directory that enables the user to search by material, company name, county, or other variables to find information about companies and other organizations that accept or purchase specific recyclable materials.

The directory lists more than 50 types of such materials, and identifies hundreds of companies in Georgia and beyond that handle recyclables. A user can enter a material and the directory will list all of the companies that accept that material. Alternatively, a user can enter any county name to obtain information about the recycling companies that have a presence there.

The core information in the directory lists:

- Name of company or organization,
- Materials accepted,
- Type of recycler (collector, processor, broker, end user),
- Address,
- Contact information, and
- Transportation-related information.

Additional information about post-consumer recycling is also available on this website, where individuals can learn about retail stores and other organizations that accept specific materials. In addition, there are links to many other recycling resources. The website may be found at:

<http://www.dca.state.ga.us/development/EnvironmentalManagement/programs/recycling/default.asp>

##### *Special Events Recycling Guide*

DCA has published a how-to resource for waste diversion and minimization at Georgia festivals, conferences, and other gatherings. It is also posted on the web at:

<http://www.dca.state.ga.us/development/EnvironmentalManagement/programs/downloads/SpecEventRecycle.pdf>

The guide provides information about implementing a waste reduction program at special events and guidance on how to carry out a program. Included is information about:

- Costs,

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- Staffing, including training,
- Scheduling,
- Logistics/materials storage and handling,
- Signage, and
- Contracting for hauling and processing of recyclables.

The Guide also provides a thorough checklist of things to do, including a timeline, task list, and reminder notes.

### *America Recycles Day*

America Recycles Day is a nationwide event that is designed to raise awareness of and renew the commitment to recycling and buying products made of recyclable materials. The Georgia Recycling Coalition is the organizer for Georgia related events with DCA serving as a sponsor of America Recycles Day in Georgia. Activities can range from proclamations from elected officials, to participation in the pledge to recycle/buy recycled (and the related contest to win prizes), to special recycling events.

### Composting

DCA also promotes the landfill diversion of yard trimmings by providing information and sponsoring special events.

### *Home Composting Brochure*

DCA publishes a brochure, *Composting at Home in Georgia*, which provides information to help residents do backyard composting. It can be found at the following website:

<http://www.dca.state.ga.us/development/EnvironmentalManagement/programs/downloads/Composting.pdf>

The brochure describes the benefits of composting, and provides detailed step-by-step instructions. Also included are links to other resources on the subject.

### *Christmas Tree Recycling Events*

DCA, through the Keep Georgia Beautiful program, sponsors an annual “Bring One for the Chipper” special event. This is Georgia's annual Christmas tree drop-off recycling program. Each year, Keep Georgia Beautiful works with private sponsors to organize the recycling event. In the past, these statewide sponsors have included The Home Depot, The Davey Tree Expert Company and WXIA-TV. Numerous local sponsors and volunteers also make contributions and provide in-kind services across the state.

The Chipper program involves hundreds of Georgia communities and thousands of volunteers. Since its inception, the program has recycled 4 million Christmas trees. The mulch from these trees has been used for playgrounds, local government beautification projects, and individual yards.

### Electronics Recycling

DCA publishes a brochure, *Tips on Electronics Recycling*, which provides information on how individuals can handle their end-of-life electronic items. It is also posted at the following website:

<http://www.dca.state.ga.us/development/EnvironmentalManagement/programs/downloads/ElectronicRec.pdf>

This document describes several waste minimization ideas that help the individual avoid disposal of electronics as solid waste. It lists the types of electronics that might be handled, and identifies more than a dozen companies and other organizations in Georgia that accept them.

Also posted to a DCA website is a presentation, *End of Life Electronics Recycling*. This presentation provides an introduction to the topic, covering:

- Why end-of-life management of electronics is a problem,
- Government and business reaction, nationally,
- What Georgia is doing, and
- Coming challenges and issues.

The presentation may be viewed at:

[http://www.dca.state.ga.us/development/EnvironmentalManagement/programs/downloads/Electronics\\_files/frame.htm](http://www.dca.state.ga.us/development/EnvironmentalManagement/programs/downloads/Electronics_files/frame.htm)

In addition to furnishing these information resources, DCA conducted a multi-year electronics recycling pilot project. Participating in the pilot project were the counties of Hall, Floyd, and Athens-Clarke.

Hall and Athens-Clarke each hosted single-day collection events in November 2001, to coincide with America Recycles Day. In the Fall of 2000, Floyd County began collecting, on an on-going basis, end-of-life electronics at their existing drop-off center. In April 2002, they concluded their electronics collection effort with a special off-site event held in conjunction with their annual household hazardous waste collection. In all cases, the materials collected were computers, monitors and other peripherals, televisions, and VCRs.

The pilot project consisted of the following components:

- Developing appropriate local governmental hosts for the project,
- Vendor selection and contracting,
- Documentation of project baseline data, including local demographics,
- Event promotion,
- Event results and logistics debriefing,
- Costs, and
- Analysis of problems encountered and recommendations

A detailed report describing the pilot project can be found at the following website:

[http://www.dca.state.ga.us/development/EnvironmentalManagement/programs/downloads/DCA\\_E-Scrap\\_Pilot\\_Report\\_3\\_13\\_03.pdf](http://www.dca.state.ga.us/development/EnvironmentalManagement/programs/downloads/DCA_E-Scrap_Pilot_Report_3_13_03.pdf) Following the pilot, local governments embraced the concept of hosting special electronic recycling events and the number of voluntary collection events has increased steadily.

### Household Hazardous Waste

DCA provides technical assistance to the general public on the proper management of household hazardous waste (HHW). A staff member answers citizens' calls related to HHW, provides technical assistance to local governments, and distributes HHW outreach materials. DCA staff will also continue to update and promote the use of Earth's 911. This is the national hotline and web page described earlier in this section, containing state specific information on recycling and HHW. Users can access information by zip code. DCA has a link from its web page to Earth's 911 to allow its clients to find recycling sites for specific types of HHW, such as motor oil and antifreeze.

### Georgia Green and Healthy School Program

The Georgia Green and Healthy Schools Program is a new collaborative initiative coordinated by Environmental Education in Georgia to assist and support schools in understanding and practicing environmentally sound principals. Started in 2006 and open to all Georgia public and private/independent schools (grades K-12), the program provides environmental assessment tools to conduct school-based investigations, collect data, implement changes and track progress. Schools earn recognition and awards for their actions to reduce waste and pollution, improve air quality, conserve water and energy, enhance wildlife habitat, and integrate environmental education into their curricula.

### Technical Assistance to Local Governments

Working with other state agencies, DCA provides assistance to Georgia's local governments in all areas of waste management. Some examples are:

- Developing RFPs, contracts, ordinances and procedures,
- On-site One-on-One program review & technical assistance
- Full-Cost Accounting and enterprise funds,
- Funding,
- Planning,
- Public education, and
- Recycling.

DCA has also developed and posted on the web resources to assist local governments as they consider the feasibility of implementing a pay-as-you-throw system or are



considering their options regarding the provision of local yard trimmings management services.

- *Pay-As-You-Throw (PAYT) Systems* – This document identifies the various types of systems that are used, highlights the implementation steps that would need to be undertaken, and describes the information needed and factors to be considered in selecting an approach. Examples of Georgia cities using PAYT systems are also included. The PAYT document is found at:

<http://www.dca.state.ga.us/development/EnvironmentalManagement/programs/downloads/pay.pdf>

- *Yard Trimmings Management – Dealing With Yard Trimmings* provides information to help local governments carry out their responsibilities related to yard trimmings. This includes a summary of the restrictions from the Georgia Comprehensive Solid Waste Management Act that local governments must impose on the handling and disposal of yard trimmings. The document describes the handling and disposal alternatives available to local governments, financing options, and communications/public information efforts that are needed. A case study of one Georgia city's experience is also included. *Dealing With Yard Trimmings* can be found at:

<http://www.dca.state.ga.us/development/EnvironmentalManagement/programs/downloads/Yard.pdf>

### Keep Georgia Beautiful

Created by Governor George Busbee in 1978, Keep Georgia Beautiful became the first state affiliate of Keep America Beautiful. Housed in DCA, the unique structure as a public-private partnership has allowed the organization to leverage resources from citizens, corporations, and community organizations. These connections aid its mission to build and sustain community environmental activities (including waste reduction) and behaviors that result in a more beautiful Georgia.

To accomplish this mission, Keep Georgia Beautiful supports a network of 70 local affiliates, more than any other state in the country, covering 80% of Georgia's population. To maintain and promote this network, the organization coordinates special events, helps develop new affiliates, and provides educational and professional training.

Most of KGB's waste reduction activities are aimed at providing information and organizing/encouraging special events through its local affiliates "on the ground" throughout the state. Such activities include:

- *The Great American Clean Up*

In 1999, Keep Georgia Beautiful expanded its annual cleanup campaign, Let's Keep Georgia Peachy Clean and joined Keep America Beautiful in the Great American Cleanup. The program has grown each year and in 2004, more than 40,000 Georgians came together to improve their communities by picking up

litter, holding recycling drives, planting trees, shrubs, and flowers and painting over graffiti.

- *Bring One for the Chipper and America Recycles Day*

Both events were previously described in this section.

- *Rivers Alive*

Rivers Alive is Georgia's annual volunteer waterway cleanup event that targets all waterways in the State including streams, rivers, lakes, beaches, and wetlands. The mission of Rivers Alive is to create awareness of and involvement in the preservation of Georgia's water resources. Rivers Alive is held annually each October and is sponsored by the Georgia Department of Natural Resources Environmental Protection Division's Georgia Adopt-A-Stream Program and the Georgia Department of Community Affairs' Keep Georgia Beautiful program, in cooperation with the Help the Hooch (River) organization.

Keep Georgia Beautiful also conducts an annual awards program which gives recognition and encouragement to Georgians' outstanding efforts in such areas as waste minimization and environmental improvement.

The extensive educational and public information programs of Keep Georgia Beautiful and its affiliates will be described in greater detail in Section 7 of this Plan— Education and Public Involvement.

### 3.1.2.3 Georgia Environmental Facilities Authority Waste Reduction Grant Program

The Recycling and Waste Reduction grant program is an initiative that assists Georgia local governments with their efforts to reduce solid waste through recycling and waste reduction activities. The Georgia Environmental Facilities Authority (GEFA) administers the Recycling and Waste Reduction grant program with funds from the Solid Waste Trust Fund, if such funds are appropriated. Between 1996 and 2005, GEFA has awarded more than \$10.8 million in recycling and waste reduction grants to 248 recipients.

## 3.2 Needs and Goals

This section contains a statement of needs and goals based on the assessment of the adequacy of current programs, their ability to contribute to the State's waste disposal reduction effort, and to mitigate any potential environmental risk.

***Goal:** Assist local governments, businesses and institutions, and the general public to reduce, on a state-wide per capita basis, the amount of solid waste, including municipal solid waste, being received at disposal facilities.*

***Needs:***

- *Set appropriate quantitative goals for waste reduction and recycling.* In 2005, the General Assembly eliminated the numeric 25% waste reduction goal that was

established by the original Georgia Comprehensive Solid Waste Management Act of 1990. However, the General Assembly retained a provision stating “...that every effort be undertaken to reduce on a state-wide per capita basis the amount of municipal solid waste being received at disposal facilities.” In addition, the General Assembly retained the 1990 Act’s provision (O.C.G.A. 12-8-21) concerning the reduction of all solid waste:

“(b) It is further declared to be the policy of the State of Georgia to educate and encourage generators and handlers of solid waste to reduce and minimize to the greatest extent possible the amount of solid waste which requires collection, treatment, or disposal through source reduction, reuse, composting, recycling, and other methods and to promote markets for and engage in the purchase of goods made from recovered materials and goods which are recyclable.”

These circumstances provide an opportunity to re-think how waste reduction is measured and goals are set. Because the conditions in the secondary materials markets have a significant effect on recycling programs, those market conditions should receive consideration in the waste reduction goal-setting process.

- *Reverse decline in number of local governments providing recycling services.* The downward trend in the number of local governments arranging for or providing recycling services needs to be reversed, if waste reduction efforts are to contribute to meeting the recycling industry’s (located in Georgia) demand for more recyclables.
- *Increase source reduction efforts throughout the state.* Activities directed at reducing the generation of waste are one of the most direct ways of decreasing the per capita disposal rate.
- *Capitalize on growing markets for recycled materials.* As markets for recyclable commodities grow, demand for “raw materials” (i.e., recyclables) increases. That should provide opportunities to encourage the establishment/expansion of local governments’ recycling programs as well as the waste reduction efforts of business and industry.
- *Better integrate regulatory and non-regulatory approaches to source reduction, reuse and recycling.* There is a potential for increasing levels of waste reduction if such integration occurred, particularly if solid waste (and other related areas) rules were reviewed to encourage the types of innovation that could lead to increased waste reduction.
- *Expand environmental management systems (EMS) - based approaches to technical assistance.* EMS offers the potential to achieve greater levels of environmental benefit in addition to addressing reductions in the solid waste area.
- *Recruit, train, retain, and fund qualified solid waste management professionals.* As the challenges to effectively managing solid waste grow, there needs to be a concerted effort to ensure that the best people are on the job to provide informed, experienced guidance and assistance to all the stakeholders involved.

- *Measure performance.* An important factor in achieving greater levels of waste reduction is the ability to accurately measure the results of efforts undertaken. More quantifiable data is needed about the amounts and types of materials that are recycled or otherwise diverted from landfills.

### 3.3 Implementation Strategies

#### 3.3.1 State Initiatives

- *Work with stakeholders to establish waste reduction and recycling goals based on Georgia's secondary materials markets.* The MOU team, with input from local governments, the recycling industry, related non-governmental organizations and the public, should articulate specific statewide waste reduction goals for high priority solid waste streams, including but not limited to MSW (including C&D waste).
- *Measure waste reduction progress with 5-year waste characterization follow-up study.* The recently completed Waste Characterization Study has established a baseline of information concerning the types and quantities of materials that are going into Georgia landfills and the economic value of these materials. A five-year update will provide valuable information about the impact of waste reduction efforts and areas to focus to continue to divert materials with economic value.
- *Explore the issue of measuring and reporting the amount of solid waste recovered from the waste stream.* The MOU team, in collaboration with concerned stakeholders, including but not limited to local governments, businesses and industry, the Georgia Recycling Coalition, the recycling industry and end-users in Georgia, etc., should research, discuss, and develop a consensus on how such measurement and reporting could be accomplished.
- *Evaluate investments in regional recycling infrastructure.* The markets for recyclables in the State of Georgia are strong. However, the cost to access some of these markets has been a deterrent to recycling for some smaller or more rural communities. The State will evaluate approaches to provide resources for collection and processing infrastructure that would allow local governments to better access markets.
- *Research effective recycling programs.* Analyze existing recycling programs elsewhere in the state, region, country, or even globally to see what is working and how Georgia could incorporate successful ideas.
- *Research effective solid waste management policies.* Examine nationally emerging waste reduction policies such as Beyond RCRA: Waste and Materials in the Year 2020, the Resource Recovery Challenge, the Beyond Waste plan in Washington State, and others.
- *Encourage new technologies that will expand waste reduction in the State.* The State will continue to monitor and evaluate new technologies that expand

opportunities for waste reduction and, as needed, take steps to attract industries that would contribute to waste reduction efforts, to the State.

- *Encourage conversion of waste tires to beneficial reuse.* Support efforts that demonstrate the cost effective reuse, processing, recycling, and/or energy recovery from waste tires.
- *Support the Keep Georgia Beautiful program.* This organization leverages resources to encourage and recognize waste reduction efforts throughout the state.
- *Encourage participation in the “Green and Healthy School” Program.* This new collaborative initiative to assist and support schools in understanding and practicing environmentally sound principles can contribute to waste reductions levels, as well as provide educational benefits.
- *Expand the Georgia Recycling Market Directory.* Work to increase the listings in and usage of this directory that provides very direct assistance to those who are engaged in waste reduction activities.
- *Expand Earths 911 [www.earth911.org](http://www.earth911.org) or 1-800cleanup.* Work to increase the listings and use of this Web site and English and Spanish phone directory that provides very extensive assistance to those who are engaged in waste reduction activities.
- *Expand the P<sup>2</sup>AD Partnership Program.* Work to increase participation by businesses and institutions in these programs that provide technical assistance and incentives for EMS-based approaches to waste reduction (see section 3.1.2.1 for program description).

### 3.3.2 State Assistance to Local Governments

- *Pursue the establishment of a stable funding source.* Identify potential stable funding resources that could be used to support grants, personnel, and technical assistance efforts.
- *Offer grants to local governments for public education on source reduction, reuse and recycling.* Place a priority on the dissemination of waste reduction information, and increase citizens’ overall level of awareness of the issue.
- *Create and disseminate examples of successful source reduction and reuse programs.* Document projects and activities for local governments to learn from others’ experiences.
- *Provide model procurement documents, including Request-for-Proposals (RFPs) and contracts for single-stream recycling collection and processing.* These resources can assist local governments as they consider recycling system changes that could lead to increased waste reduction.
- *Offer sample policy documents for buy-recycled promotion and purchasing.* This encourages the expansion of efforts to “close the loop”.
- *Provide start-up grants for regional collection or recycling/transfer points.* Regional approaches are aimed at improving the cost effectiveness of programs.

- *Focus start-up grant funding to support new or expanded recycling infrastructure, equipment, and/or contract labor.* This helps local governments overcome some of the obstacles they face in operating or expanding local programs.
- *Offer start-up grants for C&D recycling and composting/mulching.* This expands the reach of waste reduction efforts into areas that present great waste reduction potential.
- *Provide technical assistance to support the expanded beneficial use of secondary materials, C&D, etc.* Such assistance would contribute to the expansion of markets and encourage the growth of recovery efforts.
- *Provide education, incentive funds, and state recognition to local government recycling programs.* These methods are intended to address the downward trend in the number of local recycling programs statewide. Recognition programs and incentive funds (for example, a specific amount of money per ton that could be paid for materials recycled) encourage local governments to pursue waste reduction.
- *Offer technical assistance to support diversion and recycling of special wastes, including household hazardous waste and electronic waste.* This would help local governments to address these specialized areas of waste reduction.
- *Promote and encourage the adoption of Pay-As-You-Throw systems.* Provide start-up grants for education and containers to encourage the implementation of these systems, which can provide incentives to residents to reduce their waste.

### 3.3.3 State Assistance to Business and Industry

- *Increase commercial and institutional waste reduction assistance, including technical assistance to support priority and toxic chemical reduction.* Provide education, information dissemination, and technical assistance to assist businesses and institutions in their waste reduction efforts.
- *Use cost benefit analysis, full cost accounting and other economic tools to make the business case for source reduction, reuse, and recycling.* Such analytical tools should be used to more clearly show the quantifiable costs and benefits of waste reduction efforts.
- *Promote sustainable construction practices.* This provides an efficient and environmentally beneficial approach that can contribute to waste reduction in the construction and demolition waste area.
- *Facilitate partnerships with industry and business trade associations.* The associations can become an effective way to reach businesses to effectively extend waste reduction efforts.
- *Create and disseminate examples of successful source reduction and reuse programs and work to ensure permitting regulations support successful reuse activities..* Work with businesses to document the results of successful reuse pilot projects and work with local, state, and federal regulatory agencies to ensure

successful demonstration projects can be permitted and implemented statewide. Document projects and activities for local governments to learn from others' experiences.

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## Section 4

# COLLECTION ELEMENT

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## 4.1 Inventory and Assessment of Collection Programs

The Collection Element Section provides a description of the types of solid waste, recyclable, and yard trimming collection programs available in the State. The inventory identifies who collects each type of material or waste stream and how they are collected. Illegal dumping and littering are also described in this Section, including an inventory of chronic problem areas and a description of the prevention and enforcement strategy. A contingency strategy is also included, identifying how waste will be collected in the event the primary strategy is interrupted.

The collection of residential MSW, recyclables, and yard trimmings in Georgia is accomplished primarily by either 1) the periodic collection of materials at the curbside (or sometimes backyard pickup), or 2) as-needed use by residential or commercial generators at drop-off facilities, sometimes called convenience centers. Commercial waste generated from businesses, as well as residential waste generated from apartment complexes is usually collected through the use of dumpster box/front loader service. In addition, some MSW may be self-hauled, by residents or by businesses, directly to disposal facilities. In those situations where the local government incurs some or all of the costs of providing solid waste service, a wide variety of funding mechanisms are used.

### 4.1.1 Description of Service Options

#### 4.1.1.1 Curbside Collection

With curbside collection, MSW, recyclables, and/or yard trimmings are placed at the curbside for collection on a regular schedule. Often, all materials are collected on the same day; sometimes recyclables or yard trimmings might be collected on different schedule. In addition, bulky items that might be generated (for example, old furniture or appliances) might be collected from the curbside. The frequency of such collections vary widely – with general MSW and separated materials typically picked up on a routine, weekly collection basis however to minimize costs many communities will pick up separated materials on a regular schedule less frequent than weekly. In fact some communities actually schedule the collection of some materials like bulky items

The collection of recyclables might be provided through the source separated, dual-stream or single-stream methods. Source separated recycling is when all the various types of recyclable materials are kept separate by the citizens or separated by a hauler

at the point of generation and kept separate during collection and processing. Dual stream recycling is based on the separation of two major categories of recyclables: fiber (paper, cardboard, etc.) and containers (aluminum, steel, plastic and glass cans, bottles, etc.). The two categories of materials are separated by the generator, then kept separate during the collection and subsequent processing phases of recycling. In contrast, single-stream recycling allows the generator to mix all of the recyclables together (but still separate from the MSW). It is collected co-mingled, and all separation processing occurs at a material recovery facility to which the recyclables are taken.

### **4.1.1.2 Drop-off Collection**

Drop-off service provides residential and commercial generators with designated sites in their area to which they can bring materials. Such facilities might accept MSW, recyclables, or yard trimmings exclusively, or the facilities might accept some or all kinds of materials. The operators of the sites will periodically service them, removing the dropped-off materials and performing any clean up that might be required.

In the past, many drop-off sites in Georgia were along the side of the road in rural areas and were unstaffed and unfenced. These sites were referred to as “green boxes” reflecting the most common color used for containers. Increasingly, drop-off sites have been upgraded to include fencing, signage, site maintenance, and often are staffed during operating hours. The staffed sites might also be co-located with some other facility such as a solid waste transfer station, or a local public works facility.

### **4.1.1.3 Dumpster/Front Loader Service**

This type of service uses relatively large, enclosed waste containers that typically are 4, 6, or 8 cubic yards in size. These are usually used by medium-to-large commercial establishments and by apartment complexes, where many households can be jointly served by the larger waste containers. One or more of these boxes are placed on the generator’s property, depending on the rate of waste generation, the size of the container, and the level of service desired. The public or private waste hauler periodically empties the box(es), typically using an automated front-loading type of garbage truck.

### **4.1.1.4 Methods of Service Provision**

The approaches to providing MSW, recycling, and yard trimmings collection service vary throughout the state, depending upon a community’s size and demographic profile. Such approaches include:

- Local Governmental Service – The local government uses its own employees and equipment to directly provide service;
- Contract – Private waste hauling firms are hired by the jurisdiction to provide the service to all its residents under the specifications, terms and conditions of a contract (similarly, one local government might contract with another jurisdiction for the service);

- Franchise – The local jurisdiction enters into one or more franchise agreements with private waste hauling firms, granting each franchisee the exclusive (or sometimes non-exclusive) right to offer specific types of collection services, within specified operating parameters, to residents within a defined territory;
- License/Permit/Local Ordinance – This approach requires any waste hauler operating within the jurisdiction to obtain a license or permit from that local government; the number of haulers aren't limited, and license requirements are usually related to the safe and nuisance-free operation of collections services, although they might also require the provision of recycling or other specific services; the adoption of a local ordinance might have similar provisions;
- No Oversight – This approach, sometimes referred to as an open market or subscription service, allows residents to select the waste hauler of their choice; the local government is not involved with the provision of services; and
- Self-Haul – Sometimes residents choose to haul their MSW directly to a transfer/disposal facility; bulky goods are often hauled this way.

One of the reasons that local governments consider one of the first few options (local government service, contracts, and franchise) is to reduce the number of vehicles on their roads. Solid waste collection vehicles impact roads, traffic, and air quality. Collecting the same amount of waste with fewer trucks reduces these impacts.

#### **4.1.1.5 Local Government Funding Mechanisms**

In some communities, residents subscribe for service with a private hauler and pay that hauler directly. However, in many communities, local governments incur some or all of the cost of solid waste collection services for their residents. In the past, the costs incurred by local government were often paid for with general revenues. However, increasingly, local governments are developing approaches to recover the costs of solid waste collection and other solid waste services, either from all citizens or from particular users of services.

### **4.1.2 How Local Governments Collect Waste and Recyclables**

The information provided by the local governments surveyed for the “2003 Solid Waste Management Survey and Full Cost Report” provides a snapshot of how local governments collect MSW, recyclables, yard trimming, and bulky items throughout the state. A large majority (88 percent) of the responding local governments reported that they provide or arrange for the collection of residential solid waste. In addition, 60 percent of the local governments responding report that they provide or arrange for solid waste collection services for businesses and other non-residential customers.

#### **4.1.2.1 MSW Collection**

In Table 4-1, the changing role of local governments as solid waste collection service providers is highlighted.

**Table 4-1  
Residential Waste and Recyclables Collection, FY 2001-2003**

	2001	2002	2003
No. of local governments responding to Solid Waste Management Survey	662	665	642
<b>Solid Waste Service Providers</b>			
Local governments providing/arranging for residential waste collection	540	543	565
Provided by public sector	359	367	362
Provided by private sector	352	393	379
<b>Types of Residential Programs</b>			
Curbside/backdoor			
▪ City	412	415	400
▪ County	71	78	62
Staffed Drop-off			
▪ City	30	31	37
▪ County	78	79	87
Unstaffed Drop-off			
▪ City	35	50	43
▪ County	24	24	29
Dumpsters (Green box)			
▪ City	42	30	22
▪ County	37	37	20

Many local governments have opted to “arrange for” rather than “provide” solid waste collection services. Over the past decade, the role of the private sector in solid waste collection has increased. In Fiscal Year (FY) 1992, 190 communities reported that they relied upon the private sector to collect solid waste in their community. In 2003, 379 local governments reported that they relied upon the private sector for solid waste collection services.

As indicated in Table 4-1, the types of residential solid waste collection service range from “green box” or dumpster drop-off service to curbside or backdoor pick-up. One trend the Department of Community Affairs has been tracking for several years is the use of “green boxes”. They are often placed in unsupervised areas, usually in rural communities, for trash collection and frequently become dumping grounds for everything from household trash to disabled vehicles, tires, and animal carcasses.

<sup>1</sup> Data derived from Solid Waste Annual Report – 2004, DCA

They can become an eyesore in a community and attract waste from neighboring jurisdictions. The number of local governments using green boxes for residential waste collection has dwindled in recent years. In 1994, 74 cities and 99 counties reported using them for residential waste collection. In FY 2003, just 22 cities and 20 counties reported using green boxes.

**4.1.2.2 Yard Trimmings Collection**

As of September 1996, local governments are required to collect yard trimmings separate from MSW OCGA 12-8-40.2. As shown below in Table 4-2, the total number of local governments reporting that they provide for the collection and disposal of yard trimmings has not changed substantially in the last three reported years. The number of cities providing such services rose approximately 14% in FY2000, and has declined slightly since then. The number of counties reporting the provision of yard trimmings services declined to 76 in FY1999, but has increased to 93 in FY2003.

**Table 4-2  
Yard Trimmings Management, FY1998-2003<sup>2</sup>**

Year	Promote Home Composting and Beneficial Reuse		Provide for Collection and Disposal		
	City	County	City	County	Total
1998	56	40	307	86	393
1999	89	39	303	76	379
2000	75	37	353	77	430
2001	61	38	362	87	449
2002	61	38	362	87	449
2003	55	41	355	93	448

Table 4-3 displays how local governments are collecting yard trimmings, ranging from acceptance of yard trimmings at solid waste management facilities like a solid waste transfer station to curbside collection programs. During the six years reported, there do not appear to be substantial changes in the way local governments are collecting these materials, although there was a minor reduction (4-5%) in the number of cities providing curbside collection.

<sup>2</sup> Data derived from Solid Waste Annual Reports – 2001 and 2004

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**Table 4-3  
Yard Trimmings Collection Options  
FY1998 - 2003**

Year	Staffed Drop-off Facilities		Unstaffed Drop-off Facilities		Curbside Collection		Accepted at Landfills or Transfer Stations		Other	
	City	County	City	County	City	County	City	County	City	County
1998	18	40	14	10	290	16	41	49	10	10
1999	18	34	12	6	295	14	41	46	4	11
2000	18	29	11	4	276	14	31	43	7	10
2001	17	33	12	3	287	14	32	51	8	10
2002	17	38	12	6	276	15	31	53	7	14
2003	17	41	10	6	276	16	35	50	13	10

Table 4-4 describes who is providing yard trimmings collection services in the state. Most local governments report that they directly provided the collection services, with just a few indicating they contracted with a private vendor to collect yard trimmings. In many areas, especially urban and suburban communities, the visible result of the yard trimmings ban has been the presence of large paper bags of leaves and grass at curbsides. Collection of yard trimmings in paper bags enables them to be ground into a mulch or feedstock for composting.

**Table 4-4  
Yard Trimmings Service Providers  
FY2001 - 2003<sup>3</sup>**

Service Provider	2001		2002		2003	
	City	County	City	County	City	County
Not available	144	69	147	61	133	61
Your government	255	53	252	97	253	67
Another government	18	14	16	18	18	16
Solid Waste Authority	7	9	8	9	11	7
Private vendor via individual subscription	9	13	8	15	7	20
Private vendor via government contract	30	8	27	10	30	10

<sup>3</sup> Data derived from Solid Waste Annual Report -2004

### 4.1.2.3 Collection of Recyclables

#### Recyclables Collection

During FY 2003, 444 local governments reported they provided or arranged for residential recycling services in their communities. As can be seen in Figure 4-1<sup>4</sup>, there is a strong tradition of public, private, and non-profit partnerships in providing recycling services throughout Georgia.

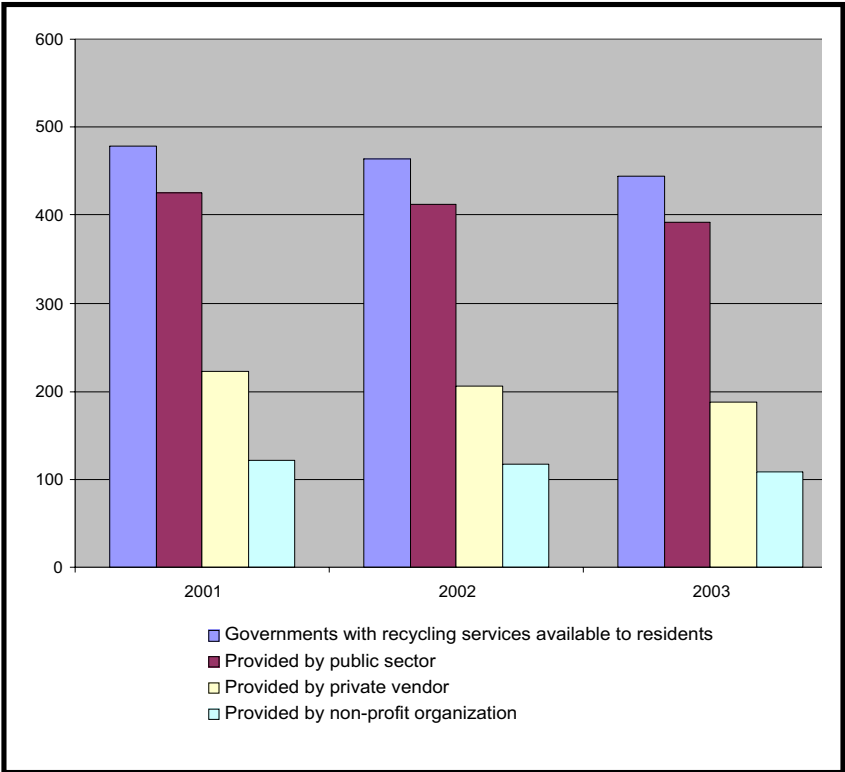


Figure 4-1: Residential Recycling Service Providers

<sup>4</sup> *ibid*

**Table 4-5  
Number of Jurisdictions Collecting Materials for Recycling<sup>5</sup>**

Recycling Service Providers	2001	2002	2003
Local governments making residential recycling services available	478	464	444
Provided by public sector	426	412	392
Provided by private sector	223	206	188
Provided by non-profit organization	122	117	109

As shown in Table 4-5, there has been a steady decline in the number of local governments making residential recycling services available in their jurisdictions. The number of local governments whose residents have access to recycling services has slowly declined during the last three years. Collection programs for paper and beverage containers have fallen most dramatically, with collection programs for newspaper falling from 465 reported in FY 1999 to 365 in FY 2003. Some of the decrease may be attributed to a lower survey response rate (23 fewer local governments responding than in FY 2002.) On a more positive note, more jurisdictions reported collecting problem wastes such as Household Hazardous Waste and electronics.

Tables 4-6 and 4-7 shows the materials that local governments report are available for their residents and businesses to recycle.

**Table 4-6  
Number of Jurisdictions Collecting Residential Materials  
for Recycling by Type**

Automobile Components	1999	2000	2001	2002	2003
Tires	157	144	141	137	136
Auto Batteries	101	90	88	93	91
Antifreeze	19	12	15	22	24
Motor Oil	117	107	109	101	93
Oil Filters	24	21	22	17	23
<b>Metals</b>					
Aluminum	408	381	375	362	334
Steel Cans	193	189	173	165	157
Scrap Metal	239	215	223	212	214
Aerosol Cans	52	45	38	41	40

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<sup>5</sup> *ibid*



<b>Paper</b>	<b>1999</b>	<b>2000</b>	<b>2001</b>	<b>2002</b>	<b>2003</b>
Newspaper	465	428	406	380	365
Magazines	331	316	315	298	280
Corrugated Cardboard	364	324	332	314	287
Phone Books	270	238	250	241	234
Paper Board	148	132	126	129	132
Other Paper	267	237	238	234	206
<b>Miscellaneous</b>					
#1 Plastic	327*	280	276	268	256
#2 Plastic	n/a	259	259	244	255
Other Plastic	115	77	85	85	76
Glass	333	289	293	266	251
White Goods	280	258	263	250	239
Christmas Trees	278	266	262	245	244
C&D Materials	62	68	66	60	65
Agricultural Chemical Containers	29	26	23	22	23
Electronics	n/a	20	20	27	40
<b>Household Hazardous Waste</b>					
Paint	26	19	19	21	24
Cleaning Products	14	5	6	8	10
Pesticides	9	4	4	3	7
Other	8	11	12	25	21

n/a: Question not asked on that year's survey

\*Prior to the 2000 survey, DCA did not separate #1 and #2 plastics in its survey.

**Table 4-7**  
**Number of Jurisdictions Collecting Commercial Materials**  
**for Recycling by Type**

<b>Automobile Components</b>	<b>1999</b>	<b>2000</b>	<b>2001</b>	<b>2002</b>	<b>2003</b>
Tires	117	110	98	89	88
Auto Batteries	81	72	74	70	71
Motor Oil	83	71	82	71	75
<b>Metals</b>					
Aluminum	303	257	249	249	238
Scrap Metal	188	178	175	170	168

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<b>Paper</b>	<b>1999</b>	<b>2000</b>	<b>2001</b>	<b>2002</b>	<b>2003</b>
Newspaper	345	280	270	258	257
Magazines	268	212	218	202	198
Corrugated Cardboard	328	263	268	257	253
White Paper	237	192	184	190	177
Green Bar Computer Paper	209	166	161	159	161
Phone Books	214	172	181	176	168
Other Paper	195	149	154	153	148
<b>Miscellaneous</b>					
Plastic	246	367	353	353	326
Glass	241	191	193	176	177
Other Wood Waste	58	40	41	37	37
Pallets	71	61	61	52	50
Restaurant Grease	25	23	23	19	25

Since 1992, newspaper has been reported as the residential recyclable material most widely collected for recycling in Georgia, followed by aluminum cans. During FY 2003, the most popular commodities recycled from residences were newspaper (365 jurisdictions reporting collection); aluminum (334); corrugated cardboard (287); magazines (280); and #1 plastic (256).

For a complete listing of the types of materials recycled in each community, please consult DCA's Web site, [www.dca.state.ga.us/environmental/swar.html](http://www.dca.state.ga.us/environmental/swar.html) and view the 'Access to Recycling FY 2004' table.

### 4.1.2.4 Transfer Stations

With fewer but larger landfills in the state, MSW is being transported further distances before disposal. As a result, the proportion of waste passing through transfer stations before being disposed is increasing. Transfer stations are especially effective when collection routes are farther than 50 miles from a landfill. Combining several conventional rear-loader garbage truck loads into a single tractor-trailer for the trip to the landfill saves fuel costs, vehicle wear and tear, and means fewer trucks can service more customers. Only 20 cities reported that they or their contractors used transfer stations for the collection or disposal of residential waste in FY 1995. By FY 2003, 146 cities or their contractors were using transfer stations to manage residential waste. The City of Atlanta began transferring its waste when the nearby landfill it had been using closed at the end of 2004.

Figure 4-2 is a map showing the active, permitted transfer stations in Georgia, as of January 2004.



Figure 4-2: Active Permitted Georgia Transfer Stations, January 2004

### 4.1.3 Illegal Disposal

Illegal dumping and littering is included in the collection section because it suggests, in part, failure of the collection system. Local governments in Georgia take a variety of approaches to this problem, including enforcement, education, cleanup activities, and preventive service delivery actions.

*Enforcement* – Local governments enact additional local legislation to supplement existing state laws relating to littering and dumping. In addition, some local governments might establish hotlines for citizens to easily report illegal dumping. The local enforcement agencies are the “front line” in apprehending violators of littering/dumping laws. Furthermore, some counties might establish “environmental courts,” where littering/dumping cases are heard on dockets that are dedicated exclusively to similar environmental issues.

*Education* – Some local governments conduct anti-litter/dumping campaigns, many of them through their Keep Georgia Beautiful affiliates, and events to raise residents’ awareness of this problem and to encourage the reporting of illegal behavior.

*Clean Up Activities* – Many times, local governments are also on the front lines of the clean up effort related to this problem. They engage in routine litter clean up and perform illegal dumpsite monitoring and clean up activities.

*Preventive Service Delivery* – The level and frequency of various solid waste management services provided locally can have an impact on the illegal dumping problem. This can include:

- Making Regular Trash Collection Services Available - The provision of routine periodic waste collection service reduces the frequency of illegal dumping that can occur when residents must self-haul their trash;
- Special Collections - Similarly, some illegal dumping can be prevented by providing collection services (or even convenient drop-off sites) for such hard-to-handle items as bulky goods/appliances and scrap tires; and
- Beautification Efforts – Working with local residents and citizen groups to beautify (for example, landscaping) an area can help avoid future problems, since dumping seems to occur more frequently in neglected-looking spaces.

The specific anti-litter/dumping plans, strategies, and activities that occur at the local level are more fully described in the local solid waste management plans, as are the chronic problem areas. However, some local programs are summarized here to illustrate some of the types of efforts that are employed locally:

- Local Keep America Beautiful Affiliates – There are 70 such affiliates in Georgia, serving approximately 80% of the state’s population. Each affiliate has their own program(s) dealing with litter; many sponsor cleanups and most have an education awareness component. The local affiliates plan their programs based on strategies that focus on 1) education, 2) technology, 3) ordinances and 4) enforcement to work toward their litter prevention and abatement goals. In doing this, they systematically research facts and then involve citizens, businesses, and government, focusing on their results and giving positive reinforcement.

**CASE STUDIES:**

- Keep Albany-Daugherty Beautiful -- This local KAB affiliate co-sponsored a government tour of blighted areas and illegal dump sites in their community. Attendees included code enforcement officers, the city attorney, the city public works superintendent, planning and development personnel, a NBC news crew, and two new municipal court judges. As a result of the tour, citizens are more aware of Albany's illegal dump issues and the judges have given harsher punishment and penalties to citizens who abuse the environment. Other activities included distributing 36 Litter Free School Zone packets to area schools and printing 29,000 Clean Business Tabloids in partnership with The Albany Herald. The 12-page tab, which was an insert in the Herald, addressed littering, water, recycling, beautification and other environmental business issues. Additionally, a series of television public service announcements has been developed and broadcast, targeting illegal placing of signs and littering.
  - Hall County – Hall County's Litter-B-Gone program is a cooperative effort among Keep Hall Beautiful and Hall County's courts and residents. The intent is to clean litter from city, county and most state roads monthly, using probationers sentenced by the Hall County Magistrate judge who handles all environmental offenses. Their work is not supervised, but it is inspected. Good cleanups result in reduced sentences, and Keep Hall Beautiful will manage the efforts of probationers and inspectors, reducing the costs of the program.
  - North Georgia Metropolitan Water District – This agency requires local governments to adopt and enforce a litter ordinance to protect stormwater.
  - West Atlanta Community Cleanup Project – This effort brings together community and state resources to address chronic litter problems in an urban environment.
- 
- Local Code Enforcement – Approximately 215 local governments reported to DCA that they had a local environmental code officer. A summary of their efforts is shown in Table 4-8 below. Many of these programs were funding through grants administered by EPD with funding from the Solid Waste Trust Fund. When SWTF dollars were not appropriated to EPD for two fiscal years, the grant program was discontinued in June 2004. EPD continues to provide technical support to the local programs that have continued their programs without SWTF support and provides training to local governments interested in setting up new programs.

**Table 4-8  
Summary of Local Code Enforcement Activity, 2001-2004<sup>6</sup>**

Year	No. of Code Enforcement Grants issued by EPD	No. of Scrap Tire and Open Dump Investigations	No. of Scrap Tire and Other Solid Waste Citations	No. of Scrap Tire and Other Open Dumps Cleaned
2001	40	4,283	1,142	2,942
2002	53	5,471	2,095	3,884
2003	56	5,312	1,657	5,915
2004	52	5,717	1,183	5,106
2001-04	n/a	20,783	6,077	17,847

#### 4.1.3.1 Open Burning and Burn Barrels

Throughout some parts of Georgia, some MSW is still disposed by burning. Despite EPD Air Quality rules (391-3-1.02) which prohibits open burning, residents still burn some of their households waste in “burn barrels” or in a pile in their yard. Backyard burning (BYB) is the uncontrolled combustion of household garbage in barrels, open pits, wood stoves, fireplaces or other similar. BYB causes accidental fires; can release toxic chemicals into the environment; is illegal in many states/counties/tribal lands; direct exposure and indirect exposure risks associated with BYB include particulate matter, sulfur dioxide, carbon monoxide, PAHs, metals, hexachlorobenzene, dioxin; direct exposure health effects may include eye and lung irritant, asthma trigger, emphysema, other respiratory diseases; indirect exposure health effects may include reproductive and developmental effects, endocrine disruption, immunosuppression, cancer; and, it is the last remaining major SWM source of dioxin. During the summer months of May through September, the EPD bans (with certain exceptions allowed) the open burning of yard and land clearing debris. This is done to improve the air quality in and around various metropolitan areas of the state. In the summer of 2005, this ban was extended into nine additional counties. There are now a total of 54 counties in which this ban applies. One of the effects of this ban is more solid waste for disposal in inert and MSW landfills.

#### 4.1.4 Contingency Strategies

Each local solid waste management plan is to include a description of how it will deal with interruptions to solid waste collection services that are due to factors *other* than major storms/disasters (see Section 4.1.4 below).

Contingency planning relates to the disruption of normal collection and disposal operations resulting from a striking labor force, mechanical break downs, hauler

<sup>6</sup> DCA research for Governor’s Litter Initiative

default (for example, declares bankruptcy/skips town), and other such potential interruptions to service.

Contingency strategies can include such approaches as:

- Contract Provisions – As part of regular service contracts, use contract surety methods (such as parent company guarantees, performance bonds or letters of credit) to provide funds to continue service in case of default
- Emergency Purchasing Procedures – Development and use of emergency procurement procedures, consistent with law, to expedite the acquisition of contingent service providers
- Sample contract documents - Use of model service agreements that also help to speed up the expeditious procurement of contingent services
- Stand-by Contracts - Development of contingency agreement(s) with one or more private firms to provide temporary backup service, if needed
- Intergovernmental agreements – Work cooperatively with other local governments to provide backup service in case of service interruptions

Contingency strategies employed by Georgia local governments are described in their respective local solid waste management plans. Some examples of those approaches are summarized below:

**CASE STUDIES:**

*Hall County* – Hall County’s contingency plans address potential disruptions to both collection and disposal services. Those plans include the identification of backup haulers, employment of emergency purchasing procedures, and the use of sample contracts. For disposal services only, Hall County identified six landfills that serve their region, and described the circumstances and procedures for using the various facilities in case of regular service interruption.

*Murray County* – Murray County’s contingency plans provide that in the event collection operations become interrupted or unavailable, the cities of Chatsworth and Eton will seek other haulers who will be able to provide for the collection of solid waste from their citizens. The cities are aware of available haulers and are prepared to ensure that any interruption in service would be minimized. In the unlikely event of an interruption of collection service, residents would be able to take their solid waste to the Murray County convenience centers.

If the Murray County Landfill were to be closed for some reason, its operator, Santek Environmental would take Murray County's waste to another of Santek's landfills. For example, Santek manages landfills in Rhea County and Bradley County, Tennessee.

*Clinch County* – Clinch County’s contingency plans are based on the identification of private waste firms that could be contracted in case of an interruption to service. In addition, neighboring Atkinson County has agreed to perform collection services on a short-term contingent basis until a new hauler can be contracted.

Contingency plans for disposal services are based on the use of other landfills that are available regionally.

### **4.1.5 Storm/Disaster Debris Management**

The results of Hurricane Katrina in 2005 revealed the importance of detailed planning and preparation for catastrophic natural disasters. This includes in all areas that can potentially be affected by a disaster, including debris management issues. Proper planning and preparation for a catastrophic event necessitate coordination and collaboration with open and clear communications between federal, State and local governments, with businesses, volunteer groups and the general public also needing to be proactively involved.

Each local solid waste management plan must also include a description of how it will deal with interruptions to and/or increased demand upon their solid waste collection services due to major storms/disasters. Such descriptions should include the types of widespread service interruptions that could potentially occur in their area, such as severe weather/natural disasters (hurricanes, tornadoes, flooding, ice storms, etc.) or a major catastrophe such as a major fire, train derailment, etc.

The plans should include consideration of alternative collection service providers, for example, additional private contractors or other governments, and identify the circumstances under which the contingency plans would be activated. Included in these plans should be the methods by which the local authorities will communicate with residents concerning the emergency collections and the resumption of normal operations.

Planning for contingent collection services will also need to consider potential additional transfer/disposal sites (see Section 2 – Waste Disposal Stream Analysis). Such planning should also consider the need for and potential locations of temporary debris staging areas to accommodate the potentially large amounts of materials that would be generated.

### **4.1.6 State Programs**

Although solid waste collection is primarily a function of local government, the State has some programs to assist local governments in assuring that adequate collection services are provided. Most notably, the State issues permits by rule to solid waste collection operations and transfer stations in the State and maintains a database of these operations. It appears that many of the haulers in the State do not notify the State of their existence nor do they inform the State when they cease operations. Thus, the database is not comprehensive. EPD also maintains a listing of the Transfer Stations permitted by rule and a subsequent phone survey and on-site inventory conducted by DCA has resulted in a relatively accurate listing of all the Transfer Stations in the State.



#### 4.1.6.1 Solid Waste Hauler Registration

All solid waste haulers in the state must register with the Georgia EPD, and operate under a permit-by-rule pursuant to Rules of the Georgia Department of Natural Resources, Environmental Protection Division, Chapter 391-3-4-.06 – Solid Waste Management. According to the EPD, there are 849 such registered haulers in the state, as of August 2004. The primary operational requirements of these rules include:

- Vehicle construction and maintenance: vehicles or containers used for the collection and transportation of garbage and similar putrescible wastes, or mixtures containing such wastes, shall be covered, substantially leak-proof, durable, cleaned frequently and shall be maintained in good repair.
- Littering and spillage: vehicles or containers used for the collection and transportation of solid waste shall be loaded and moved in such manner that the contents will not fall, leak or spill therefrom and shall be covered when necessary to prevent blowing of material from the vehicle.
- No regulated quantities of hazardous wastes may be collected and transported except in accordance with the provisions of the Georgia Hazardous Waste Management Act, O.C.G.A. 12-8-60 *et seq.*
- Local ordinances: it is the responsibility of the collector to comply with all local rules, regulations, and ordinances pertaining to operation of solid waste collection systems.
- All wastewater from cleaning of vehicles must be handled in a manner which meets all applicable environmental laws and regulations.
- All collected solid waste must be deposited only in a permitted solid waste handling facility authorized to receive the applicable waste types.
- A complete list of these haulers may be found at the following EPD website: [http://www.gaepd.org/Files\\_XLS/regcomm/lpb/swcollect.xls](http://www.gaepd.org/Files_XLS/regcomm/lpb/swcollect.xls).

#### 4.1.6.2 Tire Hauler Registration

Through amendments to the Georgia Comprehensive Solid Waste Management Act of 1990, the Georgia General Assembly included provisions for the management of scrap tires. The law and subsequent rules, administered by the EPD, provide for:

- *Fee* – Retail dealers must keep accurate records and collect and remit to the state a fee of \$1.00 for each new replacement tire sold in Georgia.
- *Scrap Tire Generator Identification Number (ID#)* - Any person who generates scrap tires must obtain an ID# from the EPD; the ID# is used for manifest tracking, which includes information about the number of scrap tires being transported, and the name and location of the destination end user, processor, or disposer.
- *Scrap Tire Carrier Permit* – Any person (with certain specified exceptions, such as local governments) who transports scrap tires must have such a permit, as issued by the Director of EPD.

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- *Bond or Letter of Credit* – Scrap tire carriers must secure a bond or letter of credit in the amount of \$10,000.

A list of these registered scrap tire haulers can be found on the following EPD website: [http://www.gaepd.org/Files\\_XLS/regcomm/lpb/stcarriers.xls](http://www.gaepd.org/Files_XLS/regcomm/lpb/stcarriers.xls)

### 4.1.6.3 Permit by Rule for Transfer Stations

Transfer stations are also permitted by rule. Another section of the rule that governs the solid waste hauler registration also governs solid waste transfer stations. The provisions of the transfer station rules are as follows:

1. Solid Waste shall be confined to the interior of transfer stations, and not allowed to scatter to the outside. Waste shall not be allowed to accumulate, and floors shall be kept clean and well drained.
2. Sewage solids shall be excluded from transfer stations.
3. Dust, odors and similar conditions resulting from transfer operations shall be controlled at all times.
4. Rodents, insects and other such pests shall be controlled.
5. Any contaminated runoff from washwater shall be discharged to a wastewater treatment system and, before final release, shall be treated in a manner approved by the Division.
6. Hazardous Waste: no person owning or operating a transfer station shall cause, suffer, allow, or permit the handling of regulated quantities of hazardous waste.
7. Liquid wastes restricted from landfill disposal by Rule 391-3-4-.04(9) shall be excluded from transfer stations. Transfer stations in existence on August 1, 2004 and in compliance with all other regulations applicable to permit by rule transfer stations may continue to handle such liquid wastes until a solid waste processing facility permit is issued or August 1, 2006, whichever occurs first.

According to the EPD, there are a total 272 registered transfer stations in Georgia under this permit-by-rule, as of July 2005, however approximately only 94 of them are actually operating. Of the total registered, approximately 70 of the facilities handle MSW exclusively, or MSW as well as other materials such as construction & demolition debris or inert wastes. Approximately 24 of the transfer stations handle non-MSW materials such as biomedical wastes or non-hazardous industrial wastes.

A list of these registered transfer stations can be found on the following EPD website: [http://www.gaepd.org/Files\\_XLS/regcomm/lpb/transtation.xls](http://www.gaepd.org/Files_XLS/regcomm/lpb/transtation.xls)

### 4.1.6.4 Provision of Technical Assistance

DCA, through its Environmental Management program, provides assistance to Georgia's local governments in all areas of solid waste management. Some examples that can directly impact collection operations include:

- *Procurement* - Developing RFPs, contracts, model ordinances and procedures that can assist communities as they consider or implement changes to their collection system; examples include contracting-out or franchising;
- *Accounting/Financial Structure* – Assistance with performing Full-Cost Accounting on solid waste systems; consideration of Enterprise Funds;
- *Funding* – Helping to identify feasible methods of funding solid waste operations, including evaluation of possible shift to a PAYT system or possible grant opportunities; and
- *Planning* – Assist local governments in planning for their future solid waste management needs, including guidance in the preparation of local solid waste management plans as required by the Georgia Comprehensive Solid Waste Management Act; provide guidance on planning for changes to existing programs or implementation of new initiatives, for example consideration of a shift to a single-stream recycling program.

#### **4.1.6.5 Monitor Collection Program Trends**

DCA monitors and reports on trends in collection programs statewide. This is accomplished as part of a periodic survey of Georgia’s local governments to document their solid waste management practices. Included in this effort is such collection operations information as the:

- Degree of local governmental involvement in solid waste management programs and services;
- Levels of government that are involved;
- Types of services provided; and
- Nature and quantity of public-private partnerships in the delivery of solid waste management services.

The repeated collection of multiple years’ of data is allowing for the identification and tracking of trends that might emerge. The resulting data and analysis is reported and disseminated through the Annual Solid Waste Report and other communications.

#### **4.1.6.6 Litter and Illegal Dumping**

At the state level, Georgia approaches the littering and dumping on a number of fronts: the enactment and enforcement of laws, education and public awareness, and clean up activities.

**Laws/Enforcement** - The Georgia General Assembly has enacted laws defining and prohibiting littering and the improper dumping of solid waste. Included are:

- Littering (Litter Control Law) – O.C.G.A. 16-7-40 and 40-6-249
- Dumping (Waste Control Law) – O.C.G.A. 16-7-50
- Littering in Public Transit Facilities – O.C.G.A. 16-12-120
- Properly Securing Vehicle Loads (Georgia Code of Public Transportation) –

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O.C.G.A. 32-6-21 and 40-6-254

In addition, DCA developed a model litter prevention ordinance which it encourages local governments to adopt and enforce.

The Georgia Department of Natural Resources Wildlife Resources Division investigates and prosecutes cases involved in littering and illegal dumping, including illegal disposal of hazardous/medical waste and improper waste disposal in marine environments. A summary of recent cases is shown in Table 4-9 below.

**Table 4-9**  
**DNR Wildlife Resources Division Enforcement Activity**  
**2001-2004**

Year of violation	Number of Cases	Amount of fines Collected
2001	377	\$58,306
2002	376	\$59,222
2003	388	\$68,129
2004	127	\$19,605
2001-04	1,268	\$205,263

***Education and Public Awareness*** – Numerous state and local agencies are devoted to addressing Georgia’s littering and illegal dumping concerns. The Department of Community Affairs’s Keep Georgia Beautiful program, a Keep America Beautiful affiliate, partners with many of them. Keep Georgia Beautiful disseminates public information about litter prevention and illegal dumping and promotes clean up campaigns. Some examples of the programs that Keep Georgia Beautiful and others are involved in include:

- Litter Prevention Awareness Campaign – Pilot Study in Savannah (Georgia Department of Transportation GDOT)

A six-month “Litter. It Costs You.” campaign was conducted in 2002/2003. The campaign included paid print and broadcast advertising, community relations, collateral materials, illegal dumping “stings,” etc. Elements of the pilot program included:

- Addressed the health, safety, and cost impacts of litter.
  - Before and after pilot market research showed that the messages and images reached the pilot audience and raised awareness about the “costs” of litter.
  - Funding was not available to launch the “Litter. It Costs You” campaign statewide.
  - The Department still has collateral materials available for use, and distributes them as part of an on-going anti-litter effort.
- Litter Prevention Video – Garden Club of Georgia

This is a video targeted to grade school students that addresses issues of litter and litter prevention. It was produced with funding through corporate sponsorship. Its distribution to grade schools throughout the state was accomplished with funding support from the Keep Georgia Beautiful Foundation.

- **Parks Partnership Project (DNR/DCA)**

A litter awareness and prevention program targeted visitors to state parks. Car litter bags were provided to parks throughout the state for distribution to park patrons. This effort was also funded with corporate sponsorship.

A complete description of their programs and activities is included in Section 7.

***Clean Up Activities*** – Several statewide programs are operated:

- **Roadside Cleanup Efforts -- Georgia Department of Transportation (GDOT )**

GDOT annually expends over \$14 million a year for roadside cleanup on approximately 18,000 centerline miles of right of way. This does not include the efforts of local governments on local roads and public spaces. The GDOT:

- Uses prison labor to assist with roadside cleanup: 48 prison crews under contract and 18 weekend offender crews in FY 2004
- Manages an Atlanta Sweeping contract: Contractor completes 40 cycles of litter and debris removal from the paved portions of the interstates.
- Includes 6 litter pickups in the interstate mowing contracts (3 pickups are in the winter months.)
- Picks up hazardous items that fall onto state routes.
- Participates in the Great American Cleanup each April by re-assigning crews to concentrate on litter pickup for a week. For FY 2004 over 100,000 bags of litter were collected statewide during this litter sweep.

- **Adopt-A-Highway (GDOT)**

- GDOT sponsors a program whereby concerned citizens or businesses can “adopt” a portion of the roadside, providing routine cleanup of the litter in a defined area.
- During FY 2004, there were 387 active Adopt-A-Highway groups covering almost 400 miles. 4,270 participants volunteered 6,664 person hours, collecting at least 9,112 bags of roadside litter.
- DOT provides orange litterbags and safety vests and removes bags from adopted highway. Many Keep America Beautiful programs throughout the state support and encourage participation in this program.

- **Adopt-A-Stream (Georgia Department of Natural Resources)**

- Similar to the GDOT program, the Georgia Department of Natural Resources sponsors an Adopt-A- Stream program allowing sponsors to help maintain the banks of the state’s waterways.

- **Great American Clean-up Activities (DCA)**

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This is an annual statewide cleanup effort conducted in each April, in conjunction with the nationwide effort that takes place. The program leverages more than 40,000 volunteers who donate 125,000 volunteer hours. The efforts clean up over 200 illegal dump sites, and collect approximately 3,250 tons of trash from over 4,000 miles of roadways.

### ■ Rivers Alive Clean-up Activities (EPD/DCA)

These annual river cleanup activities are held in October, leveraging approximately 25,000 volunteers who donate 90,000 volunteer hours. Approximately 200 tons of trash are collected from 1,500 stream miles.

Corporate sponsorships in support of this program are managed through the Keep Georgia Beautiful Foundation.

As funding permits, EPD contracts for the clean up of abandoned scrap tire dumps throughout the state. In addition, the Local Government Enforcement and Education grant program of the EPD was designed to support local efforts to prevent and enforce against illegal scrap tire and solid waste disposal. When funds from the Solid Waste Trust Fund were allocated for this purpose, the program gave local governments financial incentives to use enforcement and education activities to address:

1. The management of scrap tires, including preventing the illegal dumping of scrap tires;
2. Solid waste reduction and the controlling of illegal dumps; and
3. Other environmental issues.

## 4.2 Needs and Goals

This Section identifies the needs and goals for current and future collection programs for the next ten years. The needs are based on the inventory and assessment of what is currently in place. Since this is a State solid waste management plan, the needs focus on what the State needs to do to meet the goal, including the type of assistance the State needs to offer to local governments to enable them to meet their goals.

**Goal:** *To ensure that an adequate, cost-effective collection infrastructure exists for solid waste and recyclables.*

### **Needs:**

- *Monitor collection programs and trends.* This requires the continuous improvement of the data gathering and reporting that are the foundation of the analyses that identify trends.
- *Help local governments transition from unstaffed drop-off collection sites to roadside service or staffed facilities.* The improper use of unstaffed facilities contributes to blight in communities, and often leads to illegal dumping.
- *Assist local governments that have decided to shift from public to private collection services.* As provision of service transitions to the private sector, some

local governments experience uncertainty as to the best approach to take in the new roles and relationships. This increases the need for guidance in such areas identification/evaluation of options (for example, licensing, franchising, or direct contracting), procurement processes, and data needs.

- *Assist local governments, businesses, and industry that choose to move towards single-stream collection of recyclables or other new technologies.* Some local governments or businesses may look to the state in providing technical guidance or evaluation of new trends in collection such as the movement toward single-stream collection and processing of recyclables and automated collection.
- *Expand resources for Household Hazardous Waste (HHW) and special event recycling programs.* As fewer, more regional landfills dispose of the waste generated in Georgia, the safety risk of handling or double handling household hazardous waste increases as well as the need to properly manage special and bulky waste generated throughout the state.
- *Minimize negative impact of expanded burn ban on illegal dumping and landfill capacity.* The expansion of the ban on outdoor burning will increase the amount of yard trimmings and land clearing debris, presenting an opportunity to pursue alternative collection and processing methods.
- *Capitalize on growing awareness of littering and illegal dumping and its impact on quality of life.* There is a growing public intolerance for such behaviors that could contribute support to measures to improve the situation.
- *Ensure that transfer stations are sited and operated in a manner that protects public health and the environment and are consistent with local zoning and solid waste management plans.* Because of the growing need for transfer stations within the state, more communities are impacted by their siting and operation.
- *Update the EPD data base on transfer stations.* The list of transfer stations in the State may not accurately reflect the status of these facilities in the State.
- *Ensure that state-wide disaster planning incorporates appropriate debris management approaches.* Many state agencies are involved in planning for natural or man-made disasters in the State. A critical part of this planning is to ensure that plans are in place to collect, process, and dispose of disaster-related debris in an environmentally sound and cost-effective manner.
- *Help local governments prepare for the proper management of storm/disaster debris.* Disasters not only disrupt normal collection operations, they can produce extremely large amounts of debris. Local governments need contingency plans for dealing with these problems, affecting not only collection systems, but also special handling/staging of materials, and the processing and recycling or disposal of the debris.
- *Recruit, train, retain, and fund qualified solid waste management professionals.* As the challenges to effectively managing solid waste grow, there needs to be a concerted effort to ensure that the best people are on the job to provide informed, experienced guidance and assistance to all the stakeholders involved.

### 4.3 Implementation Strategy

To meet the needs identified above, the State will take the following actions over the next ten years.

#### 4.3.1 State Initiatives

- *Improve hauler registration process.* EPD will evaluate the strengths and opportunities in the existing system, and pursue improvements that will help to ensure that all appropriate haulers are registered and in compliance with state requirements.
- *Conduct “umbrella” state marketing campaign on illegal dumping and littering.* DCA, working through Keep Georgia Beautiful and other state partners, will develop a centrally themed public information campaign that can be used by statewide stakeholders. The campaign would be intended to provide a consistent message to the public, while remaining adaptable to local needs.
- *Review and update laws and regulations regarding illegal dumping and littering, linking to quality of life issues.* DCA and the Governor’s Litter Team will evaluate existing laws and regulations and compare them to “best practices” that might be applicable in Georgia. If appropriate, modifications to the existing laws and regulations, including stiffer penalties, will be proposed for consideration by the General Assembly.

*Ensure that the Georgia Emergency Operations Plan, State of Georgia Disaster Policy, and other state disaster plans adequately incorporate debris management in statewide disaster planning.* The Memorandum of Understanding (MOU) Team should review this disaster planning process, provide the necessary input regarding debris management, and make any updates to the State Solid Waste Management Plan that might be needed to be consistent with State disaster plans and policies.

- *Review permit by rule process for solid waste facilities.* Determine whether the permit by rule approach is sufficient to ensure that transfer stations, inert landfills, and other facilities are operated in a manner that protects public health and the environment. Consider mechanisms by which permit by rule notifications expire if not used.
- *Increase inspection and monitoring of transfer stations.* Increase inspections of transfer stations and will review for possible improvements the transfer station siting and operational criteria in the rules. Verify the operating status of the transfer stations for which EPD has received notifications under the permit by rule; update data base and implement procedures to keep it accurate.
- *Continue DCA Annual Solid Waste Survey & Full Cost Report.* DCA will continue gathering, analyzing, and presenting information about local government collection programs, using the data to identify solid waste management trends and statewide needs.



### 4.3.2 Technical Assistance

- *Provide technical assistance and funding for regional collection approaches, especially for recyclables.* Focus on communities that could benefit from regional collection infrastructure.
- *Support efforts and technical assistance for the development of single-stream infrastructure.* As the processing infrastructure in the State evolves, help local governments develop cost-effective collection programs that allow them to access these facilities.
- *Support the efforts of local governments to move away from “green box” sites for collection.* Provide technical assistance, funding, or other resources to help local governments improve their centralized collection locations and implement approaches in rural areas that reduce litter and illegal dumping.
- *Maintain scrap tire collection infrastructure.* Continue to provide assistance to local governments to help them maintain the collection infrastructure that supplies feedstock to scrap tire recyclers.
- *Provide assistance for start-up events to collect bulky items in areas where longer hauls to landfills have affected access to drop-off points.* Target areas where regional landfills have opened and smaller facilities have closed.
- *Support model programs to divert special wastes, such as but not limited to electronics, HHW, and “away from home” recyclables.* Identify and disseminate descriptions of exemplary programs in these areas.
- *Support efforts and technical assistance, including examples of model programs, on collection/processing alternatives for yard trimmings and other organics.* Identify and disseminate descriptions of exemplary programs in these areas.
- *Provide information to assist local governments with preparing for the management of storm/disaster debris.* Research the existing conditions and “best practices” for dealing with this issue. Develop and disseminate a checklist of items for local governments to consider when developing local and regional plans for dealing with storm/disaster debris.
- *Provide model request for proposal documents, model franchise agreements and contracts, and reporting forms for contractors or licensees.* Disseminate these tools to local governments that choose to transition to private sector solid waste collection or to start a collection program in areas that historically had no organized collection.

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## Section 5

# DISPOSAL ELEMENT

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## 5.1 Inventory and Assessment of Disposal Programs

The Disposal Element Section of the Solid Waste Management Plan provides a statewide summary of solid waste disposal and thermal treatment facilities, including a description of the disposal infrastructure, the types of waste accepted, remaining capacity, and the prevailing tipping fees charged for disposal.

The assessment considers the adequacy of existing facilities and current practices throughout the ten-year planning period. In particular, this section includes a demonstration that disposal capacity is sufficient to handle the amount of waste projected to be disposed in the next ten years.

Congress, in enacting Subtitle D of the Resource Conservation and Recovery Act (RCRA), made the responsibility for solid waste management primarily a state and local government matter. The United States Environmental Protection Agency (EPA) was not authorized by Subtitle D of RCRA to implement a permit program nor to undertake enforcement actions or compliance inspections at solid waste landfills. Instead, Subtitle D required EPA: (1) to establish criteria for the classification of solid waste disposal facilities and practices, including nonmunicipal, nonhazardous disposal units that may receive conditionally exempt small quantity generator waste; (2) to establish criteria for municipal solid waste landfills (MSWLFs); and, (3) to determine if, as required by RCRA, states had adopted adequate permit programs to ensure that MSWLFs will meet the federal criteria. The State of Georgia applied for MSWLF permit program approval and received full approval from EPA on September 21, 1993.

### 5.1.1 Existing Facilities

As shown in Table 5-1, the type of solid waste management facilities in Georgia is varied, ranging from MSW, C&D, and inert landfills to on-site thermal treatment and processing facilities. The number of MSW landfills in the State has declined over the past seven years while the number of C& D landfills has increased. On-site facilities, including treatment facilities and processing facilities has also increased. Detailed lists, by county, of all solid waste disposal facilities can be found at the EPD website: [http://www.gaepd.org/Documents/regcomm\\_lpb.html#sw](http://www.gaepd.org/Documents/regcomm_lpb.html#sw).

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**Table 5-1  
Permitted Solid Waste Disposal Facilities<sup>1</sup> in Georgia  
FY 1998-2004<sup>2</sup>**

	1998	1999	2000	2001	2002	2003	2004
MSW Landfills	76	70	69	63	60	59	57
C&D Landfills	34	32	31	33	46	51	53
Recovered Materials Processing Facilities	3	5	5	5	3	0	1
Composting Facilities	2	4	3	3	3	3	3
Waste-to- Energy Facilities	1	1	1	1	1	1	1
Inert Landfills	2,101	2,167	2,304	2,399	2,424	2,354	2,389
On-site Thermal Treatment Facilities	79	79	83	88	89	99	101
On-site Processing Facilities	54	75	84	92	95	90	93
Air Curtain Destructors	0	1	3	1	3	0	5

In addition to the above facilities, the EPD has compiled a list of “captive” industrial waste landfills. As described in Section 2, these captive landfills are operated by and for a particular industrial business to accept its own industrial wastes. Statewide, there are an estimated 42 such operating captive industrial landfills. Figure 5-1 shows the locations of active, permitted MSW and C&D landfills in the State. Figure 5-2 shows the locations of known operating captive industrial waste landfills.

Because the focus of this Plan is on MSW and C&D, analysis and discussion will be primarily relating to these types of disposal facilities. Of the nearly 15.9 million tons reported as disposed in FY2004, the vast majority went into lined MSW landfills (approximately 73%) and C&D landfills (approximately 23%). The remaining 4% of the total entered small unlined MSW landfills, a MSW incinerator, a MSW composting facility, and a commercial/industrial landfill.

**Table 5-2  
Destination of Solid Waste Disposed in Georgia - FY2004  
(Rounded, in millions<sup>3</sup>)**

Type of Facility	Tons	Proportion of Total
MSW Landfill (lined)	11.70	73.0%
C&D Landfill	3.60	23.0%
Unlined MSW Landfill (SL)	.21	1.8%
MSW Incinerator	.10	0.6%
MSW Composting Facility	.05	0.3%
Commercial/Industrial Landfill	.21	1.3%

<sup>1</sup> Derived from *Solid Waste Annual Report – 2004*, DCA

<sup>2</sup> Operating as of July 1 of the indicated fiscal year

<sup>3</sup> Approximate quantities; derived from *Solid Waste Annual Report -2004*, DCA

## DISPOSAL ELEMENT

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Type of Facility	Tons	Proportion of Total
<b>TOTAL</b>	<b>15.87</b>	<b>100.0%</b>

# Active Georgia MSW and C&D Landfills



Source: Georgia Department of Community Affairs, Office of Environmental Management and Georgia Environmental Protection Division, February 2004

Figure 5-1: MSW and C&D Landfills

# Private Landfills in Georgia

## Active

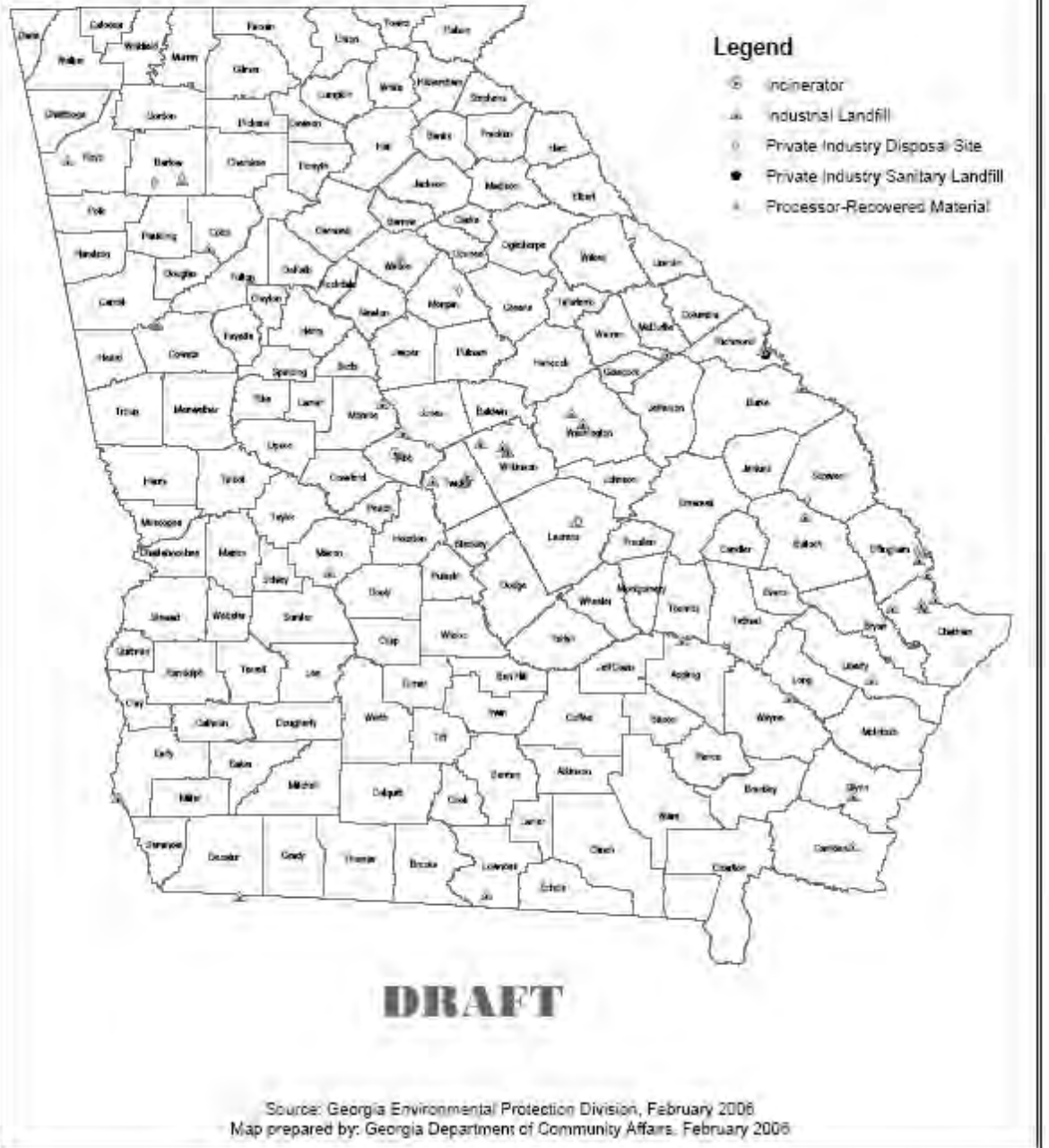


Figure 5-2: Private “Captive” Industrial Landfills in Georgia

## Section 5

### 5.1.1.1 Facility Ownership

Most of the MSW disposed in the state is disposed at the few (16) landfills in Georgia that are owned and operated by private companies. This is huge change from the early 1990s when most MSW landfills were publicly owned. The shift to private ownership of landfills has continued in the past five years, as shown in Table 5-3.

In FY2000, 21% of the MSW landfills in Georgia were privately owned. By FY2004, that had increased to 28%. Even more striking is the increase in the proportion of waste that is disposed in private facilities. In FY2000, approximately 66% of the waste disposed in Georgia was disposed in private MSW landfills. By FY2004, that number had increase to 75% of the total.

**Table 5-3**  
**Public/Private Ownership of MSW Landfills in Georgia, FY 2000-2004<sup>4</sup>**

	Private		Public		Total	
	No. Facilities	Tons	No. Facilities	Tons	No. Facilities	Tons
2000	15 (21%)	6,714,658 (66%)	54 (79%)	3,521,550 (34%)	69 (100%)	10,236,208 (100%)
2001	15 (24%)	7,002,595 (66%)	48 (76%)	3,676,386 (34%)	63 (100%)	10,678,981 (100%)
2002	15 (25%)	7,042,273 (69%)	45 (75%)	3,191,420 (31%)	60 (100%)	10,233,693 (100%)
2003	14 (24%)	7,646,577 (68%)	45 (76%)	3,444,383 (32%)	59 (100%)	11,090,960 (100%)
2004	16 (28%)	8,951,929 (75%)	41 (72%)	2,964,192 (25%)	57 (100%)	11,916,121 (100%)

This shift can also be seen in the survey of local governments. As shown in Table 5-4, in 1995, 72% of reporting local governments stated that waste generated in their jurisdiction was disposed in government owned landfills while 28% reported that their waste was disposed in private facilities. By 2003, the proportion using government landfills had dropped to 48%, and private facilities usage increased to 41%.

<sup>4</sup> Derived from *Solid Waste Annual Reports, 2000-2004*, DCA (NOTE: Percentages are proportion of total for each year)



**Table 5-4**  
**How Local Governments Dispose of Their Waste<sup>5</sup>**  
**Number of Local Governments Responding**

	1995	1996	1997	1998	1999	2000	2001	2002	2003
Government-Owned Landfill	483 (72%)	478 (72%)	415 (68%)	371 (62%)	360 (59%)	343 (58%)	326 (56%)	320 (55%)	311 (54%)
Privately Owned Landfill	187 (28%)	186 (28%)	195 (32%)	225 (38%)	255 (41%)	252 (42%)	260 (44%)	261 (45%)	262 (46%)
Total Number Using Landfills	670	664	610	596	615	595	586	581	573
Government-Owned Incinerator	10	12	8	7	5	3	6	6	2
Privately Owned Incinerator	3	6	5	4	7	4	3	4	5
Total Number Using Incinerators	13	18	13	11	12	7	9	10	7
Out Of State	14	13	10	6	14	19	20	16	17
Unknown	54	48	41	64	48	61	N/A*	NA*	N/A*

\* Question dropped from survey in 2001

### 5.1.1.2 Disposal Fees<sup>6</sup>

Landfill tipping fees across Georgia remain competitive with other Southeastern states. Posted gate rate tipping fees have steadily risen in recent years, but the increasing amount of waste sent to Georgia for disposal suggests that the actual contract prices per ton remain attractive to waste hauling companies.

Annually during the month of July, DCA conducts a phone survey of the landfills in the state to identify their posted “gate rate” tipping fee to calculate regional and statewide average disposal fees. The resulting average tipping fees are displayed in Table 5-5. Based upon the surveys, the average tipping fee for MSW in the state in 2005 was \$35.38 per ton. This represented an increase of slightly more than 1% over the 2004 average rate of \$34.95. The previous increase, from \$33.26 in 2003 to \$34.95 in 2004, was approximately 5%.

It should be noted that the fees reported represent an average of the posted gate rates charged by landfills throughout the state; actual prices paid are frequently lower, sometimes by more than half, depending on volume discounts offered to waste haulers, businesses, and local governments. Also, several large Atlanta landfills significantly increased their posted gate rates in an effort to dissuade customers with small loads.

<sup>5</sup> Solid Waste Annual Report – 2004, DCA

<sup>6</sup> Derived from *Solid Waste Annual Report – 2005 Update*, DCA

**Table 5-5  
Average MSW Tipping Fee in Georgia, 2003-2005<sup>7</sup>**

Region	2003 Average MSW Tipping Fee	2004 Average MSW Tipping Fee	2005 Average MSW Tipping Fee
Atlanta Regional Commission	\$34.00	\$39.32	\$40.77
Central Savannah River Area	\$18.00	\$34.10	\$32.79
Chattahoochee Flint	\$30.00	\$30.00	\$30.00
Coastal Georgia	\$43.24	\$41.61	\$46.71
Coosa Valley	\$31.44	\$31.38	\$32.48
Georgia Mountains	\$32.08	\$33.07	\$36.63
Heart of Georgia-Altamaha	\$29.03	\$29.39	\$29.10
Lower Chattahoochee	\$27.00	\$27.50	\$27.50
McIntosh Trail	\$30.79	\$31.45	\$31.71
Middle Flint	\$35.37	\$36.02	\$37.81
Middle Georgia	\$27.35	\$27.00	\$27.04
North Georgia	\$29.99	\$30.99	\$31.00
Northeast Georgia	\$35.57	\$36.68	\$36.63
South Georgia	\$32.76	\$33.17	\$31.39
Southeast Georgia	\$27.98	\$28.83	\$28.36
Southwest Georgia	\$24.98	\$24.60	\$24.60
<b>State of Georgia</b>	<b>\$33.26</b>	<b>\$34.95</b>	<b>\$35.38</b>

DCA also tracks tipping fees for Construction and Demolition (C&D) waste. As shown in Table 5-6 C&D tipping fees rose more than \$2/ton, from \$28.14 per ton in 2004 to \$30.21 per ton in 2005.

#### **7 Note on Calculating Weighted Average Tipping Fees**

To account for tonnage disparities between large and small landfills, DCA used a weighted average tipping fee. If out-of-county residents or businesses were charged a higher rate than in-county customers, the higher rate was used. Tipping fees charged for MSW at transfer stations were excluded. When tipping fee rates were reported by volume rather than weight, a ratio of four cubic yards to one ton (4 CY: 1 ton) was used to approximate weight-based rates. Weighted averages were calculated for the area served by each RDC and for the state by multiplying the Average Daily Tons received at each facility (ADT) by the per-ton gate fee, divided by the total ADT for all landfill facilities within each RDC and within the state. The process was repeated for C&D landfills. To avoid double counting, Average Daily Tonnage was assigned to the MSW column for those facilities charging the same rate for MSW and C&D waste. Most facilities charge the same rate for C&D and MSW received, but a significant number do not. In these cases, the landfills were asked to provide an approximate ratio of MSW to C&D waste received. Weighted averages were calculated using the method described above, with the Average Daily Tons reported split accordingly between MSW and C&D. For facilities that reported receiving no C&D waste, their fees were not used in calculating average C&D fees. In all RDCs, this dropped the average C&D fee, in some cases resulting in no C&D average cost for certain RDCs.

**Table 5-6**  
**Average C&D Tipping Fee in Georgia, 2003-2005**

Region	2003 Average C&D Tipping Fee	2004 Average C&D Tipping Fee	2005 Average C&D Tipping Fee
Atlanta Regional Commission	\$23.33	\$29.09	\$31.46
Central Savannah River Area	\$25.00	\$25.77	\$28.78
Chattahoochee Flint	\$27.28	\$27.67	\$27.36
Coastal Georgia	\$30.89	\$29.39	\$31.34
Coosa Valley	\$24.47	\$29.29	\$26.70
Georgia Mountains	\$27.53	\$21.45	\$29.99
Heart of Georgia-Altamaha	\$21.12	\$24.92	\$24.29
Lower Chattahoochee	\$25.00	\$27.50	\$25.00
McIntosh Trail	\$26.55	\$26.55	\$26.55
Middle Flint	N/A*	\$31.00	\$22.50
Middle Georgia	\$23.23	\$23.89	\$21.64
North Georgia	\$30.02	--	--
Northeast Georgia	\$25.55	\$23.78	\$24.78
South Georgia	\$25.66	\$26.51	\$24.11
Southeast Georgia	\$22.24	\$21.95	\$28.48
Southwest Georgia	\$25.28	\$17.92	\$22.24
State of Georgia	<b>\$28.16</b>	<b>\$28.14</b>	<b>\$30.21</b>

As reported in Waste News magazine's 2005 Market Handbook, the average landfill tipping fee in Georgia in 2005 was \$33.07, with no distinction made between MSW and C&D waste. Ranked 8<sup>th</sup> lowest in the list of the twelve (12) southeastern states, Georgia's average tipping fee is approximately \$0.36 a ton less than the average tipping fee reported in the southeastern states. The prices reported by Waste News in the Northeast are far higher, with a regional average approaching \$67 per ton, and a high of more than \$86 per ton in the state of New Hampshire.

**Table 5-7**  
**Average Tipping Fee in Southeastern U.S. Landfills**

State	Average Cost per Ton
Louisiana	\$26.65
Mississippi	\$26.81
Alabama	\$27.01
Arkansas	\$28.01

Tennessee	\$28.96
North Carolina	\$32.80
Kentucky	\$32.87
<b>Georgia</b>	<b>\$33.07</b>
South Carolina	\$34.22
West Virginia	\$35.44
Florida	\$36.42
Virginia	\$39.99
<b>Southeastern Total</b>	<b>\$33.43</b>

Source: Waste News 2005 Market Handbook

### 5.1.1.3 Host Community Fees

A host community fee is paid to a local government or solid waste authority by a solid waste handling facility operating in that jurisdiction, according to the requirements of state law. O.C.G.A. 12-8-39 (d) reads in part:

“...(d) Effective January 1, 1992, when a municipal solid waste disposal facility is operated by private enterprise, the host local government is authorized and required to impose a surcharge of \$1.00 per ton or volume equivalent in addition to any other negotiated charges or fees which shall be imposed by and paid to the host local government for the facility and shall be used to offset the impact of the facility, public education efforts for solid waste management, the cost of solid waste management, and the administration of the local or regional solid waste management plan...”

According to the results of a DCA survey of local governments, there were 16 counties and 5 cities that reported having host community fee agreements in FY2004. The most common fee amount that was reported (10 of the 21 local governments) was \$1.00 per ton. Six local governments did not report that a host community fee had been implemented yet.

#### **CASE STUDY: Successful Host Community Fee in Wayne County**

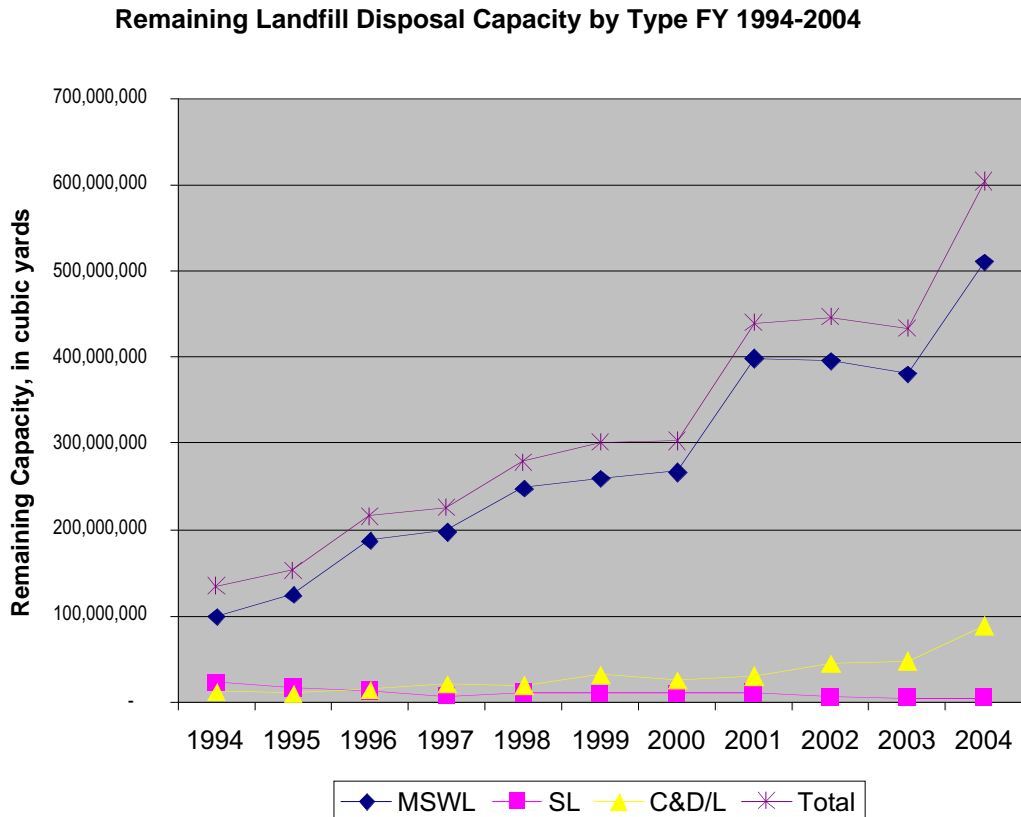
A private solid waste company, Republic Services, Inc., owns and operates a MSW landfill that accepts approximately 1,500 tons per day. In FY2003, the landfill received 472,022 tons of waste. Wayne County, the jurisdiction in which the landfill is located, negotiated a host community agreement with Republic.

The fee of \$1.75/ton is collected for each ton of waste delivered to the landfill except for waste collected from within Wayne County. Not only is Wayne County waste exempted from the host community fee, it is also does not incur a tipping fee (disposal charge). The FY2003 receipts to Wayne County from the host community fee were approximately \$1.1 million per year, and the avoided disposal costs of not paying tipping fees are estimated to be approximately one half million dollars per year.

The combined value resulting from the host community fee agreement is estimated be the approximate equivalent of three mills of local property tax in Wayne County.

5.1.1.4 Disposal Capacity<sup>8</sup>

On a statewide basis, Georgia has an adequate supply of permitted disposal capacity to accommodate all of the waste disposed in the state for the next ten years *assuming* current disposal rates remain constant. At the close of FY 2004, the state had 26.6 years of remaining permitted MSW landfill space and 19.9 years of permitted C&D landfill space based upon current disposal rates. However, increases in the amount of waste disposed, either as a result of increased disposal rates by Georgia residents or as a result of continued increases in imported waste will have an impact on the remaining amount of permitted capacity.

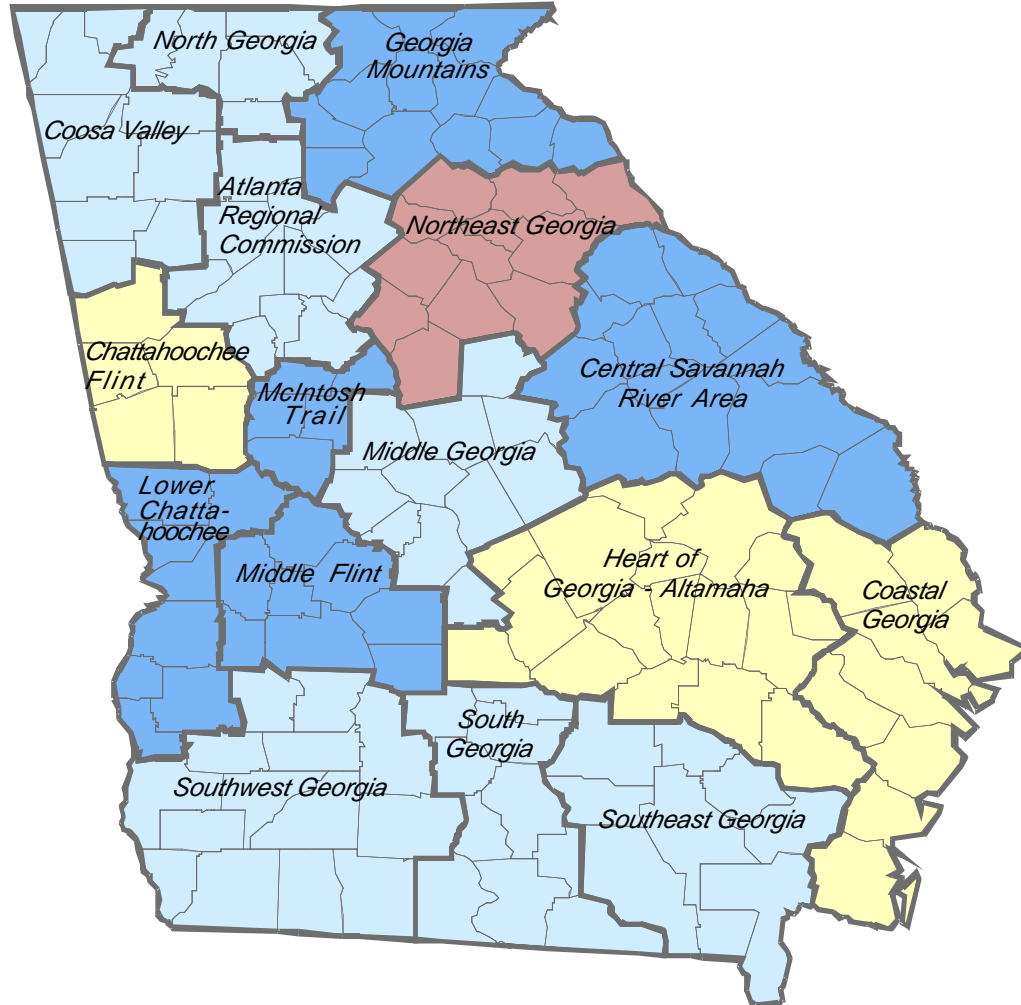


**Figure 5-3: Remaining Landfill Disposal Capacity by Type FY1994 - 2004**

The dramatic increase in disposal capacity that has emerged in the last few years is the result of a few large regional landfills being permitted throughout the state. Figure 5-3 shows that the available capacity of MSW landfills in the State has increase five-fold in the past ten years.

Currently, the amount of permitted capacity available varies by region. Figure 5-4 indicates the amount of permitted MSW landfill capacity by region. This Figure shows that only the Northeast Georgia region has less than 10 years of remaining permitted capacity.

<sup>8</sup> All disposal capacity information is derived from the Annual Solid Waste Report – 2004, DCA



**Legend**

- Less than 10 years
- 10 - 19 years
- 20 - 29 years
- 30 years and above

**Figure 5-4: Remaining MSW Landfill Capacity FY 2004 <sup>9</sup>**

An updated regional breakdown, by Regional Development Center, can be found in the Solid Waste Annual Report on the DCA website:

[http://www.dca.state.ga.us/development/Research/programs/downloads/SWAR\\_2004.pdf](http://www.dca.state.ga.us/development/Research/programs/downloads/SWAR_2004.pdf)

<sup>9</sup> Map prepared by: Georgia Department of Community Affairs. Source: Years of remaining capacity by Regional Development Center was calculated using EPD-supplied average daily tons and cubic yards of remaining capacity, based on 260 operating days per year.

## **5.1.2 Regulatory Framework**

The state's role in solid waste disposal is a regulatory one. While local governments or the private sector own and operate waste disposal facilities, the EPD oversees that activity to ensure that facilities are developed and operated in a manner consistent with applicable state laws and rules. Accordingly, EPD is authorized by the Georgia Comprehensive Solid Waste Management Act of 1990, as amended (O.C.G.A. 12-8-20) to develop and administer rules pertaining to the proper disposal of solid waste.

### **5.1.2.1 Permitted Facilities**

The Rules of Georgia, Department of Natural Resources Environmental Protection Division, Chapter 391-3-4, Solid Waste Management establish the regulatory framework for the siting, development, and operation of solid waste landfills. More specifically, Chapter 391-3-4-.05 establishes the criteria for siting a proposed solid waste handling facility. Those criteria include issues pertaining to:

- Zoning
- Disposal Facility Siting Decision (public notice provisions)
- Airport Safety and Certain Federally Restricted Military Airspace
- Floodplains
- Wetlands
- Fault Areas
- Seismic Impact Zones
- Unstable Areas
- Closure of Existing Municipal Solid Waste Landfill Units
- Significant Groundwater Recharge Areas
- Hydrological Assessment

While the above siting criteria apply primarily to MSW landfills, there are other siting criteria that apply to C&D landfills and certain industrial waste landfills. Those criteria may be found in "Criteria for Performing Site Acceptability Studies for Solid Waste Landfills in Georgia", Circular 14, Appendix A (industrial waste) and B (C&D waste).

The Georgia solid waste management rules also establish requirements for: landfill design and operation, closure criteria, post-closure care, financial responsibility, and groundwater monitoring/corrective action.

Additionally, specific permitting requirements are established for solid waste thermal treatment operations; shredding, baling, materials recovery facilities, and other processing operations; the handling and treatment of biomedical waste; and the composting of solid waste (excluding the exclusive composting of only yard trimmings).

## Section 5

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The Georgia solid waste management rules require that all operators of MSW landfills, MSW thermal treatment technology facilities, and the EPD employees who inspect such facilities must obtain and hold a valid state certification.

Furthermore, the rules require all persons holding a solid waste disposal permit, including a permit-by-rule, to properly measure and periodically report the quantity of waste disposed at the facilities, as well as other related information.

### 5.1.2.2 Permit-By-Rule

Chapter 391-3-4-.06 of the solid waste management rules establish a permit-by-rule process for certain collection, transportation, processing, and disposal facilities or operations. The rule states: "...Notwithstanding any other provision of these Rules, collection operations, transfer station operations, inert waste landfill operations, waste processing and thermal treatment operations, and wastewater treatment and pretreatment plant sludge disposal operations shall be deemed to have a solid waste handling permit..." if the appropriate notice to the state is filed and the applicable conditions in the rules are met.

The permit-by-rule provisions pertaining to disposal include:

- *Inert Waste landfill Operations*<sup>10</sup> – Such facilities receive "...waste that will not or is not likely to produce leachate of environmental concern..." They receive such materials as "...earth and earth-like products, concrete, cured asphalt, rock, bricks, yard trimmings, and land clearing debris such as stumps, limbs and leaves..."

The requirements for these types of facilities include, but are not limited to: set-back, cover, grading/drainage/erosion, access, fire prevention and control, and property deed notice requirements.

- *On-site Waste Processing and Thermal Treatment Operations*<sup>11</sup> - This is a type of facility that "...processes or thermally treats, no less than 75 percent, by weight, solid waste generated at the permit-by-Rule facility location or facilities owned by the same person who owns the property containing the permit-by-Rule facility."

Conditions in the rule that cover these types of facilities include, but are not limited to:

- Capacity
- Residue and Disposal of Waste
- Storage
- Air Quality
- Wastewater

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<sup>10</sup> The Rules of Georgia, Department of Natural Resources Environmental Protection Division, Chapter 391-3-4-.06-(3)-(c)

<sup>11</sup> *Ibid*, Chapter 391-3-4-.06-(3)-(d)



- Fire Protection
  - Supervision and Recordkeeping
  - Prohibition of Hazardous and Certain Other Wastes
  - Cleanliness and Sanitation
- *Transfer stations* are facilities that are also covered by the permit-by-rule process; they were discussed previously in Section 4- Collection.

### 5.1.2.3 Scrap Tire Handling/Disposal

The landfill disposal of whole tires is prohibited<sup>12</sup> in Georgia; shredded or chopped tires can be landfilled if no other end markets are available.

As described in Section 4 – Collection of this Plan, the Georgia General Assembly included provisions for the management of scrap tires. The law and subsequent rules<sup>13</sup>, administered by the EPD, provide for the collection of a fee of \$1.00 for each new replacement tire sold in Georgia and a permit/manifest system to regulate the transportation of scrap tires.

However, Georgia regulates scrap tires from the point of generation through disposal. So in addition to these collection-related provisions, the handling, processing, and disposal of scrap tires are activities that are also regulated. Scrap tires may be hauled only to processors or disposal sites that are approved by the EPD, and that are in compliance with the applicable rules summarized below.

- *Scrap Tire Storage* – The storage of more than 100 scrap tires is prohibited in Georgia, with exceptions for larger amounts of storage possible, under certain conditions, for permitted landfills, tire retailers, retreaders, auto salvage yards, and approved scrap tire processors.
- *Criteria for Approved Processing, Sorting, and Disposal Facilities* – The rules establish how processors and sorters may handle and stage scrap tires, and requires that certain fire prevention and control and other environmental/nuisance abatement measures be taken. Specific recordkeeping and reporting provisions are also required.

A list of these registered scrap tire processors, sorters and landfills can be found on the following EPD website: [http://www.gaepd.org/Files\\_XLS/regcomm/lpb/stprocess.xls](http://www.gaepd.org/Files_XLS/regcomm/lpb/stprocess.xls)

### 5.1.2.4 Open Burning Ban

Throughout parts of Georgia, some MSW is still disposed by burning. Some residents burn household waste in “burn barrels” or in a pile in their yard. EPD Air Quality rules (391-3-1.02) prohibit open burning during the summer months in designated non-attainment areas. During the summer months of May through September, the EPD bans (with certain exceptions) the open burning of yard and land clearing debris.

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<sup>12</sup> O.C.G.A 12-8-40.1

<sup>13</sup> The Rules of Georgia, Department of Natural Resources Environmental Protection Division, Chapter 391-3-4-.19

This is done to improve the air quality in and around various metropolitan areas of the state. In the summer of 2005, this ban was extended into nine additional counties. There are now a total of 54 counties in which this ban applies. One of the effects of this ban is more solid waste for disposal in inert and MSW landfills.

## 5.2 Needs and Goals

This Section identifies the needs and goals for current and future disposal related programs for the next ten years. The needs are based on the inventory and assessment of what is currently in place. Since this is a State solid waste management plan, this Section focuses on what the State needs to do to meet its goal, including the type of assistance the State needs to offer to local governments to enable them to meet their goals.

**Goal:** *To assist local governments in assuring adequate solid waste disposal capacity is available within their respective planning areas for at least ten years.*

### **Needs:**

- *Address issues associated with increase in out-of-state waste imports.* The increasing quantities of out of state waste raise concerns about diminished capacity for Georgia waste, the potential for contamination in the incoming loads, and increased traffic.
- *Support reduction of per capita disposal rates.* The per capita disposal rates are influenced by the low tipping fees that can be found in the state. In addition, the lack of alternative facilities, such as C&D recycling and composting/mulching contribute to the situation (more can be found in Section 3 – Waste Reduction).
- *Provide support to divert vegetative debris from lined and unlined disposal facilities for beneficial reuse.* There is a need to identify a comprehensive vegetative debris management program that is cost-effective and has the greatest cost-benefit. Low tipping fees make it difficult for alternative technologies such as composting and energy recovery to compete with landfill disposal. Related issues include 1) the need for expanded markets for composted material or recovered energy, 2) the need for regional approaches to maximize use of processing equipment, and 3) the potential for methane gas generation at unmonitored sites (inert landfills).
- *Ensure that illegally dumped scrap tires remain “in check.”* For the most part, the large scrap tire piles have been cleaned up as a result of the Scrap Tire Management Fund. But constant vigilance is needed to keep them under control. There is a need to immediately clean up abandoned tire piles when found. Left unmonitored, there is a strong likelihood that some haulers and/or dealers may illegally dispose of tires.

- *Ensure that C&D landfills are sited and operated in a manner that protects public health and the environment and is consistent with local zoning and solid waste management plans.* As the number of C&D landfills in the state increases, more people are impacted by the siting and operation of these facilities. With minimal C&D recycling infrastructure currently in place, there are few alternatives to the disposal of these materials.
- *Address issues associated with fewer and larger disposal facilities in the State.* Fewer disposal facilities, located further from the location where waste is generated can lead to a decrease in competition and increase in the role and importance of each facility. Fewer landfills also require the hauling of waste longer distances. This can impact the transportation infrastructure, increase litter problems, and discourage self-hauling of bulky items to a landfill (which can lead to increased illegal dumping).
- *Encourage methane gas-to-energy recovery projects.* With the increase in gas collection systems and a growing demand for green energy, there is an opportunity to support and encourage the recovery of landfill gas from landfills.
- *Ensure that inert landfills are sited and operated in a manner that protects public health and the environment and is consistent with local zoning and solid waste management plans.* With over 2,000 of these facilities located in the State and their permit by rule status, it is important to ensure that these facilities are not having a negative impact on the environment. The main concerns are to ensure that only inert materials are accepted, to eliminate the risk of methane gas generation, and to ensure that they are sited and operated in a way that does not lead to future settling.
- *Address issues associated with shift from public to private ownership.* The shift from public to private facilities for many local governments reduces their role in solid waste management. It is important for local governments to ensure that solid waste is managed in a way that meets their local goals and needs.
- *Re-evaluate the effectiveness of the permit-by-rule approach to ensure that this procedure adequately protects Georgia's health and environment.* With the large number of inert facilities, transfer stations, and other permit-by-rule facilities around the state, an assessment should be made regarding the current process of overseeing the siting and operation of these facilities.
- *Re-evaluate the effectiveness of the state's financial assurance requirements to ensure that they are adequate to protect Georgia's public health and environment.* The continuing trend of shifting from public to private landfill ownership suggests that the current procedures for determining whether sufficient funds are available to ensure proper closure and post-closure of solid waste management facilities should be reviewed.
- *Establish a closed landfill inventory.* There is lack of sufficient organized data about the old closed landfills in Georgia, including their condition.

- *Increase regulatory attention toward “captive” industrial waste landfills.* There is a need to obtain more information about the environmental compliance of these facilities, including the quantities of materials handled, diverted, and disposed.
- *Allow for an objective evaluation of proposed alternative solid waste management technologies.* Local governments, rural communities in particular, are under pressure to support alternative solid waste management technologies. There is a need for objective, independent technical and financial evaluation of proposed technologies.
- *Recruit, train, retain, and fund qualified solid waste management professionals.* Given the challenges to effectively manage solid waste, there needs to be a concerted effort to ensure that the best people are on the job to provide informed, experienced guidance, and assistance to all the stakeholders involved.

## 5.3 Implementation Strategy

### 5.3.1 State Initiatives

To meet the needs identified above, the State will take the following actions over the next ten years.

- *Increase inspections of waste entering MSW landfills.* In so doing, focus regulatory attention on the potential contaminants that could be present in incoming loads.
- *Monitor landfill capacity for Georgia waste.* The sharply increasing quantity of out of state waste imports requires an increasing diligence to monitor capacity; timely and accurate monitoring reports are critical.
- *Investigate permitting options to permit disposal facilities based upon need.* Need-based permits place a priority on the assurance of landfill capacity for Georgia generated waste.
- *Landfill surcharge.* Investigate the feasibility and projected impact of such a charge (including possible amounts, disposition of funds received, potential allowable expenditures, etc.) to support solid waste management programs.
- *Require and review financial assurance requirements.* Review the effectiveness of existing financial assurance mechanisms to determine their adequacy in protecting public health and the environment; recommend and enact improvements, if necessary.
- *Conduct closed landfill inventory and assessment.* Establish an inventory of these old facilities, including such data (to the extent that it is available) as their location, ownership, approximate size, age, type of materials received, and condition.

- *Increased inspection and monitoring of unlined landfills.* Ensure that facilities are operated in compliance with existing laws and rules; establish priorities to focus enforcement efforts in “high” risk areas.
- *Re-examine yard trimmings management policy and set or reaffirm goals.* Focus on overcoming identified obstacles to the cost-effective diversion/recycling of yard trimmings (such as most cost-effective composting methods and technologies, market development, regional cooperation).
- *Clean up any remaining abandoned scrap tire piles.* Work with local governments to identify needs; establish priorities and match to available budget resources; deploy contractor(s).
- *Manifest and monitor scrap tire haulers and processors.* Establish priorities for and implement increased levels of enforcement activity aimed at securing compliance with scrap tire laws and rules
- *Increase inspection and review of C&D landfills.* Establish priorities for and implement increased levels of enforcement activity aimed at securing compliance with applicable laws and rules governing such facilities.
- *Review guidelines and practices for inert landfills.* Evaluate existing guidelines and current practices to determine if they adequately protect public health and the environment and recommend and enact improvements, if necessary.
- *Review practices and environmental compliance of “captive” industrial waste landfills.* Review the adequacy of the monitoring of these facilities, and initiate the gathering of data, particularly volumes diverted and disposed.

### **5.3.2 Technical Assistance**

- *Provide technical assistance and education for local officials on waste imports and options.* Provide information and assistance to help project potential impacts of waste imports, particularly as the import quantities might affect local disposal capacity.
- *Provide technical assistance in negotiating host fees.* Provide examples of approaches used by others in negotiating host community fees/agreements.
- *Provide technical assistance and tools to address the impact of long hauling of solid waste on litter conditions and transportation infrastructure.* Such assistance or tools could include: examples of improvements to local ordinances and zoning codes; possible items to include in host community agreements (for example, requiring increased street cleaning by the landfill operator); and local enforcement methods that are aimed at mitigating these impacts.
- *Provide research, education and technical assistance in evaluating alternative solid waste management technologies.* Equipping local officials with accurate information, independent resources, and a sound evaluation methodology will help them to determine if a proposed technology is appropriate for their community.

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## Section 6

# LAND LIMITATION ELEMENT

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Solid waste disposal facilities and other solid waste handling facilities should be located where they have minimal adverse effects on the community and the environment. The Land Limitation Element Section of the Solid Waste Management Plan serves two purposes. The first is to provide an inventory of land areas on which the development of recycling, recovery, composting, transfer, or solid waste disposal facilities is limited. For some factors, siting of some facilities is prohibited, for others, the facilities may have specific design requirements. Facility development may be limited on this land due to natural environmental limitations or due to land use factors. These are the state requirements; local governments may establish additional limitations, including zoning.

The second purpose of this Section is to articulate the procedures which will be used to determine whether a proposed solid waste handling facility of any type is consistent with the local solid waste management plan.

## 6.1 Siting Limitations for Solid Waste Handling Facilities

### 6.1.1 Natural Limitations on Siting

Federal, State, and local government policy contain limitations on where solid waste management facilities can be sited and, in some cases, the design required to site facilities in a specific area, based on natural environmental features. These restrictions include the following<sup>1</sup>:

- Water Supply Watersheds - DNR Rule 391-3-16-.10(7) c requires that at any location within a small water supply watershed, new solid waste landfills must have synthetic liners and leachate collection systems.
- Groundwater Recharge Areas – DNR Rule 391-3-16-.02(3)(a) requires that in a significant groundwater recharge areas, DNR shall not issue permits for new solid waste landfills not having synthetic liner and leachate collection systems. DNR Rule 391-3-4-.05(1)(j) requires new solid waste landfills or expansions of existing facilities within two miles of a significant groundwater recharge area to have liners and leachate collection systems, with the exception of facilities accepting waste generated from outside the county in which the facility is located. In that case, the facility must be totally outside of any area designated as a significant groundwater recharge area.

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<sup>1</sup> It should be noted that the state policies described here apply only to MSW facilities (EPD has ruled that C&D landfills are a subset of MSW landfills).

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- Wetlands – DNR Rule 391-3-16-.03(3)(e) establishes that solid waste landfills may constitute an unacceptable use of a wetland. 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.
- River Corridors - DNR Rule 391-3-16-.04(4)(h) prohibit the development of new solid waste landfills within protected river corridors.
- Protected Mountains - DNR Rule 391-3-16.05(4)(1) prohibits the development of new solid waste landfills in areas designated as protected mountains.
- 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.
- Fault Areas – DNR Rule 391-3-4-.05(1)(f) 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.
- Seismic Impact Zones - 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.
- Unstable Areas (Karst Areas) - According to DNR Rule 391-3-4-.05(1)(h), requires owners or operators of new landfill units, existing landfill units, and lateral expansions located in unstable areas to 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.

### 6.1.2 Land Use Limitations on Siting

The State also has restrictions on the siting of solid waste handling facilities based on the use of the land where the facility is located. These restrictions are described below. However, local governments throughout the State have additional siting and design requirements relative to siting solid waste handling facilities, for example, buffer or screening requirements to minimize the odor or visual impact of such facilities or proximity to major thoroughfares to minimize the traffic impacts.

- Zoning - DNR Rule 391-3-4-.05(1)(a) requires that solid waste facility sites conform to all local zoning/land use ordinances. Not all local governments in Georgia have zoning ordinances and those that do are not always specific about where solid waste management facilities can be sited.



- **Airport Safety** - Because of the potential of bird impacts, 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 5,000 feet of any runway planned or used for piston-type aircraft or within 10,000 feet of any runway planned or used for turbo-jet or piston-type aircraft. The area in the State impacted by this requirement is shown on Figure 6-1.
- **National Historic Sites** - MSW landfills are not permitted within 5,708 yards of a National Historic Site (O.C.G.A. Section 12-8-25.1). There are only three designated National Historic Sites in the State that are included in this restriction.
- **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. 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). 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 State Historic Preservation Office (SHPO) would be required.
- **Surface Water Intake** - According to the Georgia DNR Rule 391-3-16-.01, unless there are no other feasible locations, solid waste landfills should not be located within two miles of a surface water intake for a public water source.
- **Co-Located Landfills** - Section 12-8-25.4 of the O.C.G.A. states that no solid waste handling facility, excluding materials recovery facilities and composting facilities, can be sited on a site that falls within a two-mile radius of three or more solid waste landfills (including closed landfills that received waste on or after June 29, 1989). Figure 6-1 indicates the areas in the State impacted by this requirement.
- **Political Subdivisions** - O.C.G.A. Section 12-8-25 prohibits the siting of an MSW landfill within one-half mile of another County's borders without the approval of the jurisdiction's governing authority.
- **Private Recreational Camps** - O.C.G.A. Section 12-8-25.5 states that no permit shall be issued for any new municipal solid waste disposal facility if any part of the premises proposed for permitting is within one mile of any private recreational camp operated primarily for use by persons under 18 years of age and which camp has been so operated at its location for 25 years or more.

Figure 6-1, provided by DCA, indicates the areas throughout the State that are impacted by some of these rules. Specifically, this map indicates the location of current landfills, co-located landfills, historic sites, political subdivision buffers, airport restrictions, restricted military airspace, flood plains, wetlands, and peak acceleration values.

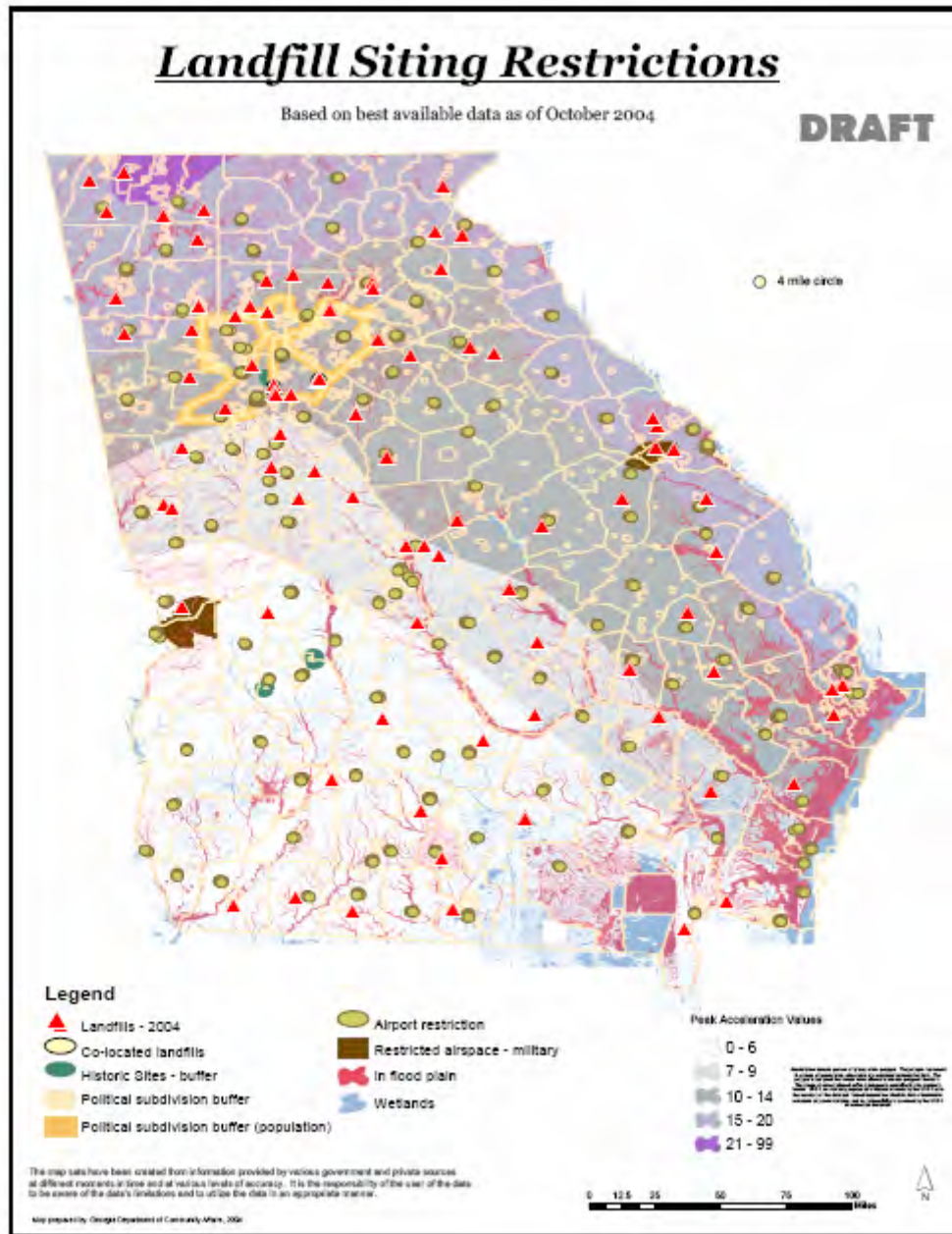


Figure 6-1: Landfill Siting Restrictions

## 6.2 Procedures for Determining Consistency with Solid Waste Management Plan

The Minimum Planning Standards and Procedures for Solid Waste Management state that “it is the responsibility of DNR/EPD to institute and maintain a comprehensive state-wide program for effective solid waste management through facility permitting,

permit compliance, and enforcement of solid waste management regulations. Accordingly, DNR/EPD may undertake the following:

Review local, multi-jurisdictional, and regional solid waste management plans for:

1. Effective and sound solid waste management strategies;
2. Compliance with DNR rules, regulations, and individual facilities' permit conditions; and
3. Consistency of permit requests with solid waste plans.”

As stated in this policy, EPD reviews permit requests to determine whether they are consistent with local Solid Waste Management Plans. In their efforts to determine consistency When reviewing a permit for consistency with a solid waste plan, EPD may consider: (1) the procedures for consistency included in an approved local Solid Waste Management Plan(s), (2) a review of regional issues, and (3) the impact upon the goals and polices of the state, region, and local planning area.

The Minimum Planning Standards and Procedures for Solid Waste Management state that local government Solid Waste Management Plans shall specify a procedure that local governments will follow to determine if a proposed facility is consistent with the Plan. Local governments will incorporate a procedure that fits their local needs and goals. Guidance in drafting this procedure is included in Appendix B of this Plan.

## 6.3 Needs and Goals

**Goal:** *To ensure that proposed solid waste handling facilities are consistent with state and local solid waste management plans, as well as other federal, State and local environmental requirements.*

**Needs:**

- *Ensure that local governments have the tools to determine whether proposed solid waste handling facilities are consistent with state and local requirements and the solid waste management plan. Local governments need access to maps identifying land limitation as well as policies and procedures they can use to ensure that facilities are consistent with their solid waste management plans.*

## 6.4 Implementation Strategy

### 6.4.1 State Initiatives

- *Ensure that state-wide maps indicating land limitation are maintained and reflect all criteria.* The State currently maintains a state-wide GIS map, as well as maps for each County, that indicates the land impacted by some of the state requirements regarding land limitation for facility siting. These maps should be maintained and updated to reflect the current limitations on siting solid waste handling facilities.

### 6.4.2 Technical Assistance

- *Provide land limitation maps.* Provide local governments with maps of their jurisdiction indicating the land limitations for facility siting in their jurisdiction.
- *Compile and provide information about solid waste and zoning ordinances impacting solid waste handling facilities throughout State.* Provide sample zoning ordinances from local governments that include limitations on the siting and/or design of solid waste handling facilities.
- *Educate local governments about approaches to evaluate the consistency of proposed facility siting or expansions with the local Solid Waste Management Plan.* The State will continue to provide examples of procedures that local governments can use to determine the consistency of proposed facilities with their solid waste management plans (see Appendix B).

# Section 7

## EDUCATION AND PUBLIC INVOLVEMENT ELEMENT

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### 7.1 Inventory and Assessment of Education and Public Involvement Programs

The purpose of the Education and Public Involvement Element Section is to describe the existing environmental education and outreach programs and activities taking place in the jurisdiction and describe the target audiences of these programs. All educational programs must have a source reduction component. This section provides an inventory of current State solid waste management education and public involvement programs as they relate to the appropriate waste generating sector(s) and waste stream(s) based upon the information provided in the Waste Disposal Stream Analysis Section of this Plan.

#### 7.1.1 Research and Trends

DCA, EPD, P<sup>2</sup>AD and other state agencies gather solid waste management data on a regular basis to determine trends in solid waste management and needs for the future. This information is distributed to local governments and to the public through reports, web sites, workshops and public meetings.

#### Solid Waste Annual Report

DCA surveys every local government in the State each year and produces an annual solid waste report and an abbreviated PowerPoint presentation that contains statistical data and trends about waste reduction efforts, collection and disposal practices, local government solid waste management practices, and other related information. The annual report incorporates some of the data collected by EPD, including the amount of waste disposed, remaining disposal capacity, per capita disposal rates, and out-of-state waste imports.

#### Inventory of Solid Waste Management Infrastructure

EPD maintains a database of facilities and operations that comprise the infrastructure which supports the management of solid waste in Georgia. Included are data on the following:

- Collection operations
- Transfer stations
  - Material recovery facilities

- Composting facilities
- Solid waste disposal facilities
- Landfill remaining capacity
- Inert disposal landfills
- Closed and in-closure landfills

This information is provided on-line and used in the State's Solid Waste Annual Report.

### Community Indicators (<http://www.dca.state.ga.us/commind/default.asp>)

The Georgia Community Indicators is an interactive on-line resource where users can get information about their communities. The database for Community Indicators includes data for more than 450 Georgia communities. DCA, with input from the Georgia Municipal Association and Association County Commissioners of Georgia, developed the Community Indicators to assist users in identifying and assessing the quality of life in a community, including environmental quality. What makes Community Indicators unique is that it allows the user to obtain information about local communities and allows a user to do comparisons among communities from their own computer.

The State also conducts periodic studies on solid waste management issues to help inform decisions about where State and local solid waste management efforts should focus in the future and to make recommendations regarding where resources should be expended. The most recent example of such research is the *Georgia MSW Characterization Study* completed in 2005, and described in Section 2. The results are being used to set a future path for waste reduction efforts in the State and provide technical assistance to local governments in developing their Solid Waste Management Plans.

### 7.1.2 Recycling and Composting

DCA, P2AD, EPD and Keep Georgia Beautiful (KGB) provide information and technical assistance to local governments, businesses, and the general public on ways to reduce solid waste. Many of the programs and tools described below can be found at:

<http://www.dca.state.ga.us/development/EnvironmentalManagement/index.asp> .

- *Earth911.org* - DCA and local governments around Georgia participate in this national database that enables users to enter their ZIP code and find locations to recycle or reuse a wide variety of products and commodities. There is a link from the DCA website to this resource.
- *Georgia Recycling Market Directory* - DCA maintains an on-line market directory that enables the user to search by material, company name, county, or other variables to find information about companies and other organizations that accept or purchase specific recyclable materials.

- DCA provides the document *Dealing with Yard Trimmings* and will assist local governments as they consider their service delivery options related to yard trimmings collection and composting.
- The brochure *Composting at Home in Georgia* provides extensive do-it-yourself information about how to compost. DCA also refers interested citizens to local resources, such as the cooperative extension service or local compost demonstration sites.
- *Special Events Recycling Guide* - DCA has published a how-to resource for waste diversion and minimization at Georgia festivals, conferences, and other gatherings.
- *End of Life Electronics Recycling* (an introduction to the topic), *Tips on Electronics Recycling* (which provides information on how individuals can handle their end-of-life electronic items), and the *E-Scrap Pilot Project* report are all available on the DCA website.
- *Pay as You Throw Collection Systems* is a document that describes how to set up a fee system for solid waste collection that encourages waste reduction. It includes a summary of programs operating throughout Georgia.

P<sup>2</sup>AD provides information and technical assistance to the business community, incorporating source reduction and recycling as part of their approach. These efforts, described more fully in Section 3, include:

- *P<sup>2</sup>AD Partnership Program*

Free and open to any business or organization in Georgia, this program fosters environmental leadership and recognizes superior environmental performance. It does this by encouraging businesses to systematically identify opportunities to reduce waste, conserve natural resources and continually improve their operations.
- *Sustainable Office Tool Kit*

The Sustainable Office Tool Kit contains best available practices and references for office waste reduction, including case studies, fact sheets, Internet sites, and periodicals. The tool kit will be given to businesses that request information on establishing or expanding waste reduction programs.

### 7.1.3 Keep Georgia Beautiful

Keep Georgia Beautiful, the first affiliate of the national Keep America Beautiful organization, serves a primary role for delivering information and education about waste reduction and litter prevention to citizens of Georgia. Its programs and activities related to solid waste include:

- *Special Events* - Keep Georgia Beautiful participates in four major community-based events throughout the year: Great American Clean Up, Bring One for the Chipper, America Recycles Day, and Rivers Alive. All four of these events have been described previously in this Plan.

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- *Awards Program* - Keep Georgia Beautiful annually honors individuals, organizations, and companies whose on-going efforts prevent litter, conserve or protect water resources, improve community waste handling practices through recycling and waste minimization, and/or preserve the natural beauty and environment of Georgia.

Keep Georgia Beautiful's Award's program has four major categories:

- **Litter Prevention** - recognizes educational and remedial efforts designed to change attitudes and behaviors, resulting in a positive impact on a community. Efforts may include litter cleanups, enforcement of litter/illegal dumping laws, the placement of garbage cans in needed areas, signage, storm drain stenciling, and classroom education and presentations to civic/community groups.
- **Beautification and Community Improvement** - recognizes efforts to preserve and improve the beauty of a community. Efforts may include outdoor classrooms, the enhancement of public areas, replanting, and the restoration of areas and maintenance of existing public spaces
- **Waste Minimization** - recognizes the efforts of organizations that provide environmental education or other conservation messages to change attitudes and promote responsible waste handling. Efforts may include source or waste reduction, recycling, composting and/or sanitary landfilling.
- **Environmental Improvement** - recognizes the efforts of educators, groups, and businesses providing environmental education to a school or community. Efforts may include a combination of activities including litter prevention, beautification efforts, waste reduction (recycling, composting, source reduction) as well as water conservation.

Keep Georgia Beautiful also offers awards for individuals including The Carolyn Crayton Award and the Steve Reynolds Award presented to an exceptional female and male volunteer respectively. The Barbara Mason Award recognizes an outstanding KAB Affiliate Executive Director. Keep Georgia Beautiful also offers a Public Works Employee of the Year Award and a Student of the Year Award. Recognition for the student of the year includes a \$1,000 cash award.

- *Keep Georgia Beautiful Foundation* - The Keep Georgia Beautiful Foundation, founded in 1985, offers a mechanism for corporate participation in local quality of life issues. The Foundation is based on the fundamental premise that the environmental interests of the state of Georgia and the people who live here are best served when public and private interests work hand-in-hand to achieve common goals. The KGB Foundation promotes private sector financial support for worthwhile educational programs that are in line with the Keep Georgia Beautiful mission: to build and sustain community environmental activities and behaviors, resulting in a more beautiful Georgia. It is made up of a diverse group of public and private interests and individuals appointed by the DCA Commissioner.
- *Litter Prevention* - The litter prevention activities and programs of Keep Georgia Beautiful were previously described in Section 4 – Collection. They include the



dissemination of public information about litter prevention and illegal dumping, provision of a model litter prevention ordinance, and promotion of clean up campaigns. Annually, local officials are provided the opportunity to record public service announcements promoting litter prevention.

In addition, brochures and pamphlets addressing littering and unsecured loads are made available to Keep America Beautiful affiliates and local governments to promote litter prevention. Working with the Association County Commissioners of Georgia and the Georgia Municipal Association, more than 150,000 brochures/related materials have been distributed. This effort consists of brochures targeting the pickup-driving public and commercial waste haulers. It includes a poster that can be displayed in lobbies and public places.

- *Curriculum and Teacher Training* - Keep Georgia Beautiful implemented the first statewide rollout of Keep America Beautiful's elementary and secondary curricula on litter prevention and solid waste management: Waste in Place (K-6), and Waste: A Hidden Resource (7-12). These resources are disseminated through teacher training workshops. With this program, Keep Georgia Beautiful is building an environmental stewardship ethic among tomorrow's leaders. Further, this educational approach reaches more than the teachers and students by including parents and the community through continual outreach.
- *A Guide To Recycling in Georgia Schools* - Keep Georgia Beautiful worked with educators and recycling experts to develop a comprehensive guide to help schools initiate recycling programs. It covers such topics as organizing a team for the project, developing the collection and transportation logistics, promotion, and evaluation of results. The guide is available on the Internet at:  
[http://www.dca.state.ga.us/environmental/kgb/education\\_recycling.html](http://www.dca.state.ga.us/environmental/kgb/education_recycling.html).

### 7.1.4 Environmental Education

Environmental education programs in Georgia incorporate waste reduction and solid waste management.

- *Online Guide to Environmental Education in Georgia.* The *Online Guide to Environmental Education in Georgia* ([www.eeingorgia.org](http://www.eeingorgia.org)) is a website and related activities designed to build statewide capacity for environmental education by providing: environmental education lesson plans based on Georgia's Quality Core Curriculum standards, a searchable directory of Georgia's environmental education providers and the resources they offer, a statewide calendar of related events, environmental education news, and easy-to-access facts about Georgia's environment.

The Online Guide to Environmental Education in Georgia is a collaborative project involving environmental educators throughout the state. It is sponsored by the Environmental Protection Division of the Georgia Department of Natural Resources in partnership with:

Georgia Department of Community Affairs – Keep Georgia Beautiful program

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Georgia Department of Education  
Environmental Education Alliance of Georgia  
Georgia Learning Connections  
Georgia Parent Teacher association

Initial funding was provided by the United States EPA, Office of Environmental Education.

Since its launch in 2002, this program has served as a statewide clearinghouse and resource provider. Among its major accomplishments, the following were directly involved with solid waste management/waste reduction:

- *Created “Guidelines for Solid Waste Education.”* Developed for programs supported by the Solid Waste Trust Fund, these guidelines focus on achieving two goals: 1) Reducing solid waste and 2) Making Georgia litter free. They will also serve as a framework for developing future lesson plans and educational materials.
- *EPD served on the board of directors of the Environmental Education Alliance of Georgia, on the Outdoor Classroom Council, and on the Education Committee of the Georgia Recycling Coalition.* Major achievements include working with these partners to present the annual EE Conference and annual Outdoor Classroom Symposium. Each event is attended by 250-300 educators annually. Other accomplishments include creating a printed Directory of Georgia EE Providers and distributing it to all public and independent schools in the state, coordinating an annual recycling grant program for schools and recycling awareness contest for students, and developing the Guide to Recycling in Georgia Schools.
- *Environment as an Integrating Context for Learning (EIC).* EIC in Georgia was initiated to strengthen the relationship between the Georgia Department of Education and the environmental education community, establish environmental education as a valid method for accomplishing the goals of the education system, and develop a process for integrating environmental education into the K-12 curriculum. Learning based on the EIC model is about uses a school’s surroundings and community as a framework within which students can construct their own learning, guided by teachers and administrators using proven educational practices.

Fourteen schools throughout Georgia are currently demonstrating this approach, and an independent report on the program’s effectiveness is planned for 2008.

## 7.2 Needs and Goals

*Goal: Work with local governments, businesses, and institutions to ensure that Georgia citizens have access to information about waste reduction and solid waste management.*

*Needs:*

- *Encourage fee structures that encourage waste reduction.* Local governments that implement fee structures for residents and businesses that provide financial incentives for source reduction and recycling and offer alternatives to reduce waste, achieve some of the highest waste reduction rates in the State. The State should continue to support these programs with updated education, information, technical assistance, and other tools for interested local governments.
- *Promote recycling on an economic basis.* Existing and new public information programs should focus on the economic benefits of recycling, using the results of the waste characterization study and the strength of markets for materials in Georgia as a basis for determining the value of recyclables that are still being disposed.
- *Prepare elected officials for the impacts of changes in disposal facilities.* The trend toward fewer, more distant, and privately owned landfills leads to impacts on local governments and their citizens. Providing information about this trend and the related issues can help local officials respond.
- *Prepare elected officials for the issues associated with increases in out of state waste.* There are a variety of issues related to the increase in solid waste imports and the interstate transportation of solid waste. Local officials need timely and accurate information to be able to effectively consider the best responses for their respective localities.
- *Capitalize on growing awareness of the impact of litter and illegal dumping on quality of life.* This greater awareness can be a source of support and collaboration for a comprehensive public information program aimed at these problems.
- *Ensure a technically sound, objective review of proposed solid waste management technologies and promote results accordingly.* Well-researched, demonstrated, and proven technologies are essential to properly and cost-effectively managing solid waste over the long term. Many local governments would benefit from assistance in evaluating proposed technologies. The experience of other communities around the country and the world should be shared with local governments that are considering alternative waste reduction and disposal technologies.
- *Encourage demand for environmentally sound products, including products made from recyclables.* Such demand supports waste reduction efforts and achieves environmental and economic benefits.

- *Encourage businesses and institutions to educate their employees about waste reduction.* This would help to build support for waste reduction efforts not only on-the-job, but also at home.
- *Recruit, train, retain, and fund qualified solid waste management professionals.* Given the challenges to effectively manage solid waste, there needs to be a concerted effort to ensure that the best people are on the job to provide informed, experienced guidance and assistance to all the stakeholders involved.

## 7.3 Implementation Strategy

### 7.3.1 State Initiatives

- *Create a statewide umbrella marketing campaign and support materials to increase the recycling rate and support source reduction.* Develop and implement a campaign that describes the environmental and economic benefits of waste reduction, and encourages participation by residents, businesses, and local governments.
- *Expand resources to encourage businesses and institutions to educate their employees about waste reduction.* Such an effort would complement and reinforce the messages being disseminated through the statewide umbrella marketing campaign.
- *Create statewide umbrella marketing campaign and support materials to discourage improper solid waste management.* Develop and implement a campaign that describes the environmental and economic benefits of preventing littering and illegal dumping, delivering a consistent message across the state.
- *Create an environmentally preferable purchasing (EPP) education campaign.* Develop and implement a campaign that describes the environmental and economic benefits of purchasing products that are environmentally preferable, including those that are manufactured from recyclables.
- *Encourage the incorporation of environmental education in teacher training.* Work with colleges and universities to incorporate environmental education into their teacher training programs, in accordance with success achieved by the Environment as an Integrating Context for Learning (EIC) program.

### 7.3.2 Technical Assistance to Local Governments

- *Provide technical assistance and education for local elected officials on the issues associated with increases in out-of-state waste.* This would provide the tools to consider and address such issues (for example - impact on local disposal capacity, legal constraints, potential for host community fee/agreement, among others).
- *Promote Pay-As-You-Throw (PAYT) programs and provide start-up grants for education.* PAYT offers local governments the opportunity to provide collection

systems that can be financially self-sufficient while at the same time encourage increased waste reduction. System-wide changes to collection operations require the effective education of public officials and the general public, as well as specific on-going communications with affected residents.

- *Provide technical assistance and education for local elected officials on the issues associated with fewer, more distant disposal facilities that are privately owned.* Such issues can include a decrease in landfill disposal service competition, longer hauling distances, and increased illegal dumping. The information and assistance should identify the potential impacts and issues related to this trend, and describe the options for addressing them.
- *Encourage local governments to link education about litter and illegal dumping to quality of life issues.* Provide education, technical assistance, awards, and incentive grants to raise awareness of how such improper waste management negatively affects the vitality of the community.
- *Provide education, training, and support for local solid waste management professionals.* Identify priority issues and target audiences (for example, entry-level positions or mid-career professionals) and develop appropriate education or training strategies and resources to meet their respective needs.
- *Provide research, education and technical assistance in evaluating alternative solid waste management technologies.* Equipping local officials with accurate information, independent resources, and a sound evaluation methodology will help them to determine if a proposed technology is appropriate for their community.

### 7.3.3 Technical Assistance to Businesses and Institutions

- *Increase commercial and institutional waste reduction assistance, including technical assistance to support priority and toxic chemical reduction.* Provide education, information dissemination, and technical assistance to assist businesses and institutions in their waste reduction efforts.
- *Promote the use of cost benefit analysis, full cost accounting and other economic tools to make the business case for source reduction, reuse and recycling.* Such analytical tools should be used to more clearly show the quantifiable costs and benefits of waste reduction efforts.
- *Promote sustainable construction practices.* This provides an efficient and environmentally beneficial approach that can contribute to waste reduction in the construction and demolition waste area.
- *Facilitate partnerships with industry and business trade associations.* The associations can become an effective way to reach businesses to effectively extend waste reduction efforts.
- *Create and disseminate examples of successful source reduction and reuse programs.* Document projects and activities for businesses and institutions to learn from others' experiences.

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## Section 8 IMPLEMENTATION PLAN

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This Section provides an implementation plan to meet the goals and needs identified in the Waste Reduction, Collection, Disposal, Land Limitation, and Public Education and Involvement Sections of this Plan. The activities listed in Table 8-1 are summaries of the Implementation Strategy items that are described in the respective sections listed above.





Table 8-1  
State of Georgia Implementation Strategy

Activity	Year to Be Implemented										Responsible Party	Est. Cost (if any)	Funding Sources	
	06	07	08	09	10	11	12	13	14	15				
<b>WASTE REDUCTION</b>														
<b><i>Goal: To assist local governments, businesses and institutions, and the general public to reduce, on a state-wide per capita basis, the amount of municipal solid waste being received at disposal facilities.</i></b>														
▪ Work with stakeholders to establish waste reduction and recycling goals based on Georgia's secondary materials markets.												MOU TEAM		
▪ Measure waste reduction progress with 5-year waste characterization follow-up study.												DCA		
▪ Explore the issue of measuring and reporting the amount of solid waste recovered from the waste stream.												MOU TEAM		
▪ Evaluate investments in regional recycling infrastructure.												DCA		
▪ Research effective recycling programs.												MOU TEAM		
▪ Research effective solid waste management policies.												MOU TEAM		
▪ Encourage new technologies that will expand waste reduction in the State.												MOU TEAM		
▪ Encourage conversion of waste tires to beneficial reuse.												EPD		
▪ Support the Keep Georgia Beautiful program.												DCA		

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Activity	Year to Be Implemented										Responsible Party	Est. Cost (if any)	Funding Sources
	06	07	08	09	10	11	12	13	14	15			
<ul style="list-style-type: none"> <li>Encourage participation in the "Green and Healthy School" Program.</li> </ul>											DCA & EPD		
<ul style="list-style-type: none"> <li>Expand the Georgia Recycling Market Directory.</li> </ul>											DCA		
<ul style="list-style-type: none"> <li>Expand Earths 911.</li> </ul>											MOU TEAM		
<ul style="list-style-type: none"> <li>Expand the P<sup>2</sup>AD Partnership Program.</li> </ul>											P <sup>2</sup> AD		
<ul style="list-style-type: none"> <li>Pursue the establishment of a stable funding source.</li> </ul>											MOU		
<ul style="list-style-type: none"> <li>Offer grants to local governments for public education on source reduction, reuse and recycling.</li> </ul>											DCA		
<ul style="list-style-type: none"> <li>Create and disseminate examples of successful source reduction and reuse programs.</li> </ul>											DCA		
<ul style="list-style-type: none"> <li>Provide model procurement documents, including Request-for-Proposals (RFPs) and contracts for single-stream recycling collection and processing.</li> </ul>											DCA		
<ul style="list-style-type: none"> <li>Offer sample policy documents for buy-recycled promotion and purchasing.</li> </ul>											DCA		
<ul style="list-style-type: none"> <li>Provide start-up grants for regional collection or recycling/transfer points.</li> </ul>											DCA & GEFA		
<ul style="list-style-type: none"> <li>Focus start-up grant funding to support new or expanded recycling infrastructure, equipment, and/or contract labor.</li> </ul>											DCA & GEFA		
<ul style="list-style-type: none"> <li>Offer start-up grants for C&amp;D recycling and composting/mulching.</li> </ul>											GEFA		
<ul style="list-style-type: none"> <li>Provide technical assistance to support the expanded beneficial use of secondary materials, C&amp;D, etc.</li> </ul>											MOU TEAM		

## IMPLEMENTATION PLAN

Activity	Year to Be Implemented											Responsible Party	Est. Cost (if any)	Funding Sources
	06	07	08	09	10	11	12	13	14	15				
<ul style="list-style-type: none"> <li>Provide education, incentive funds, and state recognition to local government recycling programs.</li> </ul>												DCA		
<ul style="list-style-type: none"> <li>Offer technical assistance to support diversion and recycling of special wastes, including household hazardous waste and electronic waste.</li> </ul>												MOU TEAM		
<ul style="list-style-type: none"> <li>Promote and encourage the adoption of Pay-As-You-Throw systems.</li> </ul>												DCA		
<ul style="list-style-type: none"> <li>Increase commercial and institutional waste reduction assistance, including technical assistance to support priority and toxic chemical reduction.</li> </ul>												P <sup>2</sup> AD		
<ul style="list-style-type: none"> <li>Use cost benefit analysis, full cost accounting and other economic tools to make the business case for source reduction, reuse and recycling.</li> </ul>												P <sup>2</sup> AD		
<ul style="list-style-type: none"> <li>Promote sustainable construction practices.</li> </ul>												P <sup>2</sup> AD		
<ul style="list-style-type: none"> <li>Facilitate partnerships with industry and business trade associations.</li> </ul>												P <sup>2</sup> AD		
<ul style="list-style-type: none"> <li>Create and disseminate examples of successful source reduction and reuse programs.</li> </ul>												P <sup>2</sup> AD		
<b>COLLECTION</b>														
<b><i>Goal: To ensure that an adequate, cost-effective collection infrastructure exists for solid waste and recyclables.</i></b>														
<ul style="list-style-type: none"> <li>Improve hauler registration process.</li> </ul>												EPD		
<ul style="list-style-type: none"> <li>Conduct "umbrella" state marketing campaign on illegal dumping and littering.</li> </ul>												MOU TEAM/ DCA		

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Activity	Year to Be Implemented										Responsible Party	Est. Cost (if any)	Funding Sources
	06	07	08	09	10	11	12	13	14	15			
<ul style="list-style-type: none"> <li>Review and update laws and regulations regarding illegal dumping and littering, linking to quality of life issues.</li> </ul>											MOU TEAM		
<ul style="list-style-type: none"> <li>Ensure that the Georgia Emergency Operations Plan, State of Georgia Disaster Policy, and other state disaster plans adequately incorporate debris management in statewide disaster planning.</li> </ul>											MOU TEAM		
<ul style="list-style-type: none"> <li>Review permit by rule process for solid waste facilities.</li> </ul>											EPD		
<ul style="list-style-type: none"> <li>Increase inspection and monitoring of transfer stations.</li> </ul>											EPD		
<ul style="list-style-type: none"> <li>Continue DCA Annual Solid Waste Survey &amp; Full Cost Report.</li> </ul>											DCA & EPD		
<ul style="list-style-type: none"> <li>Provide technical assistance and funding for regional collection approaches, especially for recyclables.</li> </ul>											DCA		
<ul style="list-style-type: none"> <li>Support efforts and technical assistance for the development of single-stream infrastructure.</li> </ul>											DCA		
<ul style="list-style-type: none"> <li>Support the efforts of local governments to move away from "green box" sites for collection.</li> </ul>											MOU TEAM		
<ul style="list-style-type: none"> <li>Maintain scrap tire collection infrastructure.</li> </ul>											EPD		
<ul style="list-style-type: none"> <li>Provide assistance for start-up events to collect bulky items in areas where longer hauls to landfills have affected access to drop-off points.</li> </ul>											DCA		
<ul style="list-style-type: none"> <li>Support model programs to divert special wastes, such as but not limited to electronics, HHW, and "away from home" recyclables.</li> </ul>											MOU TEAM		
<ul style="list-style-type: none"> <li>Support efforts and technical assistance, including examples of model programs, on collection/processing alternatives for yard trimmings and other organics.</li> </ul>											MOU TEAM		

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Activity	Year to Be Implemented										Responsible Party	Est. Cost (if any)	Funding Sources
	06	07	08	09	10	11	12	13	14	15			
<ul style="list-style-type: none"> <li>Provide information to assist local governments with preparing for the management of storm/disaster debris.</li> </ul>											MOU TEAM		
<ul style="list-style-type: none"> <li>Provide model request for proposal documents, model franchise agreements and contracts, and reporting forms for contractors or licensees.</li> </ul>											DCA		
<b>DISPOSAL</b>													
<b>Goal:</b> <i>To assist local governments in assuring adequate solid waste disposal capacity is available within their respective planning areas for at least ten years.</i>													
<ul style="list-style-type: none"> <li>Increase inspections of waste entering MSW landfills.</li> </ul>											EPD		
<ul style="list-style-type: none"> <li>Monitor landfill capacity for Georgia waste.</li> </ul>											EPD/DCA		
<ul style="list-style-type: none"> <li>Investigate permitting options to permit disposal facilities based upon need.</li> </ul>											MOU TEAM		
<ul style="list-style-type: none"> <li>Landfill surcharge.</li> </ul>											MOU TEAM		
<ul style="list-style-type: none"> <li>Require and review financial assurance requirements.</li> </ul>											MOU TEAM		
<ul style="list-style-type: none"> <li>Conduct closed landfill inventory and assessment.</li> </ul>											EPD		
<ul style="list-style-type: none"> <li>Increased inspection and monitoring of unlined landfills.</li> </ul>											EPD		
<ul style="list-style-type: none"> <li>Re-examine yard trimmings management policy and set or reaffirm goals.</li> </ul>											MOU TEAM		
<ul style="list-style-type: none"> <li>Clean up any remaining abandoned scrap tire piles.</li> </ul>											EPD		
<ul style="list-style-type: none"> <li>Manifest and monitor scrap tire haulers and processors.</li> </ul>											EPD		
<ul style="list-style-type: none"> <li>Increase inspection and review of C&amp;D landfills.</li> </ul>											EPD		

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Activity	Year to Be Implemented										Responsible Party	Est. Cost (if any)	Funding Sources
	06	07	08	09	10	11	12	13	14	15			
<ul style="list-style-type: none"> <li>Review guidelines and practices for inert landfills.</li> </ul>											MOU TEAM		
<ul style="list-style-type: none"> <li>Review practices and environmental compliance of "captive" industrial waste landfills.</li> </ul>											EPD		
<ul style="list-style-type: none"> <li>Provide technical assistance and education for local officials on waste imports and options.</li> </ul>											DCA		
<ul style="list-style-type: none"> <li>Provide technical assistance in negotiating host fees.</li> </ul>											DCA		
<ul style="list-style-type: none"> <li>Provide technical assistance and tools to address the impact of long hauling of solid waste on litter conditions and transportation infrastructure.</li> </ul>											DCA		
<ul style="list-style-type: none"> <li>Provide research, education and technical assistance in evaluating alternative solid waste management technologies.</li> </ul>											DCA		
<b>LAND LIMITATION</b>													
<b><i>Goal: To ensure that proposed solid waste handling facilities are consistent with state and local solid waste management plans, as well as other federal, State and local environmental requirements.</i></b>													
<ul style="list-style-type: none"> <li>Ensure that state-wide maps indicating land limitation are maintained and reflect all criteria.</li> </ul>											DCA		
<ul style="list-style-type: none"> <li>Provide land limitation maps.</li> </ul>											DCA		
<ul style="list-style-type: none"> <li>Compile and provide information about solid waste and zoning ordinances impacting solid waste handling facilities throughout State.</li> </ul>											DCA		
<ul style="list-style-type: none"> <li>Educate local governments about approaches to evaluate the consistency of proposed facility siting or expansions with the local Solid Waste Management Plan.</li> </ul>											DCA & EPD		

**IMPLEMENTATION PLAN**

Activity	Year to Be Implemented										Responsible Party	Est. Cost (if any)	Funding Sources
	06	07	08	09	10	11	12	13	14	15			
<b>PUBLIC EDUCATION AND INVOLVEMENT</b>													
<b><i>Goal: Work with local governments, businesses, and institutions to ensure that Georgia citizens have access to information about waste reduction and solid waste management.</i></b>													
<ul style="list-style-type: none"> <li>▪ Create a statewide umbrella marketing campaign and support materials to increase the recycling rate and support source reduction.</li> </ul>											DCA		
<ul style="list-style-type: none"> <li>▪ Expand resources to encourage businesses and institutions to educate their employees about waste reduction.</li> </ul>											P <sup>2</sup> AD		
<ul style="list-style-type: none"> <li>▪ Create statewide umbrella marketing campaign and support materials to discourage improper solid waste management.</li> </ul>											DCA		
<ul style="list-style-type: none"> <li>▪ Create an environmentally preferable purchasing (EPP) education campaign.</li> </ul>											DCA & P <sup>2</sup> AD		
<ul style="list-style-type: none"> <li>▪ Encourage the incorporation of environmental education in teacher training.</li> </ul>											MOU TEAM		
<ul style="list-style-type: none"> <li>▪ Provide technical assistance and education for local elected officials on the issues associated with increases in out-of-state waste.</li> </ul>											DCA & EPD		
<ul style="list-style-type: none"> <li>▪ Promote Pay-As-You-Throw (PAYT) programs and provide start-up grants for education.</li> </ul>											DCA & GEFA		
<ul style="list-style-type: none"> <li>▪ Provide technical assistance and education for local elected officials on the issues associated with fewer, more distant disposal facilities that are privately owned.</li> </ul>											DCA & EPD		
<ul style="list-style-type: none"> <li>▪ Encourage local governments to link education about litter and illegal dumping to quality of life issues.</li> </ul>											DCA		

## Section 8

Activity	Year to Be Implemented										Responsible Party	Est. Cost (if any)	Funding Sources
	06	07	08	09	10	11	12	13	14	15			
<ul style="list-style-type: none"> <li>Provide education, training, and support for local solid waste management professionals.</li> </ul>											DCA & EPD		
<ul style="list-style-type: none"> <li>Provide research, education and technical assistance in evaluating alternative solid waste management technologies.</li> </ul>											MOU TEAM		
<ul style="list-style-type: none"> <li>Increase commercial and institutional waste reduction assistance, including technical assistance to support priority and toxic chemical reduction.</li> </ul>											P <sup>2</sup> AD		
<ul style="list-style-type: none"> <li>Promote the use of cost benefit analysis, full cost accounting and other economic tools to make the business case for source reduction, reuse and recycling.</li> </ul>											P <sup>2</sup> AD		
<ul style="list-style-type: none"> <li>Promote sustainable construction practices.</li> </ul>											P <sup>2</sup> AD		
<ul style="list-style-type: none"> <li>Facilitate partnerships with industry and business trade associations.</li> </ul>											P <sup>2</sup> AD		
<ul style="list-style-type: none"> <li>Create and disseminate examples of successful source reduction and reuse programs.</li> </ul>											P <sup>2</sup> AD		



# Appendix A CASE STUDIES

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## Emory (University) Conference Center Hotel

As an original member of the Georgia Hospitality Environmental Partnership in the early 1990s, the Emory University Conference Center Hotel started recycling and offering guests the option of reusing towels and linens to save water. When the Partnership eventually grew into the current Georgia Green Hotel Program, the property was one of the first in the state to jump at the opportunity to be certified by Green Seal as a green hotel.

To accomplish this, the property had to document that it was using water and energy efficiently, purchasing environmentally preferable products (from cleaning supplies and paints to paper goods), managing the waste water it produced, and minimizing the solid waste it generated through source reduction and recycling. The property maintains these efforts through a green team that meets regularly.

New initiatives in the hotel's green program include construction of an expanded recycling center for the conference area, and an incentive program that rewards an extra day of paid

vacation for employees who submit "Stupid Ideas" of how the property is wasteful. A recent winner suggested that eliminating the needless printing of a weekly accounting report could save more than six cases of paper each year.

### EMORY CONFERENCE CENTER HOTEL GREEN SEAL ACCOMPLISHMENTS

- Recycling plastic, aluminum, mixed paper, newspaper, scrap metal,
- batteries, bulbs, toner cartridges
- Purchasing Green Seal-certified cleaning and laundry products
- Donating excess food to Atlanta's Table program
- Minimizing the use of disposable food service items
- Offering guests reuse of towels and linens
- Using low-VOC paints
- Purchasing office and consumable (tissue, towels) paper with post consumer
- recycled content
- Donating used bedding to the Lutheran Church of the Redeemer to be used in making quilts for the needy

### EnviroLog

In late January 2003, P2AD received a request to help a produce re-packer, Tanimura & Antle (T&A, located in Jackson), find some alternative to landfill disposal of their waxed old corrugated containers (WOCC). T&A generates between 940 to 1,250 tons per year of WOCC with disposal costs of \$75,000 to \$100,000. Unlike regular corrugated containers, the heavy wax coating on WOCC prevents recycling because the wax won't allow the paper to dissolve.

An extensive search led to the identification of a small California company that manufactured patented machinery for making synthetic fire logs from WOCC. P2AD learned that Enviro-Log, Inc., (located in Fitzgerald, GA), had contracted to buy the machinery and was looking for a steady supply of WOCC, so it connected them with T&A and several supermarket chains.

Enviro-Log, Inc. is building a business by providing the grocery industry with an alternative to the landfill for WOCC. It has built a plant with the capacity to convert 7,500 tons per year of WOCC into 3 million synthetic fire logs, which employs 35 people in a county in great need of jobs. Enviro-Log, Inc. shreds the waxed cardboard into ½-inch chips, then washes, dries, and extrudes it into four-inch by four-inch by 12-inch-long “logs” weighing five pounds. When burned, these logs produce 50% more BTUs than five pounds of white oak, and release no harmful emissions.

Enviro-Log, Inc. has been able to take advantage of existing distribution channels to create a rare closed distribution loop. All large supermarket chains have distribution centers. Trucks that deliver products from the distribution centers to the stores then collect the stores' WOCC and carry it back to the centers. Enviro-Log, Inc. trucks deliver pallets of firelogs to the distribution centers and then carry the WOCC back to their manufacturing plant. Because of the reduced transportation costs (no backhauls), the synthetic firelogs can be sold for less than “traditional” synthetic firelogs made from sawdust and waste petroleum products.

The economic benefits from this new business will be substantial for Georgia companies. The sale of 7,500 tons per year of Enviro-Logs would create gross profits of close to \$2 million annually for the grocery chains, and save \$600,000 annually in disposal costs. Additionally, state landfills would avoid using up about 15,000 cubic yards of space for disposal of WOCC. Finally, the environmental consequences of recycling 7,500 tons of WOCC by Enviro-Log, Inc. include the reduction of greenhouse gas emissions by 7,332 MTCE (Metric Tons of Carbon Equivalent) annually.

### Noramco

Noramco is a pharmaceutical chemical company that makes active ingredients for health care products. The company is headquartered in Athens, where it began operations in 1982. The facility employs 160 full-time associates.

Noramco Athens is one of Georgia's leading environmental performers, and is recognized as:

- a Blue Ribbon Level Partner in the P2AD Pollution Prevention Partners Program
- a member of U.S. EPA's National Environmental Performance Track, and
- an ISO 14001-certified facility.

Noramco uses its environmental management system (EMS) to focus on issues such as emergency preparedness, energy and water conservation, and waste minimization. Noramco is also a member of the Synthetic Organic Chemical Manufacturers Association (SOCMA), and subscribes to the Responsible Care® principles and codes of management practices.

As a Blue Ribbon Level Partner, Noramco has committed to maintaining and continually improving its EMS and conducting community outreach, supply chain/environmentally preferable purchasing, mentoring and sustainability activities.

In addition to these activities, Noramco also uses environmental cost accounting methods for performance reporting to its parent company. Costs are tracked for capital expenditures on, and the operation and depreciation of environmental control equipment, disposition of non-hazardous and hazardous non-product output, environmental labor, wastewater management, management systems, regulatory compliance, consulting, liabilities and insurance.

The environmental results seen at the facility in 2004 speak for themselves. In its first year in the P2AD Partnership Program, Noramco increased its production levels while improving its environmental performance. The company realized a:

- 27% reduction in water use per unit of production,
- 16.7% reduction in solid waste generated per unit of production,
- 3.7% reduction in energy use per unit of production, and
- 3% reduction in greenhouse gases per unit of production.

## EarthCraft House

This joint effort of the Greater Atlanta Home Builders Association and Southface Energy Institute works to promote construction of healthy, comfortable, affordable homes that cut energy and water bills and protect the environment. P2AD is a sponsor of the program and compiled resources for builders to give to new homeowners on recycling and Household Hazardous Waste (HHW) as a part of the program. On average, an EarthCraft house is 24% more energy efficient than a comparable home built to current energy codes. The resulting savings is over five tons of CO<sub>2</sub> emissions per home.

The EarthCraft House program is moving beyond Atlanta to give Georgians across the state an opportunity to buy an environmentally responsible home. This is one of the most comprehensive and fastest growing green building programs in the country. More than 1,500 homes have been certified EarthCraft House, creating additional environmental benefits throughout the state. For example, the project in Pine Mountain is a showcase for waste reduction techniques such as onsite grinding of construction waste and water conserving landscapes. Additionally, five EarthCraft

certified homes in Macon have also qualified for the Federal government's Energy Star program and the U.S. Department of Energy's Building America initiative.

### Ft. Gordon: Deconstruction and Building Materials Recovery

The traditional answer has been to demolish buildings and send the rubble to a landfill. But a new solution – known as “deconstruction” – allows companies to avoid the costs of hauling and disposing of the debris, and diverts debris from Georgia's construction & demolition (C&D) landfills.

P2AD is working with its private and public sector clients to promote this process, in which workers manually take apart old structures and reuse the salvaged materials to either construct new buildings or renovate existing buildings. The materials that cannot be reused are recycled.

The division's most recent deconstruction success came from a pilot project with Fort Gordon. The installation's Environmental and Natural Resources Management Office auctioned off six World War II-era structures for deconstruction in 2004. Fort Gordon estimates that approximately 80-85% (by weight) of the building materials from each structure were recovered and therefore diverted from disposal.

Given the success of the pilot project, Fort Gordon auctioned the recycling rights to deconstruct 19 additional structures. The \$14,000 raised by the auction process is being used to support the Fort Gordon Recycling Program.

#### FT. GORDON DECONSTRUCTION QUICK FACTS:

- Approximately 4.5 tons of materials were salvaged (80-85% by weight, excluding masonry)
- Traditional demolition would have required 26,000 cubic yards of landfill space
- The estimated cost associated with the Recycling Rights Auction was \$3.00 per square foot as compared to a demolition cost of \$4.75 per square foot

### Two Urban Licks Restaurant Waste Reduction Program

Glass bottles are one of the largest waste streams from bars and restaurants. Due to their size and weight and relatively low market value, they are also one of the hardest items for bars and restaurants to recycle. Atlanta restaurant Two Urban Licks, acclaimed as one of the top restaurants in the United States, has found a solution to this problem. The restaurant created an innovative wine storage and transportation system that reduces their wine bottle waste stream.

At the winery, wine designated for delivery to Two Urban Licks is placed into large wine kegs and sent to the restaurant. There is an equivalent of 78 bottles per keg and the restaurant has 42 kegs in operation at all times. That alone has eliminated 3276 bottles from the restaurant's waste stream. Over the course of a year that adds up to thousands of bottles, corks, labels that were not used thereby eliminating the need for

recycling or disposal. This system also eliminates the need for hundreds of cardboard boxes.

The kegs are returned to the winery where they are re-filled and returned to the restaurant. The partnership also realizes savings in transportation since fewer trips are required to keep the restaurant steadily stocked with fine wine. A nice additional perk of the system is a reduced incidence of wine spoilage. No corks means no potential for cork taint to spoil the wine and since oxygen does not come in contact with the wine, no wine is spoiled through oxidation.

Business:	Two Urban Licks, Atlanta restaurant
WR program:	Reduction in the number of bottles, corks, labels, or boxes used
Cost savings:	Savings in transportation and waste disposal fees; wine loss due to oxidation or cork taint has been virtually eliminated
Means:	Innovative use of reusable kegs for wine transport, storage, and serving

For more examples of waste reduction success stories check out the following links or browse the internet to find more examples:

[http://www.hennepin.us/vgn/portal/internet/hcdetailmaster/0,2300,1273\\_1716\\_100908004,00.html](http://www.hennepin.us/vgn/portal/internet/hcdetailmaster/0,2300,1273_1716_100908004,00.html)

<http://www.deq.state.or.us/wmc/solwaste/cstudy.html>

<http://www.smartcommunities.ncat.org/efficiency/materials/messtoc.shtml>

<http://www.ecy.wa.gov/biblio/95418.html>

<http://www.on.ec.gc.ca/success-stories/on/valerie-e.html>

<http://www.smartcommunities.ncat.org/business/sbstoc.shtml>

<http://www.ilsr.org/recycling/wrrs/wrrs.html>

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# Appendix B

## GUIDANCE ON THE PLAN CONSISTENCY REQUIREMENT

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*Source: Georgia Department of Community Affairs, Office of Environmental Management, M. Harrington*

This document provides guidance/sample language that local governments can use in writing the Plan Consistency Requirement portion of their solid waste management plans.

When writing a full Solid Waste Management Plan (SWMP), plan writers are asked (Minimum Planning Standards, Land Limitation Element 110-4-3-.04 (5) (d) 3) to outline the requirements that the developer of a new solid waste management facility must fulfill in order to demonstrate that the facility they wish to build in the community is consistent with that government's Solid Waste Management Plan (but the local government makes the final determination of consistency). It is the job of the facility owner to prove consistency, based on the requirements outlined in the SWMP. This process is designed to give local governments more management oversight.

*Please make sure your consistency standards are representative of your own local governments' needs and goals. These suggestions also serve as a reminder that the Solid Waste Management Plan can outline requirements for facility siting including traffic flows, intersection improvements, road maintenance, litter control, fencing, berms/natural sight barriers, vegetation, on-site lighting, etc....*

No proposed facility or facility expansion will be sited in the planning area without a letter from the Governing Board stating that the facility is consistent with the Solid Waste Management Plan. To determine if a proposed facility or facility expansion is consistent with the Plan, an owner/operator of the facility shall:

- A. At least 60 days prior to filing for a solid waste handling permit, or notifying EPD in the case of a solid waste handling facility that is permitted by rule, submit to the local governing authority 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 SWM Plan, specifically what will be
    - (a) the impact upon the collection capability within the planning area;
    - (b) the impact upon disposal capacity identified in the planning area; and
    - (c) the impact to the waste reduction and recycling efforts within the planning area; and
  2. How the proposed facility or facility expansion and its operation will impact the community; [note: this should be linked back to specific measures in the needs and goals section of the plan; e.g. any proposed solid waste handling facility will not negatively impact the natural environment and/or will not

negatively impact public health and safety. Operational hours, vehicle traffic, etc are all issues that could be address in this section specifically what will be

- (a) the impact to vehicle traffic and public safety around the proposed facility and throughout the planning area;
  - (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 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 satisfy the financial assurance provisions of the plan and local ordinance; [e.g. if the plan, enforced via a local ordinance, called for any new facility to post a performance bond for potential environmental liability – the plan could specify specific minimums for various types of solid waste handling facilities]
  4. That the proper public notification process was followed [again this process would need to be spelled-out in the plan document e.g. owner/operator conduct a public hearing and/or notify all adjacent property owners, etc]
  5. That the proposed facility or facility expansion is sited in an area deemed suitable according to the criteria listed in the plan; and
  6. That the proposed facility or facility expansion is sited in a location that is consistent with local zoning ordinances.

The Governing Authority shall review the “Written Statement of Consistency” and shall determine if the proposed facility or facility expansion is consistent with the Solid Waste Management 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.