

Introduction



What is this report?

This report is primarily based on information provided by the 67 counties in Florida. It includes documented and undocumented information on all aspects of the State's solid waste management program, covering areas such as biomedical waste, recycling and pollution prevention. This report also includes information about the activities of the Department of Environmental Protection, other state agencies and organizations dealing with waste issues.

Why produce an annual report?

In 1988, the Florida Legislature passed the Solid Waste Management Act (SWMA). It was a broad act which revised nearly all aspects of the State's solid waste management program and it required each county to initiate a recycling program with the goal of achieving a 30 percent recycling rate by the end of 1994. It also required the counties to submit annual solid waste management reports to the Department. The act directed the Department to prepare an annual report on the status of the State's solid waste management efforts.

Why should we be concerned about solid waste?

Since the 1830s, each decade has seen a sharp rise in Florida's population as demonstrated in Figure 1 (next page). From 1830 to 1950, the State's total population grew by only 2.74 million people.

During the next forty years, Florida added 10.2 million people, with over one third of this growth taking place during the 1980's. By 1990, Florida had become the fourth most populous State, even with a decrease in the growth rate. It is expected to hold this position through the year 2020, when the population is predicted to be between 17.5 and 23 million people (the low and the high growth projections shown in Figure 1). The official state population for 1999 was 15,322,040 and in 2000 it was 15,982,378.

The Solid Waste Management Act stated that this report should include, at a minimum, the following information:

A comprehensive analysis of the solid waste generation and disposal in the State projected for the 20-year period.

The total amount of solid waste generated, recycled and disposed, including the method of recycling and disposal used.

An evaluation of the development and implementation of local solid waste management programs.

An evaluation of the success of each county or group of counties in meeting the goals.

Recommendations concerning existing and potential programs for solid waste reduction and recycling that would be appropriate for local government and state agencies.

An evaluation of markets for recycling materials and the success of state, local and private industry efforts to enhance the markets for such materials.

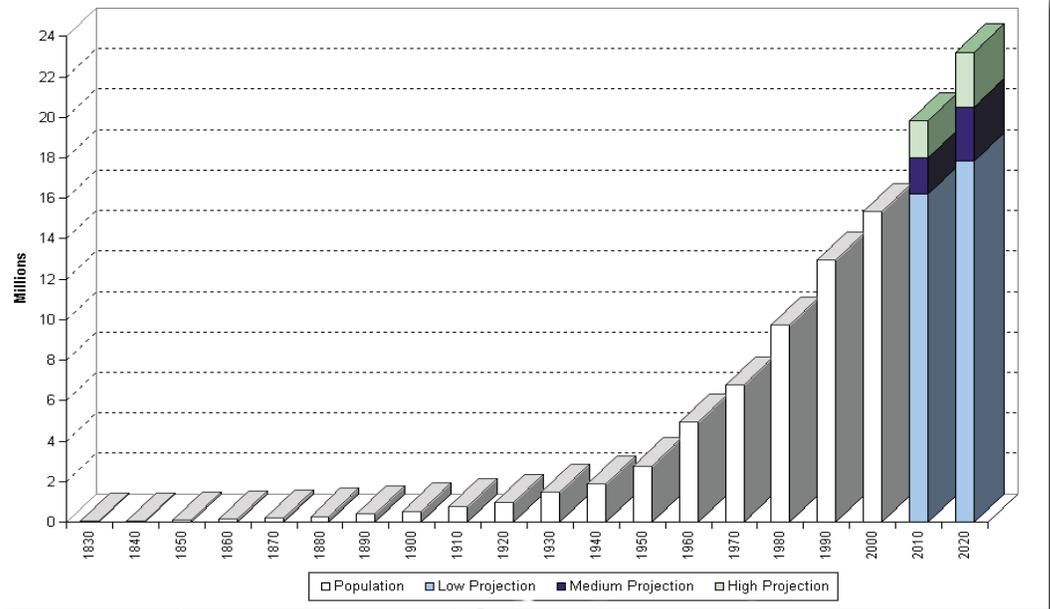
Recommendations to the Governor and the Legislature to improve the management of solid waste in the State.

Special Note about this year's report

This year's annual report encompasses two years of data and information in one report. Data from 1999 and 2000 calendar years is included here. For clarity, some tables and charts are shown twice, one for each year. Some tables have simply been amended to include two years, and some have historical data and include both 1999, 2000 and years past. Appendix A, B and some of C will include two sets of tables.

Also important to note is the fact that some data is missing from the 2000 data set. In the year 2000, the legislature reduced the reporting requirements as well as the Recycling and Education grants to counties. Therefore, some large counties did not, nor were they required to, report all information. Notes are provided by tables where data is incomplete. In some cases, this lack of data has changed state averages and so totals cannot be accurately used for comparison with previous years.

Figure 1: Florida Population Growth (1830 - 2020)



Understanding the Data and Its Validity

Information reported for years 1988 through 1994 refer to data collected during a State Fiscal Year (SFY), July 1 through June 30. Since 1995, data has been collected and reported on a Calendar Year (CY), which is January 1 through December 31. This distinction is noted in the appropriate tables and figures throughout this report.

Some of the numbers reported for recycled material which are used to calculate the recycling rate for the counties are based on waste composition studies done by the counties. Some of these studies may be outdated and may not accurately reflect the amount

of county waste generated. This distinction is noted in the appropriate tables and figures throughout the report.

Prior to CY 1995, recycling data was collected by county managers via surveys of local public and private sector facilities

Table 1: Municipal Solid Waste Collected by Generator Type in Florida in CY 1999¹

Collected Jan 1, 1999 - Dec 31, 1999		1999 Population: 15,322,040			
Generator Type	Collected Tons	Percent Total Tons	Total Units ⁴	Population Served ⁵	Pounds per Capita per Day
Single Family ² Residential	8,007,858	32	4,538,310	11,798,961	2.83
Multi-Family ³ Residential	3,105,222	13	2,556,787	6,085,981	1.11
Commercial	13,837,762	55	552,969	N/A	4.90
State Totals	24,950,862	100	7,648,066		

¹ This table is a compilation of data reported by each county. Significant digits have not been addressed.

² Includes apartments, condominiums and others.

³ Includes government and institutional

⁴ Number of generator type reported by all the counties.

⁵ Total units times residents per unit: Single Family - 2.59, Multi-Family - 1.99, and Commercial - State population

then forwarded to FDEP. Starting in CY 1995, recycling data for 12 material types was provided directly to FDEP from recyclers via the Recovered Materials Dealers Certification and Reporting Program (discussed in Chapter 2). County managers continued to carry out surveys to gather recycling data on materials not covered under this program.

In 1997, FDEP implemented a Construction and Demolition material reporting mechanism which provided more accurate accounting of waste material being managed than in previous years. This new mechanism uncovered a greater amount of MSW being managed than was previously known. As a result, when that new data was factored into 1998 data, the calculations for the percentage of materials recycled showed decreases, while the percentages of materials disposed showed increases. A detailed explanation can be found in Chapter 2, under the *Materials Recycled* section.

How much MSW is collected?

From 1989 through 1996, the State demonstrated a steady growth in the amount of municipal solid waste (MSW) collected. In 1991, about 19.5 million tons of MSW were collected in Florida. This is equivalent to 8.3 pounds per day per person or 1.5 tons per year per person collected in the State of Florida. In 1999, about 24.9 million tons of MSW were collected in the State. This is equivalent

to saying the average person generated 8.9 pounds per day. In 2000, 25.7 tons were collected at 8.8 pounds per person per day. These figures are based the respective population for the year. For county specific information, reference Tables 1A, 2A and 5A in the appendices or at:

<http://www.dep.state.fl.us/waste/categories/recycling/pages/01.htm>

Once again, the county with the largest population, Dade, collected more MSW in 1999 and 2000 than any other county in Florida. However, Dade is not the highest per capita, with only 9.26 pounds per person per day in 2000 they are slightly above state average. Polk, Indian River and Flagler counties were the three highest for per capita collected pounds. Lafayette county has the lowest population and the lowest per capita collected per day at 1.99 pounds. Small counties Liberty, Wakulla and Gilchrist were the next three lowest in the state. (See Appendix A, table 2 for 1999 and 2000)

In 1999, 55 percent of all the MSW collected in Florida was generated by the commercial sector. Collection from residential single family units was 32 percent, from residential multi-family units was about 13 percent. See Table 1 for more information. 2000 data is not complete for this data set and was left out.

Table 2: Change in Florida's Solid Waste Composition

SFY/CY ¹	Percent of Total Waste per Year									
	C&D Debris	Food Waste	Tires	Yard Waste	Textiles	Metals	Plastics	Glass	Paper	Misc.
1990	19.0	8.0	1.0	15.0	3.0	7.0	7.0	4.0	30.0	7.0
1991	16.6	6.5	1.2	15.5	2.9	9.3	6.3	4.2	30.1	7.4
1992	16.3	6.3	0.7	15.4	3.0	10.3	6.6	3.7	30.7	6.1
1993	20.6	5.7	0.7	16.0	3.0	10.2	5.9	3.4	28.7	5.8
1994	21.9	5.5	0.7	14.8	2.8	10.8	5.7	3.0	27.5	7.3
1995	24.2	5.5	0.7	14.3	2.7	10.1	5.4	2.7	26.9	7.5
1995	22.6	5.4	0.8	14.4	2.4	12.1	5.2	2.7	26.3	8.1
1996	23.1	5.1	0.7	14.2	2.5	13.2	5.1	2.7	25.1	8.4
1997	23.1	5.5	0.7	14.2	2.5	12.6	5.0	2.8	25.6	7.9
1998	23.3	5.4	0.7	13.8	2.4	12.8	4.7	3.0	26.7	7.2
1999	19.8	5.3	0.7	15.5	2.5	12.7	4.9	3.1	25.7	8.8
2000	23.2	5.4	0.7	14.0	2.5	12.1	5.1	2.9	25.8	7.3

¹ 1990 to first 1995 is fiscal year data, second 1995 to 2000 is calendar year.

Figure 2: Total Tons of MSW Collected in Florida CY 2000 by Descending Population

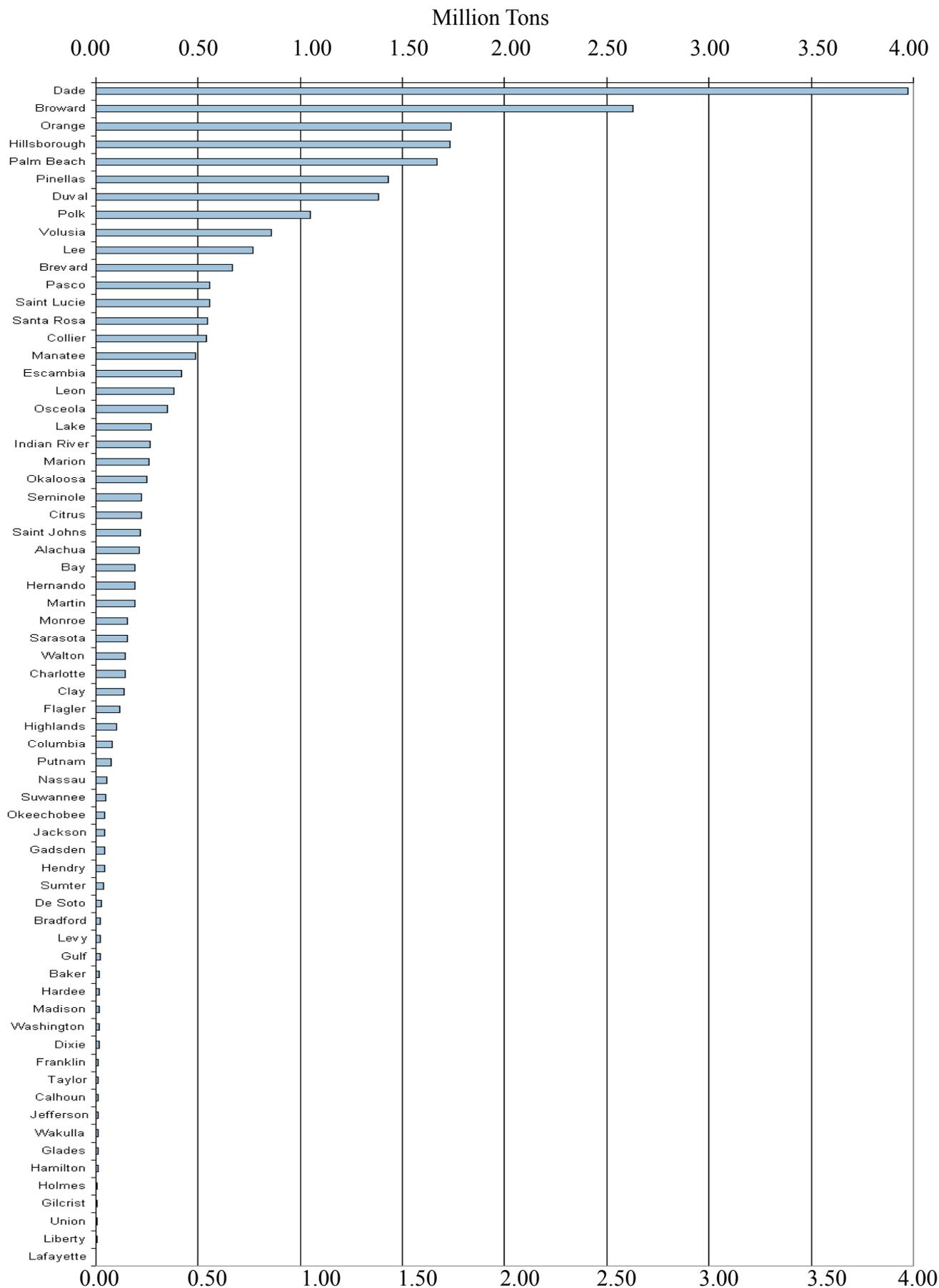


Figure 3: Composition of Florida's MSW Stream
1999 **2000**

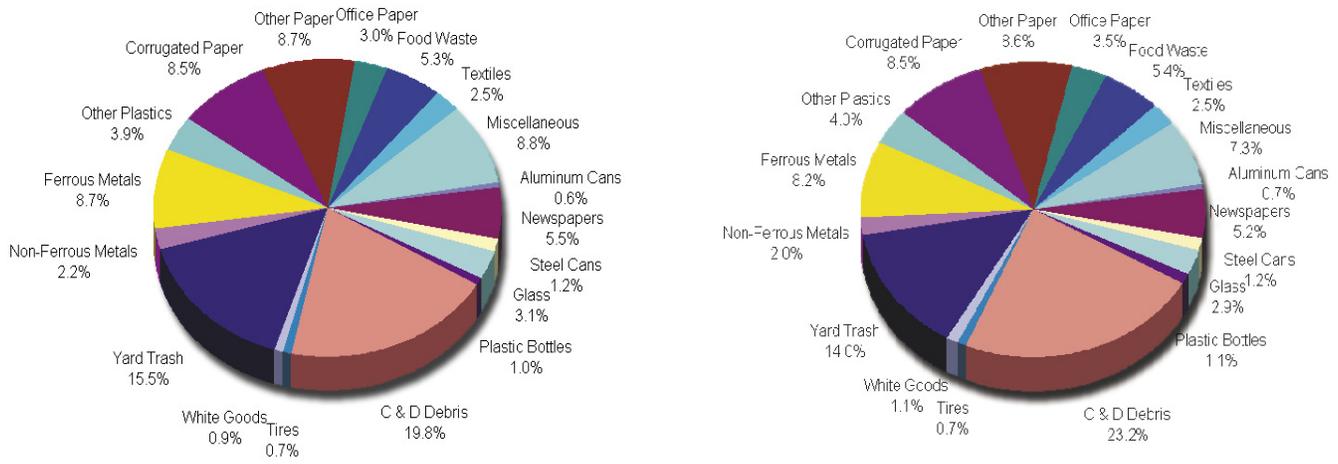
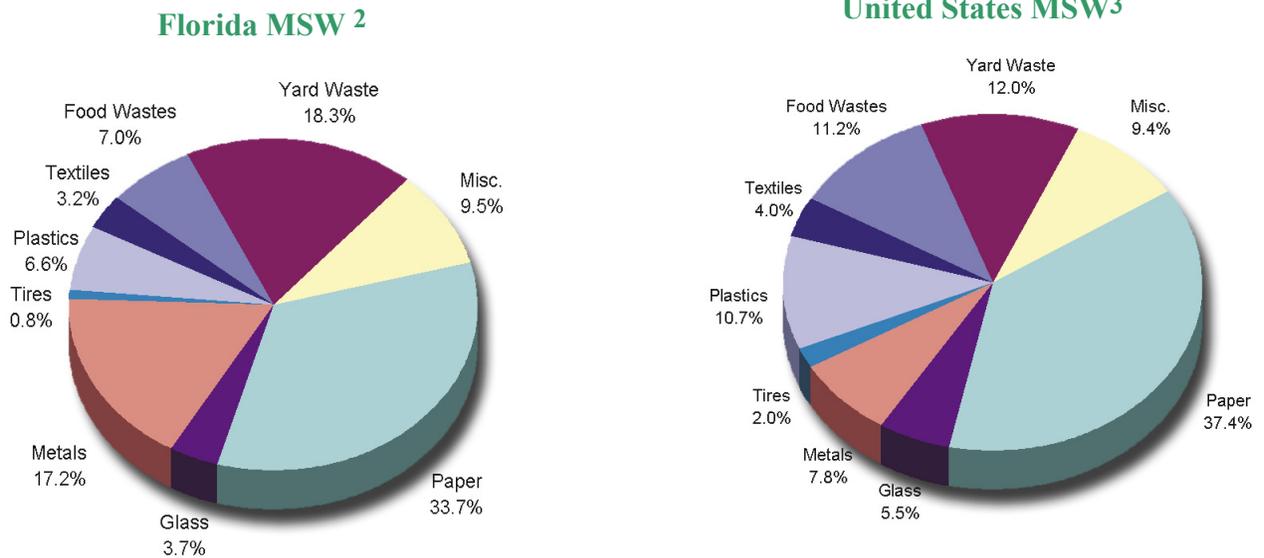


Figure 4: 2000 Comparison of MSW Composition in Florida vs. United States¹



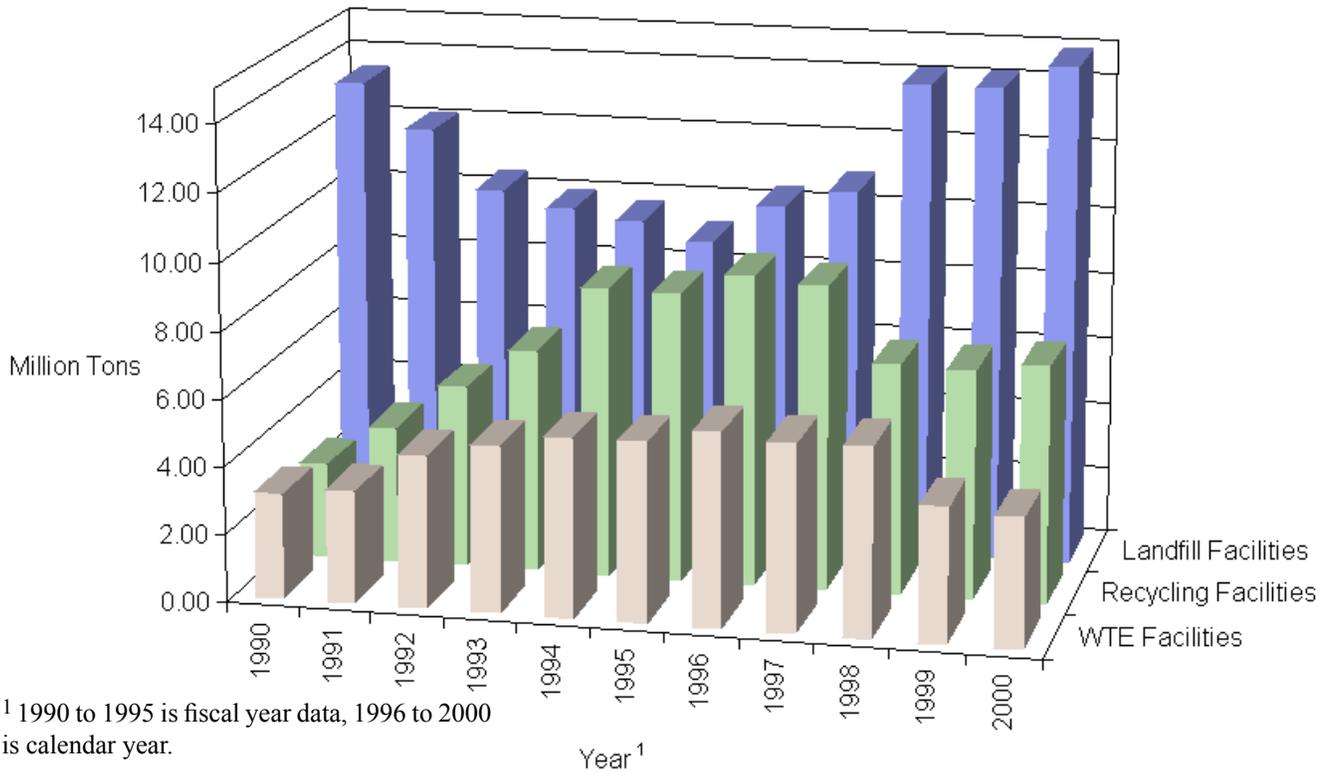
¹ For comparative purposes, these charts do not include Construction & Demolition Debris as EPA does not consider it a Municipal Solid Waste.

² Based on calendar year 2000 information provided to FDEP by Florida's Counties in the Recycling & Education Grant applications. The total tonnage does include C&D debris.

³ U.S. data adapted from: Characterization of Municipal Solid Waste in The United States: 2000 Update; United States Environmental Protection Agency.

[NOTE: Comparisons made between Florida and the nation should be viewed with caution because of differing data collection methodologies. For example, the EPA does not consider C&D debris a municipal solid waste, while Florida does. To make the comparison here, C&D debris was pulled out of Florida's waste stream, and the percentages for the remaining material categories were re-calculated.]

Figure 5: Total Tons of MSW Managed by Florida Facilities (1990-2000)



¹ 1990 to 1995 is fiscal year data, 1996 to 2000 is calendar year.

Figure 5a: Corresponding Data by Facility Type in Millions of Tons

Year ¹	WTE	Recycling	Landfill
1990	3.13	2.83	13.40
1991	3.34	4.06	12.09
1992	4.51	5.42	10.37
1993	4.95	6.64	9.90
1994	5.29	8.61	9.66
1995	5.35	8.56	9.10
1996	5.74	9.22	10.32
1997	5.58	9.05	10.85
1998	5.62	6.88	14.12
1999	5.64	6.82	14.11
2000	5.56	7.05	14.87

What’s in MSW?

Table 2 depicts how the composition of MSW has changed in Florida over the last several years. Since 1990, C&D has increased from 19.0 to 23.2 percent. This increase probably correlates to the increase in new construction and building in Florida. Most of the other materials have remained fairly steady for the past decade.

In 2000, yard trash made up about 3.6 million tons, or 14 percent, of all MSW collected. If all paper materials are combined for 2000, they equal 20.6 million tons or about 21 percent of MSW collected in Florida. Figure 3 shows the relative percent composition of MSW collected in the State categorized into 19 material types.

Figure 4 shows the waste composition of Florida as compared with that of the United States (as calculated by USEPA) in calendar year 2000. Florida’s percent waste composition for metals

and yard wastes are notably greater than that of the nation. With a significantly longer growing season, yard waste is understandably higher than national average.

How is Florida's municipal solid waste managed?

MSW collected in Florida is either:

- recycled or composted,
- combusted in a waste-to-energy (WTE) facility or industrial boiler, or
- disposed in a class I, II or III landfill.

Figure 5 depicts the State's MSW management trends from 1990 to 2000. The amount of MSW recycled annually reached a high in 1996. While the recycling seems to drop radically in 1998, this drop may be attributed to the improved accounting methods for construction and demolition material, as mentioned in the Introduction, and not to any real changes in recycling activities throughout the state. From 1990 to 1995, there was a 32 percent decrease in the tons of MSW disposed in Florida's landfills. In recent years, the amount of MSW disposed in landfills has increased while the amount combusted has gone down.

County Municipal Solid Waste and Recycling Data Sheets have been prepared for each of Florida's 67 counties and the Reedy Creek Improvement District. Each fact sheet provides a synopsis of the county's MSW management program in 2000, their waste reduction progress, participation in recycling, MSW composition, and amount of MSW disposed per capita per year since 1989.

For county specific information, reference Tables 4A, 5A and the County Fact sheets (Appendix G) or:



<http://www.dep.state.fl.us/waste/categories/recycling/pages/01.htm>

Determining the Final Disposition of MSW

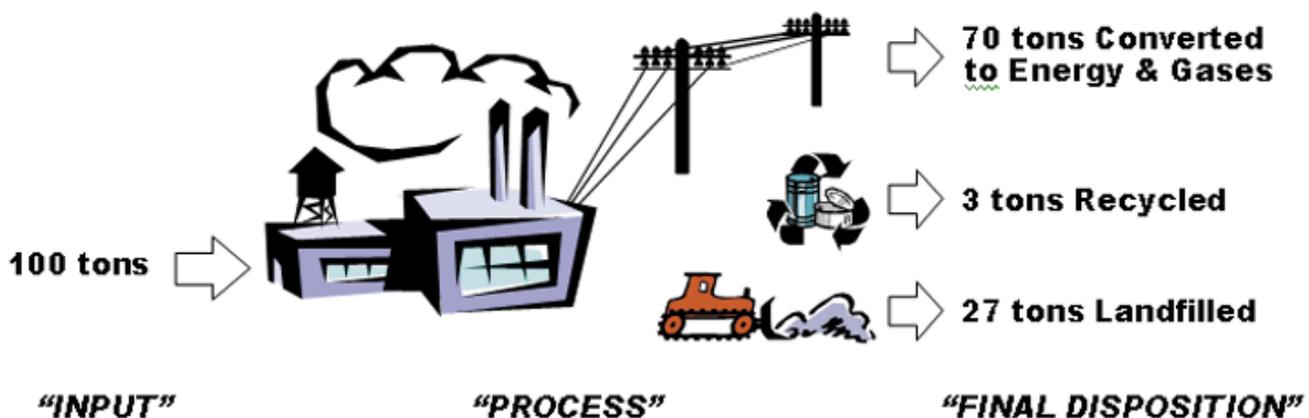
Prior to 1996, DEP simply counted the amount of material that entered a WTE facility without adjusting for the amount of ash landfilled or metals recycled at the back end (in most cases). This adjustment is necessary, however, in order to determine the final disposition of MSW. Consider the illustration in Figure 6.

In this example, 100 tons of MSW are processed by the WTE facility producing energy, gases, 27 tons of combustor ash (to be landfilled), and 3 tons of metals (to be recycled). The management of MSW through this system can be viewed in two ways:

If you want to know how the MSW was **managed**, the answer would be: 100 tons processed by the WTE plant, 27 tons disposed of in a landfill and 3 tons handled by the recycling industry.

If you want to know the **final disposition** of the MSW, the answer would be: 70 tons converted to energy and gases, 27 tons landfilled and 3 tons recycled. (The amount of MSW processed by the WTE facility has been adjusted by the amount

Figure 6: Simplified WTE Input-Output Model



landfilled and recycled.)

Thus, if you want to know how MSW was managed in Florida in 2000, you can refer to the data in Figure 5 which reports the total amount of MSW processed by each type of facility. If you were to sum the total for each facility type, you would come up with 27.47M tons (which overstates the amount of MSW collected in 2000).

The total amount of MSW collected in 2000 was reported to be 25.75M tons. To arrive at this number, the amount of MSW managed by WTE facilities (5.56M tons) has to be “adjusted” by the amount of combustor ash landfilled and metals recycled from WTE facilities. The adjusted combustion total (3.84M tons) is then added to the totals reported by landfill facilities (14.87M tons) and recycling facilities (7.05M tons).

The pie chart in Figure 7 portrays the final disposition of Florida’s MSW for 2000 based on these adjusted numbers. The most recent data for the national picture is included in Figure 7 for comparison. Please note that the methodology used to determine the national percentages is not consistent with Florida’s methodology. Based on this simple comparison, Florida’s average for recycling is just lower than the national average.

For more assistance...

Appendix E lists the Florida Department Environmental Protection’s Solid and Hazardous Waste staff, their position, program areas and telephone number. Appendix F lists the address and telephone numbers of each county’s Solid Waste Director, County Recycling Coordinator, Hazardous Waste Coordinator and Pollution Prevention Program Manager.

Figure 7: Final Disposition of Municipal Solid Waste, Florida vs. the USA

