



# **The Florida Litter Study: 1995**

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Conducted by

**FLORIDA CENTER FOR SOLID  
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for

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and

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## EXECUTIVE SUMMARY

The 1993 amendment to the Florida Solid Waste Act established a three-year goal of reducing litter and marine debris by 50% from 1994 to 1997. The Legislature directed the Florida Center for Solid and Hazardous Waste Management to conduct annual litter surveys to measure the state's progress toward that goal. As directed by the Legislature, the Center appointed a broad-based advisory committee consisting of representatives from business, government and environmental organizations. The Center designed a methodology and completed surveys in 1994 and 1995 that provide data on the quantity and composition of litter in Florida. The third annual survey will be conducted in 1996.

This report presents the results of the 1995 study. Chapter 2 summarizes the study methodology. Chapter 3 presents the results and the data analysis. Chapter 4 is a discussion of the results. Appendix A presents the site selection and survey procedures in step-by-step detail. Appendix B is a report on a pilot beach litter study conducted by the Florida Center in 1995.

For the roadside litter survey, sites throughout the state are randomly selected using Florida Department of Transportation General Highway Maps for each county. Roadsides are a good indicator of the amount of litter in the environment. In 1994, four sites in each of Florida's 67 counties were surveyed, for a total of 268 sites. To reduce the statistical variability of the data, the number of sites surveyed in each county was increased to 10 in 1995, for a total of 670 sites. Ten sites will be surveyed in each county in 1996.

One of the problems associated with measuring litter is that mowing causes roadside litter to be chopped into small pieces. Therefore, the Center classifies items that are 4 square inches or larger as "large litter" and items smaller than 4 square inches as "small litter." Large litter is surveyed over the entire site, which is 200 feet long. Surveying small litter over the entire site would take a considerable amount of time and would be very costly; therefore, small litter is surveyed on three transects of each site. The transects are 1 foot long and up to 15 feet wide, depending on the width of the site.

The 1995 roadside litter survey counted 35,439 large and small litter items and classified them into 86 categories. The 670 sites studied consisted of 10 200-foot-long roadside sites in each of Florida's 67 counties. The survey covered 134,000 linear feet, or more than 25 miles of roadway. Taking into account the total area of the 670 sites, the survey covered more than 2.8 million square feet along Florida's roadways.

### Major Large Litter Categories

Adherence to a uniform system of litter identification is essential because of the need to compare the data collected in the annual surveys. Through pilot studies, the Center identified 72 categories of large litter. For purposes of comparison, the items within the 72 large litter categories can be grouped into eight major categories:

Beverage Containers include all types of containers sealed by the manufacturer and used for beverages, including aluminum cans, glass and plastic bottles, gable-top containers, foil pouches and aseptic drink boxes. Beverage containers accounted for 21% of the large litter items identified in 1994 and 17% in 1995.

Non-Beverage Containers include jars, bottles, boxes, cans and lids unrelated to any type of beverage. Non-beverage containers accounted for 2% of large litter items in both 1994 and 1995.

Product Packaging includes all types of packaging associated with a product when it is removed from the shelf at a retail store. Product packaging accounted for 12% of litter items in both 1994 and 1995.

Outer Packaging includes bags or boxes into which items from stores or restaurants are placed. Outer packaging accounted for 4% of large litter items in 1994 and 3% in 1995.

Take-Out Food Items include packaging and other items associated with food that may be consumed in a vehicle or away from the home. Take-out food items accounted for 22% of large litter items in both 1994 and 1995.

Printed Paper Items include newspapers, books, magazines, advertisements, school or business papers and lottery tickets. Printed paper items accounted for 5% of large litter items in both 1994 and 1995.

Debris Items include construction debris, vehicle debris, tire pieces and home items (appliances, furniture, clothing, etc.). Debris items accounted for 15% of large litter items in 1994 and 21% in 1995.

Miscellaneous Items include all items that cannot be specifically identified, such as items made of paper, paperboard, cardboard, plastic, plastic film, poly styrene foam and glass. Miscellaneous items accounted for 20% of large litter items in 1994 and 18% in 1995.

### Large Litter by Material Type

For purposes of comparison, the 72 categories of large litter were grouped by material type. In 1994, paper items were the most numerous, accounting for 30% of large litter items identified, and "mixed" items (defined as items with more than one material where the materials were not bonded together) accounted for 28%. In 1995, mixed items accounted for 34% and paper items accounted for 26% of all large litter items. Plastic items were the third most numerous, accounting for 22% of large litter items in 1994 and 23% in 1995. Aluminum items accounted for 13% of large litter items in 1994 and 10% in 1995. Glass items accounted for 6% of large litter items in 1994 and 5% in 1995. Materials accounting for less than 1% of large litter



items in both 1994 and 1995 were composites (defined as items with more than one material where the materials are bonded together) and steel.

### Small Litter Categories

Items smaller than 4 square inches are classified either as specific items (cigarette butts, candy wrappers, bottle caps, straws, plastic film, polystyrene foam peanuts) or as “pieces” of a material (glass, paper, hard plastic, polystyrene foam, rubber/tire, aluminum, other metal). Cigarette butts, the most numerous small litter item, accounted for 33% of small litter items in 1994 and 25% in 1995.

### Comparison of 1994 and 1995 Data

The results of the 1995 roadside litter survey indicate that evidence of an overall reduction in litter is inconclusive. Estimated overall reductions of 9% in large litter density and 7% in total large litter items are not statistically significant because of the  $\pm 11\%$  variability of the data. The results also indicate that survey sites on adopted roads and highways had approximately one-third less large litter than sites on non-adopted roads and highways.