

# **THE FLORIDA LITTER STUDY: 1994**

Conducted by

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AND HAZARDOUS WASTE MANAGEMENT  
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for

**THE FLORIDA LEGISLATURE**

and

**FLORIDA DEPARTMENT OF  
ENVIRONMENTAL PROTECTION**

**January 1995**

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## EXECUTIVE SUMMARY

### INTRODUCTION

In 1993 the Florida Legislature established a 50% litter and marine debris reduction goal for the period of January 1, 1994 through January 1, 1997. The Legislature directed the Florida Center for Solid and Hazardous Waste Management (the Center) to design and conduct annual litter surveys that could be used to measure progress toward that goal. The legislation also required that a seven-member Advisory Committee be established to advise the Center on the design and implementation of the study. The members of the Advisory Committee were representatives from business and industry, local government, and environmental interest groups.

This report and its appendices present the results obtained during the first year of the study. The report describes the development and implementation of the roadside litter portion of the study. Appendix A presents the site selection and survey procedures in step-by-step detail. Appendix B is a report prepared by the Center for Marine Conservation (CMC) that presents the results of a coastal and inland shoreline litter pilot study conducted by CMC under a contract with the Florida Center for Solid and Hazardous Waste Management.

### METHODOLOGY

After reviewing studies conducted in other states and consulting with litter research experts, the Center concluded that surveying roadside litter was an accountable and manageable method of measuring progress toward Florida's litter reduction goal. Sites were randomly selected by using computer-generated random coordinates to locate sites on Florida Department of Transportation General Highway Maps for each county. Four sites measuring 200 feet in length were surveyed in each of Florida's 67 counties. Half the sites were 18 feet wide, and half the sites varied in width from 5 to 40 feet.

One of the problems associated with measuring roadside litter is that mowing causes litter to be chopped into small pieces. A great deal of litter is effectively "mulched" through the mowing process. Florida's abundant rainfall and warm climate require that roadsides be mowed frequently. Once litter has become chopped, identification of the litter becomes much more difficult. In addition, measuring very small litter items over the area of an entire site is very time-consuming. Therefore, a distinction was made between large litter and small litter. Large litter items measured 4 square inches or more; items smaller than 4 square inches were classified as small litter. Three cross sections that were 1 foot long and up to 15 feet wide were surveyed for small litter, one at each end and one in the middle of the site. ¶

## RESULTS

The 1994 survey counted 14,495 large and small litter items and classified them into 86 categories. The survey covered 53,600 linear feet, or more than 10 miles of roadsides. Taking into account the total area of the 268 sites, the survey covered more than 2 million square feet along Florida's roadways.

Of the 11,987 large litter items counted, 30.2% were paper, 27.7% were mixed (more than one material, not bonded together), 22.3% were plastic, 12.8% were aluminum, 5.8% were glass, 0.7% were composite (more than one material, bonded together), and 0.5 % were steel.

The 72 large litter categories were classified into eight major categories and a percentage of total large litter was calculated for each major category: 1) take-out food items, 21.96%; 2) beverage containers, 21.07%; 3) miscellaneous items, 20.02%; 4) debris items, 14.90%; 5) product packaging, 11.54%; 6) printed paper items, 4.61%; 7) outer packaging, 3.98 % ; and 8) non-beverage containers, 1.72%.

Small litter items were classified into 14 categories. One-third of the small litter items were cigarette butts, followed by miscellaneous paper (17%), hard plastic pieces (9%), polystyrene foam pieces (9%). and glass pieces (9%).

Data analysis for large litter items suggested that litter density increased significantly as the number of lanes increased. Data analysis for small litter items also suggested a direct relationship between litter density and number of lanes. Additionally, sites from which a traffic signal was visible and sites within one a mile of a fast food or convenience store had a higher density of small litter.

The second annual litter survey will be conducted from January through April 1995.