
The Florida Litter Study: Economic Impacts of Litter on Florida's Businesses

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by the
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EXECUTIVE SUMMARY

Litter is a costly solid waste management problem that affects Florida's economy, environment, and quality of life. State agencies, local governments, and the business community spend millions of dollars each year to clean up litter on roadsides, city streets, loading docks, parking lots, public lands, rivers, streams, beaches, parks, and recreation areas (FCSHWM 1997).

In 1993 the Florida Legislature established a 50% litter reduction goal for the period of January 1, 1994 through January 1, 1997. From 1994-1997 survey results indicated a statistically significant increase in the amount of large litter items found on Florida's roadsides. The estimated increase for 1994-1997 was 17% based on litter density, and 18% based on the total number of items.

After reviewing the results of the 1994-1997 studies, the Florida Department of Environmental Protection (FDEP) recognized the need to expand the scope of the Center's survey research to include a survey of the economic impacts of litter. In an effort to calculate the total annual costs of cleaning up litter throughout the state, the Center researched the impacts of litter and conducted several surveys during 1997-1999. The report on the 1997-98 Litter Study includes a definition of the litter problem, an assessment of the social costs of litter, a survey of county costs for managing litter throughout Florida, and a review of litter programs in Florida.

Both the public and private sectors are currently involved in litter reduction efforts. Cities and counties often have multiple departments and programs involved in clean up efforts. Keep Florida Beautiful (KFB) affiliates operate in many counties to promote education, beautification and clean up efforts. Businesses throughout the state are affected by litter and illegal dumping on private property and bear unknown cleanup and disposal costs.

Considering the numerous entities affected by litter, several issues must be addressed to accurately assess the total annual costs of cleaning up litter throughout the state. These issues include how litter affect the Florida business community and what it costs Florida businesses to manage litter. In study conducted in 1998-99 by the Center, these and other issues were addressed. This report presents the findings of this study.

Methodology

After conducting an extensive literature search for studies on the economic impact of litter on businesses, the Center concluded that a suitable research methodology was not available to provide the desired data. The Center then designed and conducted pilot studies to determine the most reliable instrument for measuring the economic impact of litter on Florida businesses.

As a result of the pilot studies, it was determined that a perception survey completed through in-person interviews would provide the most reliable data. Two researchers completed 200 surveys from December 1998 through May 1999. The researchers conducted the surveys in ten major Florida cities including: Orlando, Tallahassee, Hollywood, Fort Lauderdale, Miami, Jacksonville, Tampa, St. Petersburg, West Palm Beach, and the Brevard County Metropolitan Statistical Area.

In each city, 5 sites were randomly selected by using computer-generated random coordinates to locate sites on city maps. From the 5 randomly selected sites, a total of 20 businesses were interviewed. The researchers developed a bias-free method for selecting the businesses surveyed from seven categories (food/drink, manufacturing, entertainment, retail, service, residential and businesses with drive-through windows). The survey addressed questions such as: business demographic data, size, number of employees, number of employees that pick up litter, number of hours those employees pick up litter per week, employee hourly wage and how often they pick up litter. The survey also included questions about the interviewees' perceptions of litter, common litter items, sources of litter found near the business, community/municipality response to litter or illegal dumping complaints, problems with illegal dumping and effective means to eliminate or decrease littering/illegal dumping.

An alternate survey was used to interview a representative from each municipal solid waste department and the director of the local Keep Florida Beautiful affiliate. This survey investigated the interviewees' perceptions of litter and illegal dumping by addressing issues such as: local litter levels, most littered locations, refuse collection services, recycling participation, sources and composition of litter, and items most frequently dumped illegally. The researchers asked the interviewees how each city measures the success of litter abatement programs. They also followed up on the 1998 Litter Study survey by inquiring about annual expenditures on city litter management programs, including education and beautification efforts.

Results

The data collected from the surveys was integrated into a database system and statistically analyzed for trends and significance. The final report presents the following data on business costs and litter composition:

- The average amount spent per business to clean up litter on an annual basis was calculated to be \$2,434.73. Of the businesses surveyed, 93% paid employees to pick up litter, 77% of the businesses pick up litter daily, each business had between 4 and 5 employees pick up litter, and employees pick up litter an average of 6.5 hours per week.
- Businesses reported the most frequently found litter items were cigarette wrappers,

cigarette butts, drink containers, fast food wrappers and auto parts. Most businesses reported that people put litter into their dumpsters, onto their property or in their parking lots.

The final report also presents the following data on perceptions about litter and litter related issues:

- Perceived sources of litter were from pedestrians, traffic, customers, neighboring businesses and illegal dumping. Of the businesses that answered each question, 74% felt the amount of litter present today was the same or more than five years ago, and 76% said anti-littering laws are not very effective or have no effect at all. Only about 25% of the businesses surveyed found more trash cans to be an effective litter management technique.
- Of the businesses surveyed, 98% said the presence of litter lowers property values, 98% said the presence of litter has a negative effect on business, and 78% said they thought there was a connection between litter and crime.

Conclusions

Public perceptions and cleanup costs are useful indicators of litter-related problems and widespread effects. This report proposes several conclusions and additional research needs, as summarized below.

Businesses in Florida are significantly affected by litter and illegal dumping, regularly spending money to manage and abate these problems. In fact, many business representatives believe there is a connection between litter and crime, property values and business. Examples of illegally dumped items include: tires, plant debris, furniture and household chemicals. Some cities have been able to reduce illegal dumping by providing affordable disposal methods, strict codes enforcement and targeted cleanup programs. The far-reaching effects of illegal dumping in Florida are currently undefined and warrant further study.

Programs responsible for managing urban litter often operate under many different local departments. This decentralization has made it difficult to calculate all litter-related, local expenditures through focused survey research. Case studies are needed to develop an effective instrument for calculating total litter-related, local expenditures.

Businesses, cities and KFB affiliates use a number of strategies to reduce litter with varying degrees of success. Communication between the numerous entities managing litter has the potential to effectuate a reduction in litter-related problems throughout the state. An effort to coordinate litter-related information will provide educational tools that include best management practices and heighten awareness of litter-related problems.

1. INTRODUCTION

Litter is a solid waste problem that has economic and social implications. Increases in litter have been observed nationwide in recent years, in spite of public education campaigns aimed at changing this behavior. This report presents the results of a study to quantify economic impacts of litter and illegal dumping on businesses in Florida.

1.1 Background

In 1993 the Florida Legislature established a statewide litter reduction goal. The Legislature directed the Florida Center for Solid and Hazardous Waste Management (Center) to conduct annual surveys to measure progress toward the goal. The Legislature established Keep Florida Beautiful (KFB) as a public-private partnership charged with conducting educational litter prevention campaigns.

The Center conducted four annual statewide roadside litter surveys and found that roadside litter increased by about 17% from 1994-97. After discussions with the Florida Department of Environmental Protection (FDEP) and various stakeholders, the Center broadened the scope of its survey research to include:

- Ⓒ interviews with litter management and solid waste management officials throughout the United States to determine what types of programs have been successful in other states.
- Ⓒ a statewide survey of county employees involved in litter management and prevention at the county level.
- Ⓒ a review of published research on the association between litter, crime, decreasing property values and neighborhood decline.

In 1998, in conjunction with its county survey of litter management practices and costs, the Center examined the economic impacts associated with litter. Of particular interest to the state of Florida is the impact of litter on the state's business community.

The Center found that:

1. Grass roots efforts to prevent litter in Florida are increasing. The number of volunteers participating in cleanups has been increasing each year.
2. The presence of litter in a neighborhood has been shown to have a significant effect on

- residents' perceptions of the quality of life in the neighborhood.
3. Although it is widely acknowledged that litter can have a substantial economic impact on businesses, it is difficult to quantify that impact.
 4. The Center's survey of Florida counties indicated that there is no consistent method for accounting for litter management costs. Additional research is needed to determine the cost of managing litter at the county and local levels.

Based on the results of the research conducted in 1997-98, the Center designed a survey research project for 1998-99 to obtain quantitative information about the economic impact of litter on Florida's businesses.

1.2 Overview: The Urban Litter Problem

Litter is one of the most visible signs that people are not taking pride in the places where they live, work, and play. Urban centers are especially vulnerable to the impacts of litter. The U.S. Conference of Mayors, an organization representing 1,100 mayors of the nation's largest cities, recognized in 1997 that some of the more serious social consequences of urban decline could be addressed by focusing on litter.

Florida's cities have an extremely high level of national and international visibility because of the state's popularity as a tourist destination. An estimated 47 million people visited the state in 1997, according to the Florida Commission on Tourism. Maintaining an attractive environment is a critical element of sustainable economic prosperity.

The Center's current project was designed to identify:

- C attitudes and perceptions about litter;
- C costs to businesses to clean it up; and
- C current litter reduction efforts in large urban areas around the state.

The research began with a review of the annual litter surveys conducted by the Center between 1994 and 1997. The research team looked at possible modifications to the survey methodology that would make it a better tool for measuring litter in specific types of urban environments. The team also considered incorporating a study of the behaviors and attitudes associated with littering, as well as the social and economic costs.

One of the problems with studying urban litter is that there is a lack of accurate measurement methods. A methodology would need to be developed that would quantify both the volume and accumulation rate of litter. Additionally, it would be helpful to have a tool to measure public perceptions of the seriousness of the litter problem and the associated social and economic impacts.

1.3 Review of Previous Research

In addition to reviewing the research collected during its previous studies, the Center reviewed a major study on littering attitudes and behaviors that was conducted in Australia over a seven-year period. The studies were sponsored by Australia's Beverage Industry Council and were part of an ongoing national study of littering behavior.

During one of the Australian field studies, approximately 9,000 observations were recorded and 2,700 interviews were conducted. The researchers concluded that littering is a complex human behavior performed by different groups at varying times and under diverse conditions. They found that:

- C The presence or absence of trash receptacles was not a major factor in littering.
- C There were large differences between actual behavior and the way that people described their behavior. When researchers interviewed people after seeing them litter, many of those interviewed denied that they had littered.

After discussions with FDEP and other stakeholders, it was agreed that although the behavioral insights from the Australian studies were helpful, attempts to replicate the Australian findings by conducting an extensive survey of attitudes and behavior would not be the best use of Florida's resources at this time. However, it was agreed that some of the attitude questions would be incorporated into the urban litter and economic impact surveys that the Center would conduct.

1.4 Urban Litter Prevention Forums

In 1998, Keep America Beautiful and the U.S. Conference of Mayors created the Urban Litter Partnership. The Center was invited to participate as one of the sponsors of the partnership, based on the national attention that the Center's previous litter studies have received.

The Urban Litter Partnership's first regional Urban Litter Prevention Forum was held in Denver in November 1998 in conjunction with the annual meeting of the Municipal Waste Management Association. The following innovative approaches to preventing and reducing urban litter were presented at the forum:

- C Everett Bass, Houston's Director of Solid Waste, described the Clean Neighborhoods Program, created by Keep Houston Beautiful and the City of Houston based on the belief that reducing litter will improve the economy, cut down on crime and instill community pride. The year-long program involves three neighborhoods and three transportation corridors. Houston created a City Task Force to foster partnerships between local government, residents and the private sector. The primary components

of the program are education, prevention, and remediation.

- C Greg Fennig, executive director of Keep Indianapolis Beautiful, described “Project 180,” a community cleanup and beautification project that attempts to foster partnerships and enhance a sense of ownership and pride among residents. Groups develop their own programs and compete for funding. The Project has helped to improve 300 properties, paint 50 homes, clean up 150 blocks, and plant 400 trees.

The second Urban Litter Prevention Forum was held in January 1999 in Hollywood, Florida. One of the key concerns expressed by municipal and county solid waste and enforcement staff was that there is no documented evidence of the link between litter and crime, drugs and illegal dumping. Without documented evidence, it is difficult to obtain funding for cleanup and prevention efforts.

Another concern was the perception of a link between litter and negative impacts on economic development. Again, there is a lack of existing data documenting the connection. Information on such a link seems to be buried in multiple departments in city and county governmental units. A suggestion was made that those who have access to such information gather it and send it out to forum attendees. There was a strong desire for Florida-specific data as opposed to national data.

Other key issues identified by the participants in this Forum were:

- C There is a lack of clear lines of responsibility for urban litter. Departments which might be responsible include Public Works, Recreation, Parks, Sanitation, Codes Enforcement, Law Enforcement, and other departments.
- C There is a perceived association between litter and crime, but it is difficult to find data that supports a cause-and-effect relationship.
- C Urban litter can be decreased through partnerships between various groups, cities, counties, and states, including solid waste management agencies, law enforcement and codes enforcement agencies, and grass roots organizations such as Keep Florida Beautiful and Keep America Beautiful.
- C Education is seen as an essential component of any litter prevention partnership. Education is needed to motivate the participants, including people in the judicial system, law enforcement, county and municipal departments, private industry, and the public.
- C There is a need for models, Best Management Practices, and enforcement success stories.
- C Littering tends to be perceived as a behavioral issue, whereas illegal dumping tends to

be perceived as a more complex issue involving economics and criminal intent.

1.5 Urban Litter Summit

The National Litter Summit was held in Tampa, Florida in October, 1999. The program topic was “Building Clean, Livable Cities.” The Summit was the culmination of efforts begun in Chicago in April of 1998. At that time the U.S. Conference of Mayors (USCOM) and Keep America Beautiful teamed up with sponsors from the corporate, academic and local government sectors to form the Urban Litter Partnership (ULP). As a major component, Mayor Brown of Houston committed resources to a pilot program of clean up efforts targeting urban neighborhoods in that city. Other cities nationwide participated in a survey of Best Practices conducted by USCOM. Survey results from exemplary programs were featured in a guide that was released at the Summit. During the year, the ULP organized and conducted two Nationwide Forums. The goal was to share successful practices and programs among partnership participants and other professionals interested in the problems of litter, urban neighborhood blight, recycling and solid waste. These forums were held in Denver in November of 1998 and in Ft. Lauderdale in January of 1999.

The Summit program was presided over by Michael Guido, Mayor of Dearborn, Michigan. The host Mayor was Dick Greco of Tampa, Florida. Featured guest speakers were Dr. George Kelling of Rutgers University, author of “The Broken Windows Theory”, and Robert Curnow, director of Community Change Consultants, an Australian research firm that has conducted the world’s largest study of littering behavior. Presentations on Best Practices city programs were made by John Hall, Deputy Mayor of Indianapolis, Indiana; Amy Kuhn, Special Assistant in the Mayor’s office, Columbus, Ohio; Everett Bass, Director of Solid Waste, Houston, Texas; and, Clarena Tolson, Deputy Commissioner, Philadelphia, Pennsylvania. A panel discussion on “Effective Approaches to Enforcement” was led by Mayor Guido and featured as moderator Judge Larry Potter of Shelby County, Memphis, Tennessee - another Best Practices city.

The Florida Center for Solid and Hazardous Waste Management presented research conducted on litter in Florida from 1994 through 1999. This presentation reported results of the 1998-1999 study titled “Economic Impacts of Litter on Florida’s Businesses,” a survey of businesses in ten Florida cities. A concurrent session on programs for illegal dumping featured the Best Practices enforcement program of the city of Chicago, Illinois.

Several presentations described Best Practices to address litter and illegal dumping. Host Mayor Greco presented a program of the city of Tampa, which exemplifies several components of successful programs. The Tampa program is called Neighborhood Environmental Action Team or N.E.A.T. Primary components of this program are:

- C A Mayor’s initiative- It is important to have a top-down approach with support at the highest levels of city government.

- C A Coordinated approach- Form a program to specifically address neighborhood cleanliness and coordinate the efforts of many departments with related functions. This has worked in Houston, Indianapolis and Philadelphia as well. Costs of litter cleanup and prevention efforts can be better tracked if a specific program is responsible for coordinating those efforts.
- C Education - At risk, i.e. minority and disadvantaged, youth are hired, trained and educated in clean up program efforts.
- C Public-private partnerships/collaboration to leverage resources – An example in commercial areas is the Business Improvement District (BID), a special taxing district to benefit the area. These provide many special services; e.g. contracts with Solid Waste Management for “enhanced” service in the district
- C Neighborhood involvement – Involve churches, business owners, area leaders and youth and develop leadership roles from those ranks.

Everett Bass, Director of Solid Waste Management for the city of Houston, described some of the lessons learned in the pilot project:

- C Find, develop and cultivate leadership in the community.
- C Change takes time. Program longevity is important to success. A year was enough time to get a program up and running but community attitudes, beliefs and practices did not change significantly in before and after surveys.
- C Be flexible. Adapt programs to utilize available talents and other resources. Combine efforts.
- C Be Creative. Use non-traditional methods such as murals over graffiti.
- C Coordinated enforcement activities are an essential component of city and neighborhood improvement programs. Codes enforcement, surveillance, neighborhood protection, police, Solid Waste inspectors and municipal courts must work cooperatively.

Dr. George Kelling, a professor from Rutgers University and author of “The Broken Windows Theory,” presented a sociological perspective on social attitudes and urban social programs over the past forty years in the U.S.:

- C 1960's Civil Rights and social revolution: Antisocial behavior and minor offences were seen as expressions of minority culture. This "ideology of self-expression" caused social disorder in poor and minority communities. The quality of life, property values and children's safety suffered. Disorderly behavior and conditions led to urban decay and more serious crime. Police responded mostly to emergencies and the most serious crimes. Citizens believed "Policing is a police responsibility."

- C Shift in the 1980's: Recognition that disorderly behavior and conditions lead to serious crime and urban decay. Police began to understand that order maintenance activities help to prevent crime. There is an interactive effect between poverty and crime. There must be an early response to juvenile offences. Youth need mentoring and positive role models. Communities need to be involved in cleaning up and eliminating the conditions that foster crime and social disorder; i.e., graffiti, gangs, drugs, prostitution, dumping, etc. (the figurative "broken windows" of the social structure). These activities are the outward, visible signs of the breakdown of social order. Society must be pro-active and reject the idea that antisocial behavior is an expression of cultural diversity. There was a shift to the recognition that "Policing is a social responsibility" of the residents of the community.

The work done by Kelling illustrates the value of studying social behavior. Just as a single "broken window" that is not repaired can lead to the deterioration of a building, social problems that are not addressed can lead to neighborhood deterioration. This decreases the quality of life for the residents of the area. For example, Kelling made the point that small, victimless crimes must be addressed in addition to the more serious crimes that are usually the focus of law enforcement efforts. Traditionally, law enforcement has prioritized their efforts to respond primarily to "big crimes," such as murder, because of limited resources. According to Kelling, society must also address "small crimes," such as littering, because they affect social perceptions and create an atmosphere that leads to more serious antisocial behavior. Kelling advocates a long range, prevention approach with the goal of reducing the need for short term crisis management.

Rob Curnow, a social researcher and psychologist from Australia, presented findings from his research on the behavioral aspects of littering. Comparing his work to the "Broken Windows" theory, he is more interested in who broke the window. He looks at issues such as urban anonymity versus personal responsibility and tries to identify what he terms behavioral triggers and targets. Interesting highlights of his litter research findings in Australia include:

- C There is no such thing as a littering type.

- C Litterers can be deceptive.

- C Litterers are both deliberate and unaware.
- C Disposal is complex behavior.
- C Lack of trash bins is not a factor.
- C Littering is most common around 4:00 PM.
- C Most litter occurs 9-15 feet from a bin.

Curnow has shown that littering behavior is very complex. People litter in different ways at different times of the day and differently at different social events. This is important because efforts to control littering will have to address these issues to achieve changes in social behavior. Also, Curnow showed that littering behaviors vary not only with the age of the individual, but also with such factors as whether the individual is by themselves or in a group. Peer behavior has also been shown to be a strong factor in influencing littering behavior in most teens. This phenomenon has to be considered in implementing an anti-litter program. He states that “Peer pressure can have both a positive or a negative effect on littering behavior.” An anti-littering program will have the most effect with teens if it utilizes this behavior of social conformity to the group. Curnow also showed how littering behavior does not fit into a stereotype. People of all sexes, ages, ethnic, social and economic backgrounds litter. Even individual littering behavior can vary in its frequency and form. For example, the availability of trash receptacles does not indicate whether an individual will litter or not at a given moment. Also, there is some variation in how individuals define littering. Some people do not consider cigarette butts as litter. Others see organic solid waste, such as plant debris and fruit waste, as “natural” products that will decay into mulch and fertilizer if left in an exposed environment.

Another interesting aspect to the study of littering behavior is that certain individuals have developed ritualized behaviors associated with how they litter. Curnow has shown that these individuals may go to great lengths to litter in a particular way. He has described what he calls “wedgers, 90 percenters, foul shooters, inchers, followers, surreptitious releasers, wagon circlers, flingers and undertakers” to describe their littering behaviors. The wedgers tend to wedge their litter into small cracks or spaces, the 90 percenters appropriately dispose of their litter 90 percent of the time and litter 10 percent of the time for no apparent reason. The foul shooters try to throw or foul shoot their waste towards a can or bin, but will not pick it up if they miss. Inchers are characterized by their behavior of abandoning their waste and inching away from it as if it was not their litter. Followers tend to do whatever the group that they are with does and will litter if others litter. Surreptitious releasers tend to release their litter in a casual, secretive way as they go about their business. Flingers are those individuals who openly throw their litter, almost as an act of defiance. Finally, undertakers go to great lengths to bury their litter. This last behavior is often found on beaches. One of the interesting components to this type of littering is that often these individuals go to greater effort to litter than it would take to appropriately dispose of their waste. Before these behaviors can be modified, the

psychological mechanisms involved will have to be studied further.

The true value of a summit such as this one can be seen in the multi-disciplinary approach to litter management. It will take this type of approach to control litter. This is because the study of litter is so complex that many aspects have to be addressed simultaneously. Cooperation between various organizations both within government and between non-governmental entities can lead to the best programs for behavioral change. Social change programs also have their best chance of success if the viewpoints of all participants are considered before the program is implemented. This summit examined litter problems in social, environmental, economic, psychological, legal, and educational contexts.

The Urban Litter Partnership identified the following recommendations for an effective, sustainable, litter management and prevention program:

- C Coordinate resources with a broad based organizational structure.
- C Involve the community using educational outreach and communication programs.
- C Reward and recognition programs provide additional incentive for community involvement and behavioral change.
- C Enforcement programs must be strengthened and coordinated with other program efforts. These are especially useful for instances where there is an economic interest in the status quo, such as abandoned or substandard buildings and illegal dump sites.
- C A litter measurement system provides a means to assess progress of clean up efforts and justify the past and future allocation of resources to programs to reduce litter, illegal dumping and associated urban problems.

Only by implementing cooperative programs between the many departments of local, state and national government will changes in littering behavior be achieved. For example, coordinated efforts by solid waste, judicial, law enforcement and code enforcement departments are necessary to achieve the most effective results in illegal dumping cases. The presentations by Bass and Potter stressed this need for coordinated efforts to adequately stem illegal dumping. In Houston, all of the above groups were enlisted to get illegal dumpers cited and adjudicated effectively. Before that, illegal dumpers were able to avoid detection or slip through the system.

Public education is an important tool for use in decreasing littering and illegal dumping behaviors. It is one of the key components to an anti-littering campaign because it heightens public awareness and encourages environmental stewardship. Education increases awareness of social norms and expectations. This increases voluntary compliance with litter control measures and is ultimately more effective than legal sanctions. With increased awareness and knowledge, the public can more

effectively participate by self-policing. Likewise, socially unacceptable behaviors will be discouraged because there will be more public, social and peer pressure to curb littering behaviors. Curnow noted that teens are the most likely to litter when in groups and least likely to litter when they are by themselves. Conversely, adults were more likely to litter when alone, and less likely to litter when in groups. This power of peer pressure for both appropriate and in-appropriate behaviors lends itself very well for behavioral change. Lastly, public education can also increase awareness about potential links between litter and other issues, such as disease, crime and economic losses.

One of the major messages of the summit is that littering and illegal dumping are complex issues and that there are no quick-fix solutions. Effective solutions will involve the coordinated efforts of many components of our society.

1.5 Objectives of the Current Project

The current study was designed to obtain information about:

- C costs to businesses to clean up litter;
- C perceptions concerning urban litter and illegal dumping;
- C programs and practices currently used in Florida urban centers to reduce litter;
- C perceptions concerning connections between litter and: property values, business success, crime;
- C perceptions about how litter amounts have changed over time; and
- C litter composition and sources.

1.6 Project Staffing

Carl Butterfield grew up in Haiti and is fluent in French and Haitian Creole. He graduated from the University of Haiti Medical School. He holds master's degrees in Education and Mental Health Counseling from the University of Florida and has completed course work toward a Ph.D. in Health Counseling, also at the University of Florida. His professional experience includes counseling individuals in stressful situations, including counseling surgery patients about the risks and benefits of surgical procedures.

Donald Myers was an investigator for law offices for 14 years. During that period of time, he interviewed approximately 10,000 people. He graduated from Kent State University and holds a master's degree in Vocational Rehabilitation Counseling from the University of Florida. He has worked

as a therapist, a social worker, and a child abuse and neglect investigator.

Technical and statistical support was provided by Ed Hilker. He was a member of the Center's first litter study team in 1994 and served as a surveyor, trainer and supervisor for the subsequent annual litter studies. Mr. Hilker holds a bachelor's degree in Nuclear Engineering from the University of Florida and has taken several courses in research design and statistical analysis.

1.7 Technical Advisory Group

A Technical Advisory Group (TAG) was formed to advise the Center during the course of this project. TAG members included:

Bill Hinkley, Bureau Chief, Bureau of Solid and Hazardous Waste
Florida Department of Environmental Protection

Fletcher Herral, Operations Manager, Bureau of Solid and Hazardous Waste
Florida Department of Environmental Protection

Frank Walper, Executive Director
Keep Florida Beautiful, Inc.

Geri Powell, Director
U.S. Conference of Mayors

Jennifer DeLong, Program Manager
U.S. Conference of Mayors

Ivan Lawyer, Executive Director
Florida Business and Industry Recycling Program

Susanne Woods, Senior Vice President, Development and Environmental Programming
Keep America Beautiful, Inc.

Chet England, Group Director
Burger King Corporation

Richard Rabon, Jr., Director, Solid Waste Management Department
Brevard County, Florida

1.8 Definitions

The following are definitions of several of the terms used in this report:

- C Litter: Misplaced solid waste.
- C Littering: The intentional or unintentional misplacement of solid waste.
- C Illegal Dumping: Intentional, un-authorized and inappropriate disposal of large quantities of solid waste for economic gain.
- C Urban Plant Debris: Grass clippings and other yard trimmings.

1.9 How This Report is Organized

Chapter 2, “Methodology,” describes the development of the survey methodology that was the basis for this project.

Chapter 3, “Results,” presents a summary of the results of the business survey.

Chapter 4, “Discussion,” summarizes the importance of the findings and the implications for future research.

Appendix A, “City Profiles,” presents anecdotal information provided by the businesses that were surveyed. This chapter also includes a summary of interviews with city and/or county waste management staff and KAB affiliate staff.

Appendix B, “Survey Forms,” presents the survey forms that were used in conducting this research study.

2. BUSINESS SURVEY METHODOLOGY

The Center performed an extensive literature search for studies on the economic impact of litter on businesses. The Center found no previous studies or methodologies that were designed to provide the desired data. The Center then designed and conducted pilot studies to determine the best ways to obtain the data.

The pilot study results were reviewed by Center staff and the members of the project's Technical Advisory Group. The methodology that became the basis for the project involved the random selection of 20 businesses in each of 10 Florida cities. An interview was conducted at each of the businesses. To obtain a more complete "snapshot" of the litter management issues and prevention efforts in each of the cities, interviews were also conducted with municipal solid waste staff and Keep America Beautiful affiliate staff.

This chapter describes the development of the methodology the Center used to survey Florida businesses.

2.1 Pilot Studies

The Center conducted pilot studies in Gainesville, Florida. An attempt was made to obtain a sample that would be representative of many types of businesses in various locations around the city. The Center considered businesses in residential, commercial, industrial, entertainment, sports, and public areas. Within each area, the survey focused on businesses adjacent to vacant lots, parking lots, malls, and shopping centers. Based on these criteria, 18 Gainesville businesses were selected for the first pilot study.

A questionnaire was designed to ask businesses about their experience with litter, and their costs to manage it, including the number of employees and the number of hours spent per week picking up litter. The survey included questions about perceptions of litter, the items most commonly littered, and the major sources of litter found around the business. Questions also asked for opinions about the quality of local waste management services and the effectiveness of existing anti-littering laws.

The results indicated that the survey should be expanded to identify several additional issues, including:

- C best management practices that businesses currently use to control litter;
- C the municipality's response to reports of littering or illegal dumping; and,
- C perceptions of the socioeconomic impacts of litter.

After the survey was revised, a second pilot study was conducted in Gainesville. The Center surveyed 20 businesses that were different from the 18 surveyed in the first pilot study. The results of the pilot suggested the following:

1. In general, businesses acknowledge litter as a problem and spend money to clean it up.
2. The most common types of litter reported by the businesses surveyed included newspapers, cigarette butts, fast-food wrappers, snack food packaging, polystyrene foam packaging, and beverage containers.
3. Businesses that share parking areas seem to spend less money on cleaning up litter than businesses with their own parking areas, even when the parking areas of adjacent businesses are of equal size. This suggests that a business's sense of responsibility is different based on shared ownership vs. sole ownership of a parking area.
4. Convenience stores appear to attract more litter than other businesses.
5. Businesses that have drive-through windows appear to experience increased littering around the drive-through windows, compared with other areas. Extra money or employee time is required to be spent to maintain the areas around the drive-through windows.
6. Businesses located near major highways and interstates appear to report greater amounts of littering than businesses located a greater distance from major highways. Businesses near major highways reported that transients and travelers frequently use their parking lots as rest areas and deposit litter in their parking areas.
7. Businesses that have parking areas and dumpsters that are accessible to the public after closing hours and are not visible from the street may be more likely to identify illegal dumping as a problem.
8. Dumpsters that are not locked or fenced to prevent public access seem to be more likely to be targets of illegal dumping.
9. Construction debris and household items seem to be the most common items that are illegally dumped.

After the second pilot study, the survey was refined further to ensure that questions were clearly stated and that the data obtained would be accurate and complete. Also, a procedure needed to be developed for the random selection of businesses in each city. The following sections describe the

procedures used for selecting the cities, selecting the businesses within each city, conducting the interviews, and documenting the survey.

2.2 Selection Criteria for Cities

Three elements were considered in developing the criteria for selecting cities:

1. **Population:** The Center initially had proposed conducting the surveys in the 10 largest cities in Florida so that the data would fairly and accurately represent the experiences of businesses in highly urbanized areas.
2. **Responses to the Center's 1997-98 County Survey:** After reviewing the earlier county surveys, it was apparent that some cities should be included in the current study because of their innovative approaches to litter management and prevention, even if those cities were not among the 10 largest by population. The cities selected on this basis were West Palm Beach, and the Metropolitan Statistical Area that encompasses Cocoa, Titusville, Palm Bay and Melbourne in Brevard County (referred to in this report as "Brevard MSA").
3. **Budget and Time Limitations:** The Center determined that to complete this ambitious project within the budget and within the time provided in the contract, 10 cities would be surveyed. Hialeah and Coral Springs, two of the 10 largest cities by population, were eliminated from the list so that West Palm Beach and Brevard MSA could be included.

Based on the above criteria, the following cities were selected:

- C Orlando
- C Tallahassee
- C Hollywood
- C Fort Lauderdale
- C Miami
- C Jacksonville
- C Tampa
- C St. Petersburg
- C West Palm Beach
- C Brevard MSA

2.3 Selection Criteria for Businesses

2.3.1 Business Type: Major Categories

The business selection methods used during the pilot studies suggested seven major categories of businesses that should be represented in the survey. The seven major categories and examples of the types of businesses in each category are as follows:

Lodging/Residential: Businesses where people dwell, such as apartment complexes, hotels/motels, and mobile home communities.

Food/Drink: Businesses primarily involved with food/drink, such as convenience stores, fast-food restaurants, traditional restaurants and bars/lounges.

Manufacturing: Business involved with manufacturing, fabricating or assembling products.

Entertainment: Businesses involved primarily with entertainment, including movie theaters, video arcades, and video rental stores.

Retail: Businesses that sell products to the public, other than those involved primarily with food/drink. This category includes large chain stores, such as supermarkets and pharmacies, as well as small retail stores.

Services: Business that primarily offer a service rather than a product, such as a law firm, a dry cleaner, a medical office, a hairdresser, and an auto repair shop.

Drive-Through Windows: Although businesses with drive-through windows are also included in several of the above categories (fast food, pharmacies, banks, etc.), the pilot studies suggested that it was important to include drive-through windows as a major category so that sufficient data could be collected on the unique litter problems associated with drive-thru windows.

2.3.2 Random Selection of Intersections on City Maps

This section outlines the procedure used to randomly select intersections on maps of the 10 cities to be surveyed. Section 2.3.3 below describes how the specific businesses were selected in relation to the random intersections.

The random selection procedure for intersections was adapted from the methodology the Center had developed and used successfully for the annual roadside litter surveys conducted in 1994-97. For the previous studies, the Center used computer-generated lists of random map coordinates and random directions (north, south, east and west) to randomly select points on county maps. For this study, the same random number lists were used with city maps.

1. Maps were obtained for each of the 10 cities. Champion, Rand McNally and American Automobile Association maps were used.

2. Lists of computer-generated random map coordinates and directions were used to plot intersections on the city maps. The random coordinates were originally generated for maps that measured 18 x 28 inches, so one list includes coordinates from 1 to 18, in quarter-inch increments, and the second list includes coordinates from 1 to 28, in quarter-inch increments. A different list of coordinates was used for each city.
3. The name of the person(s) plotting the points, the date, and the city name were recorded on the list of random map coordinates.
4. A standard-sized template was placed over the city map so as to include the entire city within the template. Templates were either 18 x 28 inches, or 9 x 14 inches. It was necessary to use two sizes because different city maps had different scales.
5. The top of the template faced north or west. The direction was determined by the long axis of the template. If the city was square in shape (vs. rectangular), the template top is the north. The corners of the template were marked and the template was then removed.
6. Two metal rulers are taped to the vertical axes of the map. The "0" point of the rulers is placed at the top of the template.
7. The random number sheet is used to locate the first point on the map. The vertical axis is located on the two vertical measuring sticks. The horizontal ruler is then placed across the two vertical rulers.
8. The vertical coordinate determines the horizontal axis and the horizontal coordinate determines the vertical axis. A dot is placed on the map at the intersection of the vertical and horizontal axes. The closest intersection (within the city limits) of numbered, divided, arterial or major highways/roads is then identified and is referred to as the random point.
9. The random direction (N,S,E,W) is then used to identify which branch of the intersection to survey. The intersection is rejected if:
 - C the same intersection has already been selected, with the same direction of survey; or,
 - C the survey direction is not a numbered road, arterial road, or divided highway.
10. If an intersection is rejected, an "R" is written on the random coordinate sheet next to the random coordinates used.
11. A total of 10 intersections were selected for each city.

2.3.3 Random Selection of Businesses

Once the decision was made to survey 20 businesses in each city, a bias-free method was needed for selecting the businesses in the field. It was determined that a minimum of five intersections would be used in each city, with a maximum of four businesses selected near any one intersection. This would prevent all of the businesses on one street or in one part of a city from being selected, thus providing a more fair and accurate representation of the city as a whole.

To further prevent surveyor bias, it was determined that of the four businesses near one intersection, there could be no more than one in each of the seven major categories. For example, four fast food restaurants or four convenience stores on the same street could not be surveyed.

Additionally, it was determined that surveyors would travel a maximum of two miles in any one direction from the intersection. A distance of greater than two miles was considered to be too far from the randomly selected intersection. It also would be very time consuming to drive indefinitely on a road that had few or no businesses.

The specific steps for selecting the businesses are described below.

1. Once an intersection was determined to be valid, it is circled and numbered, and it was recorded on a site list form that the surveyors took into the field.
2. The random coordinate was then used to determine the direction from the intersection in which the surveyors will proceed as they select businesses to be surveyed. For example, if the random direction is south, the surveyors will proceed south from the intersection. The direction is recorded on the site list form.
3. Upon arriving in a city, the surveyors traveled to the first intersection on the site list form. From the intersection, they proceeded in the direction that had been randomly selected in advance from the list of random map coordinates (N,S,E,W).
4. Starting with the businesses closest to the intersection on either side of the street, the surveyors selected a maximum of four businesses, with no more than one business in each of the seven major categories.
5. Further selection criteria for the businesses included:
 - C the business had to be open

- C someone knowledgeable about litter management had to be available and willing to speak with the interviewers
6. If, after traveling in the selected direction for two miles, it was not possible to select four businesses that met all the criteria, the surveyors returned to the intersection and proceeded in a clockwise manner to the next branch of the intersection. For example, if the selected direction was south and four businesses could not be selected, the surveyors returned to the intersection and then traveled west from the intersection. If necessary, surveyors would then travel in a northerly direction, and then in an easterly direction.
 7. As soon as four businesses near one intersection had been surveyed, the surveyors proceeded to the next intersection on the site list form.
 8. Field rejection of an intersection would occur if the road in the randomly selected direction was not a numbered road or an arterial road (for example, an unpaved road or a residential street).

2.4 Conducting the Business Survey

After a business was selected using the above procedures, a visual observation was made to determine:

- C the presence of receptacles on or around the property
- C the presence of litter
- C the presence of any particular litter catchment areas
- C the presence of a drive-through window

Familiarity with the visual appearance of the business allowed the surveyors to make certain determinations about the interviewee's perceptions and definitions of litter as the interview progressed. For example, if an interviewee was observed throwing cigarette butts on the ground during the interview, while saying that there was no problem with litter, it was obvious that the interviewee's definition of litter did not include cigarette butts.

When the surveyors entered the business, they identified themselves and asked to speak to the owner, the manager on duty, or the employee most knowledgeable about litter found around the business. Ideally, this was the person who was:

- C responsible for the overall maintenance of the property

- C the supervisor of employees who picked up litter
- C aware of the costs of litter management (such as employees' hourly wages)
- C familiar with changes over time in the amount of litter in the surrounding area
- C familiar with illegal dumping incidents that have occurred over a period of time
- C available and willing to be interviewed

Additional criteria were used to ensure that all survey responses would be spontaneous and not prepared in advance. This was essential to obtain comparable data from all the businesses surveyed. Spontaneity was especially important for the questions about perceptions of litter. These criteria were:

- C If the business was a chain or franchise store, the interviewee had to be willing to respond to the survey, and familiar with the area around the store, and familiar with relevant corporate policies. The survey was conducted on-site only and calls were not made to corporate offices.
- C If the person identified as the interviewee was too busy and asked the surveyors to return at a later time, or asked for the survey to be left so that it could be completed later, this was not done, and the site was rejected.
- C If the business was closed at the time of approach, it was not revisited later, nor was a phone call made to the business later.

Developing rapport with the potential interviewees was a key element in the success of the interview. The surveyors dressed appropriately for the area in which they were working: more formal for a downtown business district, less formal for other areas. They normally entered the business carrying only a notebook. Cameras were usually left in the car to avoid raising suspicion or possibly intimidating the potential interviewee. The surveyors identified themselves as University of Florida researchers, assuring people they were not regulators or reporters. In most cases, the surveyors were successful in putting people at ease.

The usual procedure was for the surveyors to alternate between roles as interviewer and recorder. However, the one who was able to establish the best rapport took the lead and asked the questions, while the other surveyor stayed to the side and wrote the answers on the survey form. This team approach created a more comfortable situation, where the interviewee could choose to converse with only one of the interviewers. The interviewee could speak naturally and was not distracted by waiting for the answers to be written down. This was also the most time-efficient way to conduct the

interview, which generally took about 10-15 minutes. This method also was less intimidating than using a tape recorder.

The ability to conduct interviews in Haitian Creole and in Spanish in South Florida resulted in several businesses being included in the survey that otherwise would have been excluded. Carl Butterfield conducted and translated the Creole interviews. A Spanish translator accompanied the surveyors in Miami and translated when necessary.

When the formal survey was completed, the surveyors noted any additional information the interviewee provided, such as specific problems that the business was experiencing that had not been addressed by the survey questions. They also noted disparities between the responses and the actual condition of the property. For example, there were cases where the interviewer said, “we don’t have a problem with litter around here.” However, an observation of the property indicated that litter was, in fact, quite prevalent.

When the surveyors returned to the Center at the end of the week, the responses were entered into a database. The survey results are reported in Chapter 3, Results. Anecdotal information provided by the interviewees is summarized in Appendix A, City Profiles.

2.5 Site Documentation

During the interview, the surveyors recorded the name, address and phone number of the business and took a business card if one was available. After exiting the business, the surveyors used a portable, battery-operated Global Position System (GPS) receiver to document the location of the site.

The surveyors then took photos that would identify the business, including one photo of a sign with the name of the business. Other photos included various features of the property, such as a drive-through window if applicable, dumpsters, evidence of illegal dumping (such as tires, construction debris, carpeting, and car parts), large quantities of cigarette butts, etc. The photos might also include litter influences such as a nearby bus stop, or a neighboring bar that had been identified as a source of litter. At least one slide and one print were taken at each business. The number of photos depended on the size of the business and the evidence of littering and dumping.

2.6 Interviews with City Solid Waste Management Staff

To gain a more complete understanding of what was happening in the city, the surveyors contacted the person who had completed the Center’s 1998 county survey. One of the initial objectives of the current project was to verify the information received on the 1998 litter management survey by contacting county staff and setting up personal interviews. In cases where the contact person from the 1998 county survey was not available, an interview was arranged with the county or city staff member who was most familiar with litter in that city.

The surveyors were told by the county staff they spoke to that the information was accurate and that it was the latest information available. However, it soon became apparent that county staff were not always knowledgeable about the waste management practices or litter control strategies of a particular city within the county. The county staff were generally very helpful in providing the names and phone numbers of city contacts in various departments, including public works, sanitation, and public utilities.

A survey was developed for city waste management staff. Interviews were arranged in advance for the same week in which the business survey was being conducted in a city. Often the person interviewed did not have the financial information requested in the survey. Sometimes two or three follow up calls were made to obtain the information, but with little success except for one city, which was only able to provide partial information. It is possible that with more follow up, more information could have been obtained. However, the field schedule limited the amount of time that was available for follow up calls.

The surveyors found that litter costs were a component of solid waste management and beautification costs, and that it was generally difficult, if not impossible, for city staff to provide cost information for litter alone. In West Palm Beach, for example, the information needed to be gathered from an array of organizations that included the Solid Waste Authority, the Downtown Development Authority, the Parks and Recreation Department, the Storm water Department, and the SunFest Committee. All of the organizations had information on litter cleanup costs but no single office had a total figure for the city. In one office, litter costs may have been combined with solid waste management costs. In another office, litter costs were combined with street sweeping costs.

The goals of the study were to obtain information about the biggest litter problems, where the problems were occurring, the most significant types of litter, and the extent and type of illegal dumping in the city. The survey also inquired about programs and program costs. Often a city staff person suggested contacting the local KAB affiliate. The survey attempted to identify needs that were not being addressed through solid waste management channels. For example, in some cities where tire dumping is a problem, information was sought about how used tires were collected. In cities where green waste was a dumping problem frequently reported by businesses, information was sought on green waste disposal.

Each city interview took an average of about two hours to conduct. The interviews were scheduled at a time that was convenient for city staff. However, the surveyors found that it was ideal to conduct the city staff interviews a day or two after beginning the business surveys, so that the city staff could be questioned about problems and complaints that had already been observed. This also served as a credibility indicator: If the surveyors had observed and heard of numerous instances of illegal dumping, a city staff person who claimed that illegal dumping was not a problem could be questioned more specifically about the incidents with which the surveyors were already familiar.

2.7 Interviews with Keep America Beautiful Affiliate Staff

Interviews were conducted with staff of the Keep America Beautiful (KAB) affiliates in 10 cities. This was necessary to get the complete picture of litter education, prevention and reduction activities in a city. The measurement of success for litter programs is frequently the responsibility of the KAB affiliates, who use the KAB Photometric Index as a survey tool.

In some cities, the KAB affiliate is located within the city's solid waste management or public utilities department. When this was the case, the level of cooperation between the city and the affiliate was reported to be very high. They also tended to be more similar in their perceptions about the city's litter and dumping problems and about the affiliate's mission.

In cities where the KAB affiliate is separate from any municipal department, the affiliate's mission tends to focus more on beautification projects. Although cleanups were a primary activity, the affiliates generally thought of themselves more in terms of a focus on beautification, and this was reflected in their programs and in their budgets.

3. RESULTS

This chapter presents the results of the Center’s survey of Florida businesses. The survey was conducted on the premises of 20 businesses in each of 10 cities.

The following tables summarize the direct financial impact of litter on Florida businesses. These results were calculated using the data obtained in the survey for hourly wages, the number of employees involved in litter cleanup, and the number of hours per week that employees spend picking up litter. These figures do not routinely include other possible costs that may be associated with litter pickup but are extremely difficult to quantify, such as property maintenance or landscaping contracts, or the costs of solid waste collection services.

Some of the businesses surveyed did not provide information for one or more of the questions involved in calculating these averages. The averages were calculated based on 180 businesses that provided all of the information needed to calculate the cost. Some of the businesses did not provide complete information. Therefore, the number of businesses in each city may be less than 20.

The total annual amount spent on litter cleanup for 180 businesses surveyed was \$438,250.49. The average amount spent per business was \$2,434.73.

Table 3.1 Average Annual Amount Spent on Litter Cleanup (By City)

City	Average Annual Cost	# of businesses
Brevard MSA	1,950.00	18
Fort Lauderdale	1,916.47	19
Hollywood	2,492.17	19
Jacksonville	849.75	16
Miami	3,535.24	17
Orlando	1,702.01	17
Tallahassee	2,244.87	17
Tampa	2,358.20	18
West Palm Beach	3,119.37	19
St. Petersburg	3,843.84	20

Figure 3.1 Average Annual Amount Spent on Litter Cleanup (By City)

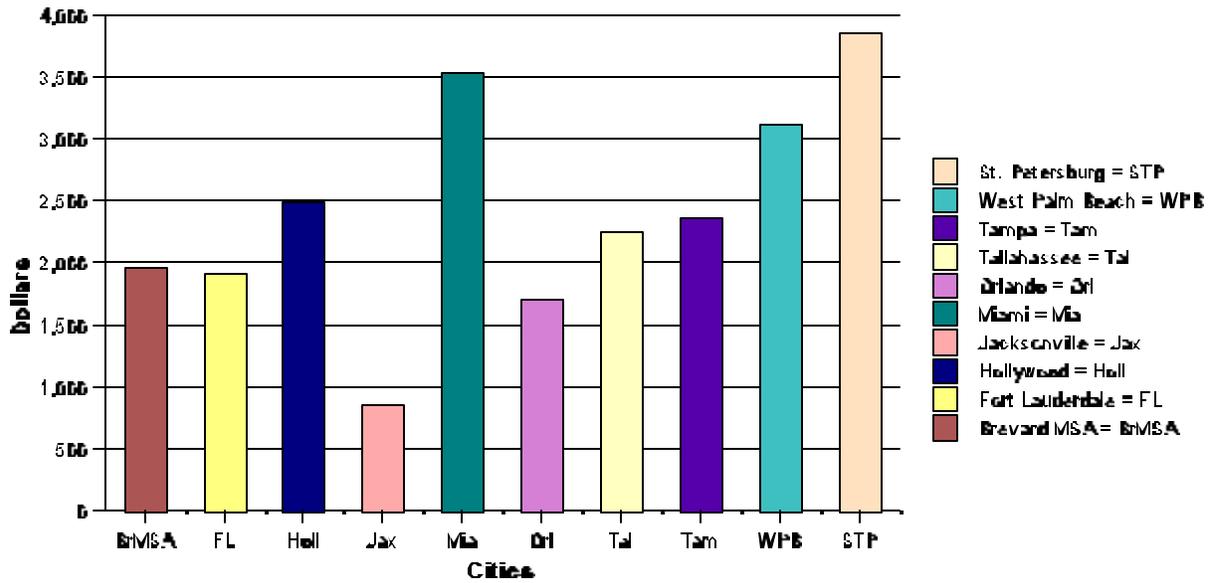
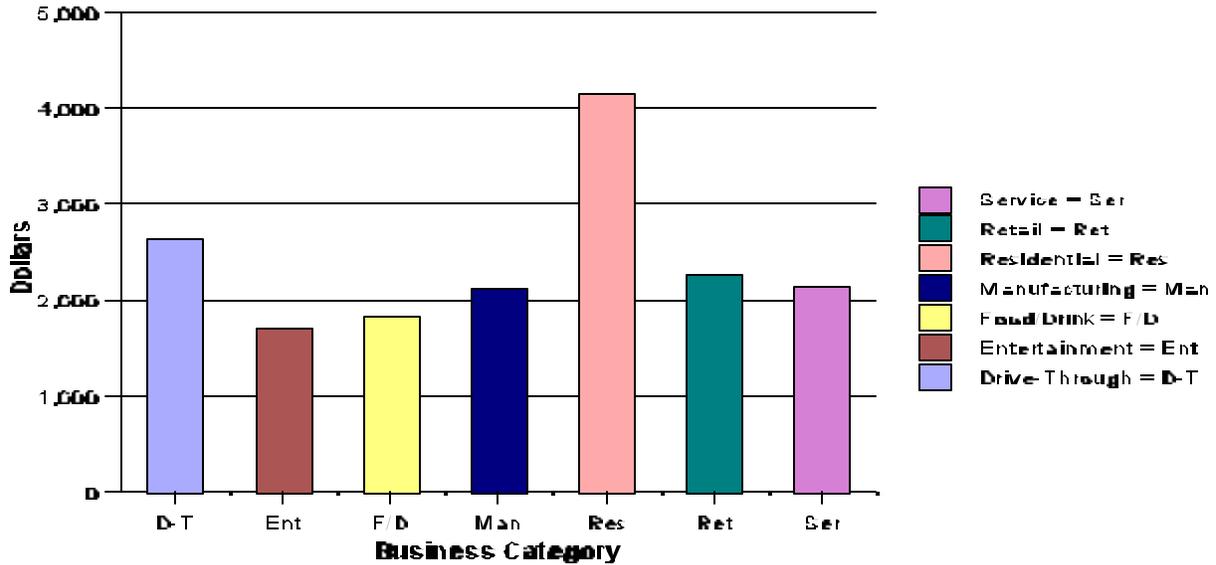


Table 3.2 Average Annual Amount Spent on Litter Cleanup (By Category)

Major Category	Average Annual Cost	# of businesses
Drive-Through	2,624.60	16
Entertainment	1,699.10	10
Food/Drink	1,824.67	32
Manufacturing	2,118.00	13
Residential	4,138.00	13
Retail	2,260.73	47
Service	2,131.27	31

Figure 3.2 Average Annual Amount Spent on Litter Cleanup (By Category)



3.1 Survey Results

The survey included descriptive information about the location and operation of the businesses, including proximity to other businesses and to major intersections, whether the parking lot was shared with other businesses, and the hours the business was open.

Due to rounding, the percentages for some questions may not equal 100%. Also, for the answers where respondents were asked to provide all the applicable answers, the percentages total more than 100%.

Observations during the pilot studies indicated that businesses that were near other businesses and/or were near major intersections were likely to accumulate more litter than businesses that were further away from those potential sources of litter. In this study, 71% of businesses were within 100 feet of another business or a major intersection.

Table 3.3 Business Location

Proximity to another business or a major intersection	# of businesses	%
<50 ft.	100	53
50-100 ft.	33	18
101-200 ft.	30	16
>200 ft.	24	13

Pilot study observations suggested that businesses that shared a parking lot had a tendency to take less responsibility, and therefore, less aggressive action to clean up and prevent litter, than for businesses with their own parking lot.

Table 3.4 Shared Parking Lot

Shared parking lot	# of businesses	%
Yes	80	41
No	117	59

The survey was conducted during daytime business hours. Therefore, businesses open only at night were not included in the survey. Almost half the businesses surveyed were open during both day and evening hours, and 14% are open 24 hours a day.

Table 3.5 Business Hours

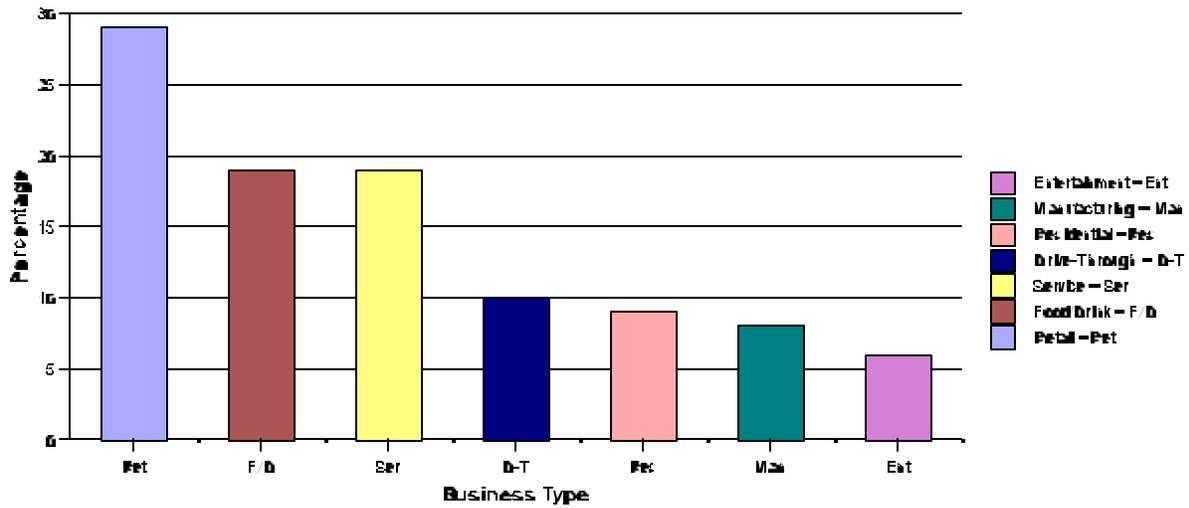
Business hours	# of businesses	%
Day only	74	38
Day and evening	93	48
24 hours	28	14

Businesses were classified in seven major categories. (See Section 2.3.1.)

Table 3.6 Type of Business

Major category	# of businesses	%
Retail	58	29
Food/Drink	39	19
Service	39	19
Drive-Through	19	10
Residential	17	9
Manufacturing	16	8
Entertainment	12	6

Figure 3.3 Type of Business by Percentage



The businesses included in the survey ranged from small businesses occupying less than 1,000 square feet to those occupying more than 10,000 square feet.

Table 3.7 Size of Business

Square feet	# of businesses	%
<1000	10	5
1,000 - 2,000	32	16
2,001 - 3,000	40	20
3,001 - 5,000	46	24
5,001 - 7,000	15	8
7,001 - 10,000	19	10
>10,000	34	17

The majority of businesses surveyed had 10 employees or less.

Table 3.8 Number of Employees

# of Employees	# of businesses	%
1-5	82	42
6-10	47	24
11-20	23	12
21-50	29	15
51-100	9	4
>100	5	3

Of the businesses surveyed, 93% reported that their employees pick up litter around the business. In many cases, employees pick up litter even when there is an ongoing arrangement with a maintenance or landscape contractor to pick up litter.

Table 3.9 Employees Pickup Litter

Do employees pick up litter?	# of businesses	%
Yes	185	93
No	14	7

For the businesses that were surveyed, the average number of employees involved in picking up litter is 4.7.

About 77% of the businesses surveyed said that employees pick up litter once a day or more than once a day.

Table 3.10 Litter Pickup Frequency

Litter pickup frequency	# of businesses	%
More than once a day	49	25
Daily	101	52
As needed	24	12
Weekly	20	10
Monthly	1	1

The average amount of time that employees spend picking up litter is 6.5 hours/week.

About 70% of the businesses surveyed said that they pay their employees between \$4.50 and \$6.50 per hour to pick up litter. The weighted average for 95% of the businesses surveyed is \$6.35 per hour.

Table 3.11 Average Hourly Wage

Average hourly wage (\$/hr)	# of businesses	%
4.50-5.50	54	30
5.51-6.50	71	39
6.51-7.50	23	12
7.51-8.50	5	3
8.51-10.00	15	8
10.01-15.00	5	3
>15.00	9	5

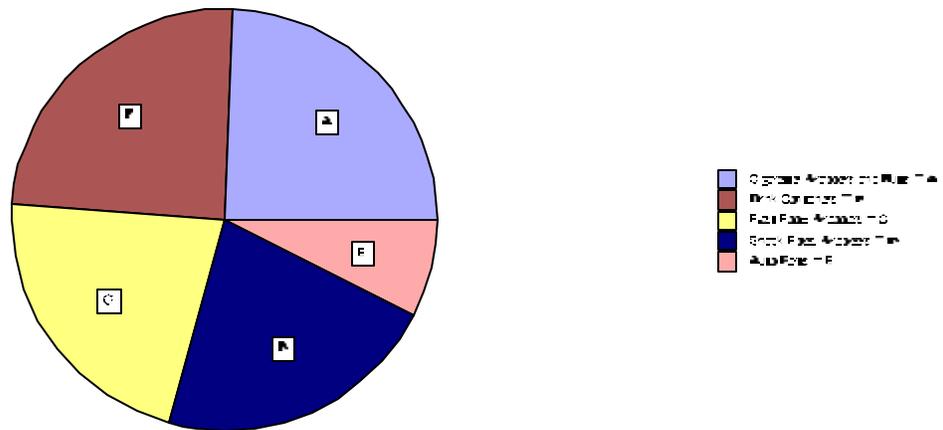
Five possible types of litter were identified in the next question. Other types of litter mentioned by the respondents were also recorded. Businesses were asked to report all that were applicable. The first five were provided in the following order:

- Auto parts (tires, batteries, etc.)
- Snack food wrappers (candy wrappers, etc.)
- Fast food wrappers (paper bags, clamshells, etc.)
- Drink containers (cans, bottles, etc.)
- Cigarette wrappers and butts

Table 3.12 Types of Litter Most Often Found

Types of litter found most often	# of businesses	%
Cigarette wrappers and butts	169	85
Drink containers (cans, bottles, etc.)	168	84
Fast food wrappers (paper bags, clamshells, etc.)	151	76
Snack food wrappers (candy wrappers, etc.)	150	75
Auto parts (tires, batteries, etc.)	49	25
<i>Others:</i>		
Paper, cardboard, packaging materials	23	12
Syringes and drug/crack bags	15	8
Diapers	13	7
Newspapers, magazines, fliers	9	5
Household items and bags of garbage	8	4
Construction and demolition debris	7	4
Yard trash	5	3
Condoms	5	3
Receipts, business and atm	5	3
Oil containers	5	3
White goods and appliances	3	2
Furniture	3	2
Ashtrays	2	1
Chewing gum	1	1
Broken glass	1	1
Plastic wrap	1	1

Figure 3.4 Types of Litter Most Often Found



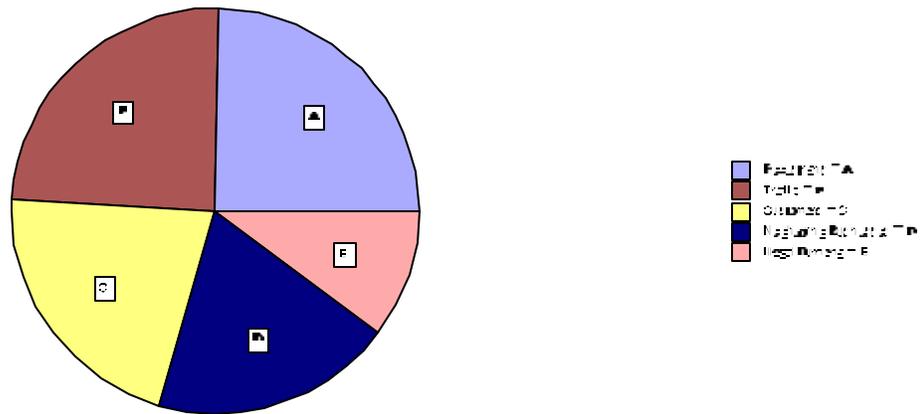
For the next question, respondents were asked to list all that applied. Five possible sources were listed in the question. When other sources were reported, those were recorded. The five possible sources provided in the survey were listed in the following order:

- This business
- Neighboring businesses
- Illegal dumping
- Traffic
- Pedestrians

Table 3.13 Sources of Litter

Sources of litter	# of businesses	%
Pedestrians	132	66
Traffic	129	65
This business	111	56
Neighboring businesses	102	51
Illegal dumping	54	27
<i>Others:</i>		
Wind blows litter from other places	24	12
Transient population	8	4
Bus stop in the area	5	3
Drive-through window	1	1
Uncovered trucks	1	1
Boat ramp in the area	1	1

Figure 3.5 Sources of Litter



Many of the businesses surveyed reported problems with littering or dumping on and around their premises. The table below shows the number of businesses who reported problems with dumping in their dumpster, in their parking lot, or elsewhere on their property. Respondents were asked to give all the answers that were applicable.

Table 3.14 Littering and Dumping Location

Littering/dumping location	# of businesses	%
Dumpster	104	52
Parking lot	73	36
Property	82	41

This question sought the respondent's perception of whether littering in the area had increased or decreased during the previous five years. The table below shows the answers given in each city. The for each of the responses overall in the 10 cities is also shown

Of the 192 businesses that answered this question, about 23% said there was less litter or a lot less litter today, 39% said litter was about the same as five years ago, and 35% said there was more litter or a lot more litter.

Table 3.15 Litter Amount Compared to Five Years Ago

City	A lot less today	Less today	About the same today	More today	A lot more today	Don't know
Brevard MSA*	1	2	5	9	2	2
Fort Lauderdale	0	3	6	8	1	1
Hollywood	4	2	6	8	1	0
Jacksonville	1	4	6	3	5	1
Miami	1	3	8	6	2	0
Orlando	0	1	9	7	3	0
St. Petersburg	0	8	6	4	2	0
Tallahassee	1	3	12	2	1	1
Tampa	0	2	9	1	0	0
West Palm Beach	1	7	8	2	1	0
Total	9	35	75	50	18	5
Percentage of Total	5	18	39	26	9	3

This question also sought the respondent's overall perception of the amount of litter in his or her community. The average of the responses for each city is presented in the table below.

Table 3.16 Amount of Litter Rated on a 1-10 Scale

City	Amount of litter, where 1 = none and 10 = heavily littered
Brevard MSA*	5.0
Ft. Lauderdale	4.6
Hollywood	5.6
Jacksonville	5.5
Miami	3.9
Orlando	3.5
St. Petersburg	4.7
Tallahassee	4.7
Tampa	6.0
West Palm Beach	5.0
Average	5.4

The answers to this question are reported for each city because cities generally have their own ordinances and laws regarding littering, and the level of enforcement of existing laws is unique to each city. Of the 189 businesses that answered this question, only 2 businesses said that laws are highly effective. About 76% of the businesses surveyed said anti-littering laws are not very effective or have no effect at all.

Table 3.17 Effectiveness of Litter Laws

City	Highly effective	Somewhat effective	Not very effective	Have no effect
Brevard MSA*	0	2	7	10
Ft Lauderdale	0	2	9	5
Hollywood	0	6	2	11
Jacksonville	0	2	5	13
Miami	0	4	6	9
Orlando	0	5	6	8
St. Petersburg	1	7	3	9
Tallahassee	1	7	2	8
Tampa	0	6	9	5
West Palm Beach	0	3	8	8
Total	2	44	57	86
Percentage	1	23	30	46

This question presented the respondent with six possible responses by a municipality to a complaint of littering or illegal dumping. The table below summarizes the responses by city. About 45% of the businesses surveyed, did not know how their municipality responds to citizen complaints about litter or illegal dumping.

Table 3.18 Type of Government Response

City	No specific action is taken	Document the call, no specific action taken	Send out a clean-up person/crew	Referral to an enforcement agency	Referral to a different government agency	Referral to a volunteer organization	Don't know
Brevard MSA	7	4	3	0	1	0	7
Ft Lauderdale	3	1	6	2	0	0	8
Hollywood	6	0	8	3	3	0	2
Jacksonville	3	0	4	0	0	0	13
Miami	4	0	4	0	0	0	11
Orlando	4	3	2	0	0	0	9
St. Petersburg	0	0	4	0	0	0	13
Tallahassee	5	2	8	0	0	0	5
Tampa	0	1	6	0	0	0	8
West Palm Beach	2	0	7	1	1	0	11
Total	34	11	52	6	5	0	87
Percentage	17	6	27	3	2	0	45

The next question presented the respondent with five practices that businesses typically employ to combat littering and illegal dumping. Those are the first five responses listed on the table below. Many businesses responded with other answers, and those answers are also tabulated below. About 25% of the businesses surveyed found more trash cans to be an effective litter management technique.

Table 3.19 Ways to Deter Littering and Dumping

Effective ways to combat littering/illegal dumping	# of businesses
Placement of locks on dumpsters	64
Placement of fences to deny public access to dumpsters and/or isolated areas	58
Use of additional lighting in litter-prone areas	32
Relocation of dumpsters to areas of high visibility	14
Placement of signs with reference to litter laws and/or littering fines	8
<i>Others:</i>	
More trash cans	46
Frequent cleanups	35
Ashtrays near doors	15
Offer recycling	5
Increase security	5
Get a compactor	2
More frequent dumpster pickup	2
Don't put boxes outside	1
Leave dumpster full	1
Leave dumpster unlocked	1
Identify and confront dumpers	1
Get a dog	1
No dumpsters; use only trash cans	1
Report littering/illegal dumping 1	
Code enforcement 1	
Video cameras 1	

Almost every respondent said that the presence of litter lowers property values.

Table 3.20 Litter Effects on Property Values

Does the presence of litter lower property values?	# of businesses	%
Yes	190	98
No	3	2

Almost every business surveyed said that litter has a negative effect on business.

Table 3.21 Litter Effects on Business

Does litter have a negative effect on your business?	# of businesses	%
Yes	170	98
No	3	2

Almost 80% of businesses surveyed said they thought was a connection between litter and crime.

Table 3.22 Connection Between Litter and Crime

Is there a connection between litter and crime?	# of businesses	%
Yes	133	78
No	38	22

4. DISCUSSION

This chapter discusses the key issues identified during the survey. These issues demonstrate that determining the impact of litter on businesses requires more than quantified data as to the amounts of money spent on cleanup and prevention. Litter and dumping affect many of the day-to-day decisions that a business owner has to make, such as whether to use a dumpster or trash cans, whether to lock the dumpster, whether trash cans in the parking lot will reduce litter or attract more litter, how much employee time should be spent picking up litter, or whether an off-duty police officer needs to be hired to patrol the property at night to prevent illegal dumping.

4.1 Impact of Litter on Businesses

Of the businesses surveyed, 180 businesses provided data on their costs of cleaning up litter. Collectively, these 180 Florida businesses spend \$438,251 annually on cleaning up litter. The average amount spent per business is \$2,435.

The survey included three questions to elicit the respondents' opinions about the impacts of litter on their businesses. The responses provide overwhelming evidence that litter is perceived and/or experienced to have a negative impact on businesses.

Q: In your opinion, does the presence of litter lower property values?

Yes: 98%

No: 2%

Q: Does litter have a negative effect on your business?

Yes: 98%

No: 2%

Q: Do you think there is a connection between litter and crime?

Yes: 78%

No: 22%

4.2 Best Management Practices

The five most effective strategies for combating littering and illegal dumping were reported to be:

1. Placement of locks on dumpsters
2. Placement of fences to deny public access to dumpsters and/or isolated areas
3. More trash cans
4. Frequent cleanups
5. Use of additional lighting in litter-prone areas.

For example, frequent cleaning was often listed as the best way to manage litter. Many interviewees reported that clean areas are less likely to get littered. One city solid waste manager stated: “Litter is a magnet. If you let it get started, it will build up faster. Don’t let it get piled up.”

4.3 Litter Laws Are Not Effective

The majority of businesses interviewed said that litter laws were ineffective because they are not enforced and there is very little awareness of anti-littering laws. People also said that fines for littering are too low, and that no one ever gets a citation for littering.

4.4 Differing Definitions of Litter and Illegal Dumping

A previous study by the Center (1998) examined the legal definitions of littering and dumping. Under the Florida Litter Law (403.413, Florida Statutes), it is illegal to dump litter, regardless of the amount and how it is being dumped, unless authorized by law or a permit. The law defines “litter” as:

“any garbage; rubbish; trash; refuse; can; bottle; box; container; paper; tobacco product; tire; appliance; mechanical equipment or part; building or construction material; tool; machinery; wood; motor vehicle or motor vehicle part; vessel; aircraft; farm machinery or equipment; sludge from a waste treatment facility, water supply treatment plant, or air pollution control facility; or substance in any form resulting from domestic, industrial, commercial, mining, agricultural, or governmental operations.”

The term “dump” applies to:

all actions of “dumping, throwing, discarding, placing, depositing, or disposing of” litter.

Dumping is prohibited on public lands, roadways, and water bodies. In addition, littering cannot occur on private property unless the owner has given consent or if the owner can prove it will not be a public nuisance and will not violate any other state or local laws or regulations. If dumping does occur, penalties vary depending on the type and quantity of material discarded:

- C Non-commercial dumping of less than 15 pounds or 27 cubic feet: The violator pays a civil fine of \$50 and the court decides if the violator will pick up litter or perform another labor task equal in severity to their offense.

- C Non-commercial dumping between 15 pounds or 27 cubic feet and 500 pounds or 100 cubic feet: The violator is guilty of a misdemeanor of the first degree, and must pick up litter or perform some other community service task. If a motor vehicle is involved, 3 points will be assessed on the violator's license.

- C Dumping exceeding 500 pounds or 100 cubic feet, any amount of dumping for commercial purposes, or dumping of hazardous wastes: The violator is guilty of a felony of the third degree. The court may order the violator to:
 - 1) remove litter or make it harmless;
 - 2) repair or restore property damage or pay for the damages;
 - 3) perform public service to remove litter or restore a littered area.

If litter is dumped from a vehicle or boat, the owner and/or operator is held responsible for the act. Dumping that occurs from a commercial vehicle is assumed to be dumped for commercial purposes. Any motor vehicle, vessel, aircraft, container, crane, winch, or machine used for dumping materials weighing more than 500 pounds is considered contraband and is subject to forfeiture.

County and city employees responsible for enforcing codes and ordinances may be given authority, by their governing body, to enforce the provisions of the Florida Litter Law. However, this does not permit these employees the authority to bear arms or make arrests. All law enforcement officers have the duty to enforce the provisions of the Florida Litter Law. For employees that are not law enforcement officers, the appropriate governing body determines the training standards for enforcing these provisions. In addition, this law does not limit state and local agencies from enforcing other laws regarding litter and solid waste management.

Random acts of littering tend to be difficult to enforce unless they are witnessed. Single littered items provide insufficient evidence as to who littered. Often, the primary focus is large-scale illegal disposal or dumping because those types of crimes usually result in higher cleanup costs.

The incidents of "illegal dumping" described by the business owners and employees surveyed during the current project fall within the statute's definition of dumping, in that litter was placed on private property without consent. This can include a single bag of trash, a tire, or a single piece of furniture.

One city solid waste manager defined an illegal dump as something that required heavy equipment to clean up. He indicated that he spends a lot of time riding on nearby public lands. He is very concerned about dumping on public lands, but seemed less aware of the seriousness of the problems that the city's businesses were experiencing. His office is in the downtown area that gets frequent cleanups. During the interview he stated, "I don't know the city; I live in the country." He said

illegal dumping was not a problem in the city. He was not aware of the dumping problems that businesses were reporting with construction debris, furniture, auto parts, and bags of trash.

Cultural differences in the treatment and definition of litter became apparent during the study. For example, in Little Haiti, street side vegetable stands were a common sight. At the end of the day, the street vendors would leave behind their vegetable peelings and other trash, or they would use an old tire as a trash receptacle. This was not perceived as littering. One solid waste manager interviewed talked about conducting trainings for immigrant populations on acceptable methods of solid waste disposal.

Differences in definitions of litter also become apparent in other ways. One person who was interviewed said, "There isn't any litter here." Yet during the interview, he was smoking and tossing cigarette butts on the ground, and many cigarette butts were observed around the property. To this person, it appears that cigarette butts are not litter.

If people are more comfortable with litter, it is perceived as less of a problem. For example, the area of town that a person lives in makes a big difference. People who live in upscale, clean neighborhoods perceive litter to be a worse problem in downtown areas than people who are accustomed to the level of litter they see downtown.

4.5 Dumping that Results from Infrequent or Inconvenient Pickup

Although the evidence is not conclusive based on this study alone, there appears to be a connection because ease of disposal of certain types of solid waste and the likelihood that the solid waste will be littered or illegally dumped.

Urban Plant Debris: Illegal dumping of yard waste results when proper disposal is expensive or inconvenient for individuals such as landscapers or difficult for any other reason. For example, in Brevard County, it is very easy to dispose of yard trash and the dumping problem has virtually gone away. In contrast, Tallahassee and Fort Lauderdale have big problems with this type of waste.

Tires: Tires were a problem in Tallahassee. Tires are not picked up at curbside; they must be brought to a landfill and each resident can only dispose of four tires per year at the landfill. In contrast, in Brevard County, where residents can dispose of tires at curbside easily on a weekly basis, illegal dumping of tires has practically stopped.

White Goods: When a city has no pickup or very infrequent pickup for white goods and oversized items, those items are frequently dumped. For example, if pickup is only twice a year, people will not wait. They will dispose of the items a different way. In contrast, where

large items can be picked up at curbside on a weekly basis, these items are dumped a lot less frequently.

Hazardous Wastes: Where the pickup of hazardous wastes is inconvenient and infrequent, they tend to be found in illegal dumps. When people have to go to a drop off center that is located at a landfill that is far away, people rarely make that trip. Those who do drive out to the landfill report that their neighbors always try to get them to take additional items, such as cans of paint or containers of pesticides. It is simply too far for most people to drive.

4.6 Trash Cans: A Solution and a Problem

There were differing opinions on whether trash cans are helpful. Some people say that if cans are put out, they will find litter all around the cans, or the cans will be vandalized or stolen. People will clean out their cars and the cans will overflow, which attracts more litter. However, many of the people interviewed during this study said more trash cans near doors and in drive-through areas helps to reduce littering.

This difference in approach was observed not only among small businesses but among large corporate franchises. One franchiser's corporate policy has eliminated trash cans from the premises of their stores because they attract litter. In contrast, another franchiser has placed trash cans and ashtrays in every place where people can be, including parking lots and the grassy areas between parking lots. This franchiser's store managers patrol the premises on a regular basis, as often as every 15 minutes, to ensure that any litter is cleaned up quickly.

One new chain pharmacy in West Palm Beach hadn't received its trash cans yet for the front door. This brand new store reported "tons" of trash at the front door, both inside and outside the store. The litter included cigarette butts and beer cans. The manager said he was waiting for the cans to arrive and felt strongly that the cans would cut down on the time it was taking to pick up the litter around his store.

4.7 Dumpsters

More than half of the businesses surveyed said that they had experienced illegal dumping in and around their dumpsters. More dumping was reported in and around dumpsters than in parking lots and other area of the business's property.

Some businesses report that they have reduced dumping by locking their dumpsters, whereas other people feel strongly that it is better to leave the dumpster unlocked so people will put their items inside rather than set them on the ground outside the dumpster. People have found that when they placed locks on their dumpsters:

- C unauthorized use of the dumpster to dispose of large items was reduced or eliminated;
- C the occurrence of people climbing into the dumpster at night, searching through the waste and leaving material littered on the ground was eliminated; and
- C the occurrence of people sleeping in the dumpster was eliminated.

There are some areas where businesses would like to keep their dumpsters locked but the municipality will not allow it because it makes it too difficult to empty the dumpster when there is a key involved.

4.8 Dumpsters vs. Trash Cans

Another approach has been to eliminate dumpsters altogether and just use trash cans, because people can rummage through trash cans more easily, without dumping out a lot of the contents. Also, some people say that bigger containers are more likely to draw large items such as appliances, carpeting, furniture, and other items that won't fit in trash cans. Another reason why some businesses have eliminated dumpsters is that they became tired of fighting with the city over the frequency of pickups. Many businesses have said that the city's pickup service for dumpsters was not convenient or sufficient, and that using trash cans that could be serviced at curbside was a better solution.

4.9 Drive-through Windows

Businesses with drive-through windows report that people will empty out their cars and car ashtrays while waiting in line. Businesses that hand out straws at the first window find that a lot of straw wrappers are littered before people leave the drive-through area. The lag time on this type of litter is very short: potential litter items that are handed to customers at the first window, such as straw wrappers, are likely to be found on the ground between the first and second window.

Some businesses have installed drop-box type litter receptacles in their drive-through areas to encourage people to dump their litter in the receptacles. These drive-through areas were observed to be cleaner than those of other businesses.

4.10 Wind

Coastal cities in Florida on both coasts are especially prone to windblown litter. The researchers observed numerous locations where businesses on one side of a street become a litter catchment area, whereas the litter does not accumulate on the other side of the street.

4.11 Proximity to I-95

Businesses surveyed that were near I-95, from South Florida to North Florida, all reported that people using their parking lots as a rest area and cleaning out their cars is a big problem. One large chain supermarket employee said that they find a number of diapers, and that people seem to have the mentality that it's okay to leave them in the supermarket's parking lot because it's someone's job to clean it up.

4.12 Uncovered Trucks

Litter from uncovered trucks traveling along major arteries, expressways and interstate highways was reported to be the most expensive and the most difficult to clean up. Orlando spends about \$4 million per year on picking up litter. A large part of that is spent on major roadways just to pick up litter. Ordinances prohibiting uncovered trucks have been shown to be helpful in other cities, but such an ordinance has been politically unpopular in Orlando.

Jacksonville and Fort Lauderdale also reported problems with litter from uncovered trucks. Construction materials such as plywood, two-by-fours, and reinforcing iron are a particular concern. In Fort Lauderdale, an ordinance prohibiting uncovered trucks was passed after a young girl was seriously injured by a piece of reinforcing iron that fell off a truck and went through the windshield of the car in which she was riding.

4.13 Volunteers Prefer Beach Cleanups

Tampa reported that it is difficult to get volunteers to clean up the urban areas. When major community cleanups are scheduled, all the volunteers want to clean up the beach, but no one wants to go downtown or to other areas of the city. Even when organizers assign volunteers to specific areas, "they all find their way to the beach." Relying on volunteers means that areas that may be most in need of cleaning up are the least attractive to volunteers. It is also dangerous to have volunteers on the highways when children are participating.

4.14 Vacant Lots

The upkeep of vacant lots in Tampa was obvious while driving around the city. Lots are mowed and cleaned by a private contractor. As a result, vacant lots that one would expect to be overgrown and littered are clean and well-maintained. In other cities, vacant lots are major litter catchment areas and illegal dumping sites.

4.15 High Profile vs. Low Profile Areas

In Tallahassee, the researchers observed that the high profile areas around Apalachee Parkway and the government buildings were very clean. In contrast, on Orange Avenue, a major artery just a few minutes from the Capitol, a consistently high amount of litter and illegal dumping was observed. This is an indicator of different levels of service to different areas.

A similar situation was observed in Miami. In the downtown area frequented by tourists on Biscayne Boulevard, around the Port of Miami, crews clean the streets all day with street sweeping machines and even pick up litter by hand. Just a few miles north on Biscayne Boulevard, business people interviewed said they have never seen cleanup crews or street sweeping equipment picking up litter in their area.

In Orlando, the researchers were told that the roads traveled by tourists received the most intensive ongoing cleanup efforts. From its \$4 million annual budget to cleanup litter throughout the city, \$1 million annually is devoted to the ongoing cleanup of the I-4 corridor and other major roads through the city.

4.16 Drug Litter

Although many businesses, particularly in South Florida, reported problems with drugs and drug paraphernalia, the researchers did not observe these items at any of the businesses they visited. Typical litter items reported include syringes, needles and small plastic bags used for crack cocaine and other drugs.

One motel reported a serious problem with needles left under mattresses because it posed a safety hazard to the housekeeping staff. The motel had to raise its rates to avoid attracting drug-using guests. The motel also hired an off-duty police officer for \$200/night to discourage drug activity on the motel's property.

4.17 KAB Affiliates

There appears to be great variation from one KAB affiliate to another. In Tampa, Keep Hillsborough Beautiful is well funded and has a very good office. Fund-raising efforts have resulted in monetary, in-kind and volunteer participation from many large businesses in the area. Many KAB affiliates report a return on each dollar contributed of about 8:1. Keep Hillsborough Beautiful reports a return of 26:1.

The personality, experience and training of the person who heads the organization appears to have a lot to do with how the affiliate is operated, because the organization often operates like a one-person business. In most cases, one person serves as executive director, secretary, accountant and fund-raiser. The energy level and the personality of that person can play a big role in the success of the affiliate.

In the cities where the KAB affiliate is within a city department, the level of cooperation is very high. When people are in the same location, there is a close working relationship and they can more easily coordinate cleanup efforts and equipment needs. With solid waste departments, access to the heavy equipment needed is a big advantage when planning cleanups. The city also has more of a sense of ownership with regard to the affiliate's efforts. In cities where the affiliate was not a part of the city organization, it took more effort to get support for cleanup efforts, such as having trucks available on a Saturday. Another advantage is that the city staff are more knowledgeable about the types of activities the affiliate is coordinating, so that when businesses call for information or to complain about a littering or dumping incident, city staff can respond proactively.

Appendix A

City Profiles

Appendix A

CITY PROFILES

During the course of conducting interviews with 200 Florida businesses in 10 cities, the Florida Center for Solid and Hazardous Waste Management found that the survey respondents provided interesting and valuable information that offers unique insight into the day-to-day conditions that businesses owners face. While a substantial amount of data was collected to quantify the economic impact of litter, some of the ways in which litter affects businesses cannot be quantified.

To present the results of the Center's study more completely, some of the comments that were made during the business interviews are summarized in this Appendix. Some of the comments were offered not as a direct response to specific survey questions, but as additional information. The businesses are identified only by business type.

This appendix also includes summaries of interviews with local solid waste management staff and Keep America Beautiful (KAB) affiliate staff for the cities surveyed. At the time this study was conducted, there was no KAB affiliate in Miami. With regard to Hollywood, the interview with Broward County solid waste management staff conducted in Fort Lauderdale also is applicable to Hollywood and a separate interview was not conducted. The KAB affiliate, Broward Beautiful, is a county-wide organization and similarly, the interview with Broward Beautiful conducted in Fort Lauderdale is applicable to Hollywood.

The business comments, as well as those of the solid waste management staff and KAB staff, represent the opinions, beliefs, feelings, and experiences of the respective individual respondents. They do not represent the opinions of the Florida Center for Solid and Hazardous Waste Management, and should not be interpreted as conclusions or recommendations.

1. FORT LAUDERDALE

1.1 Business Comments

Pizza Shop: The person interviewed at this take-out store said that because the store is across the street from a police station, there is no illegal dumping, but proximity to the Salvation Army contributes to litter in the area.

Motel: The person interviewed at this motel near a residential neighborhood said that a lot of effort is required to keep the grounds clean. They have placed ashtrays and trash cans in front of the motel and by the pool. She said they locked and fenced the dumpster because nearby residents dumped mattresses and desks and lawn maintenance companies dumped yard trash.

Auto Repair: The person interviewed said this business finds household trash in its dumpster when nearby residents move. He said the store sells used tires and hauls a pickup truck full of tires to the landfill on a weekly basis, paying a tipping fee of \$75 per ton.

Dry Cleaner: The interviewee said that a lawn service maintains the property twice a month at a cost of \$100 per month, half of which is the cost of picking up litter. He said litter is picked up as needed at other times to discourage additional littering.

Auto Service: This auto repair shop near the port reports that people have dumped fish cleanings in the dumpster. The person interviewed said that illegally dumped items also include roofing material, furniture and other large items. He said the patrons of a bar next door park in the shop's parking lot and leave litter there at night.

Chain Pharmacy: The person interviewed said the premises were well kept and free of litter, and that there was no extra litter accumulated because of the drive-through. She said that illegal dumping of yard trash, pallets and furniture is a problem. The researchers observed that an area next to the dumpsters and the flower beds next to the dumpster were heavily littered.

Retail Complex: This large complex includes theaters, bars, restaurants and retail stores and receives most of its business on the weekend. The manager grew up in the area and knows the area well. He said trash compactors and locked dumpsters prevent illegal dumping, which is frequent in nearby areas because of the lack of legal dumping sites and relatively high tipping fees. He said urban plant debris dumping is a problem because the transfer station where it can be dumped for free is too far away for most people. He said that this business's anti-littering strategies include additional ashtrays and trash bins in heavy foot-traffic areas; security cameras to discourage illegal dumping; and high-visibility security foot patrols (one of the best deterrents). Cleanup crews work 20 hours per day to prevent litter accumulation.

Shopping Center: This shopping center is near I-95. The grounds maintenance person interviewed said that people traveling on I-95 use the parking lot to clean out their cars. He said he frequently finds diapers and various household items. He said that tires, transmissions, air conditioners and white goods are also commonly found. He said that the majority of illegal dumping is by small businesses who want to avoid disposal costs. He said that more fines and/or enforcement would help, and that enforcement action is only take for the most blatant incidents of littering or dumping.

Fast Food: This franchise store's manager said she walks through the parking lot every 15 minutes to check for litter. She said that at any one time, three to five employees are assigned to litter patrol on an as-needed basis.

Restaurant: This restaurant/bar reports that most littering occurs in the parking lot and two employees are normally assigned to clean it. The person interviewed said that after special events and holidays (such as St. Patrick's day), more employees are needed because the quantity of litter is much greater.

Building Supply: The person interviewed said this business has six delivery trucks that are maintained and serviced in its own parking lot and the previous service company used to dump oil, filters and rags on the ground, which required cleanup after each maintenance/service visit. He said that uncovered trucks cause the most litter. He said that this business's most effective strategies are cleaning up frequently and getting the dumpsters emptied frequently.

Pawn Shop: The person interviewed said that littering is controlled with frequent, daily, intensive cleanups. He said the property owner's office is in the same complex. The researchers observed that there were many trash cans near the parking area that were conveniently located for customer use. The property was noticeably cleaner than surrounding properties.

Retailer: The person interviewed said that litter cleanup occurs on an as-needed basis. She said that small items such as cigarette butts are not considered "litter." She said litter is only considered problematic when it is highly visible.

Convenience Store: The researchers observed that this convenience store and gas station had many trash cans and the property was well-kept.

Supermarket: The person interviewed said that not much is done to control litter, and it is cleaned up when necessary. The business sponsors cleanup events.

Sportsfishing: This business is located downtown on the water and has one boat docked near about 10 other day-hire fishing boats. The researchers observed that there was a big difference in the way the various captains maintained their respective areas along the dock. This business provided ash trays for its customers. Other slips along this dock were heavily littered.

Auto Parts: The researchers observed litter around this business. They noticed that so much used oil has been poured on the pavement in the parking lot that the asphalt has a shiny appearance. They observed one customer spilling used oil on the pavement in the parking area. The pavement is also eroded, apparently from other products poured on it. The store has an armed guard by the front door. The researchers observed that behind the dumpster there was a burn pile with oil cans in it.

Boatyard: The researchers observed that this boatyard was very well kept. The person interviewed said the business is very active with the marine industry in various marine cleanups.

Custom Canvas Shop: The person interviewed said the biggest litter problem comes from customers of a nearby convenience store who walk along nearby railroad tracks. He said that there is also illegal dumping of furniture, white goods, household items and yard trash if the dumpsters are left open overnight. He said they had to hide the dumpster from the public by placing it behind the building and now they lock it at night.

1.2 Solid Waste Management Interview

Peter Foye, Director

Tamra Hauan, Collection Program Manager

Broward County Commission, Office of Integrated Waste Management

Recycling and Contract Administration Division

Fort Lauderdale

- C There is less litter today because of successful DOT and municipal efforts to control illegal dumping, such as adopt-a programs and highway cleanups. Mr. Foye said there is less litter in the city than there was five years ago.
- C There is more focus on illegal dumping than on littering. Mr. Foye would like to see garbage service expanded to include white goods and urban plant debris. Residents now have a monthly large item pickup.
- C Broward County actively takes enforcement when large items are littered. The sheriff's office has plans to include illegal dumping in the Crimestoppers Tip Line program.
- C Litter and illegal dumping is a code violation on private property. If the city cleans up dumping on private property, owners are billed for it. If they don't pay, a lien is placed on the property.
- C Yard trash from small landscapers is a problem, including tree branches.
- C Tires are a problem. Residents set out at curbside up to four unmounted tires at a time.

- C There is a program to recycle construction and demolition debris.
- C Waterways run throughout the city and are a significant litter catchment and illegal dumping area. The Marine Industries of South Florida organizes cleanups, reports on items found in the water, and is a leader in this area.
- C About \$4 million per year is spent on litter pickup in Broward County. This includes the expenditures of several cities in the county.

1.3 KAB Affiliate Interview

Lois Schmatz, Executive Director
Broward Beautiful
Fort Lauderdale

- C This KFB affiliate is four years old. Ms. Schmatz has been the half-time executive director for two years and is the only employee. Her primary focus has been on beautification projects.
- C The organization is set up as an advisory board to the Broward County Commission and is funded by the county. Its mission is to sponsor cleanups and beautification projects through grants to religious organizations, schools, homeowners' associations, and other groups.
- C An Adopt-A-Street program was started in 1999.
- C They have sponsored one cleanup and plan to start a public education program on littering.
- C The community is active in recycling. Contract trash haulers are prompt and responsive to community needs. Pickup crews are careful and don't create much litter.
- C Ms. Schmatz is on a task force to examine the enforcement of the ordinance on requiring trucks to cover their loads. This task force was formed after a young girl was impaled by a piece of steel reinforcing bar that fell off a truck and came through the windshield of the vehicle in which she was riding.
- C Ms. Schmatz believes that a lack of trash containers contributes to the litter problem.

2. ORLANDO

2.1 Business Comments

Restaurant: This family-owned restaurant/deli is located on a busy downtown corner. The person interviewed said that they find auto parts, snack food wrappers, fast food wrappers, drink containers, cigarette butts and leaves around the business. She said the litter comes from traffic, pedestrians, transients, and wind. The researchers saw hub caps, cigarette butts, cans, cardboard and cassette tapes littered around the business.

Tailor: The person interviewed said littering and illegal dumping by transients are problems. She said litter also comes from pedestrians visiting neighboring businesses, and wind is a factor, too. She said all four employees pick up litter daily.

Bartending School: The person interviewed said the school has three employees who pick up some of the litter around their business, and the rest is cleaned up by the landlord.

Cycling Store: This 6,000-square-foot store sells biking and fitness equipment. The person interviewed said that littering by transients is a problem. He said illegal dumping around the property and in the dumpster is a problem, especially furniture. He said some of the dumping is from neighboring businesses. He said they used to lock the dumpster, but city waste management employees had problems getting access to it in order to empty it. He said, "Orlando treats vagrants too well by providing them with services, and this encourages more to come." He pointed out a reclining chair on the sidewalk across the street and said it would "probably stay there about a month before the city picked it up."

Photo Studio: The photographer interviewed said the service station next door is the major source of litter and illegally dumped items in the neighborhood. He said the service station owner employs homeless people, lets them sleep on the premises, and they frequently throw items over the fence. He said he has notified the city but they haven't done anything. Because the studio is near the corner, wind blows litter from the intersection onto the studio's property. The photographer said litter also comes from patients visiting a neighboring doctor's office. The patients go outside to smoke and leave their cigarette butts on the sidewalk in front of his studio. He said he finds these situations very troubling because "the community belongs to all of us," and "no one person or business should have the right to litter or illegally dump at the expense of society."

Flooring and Drapery: The person interviewed said the five employees of this business pick up litter daily. He said the litter comes from traffic, pedestrians, and "homeless winos who sleep in the doorway at night." He said other businesses dump things on the property and in the dumpster. He said more

advertising, such as the “Crying Indian,” is needed to educate the public. He said that the local solid waste management department has been good about responding to calls about missed pick ups. He said that to solve overflow problems, dumpster pickup frequency was increased. He said that more frequent pickups are needed for hazardous wastes, such as paints, solvents and chemicals, and locations for hazardous waste disposal needs to be accessible.

Café: The person interviewed said the seven employees of this small restaurant in an antique mall pick up litter two or three times a day. He said the snack food wrappers, fast food wrappers, drink containers and tobacco products come from their own customers, from traffic and from pedestrians. He said, “a \$50 fine will not discourage littering,” and that Florida “is the worst state that I’ve seen for littering.” Ashtrays are located around the outside dining area to discourage littering of cigarette butts.

Theater: The person interviewed at this 75-member theater company said the six employees pick up litter, primarily after performances. In addition to snack food wrappers, fast food wrappers, drink containers and cigarette butts, they find auto parts. He said they have a problem with dumping in the parking lot and in the dumpster. They have called the solid waste management department to report littering or illegal dumping, but are not aware of any specific actions taken. He said that to decrease littering from people attending performances, they put out ashtrays and trash cans, which decreases the litter somewhat.

Architect/Contractor: This contractor/architect office employs 75 people. The person interviewed said two maintenance people spend a total of about three hours per week on litter pickup. She said the litter comes from traffic and pedestrians, and has steadily increased over the last five years. She said the dumpsters are fenced and locked, and the public does not have access to parts of the property where dumping might occur.

Appliance Parts: The person interviewed said this store spends about an hour a week picking up litter.

Convenience Store: This store is open 24 hours on weekends. The person interviewed said that to reduce lotto ticket littering, they have a box for a “second chance drawing” to encourage customers to put the tickets in the box. The prize is a sandwich or other food item.

Auto Service: The person interviewed said that to prevent illegal dumping, they put the dumpster in front of the store where it is available to others and people are not discouraged from using it.

Bar: This bar offers pool, music, darts, TV, etc. The person interviewed said they spend about an hour a day cleaning up litter. He said they have been told that beer bottles cannot be recycled because it is not cost effective. Trash cans located in the parking area are helpful.

Motel: The person interviewed said they find diapers and furniture in the parking lot in addition to other types of litter. Ashtrays and trash cans are located around the property.

Veterinarian: This veterinary clinic is next to a city park on a busy thoroughfare. The person interviewed said that many homeless and transient people litter in the area. She said that litter is removed by the clinic's lawn service. She said that dumpster pickup is twice a week and the city responds to calls for missed pickups but will not pick the overflow items around the dumpster. They have an enclosure around the dumpster that helps to contain the overflow items.

Communications Contractor/Fabricator: This large warehouse-type facility constructs cable systems. The person interviewed said three employees pick up litter for a total of 13 hours per week. He said they put their dumpster in a fenced and lighted area to avoid illegal dumping.

Café: The person interviewed at this small, family-owned restaurant said they sometimes find construction debris in the dumpster. He said drink containers and cigarette items are littered by customers of the bar next door. He said the city did not respond to an illegal dumping call. The researchers observed graffiti on the side of the building.

Retail: The person interviewed said they have fenced the dumpster but people toss items over the fence. She said vagrants living in the area litter hypodermic needles, whiskey bottles and dirty clothes in addition to food wrappers, drink containers and cigarette products.

Apartment Complex: The person interviewed said this 12-unit complex has no litter except for cigarette butts from one renter. The researchers observed the grounds to be clean, and they noticed that a fence keeps litter from a neighboring business from blowing onto the complex's property.

Clothing Manufacturer: This manufacturing business is located adjacent to the sidewalk. The person interviewed said the city is responsible for the area in front of the business. He said the business performs minimal pickup around the dumpster for about an hour a week. He said they have a security dog in a fenced area where the dumpster is located and the fence locked at night, so illegal dumping is not a problem. He said the city neglects this area in favor of areas closer to downtown. The researchers observed that the grass near the curb is not cared for and it makes the area look shabby. Litter was observed along the sidewalk.

2.2 Solid Waste Management Interview

John Hogue, Supervisor
City of Orlando
Streets and Drainage Department
Orlando

- Compared to five years ago, the city is more efficient in its use of resources to clean up litter. They have "held their own" during a period of major urban growth. One of the efficiency factors is having the KAB affiliate (Keep Orlando Beautiful) housed in the Streets and Drainage Department.

- Public education, municipal awareness programs and corporate participation programs have played a large part in decreasing litter while the city was expanding rapidly. Helpful programs include: Trash Kops, participation programs at the University of Central Florida and Valencia Community College, the BFI poster program, extensive local TV coverage, corporate sponsorship, the Neighborhood Ambassadors program, school cleanups (K-8), and city litter patrols.
- Leaves collected during cleanups are used as mulch for landscaping along streets and roadways.
- The top three litter problem areas are: streets and highways, commercial areas, and abandoned houses and buildings.
- The Clean Builders program encourages builders to keep construction sites free of litter throughout the building process, to prevent litter from blowing around or being washed off the site into surrounding streets.
- Two things would help to reduce and prevent litter:
 - Solid waste management needs to reduce litter originating from garbage/recycling trucks/crews.
 - More enforcement is needed for laws against uncovered truck loads.
- Existing anti-littering laws have no effect because the Orlando Police Department does not enforce them unless they stop or arrest someone for some other reason.
- To maintain the downtown area, Orlando uses 11 street-sweeping vehicles. The major item littered downtown is cigarette butts, which may account for as much as 85% if the litter collected. On I-4 and the East-West Expressway, 90% of the litter comes from uncovered vehicles. This occurs because of the types of vehicles/trucks and the speed limits.
- The Bag-It-On-Buses program has been very helpful. However, periodic neglect by the drivers, who are responsible for emptying the bags, has produced inconsistent results.
- Green waste and construction debris are the major items that are dumped illegally because landscapers and builders want to avoid disposal fees.
- The city responds quickly to reports of illegal dumping. Code enforcement officers and a cleanup crew are dispatched immediately when a report is received. The reasoning is that the best possibility for a conviction is a rapid response. Also, cleaning up illegally dumped items as soon as possible discourages further illegal dumping. All costs for cleanup and proper disposal of the illegally dumped items, as well as fines, are levied against the offender.

- The Streets and Drainage Department has a total budget of \$9 million/year. They spend \$4 million on cleanup activities, and of that amount, more than \$1 million goes to the cleaning of the I-4 corridor and other major state roads through the city.
- Orlando uses various programs to combat littering and illegal dumping: telephone hotlines, beautification programs, free pickup of oversized items, additional lighting in problem areas, signs about laws and fines, free curbside tire pickup (up to four at a time), and a web site: www.ci.orlando.fl.us/kob

2.3 KAB Affiliate Interview

Jane Ferry, Coordinator
 George Rogers, Assistant Executive Coordinator
 Keep Orlando Beautiful
 Orlando

- Keep Orlando Beautiful (KOB) is housed in the City of Orlando's Public Works Department, Engineering/Streets and Drainage Bureau. Ms. Ferry is a city employee and has offices and staff in the bureau. George Rogers is her assistant.
- KOB cooperates with the Neighborhood Services division to form neighborhood associations. One component of the program is the Neighborhood Ambassadors program. Cleanup clubs are formed in the schools (K-8) to promote litter control, education and cleanup management.
- Cleanup publicity campaigns use brochures, posters, ads in the Orlando Sentinel, radio spots and TV spots. TV coverage of cleanups helps raise public awareness.
- It is advantageous to be a part of the city administration because coordination of city personnel and equipment for cleanups is much easier from one city department to another. KOB is also able to give input to the city streets department concerning littered sites in the city.
- Orlando places a high priority on cleanup. Areas seen and used by the public are cleaned the most.
- Calls concerning litter or illegal dumping come in to the solid waste department or to the KOB office. Often they are referred to the Parks Department.
- Programs include Horizon 2000, a project to beautify the gateways to the city before the millennium.

- KOB won a GLAD Bag-a-thon Cash Incentive Award for involving 9,097 volunteers in the 1998 Great Florida Cleanup.
- Funding also comes from state grants and events such as golf tournaments. The total budget for cleanup efforts comes from money allotted to KOB, Engineering/Streets and Drainage, Solid Waste Management, and the Parks Department.

3. BREVARD COUNTY METROPOLITAN STATISTICAL AREA (MSA)

A Metropolitan Statistical Area (MSA) is a U.S. Census Bureau term for contiguous communities whose inhabitants work, shop, live and recreate in more than one of the communities. It is an area comprising more than one city that is viewed as essentially one large urban area.

The Brevard County MSA consists of the cities of Titusville, Melbourne and Cocoa. There are numerous smaller municipalities within the county. Several businesses included in the survey were on the outskirts of Titusville, Melbourne, and Cocoa but had postal addresses of the smaller municipalities.

3.1 Business Comments

Auto Parts: This auto parts store accepts used oil from the public for recycling. Trash cans outside the front door contained antifreeze containers and milk jugs with a little oil in them. The person interviewed said the trash cans need to be emptied often because people will leave things around them on the ground. He said the parking lot has ashtrays and is swept each night. The manager is involved in hazardous waste cleanups and has attended TREEO Center training courses.

Office Products: The person interviewed said this store helps to clean up the area. She said the main street is cleaned daily by the city and is very clean. She said other businesses or other people sometimes use the dumpster. She said litter accumulates in landscaped areas next to the building.

Market: The person interviewed said that trash cans on the sidewalk are maintained by the city, but people don't use them; they leave soft drink cans and other litter by the phone in front of the market. She said polystyrene peanuts blow around frequently and accumulate in the shrubbery. She said furniture is sometimes found in the dumpster which is near a railroad track.

Auto Repair: The person interviewed said that roofing materials were sometimes dumped in the dumpster over the weekend. He said the dumpster was moved to make it less accessible to the public.

Auto Repair: The person interviewed said that litter comes from people who park after hours in the parking lot to go to the restaurant across the street. He said it also comes from uncovered or poorly covered trucks. He said plastic bags from newspapers are also a problem.

Convenience Store/Gas Station: The person interviewed at this family-owned business said they have experienced unauthorized use of their dumpster. He said that locking the dumpster would only cause people to leave discarded items outside the dumpster.

Chain Pharmacy: The assistant manager of this large store said that he has noticed an increase in litter from cars and this should be addressed by stricter enforcement and higher fines. He said litter tends to accumulate in the prescription pickup drive-through window and there is a separate maintenance contract just for that area.

Convenience Store: The person interviewed said employees pick up litter while on their cigarette breaks. She said litter is picked up at least three times a day and more if needed. She said trash cans and ash trays near the door are an effective way to control littering.

Sporting Goods: The person interviewed said many retired people in the neighborhood pick up aluminum cans which reduces parking lot litter. The researchers observed that there were very few items littered in the parking lot.

Apartment Complex: This apartment complex won an award from “Keep Brevard Beautiful” for its landscaping. The person interviewed said there is an area for residents to do car maintenance where used oil can be recycled. There is a sign posted in the car maintenance area telling residents that working on transmissions is not allowed. Dumpsters are strategically located around the complex.

Supermarket: This large chain supermarket provides numerous recycling bins for plastic bags, paper, newspaper, and polystyrene foam trays. These bins are in front of the store’s entrance and are used by customers and non-customers. The parking lot was observed to be very clean. The person interviewed said employees pick up litter three or four times a day. The business is an active sponsor of community cleanups.

Shopping Center: The person interviewed said travelers on I-95, which is nearby, use the parking lot to take a break and clean out their cars. He said diapers are the most common litter item; used oil, tires, batteries and beverage containers also are found. He said he is reluctant to put out more trash cans because they would get stolen or vandalized. He said it takes 20-25 hours per week to keep the parking lot clean. He said that signs would not help because without enforcement, people would ignore them. He said that the business has arranged with a local recycling facility to pick up batteries, used oil and tires. He said large items such as furniture and other household items are also a problem. He said that residents can dispose of large items for free by calling the waste management department, but when a business calls, the business gets charged for the pickup.

Hotel: The manager of this hotel said he pays \$500 per month for maintenance of the property, and about 20 percent of that is for litter pickup. He said employees also pick up litter.

Café: This restaurant is in a downtown area that was renovated in 1992 as a quaint shopping area. The researchers observed overflowing trash cans and neglected landscaping along the street. The café had blocked off the end of an alley and converted it to an attractive outdoor dining area with potted plants. Benches and trash cans were placed along the street, but the landscaping around those contained cigarette butts, napkins and other paper litter.

Retail: This business, in an older rundown area has fixed up its building to improve the appearance and landscaped the parking area. They share a dumpster with other businesses which is in an open corner of the parking lot.

Auto Service: The person interviewed said there is a concern with homeless people who live on the roof of this business. He said that after business hours, people climb onto the roof to sleep, and the business has made no attempt to have the police remove them.

Retailer: The person interviewed said they tried putting trash cans and ashtrays at the entrances to encourage customers to use them, with only limited success. She said illegal dumping is not a problem because daily dumpster service keeps the dumpster from becoming too full.

Pharmacy: The manager said they contract to have litter picked up daily for \$450 per month. The manager did not see litter as a problem for his store. The researchers observed that this business had more litter in the parking lot (including paper, cigarette butts, candy wrappers and other litter items) than other businesses in the area. The store faces the direction of the ocean, which is only a block away. Across the street is a large 24 hour surfing and beach ware tourist store. Wind from that direction, blows litter into the front of the store.

Surf Shop: The person interviewed said that the fast food restaurant next door is the source of litter in the parking lot. Cigarette butts, drink containers, food wrappers and other items were observed; however, the litter may also be coming from other neighboring businesses that sell those items.

Small Engine Repair: The employees of this business said their litter is caused by a “head shop” nearby. The person interviewed said syringes and “female products” are also found frequently. When he reports the syringes, the city promptly sends out a deputy to pick them up, but they do not clean up the other litter.

3.2 Solid Waste Management Interview

Richard (Dick) Rabon
Director, Brevard County Solid Waste Management

Cocoa

- C Mr. Rabon said that Brevard County has an active, well-funded KFB affiliate that receives annual support from the county in the amount of \$100,000. Since its start in the mid-1980s, KBB has been effective in enlisting many people in the community to contribute to its program efforts.
- C Highly visible community cleanups have raised community awareness, along with participation, and recycling is estimated at over 80% participation.
- C The county has included solid waste management in tax assessments so there is no tipping fee at the landfill for residential trash. Mr. Rabon believes that this has encouraged proper disposal and decreased illegal dumping.
- C Development of the county has decreased the availability of secluded sites for illegal dumping. There is still some illegal dumping of construction debris.
- C Most categories of household items are included in curbside pickup, including tires. There is a hazardous waste mobile collection six times a year and a program for the recycling and resale of latex paints. The paint is collected and sent to a company that batches, tints, filters and cans it for resale to the public for under \$4 per gallon, and there is a high demand for the paint.
- C The county has found signs to be ineffective in curbing illegal dumping. At known illegal dump sites, they have blocked entrances with dirt piles, cables or large concrete pyramids. Illegal dumping is reportable to Codes Enforcement but there is no one person designated for investigation or enforcement.
- C The Solid Waste Department has hired someone to market compost and mulch made at the landfill from urban plant debris. Some of it is also used as landfill cover, thereby reducing the amount of sand and dirt purchased for that purpose.
- C The landfill tipping fee for commercial customers is \$45/ton and that is somewhat less than Orange County. This encourages some people to cross county lines to save money on tipping fees. If too much waste comes in from out of the county, the Brevard landfill will fill up sooner than planned.
- C Keep Brevard Beautiful submits yearly cost/benefit figures to the county. The ratio for the latest period was 8:1, which means that the value of cash contributions, in-kind donations, and volunteer labor is eight times as much as what KBB receives from the county.
- C Additional cleanup programs are "Butts on the Beach" and "Butts on the Course" (for golf courses).

- C Harris Sanitation contracts for waste hauling and its crews are not seen as a significant source of litter. Mr. Rabon was not aware of any citations issued for uncovered trucks.

3.3 KAB Affiliate Interview

Bill Veach, Executive Director
Keep Brevard Beautiful
Rockledge

- C Keep Brevard Beautiful (KBB) has a contract with the county, but there are also 16 separate municipalities. KBB receives funding and does cleanups in those municipalities without a formal contract.
- C KBB receives \$100,000 annually through a contract with the county Solid Waste Management Department. In 1998, KBB received approximately \$700,000 in in-kind donations and volunteer hours. Volunteer hours are calculated at \$8.00/hour for adults and \$5.35/hour for children and prisoners. KBB calculates a cost-benefit ratio of 8:1.
- C Mr. Veach said that KBB enjoys strong support, assistance and funding from the county Solid Waste Management Department, contract waste haulers, and individual municipal waste haulers throughout the county. One hauler provided dumpsters and temporary trash containers for the viewing of the John Glenn launch. Several haulers provides dumpsters at 30 sites for the annual “Trash Bash” in April and does not charge a fee for pickup.
- C Mr. Veach said that litter along the roads increases as population and traffic increase. However, due to a strong Adopt-a-Shore program, there has been no change or a slight improvement along shorelines.
- C There are many high usage recreational areas in Brevard County. Cleanup costs for recreational areas divert funds from cleanups of streets, highways and other public areas.
- C Mr. Veach said the county provides excellent garbage service but he would like to see expanded recycling of plastic, cardboard, aluminum foil and hazardous waste at curbside. Garbage crews are well trained and there is very little litter from uncovered trucks.
- C There are a few illegal dumpsites but they are cleaned on a priority basis. They use prison crews for this purpose.
- C Mr. Veach believes littering laws could be strengthened and then enforced more widely.

- C KBB has used the photometric index for measuring litter reduction results. Mr. Veach said that its value is questionable because the sites are so variable, i.e., they do not return to the exact spot each time.

4. HOLLYWOOD

4.1 Business Comments

Supermarket: The person interviewed said this large chain supermarket, in a downtown urban renewal area, had problems with homeless people sleeping in the doorway. He said that every morning they used to find alcoholic beverage containers and food wrappers that had to be cleaned up before opening the store. He said the problem was solved by hiring an off-duty police officer at night. He said that businesses in that area, which is ‘less desirable,’ get fewer city services.

Bakery: This bakery/deli on the intra coastal waterway has tables on a dock over the water. The person interviewed said they are concerned about litter getting into the intra coastal waterway, and they keep the property free of litter. He said an increase in homeless people on the beach during the past three years has hurt business and has led to neighborhood deterioration through lost revenues.

Hotel: The person interviewed said sand blowing into the parking lot from the beach is a problem. He said they pick up about 50 pounds of sand per day, take out the debris, and put the sand back on the beach. He said litter cleanup in the parking lot takes about 24 hours per week. He said that when illegal dumping has been reported to the city, they have been told, “It’s your problem.”

Motel: This motel manager talked about the increased numbers of homeless people sleeping on the beach and the business decline in that area. He had documented with photos the number of businesses that had closed. He said the vagrant population not only discourages tourism, but is a big source of litter. He said community decline results from lost revenues, as businesses have less money to spend on upkeep. The motel is for sale.

Market: This small market caters to beach goers. The person interviewed said that the litter they find includes vehicles ashtray contents and “dope and drug baggies.” He said the best way to prevent littering and illegal dumping is to live on site and watch out for suspicious activity. The owners live above the store and pay a vagrant who “hangs around” to keep the parking lot clean.

Bagel Shop: The researchers observed that a small area with ashtrays by the front door where smokers can sit was quite clean, as was the area around the drive-through window. The person interviewed said their strategy is to clean up any litter frequently so it does not accumulate.

Pharmacy: The person interviewed said they employ an off-duty police officer to discourage homeless people from sleeping in the doorway. He said homeless people get into the dumpster and scatter the contents. He said the store called the city for help with an illegal dumping situation and was told, "It's your responsibility to clean it up."

Furniture Store: The person interviewed was from California and said that litter was better controlled there, through public education. She said that with more public awareness, Florida would have less of a litter problem.

Pawn Shop: The person interviewed complained about the amount of litter that blows into the alcove in front of the business and into the alley behind the business. He said the city does not empty the dumpsters frequently enough. He said that the business tried to contract with a private hauler and was told there was not adequate room for the new dumpsters. The researchers observed that an adjacent alley, just off of a main street, was full of littered and dumped items, including items that were stacked around a "No Dumping" sign.

Book Store: The person interviewed said litter is not too bad because the city cleans the area. He said more "No Littering" signs are needed. He said that to prevent illegal dumping and decrease littering, they lock the dumpsters and place ashtrays in front of the store.

Restaurant: The owner said apartments in the area were the major source of litter. This business is near an alley and has problems with illegally dumped items, including furniture and household garbage. He said the city has tried to encourage the business district's growth and has increased its eviction of homeless people. He said that if he were to call the city to report illegal dumping, all they would do is to come out and mark the items and take photographs.

Auto Parts: The person interviewed said that auto parts and cigarette butts are the most littered items. She said they do not lock the dumpster, but they lock their cardboard recycling bin, and people dump items next to the recycling bin. The researchers observed that the parking lot had many trash cans and signs that said the public was not to work on vehicles in the parking lot.

Tool Rental: The person interviewed said the areas behind the store were fenced and locked to prevent illegal dumping. The only areas open to the public are the parking lot and the front door area. He said majority of their litter is windblown from the gym next door and from the street.

Shoe Store: The person interviewed said the property owner keeps the entire shopping center clean.

Paint Factory: The manager said litter comes from his customers, neighboring businesses, dumping and traffic. He said anti-littering laws have no effect due to lack of enforcement. He said that if he called to report littering or illegal dumping, no action would be taken by the city.

Large Chain Retailer: Construction was in progress and a lot of construction litter was observed. An old stove dumped in the parking lot had beer bottles placed in it. The person interviewed said refrigerators and stoves are frequently dumped in the parking lot. He said that to prevent dumping, the public does not have access to the dumpsters. The chain is active in recycling and supports community cleanups by donating bags and labor.

Fast Food: The person interviewed said that snack food wrappers, fast food wrappers, drink containers, cigarette butts, garbage bags and purses are littered most often. She said that the purses are stolen and then dumped on their property. In her opinion, these items come from their customers, from illegal dumping and from traffic. She said that to combat littering and illegal dumping, they provide outside trash cans and frequently patrol the parking lots. She said that they also have increased the cleanup of their drive-through window area.

Auto Detailing: The person interviewed said litter comes from their customers, neighboring businesses, traffic, and pedestrians, and the wind also blows litter around. He said the only way the city would clean up litter or illegally dumped items is if a police report were filed first.

Manufacturing: This small manufacturing business makes covers for spas, pools and boats. The person interviewed said a neighboring flower shop is the source of most of the litter in the area. The florist has open garbage cans so the paper and plastic wrap blow around. He said the problem was reported to the city, but nothing was done. He said that to decrease littering, landfills need to accept more items at a reduced cost, and that litter has increased as the Davie landfill has gotten more selective and tipping fees have increased. The researchers observed clear plastic wrap, paper, and other flower-related litter in the parking lot and in a nearby field.

Restaurant: The person interviewed said a heavily wooded area nearby had been frequented by homeless people, and the area was cleared because a shopping center is going to be built there. She said that the homeless people have left and litter has decreased.

Laundry: This interview with the Haitian manager of a neighborhood laundry was conducted in Creole. The person interviewed said most of their litter comes from customers who sit outside while they wait for their laundry to finish washing. She said that to reduce illegal dumping, they locked their dumpsters and moved them to a highly visible, well lighted and fenced area.

5. JACKSONVILLE

5.1 Business Comments

Convenience Store: The person interviewed at this gas station/convenience store said litter comes from people working for the labor pool/employment agency next door and other pedestrians.

Credit Union: The person interviewed said the area is frequented at night by homeless people and most of the litter is found in the morning. She said that people sleep in the dumpster in the parking lot and they sort through the contents. She said litter also comes from the people working for the labor pool/employment agency across the street.

Motel: This older downtown motel, near a large park and a major intersection, is being renovated. The person interviewed said much of the litter comes from homeless people, and they have had to lock their dumpster. She said they also get a lot of litter from vehicle traffic.

Liquor Store: This store is in an older, rundown section on the outskirts of the downtown area. The researchers observed that this corner location is heavily littered. The person interviewed said the store's customers and crack dealers are the main source of litter. He said the store relies solely on the city to clean up and does not spend money or time on picking up litter.

Medical Clinic: This small medical clinic in a commercial area contracts with a maintenance and lawn service. The person interviewed said people use the parking lot at night as a gathering spot and in the morning they find diapers and other trash. She said litter also comes from traffic.

Import Business: The person interviewed said packing material from loading and unloading accounts for most of their litter. The business is on a large piece of property. She said that her husband was responsible for the "junk" that was observed on the property, including old cars. The property is fenced and she said they don't have a problem with litter from other sources.

Convenience Store: Some litter was observed around this convenience store, although the manager said it is cleaned up regularly. The researchers saw a tire leaning against a fence next to the store. The person interviewed said it had been there a couple of days, but apparently this was an unusual situation.

Liquor Store: This liquor store, in a rundown area, was observed to have a serious illegal dumping problem behind the store. The person interviewed was reluctant to provide specific information.

Deli: The person interviewed attributed most of this deli's litter to patrons of a nearby club. He said littering occurs mostly at night and on weekends.

Recreation Hall: This business is on a street that ends at the St. Johns River. The person interviewed said litter comes from people who fish and other people who hang out at the seawall. Some of this litter blows over to their property. She said the city as a whole is cleaner since an NFL football team (the Jaguars) came to Jacksonville. She said sometimes litter results from careless pickups at curbside. She said the people who rent the hall for parties, meetings, etc., use a lot of disposables and this contributes to their trash problem.

Hardware Store: The person interviewed said the landlord cleans the parking area. He said they have had some problems with items left in and around their dumpster.

Laundry: The person interviewed said most of the litter is small items from the laundry's customers. The researchers observed an employee throwing a cigarette butt out the open door.

Tailor: This small tailor shop is in the same commercial plaza as the hardware store and the laundry. The person interviewed said litter isn't a problem because the landlord contracts with someone to clean up the parking lot.

Restaurant: The person interviewed said furniture has been dumped in the dumpster. He said they used to recycle glass bottles but stopped due to poor pickup and the inconvenience it caused.

Fast Food: The person interviewed said the store removed trash cans from its parking lots about six years ago because people did not use them. She said diapers are frequently found in the parking lot. She said the city is slow to respond to calls for assistance. She said the drive-through window is an area of increased littering.

Dry Cleaner: This dry cleaner next door to the fast food restaurant also finds diapers in their parking lot. The person interviewed said frequent cleanups help.

Auto Repair: This business is located at a busy intersection. The person interviewed said litter comes from customers of the liquor store next door; they find liquor bottles in the morning.

Liquor Store: The person interviewed said the auto repair shop next door leaves auto parts and tires on its property. The liquor store has trash cans and ashtrays outside the door for customers. He said they no longer leave cardboard boxes out back for people to use when moving because the cardboard liners were often strewn around.

Pool Chemical Manufacturer: The person interviewed said litter is prevented by frequent dumpster pickups. He said they leave their dumpster open to encourage people to use it rather than dump around it.

Construction Company: This construction office was located at a construction site. The person interviewed said most of the litter is either construction debris or it comes from the workers. He said fencing keeps out other litter or dumping.

Bar: This bar has placed ashtrays by the outdoor phone and by the doors. The person interviewed said they leave the dumpster open because when they locked it, people dumped things around it.

5.2 Solid Waste Management Interview

John Shellhorne, Neighborhoods Division Chief
City of Jacksonville
Jacksonville

- C Jacksonville, a city of about 860 sq. miles, has a wide variety of programs aimed at improving the “quality of life.” Mr. Shellhorne is Chief of the Neighborhoods Division for the City of Jacksonville. This division manages the city’s “Clean It Up, Green It Up” programs.
- C The “Clean It Up” program involves contract administration for cleanups, structural safety of buildings (mostly residential), nuisance abatement (including litter) and the clearing of overgrown lots. The “Green It Up” program involves beautification, tree planting and the “Adopt-a” programs. The Neighborhoods Division is also involved with the city’s Keep America Beautiful (KAB) affiliate. Mr. Shellhorne is very actively involved in litter management, beautification and “Adopt-A” programs.
- C Illegal dumping is handled by three police officers assigned to the Jacksonville Electric Authority (JEA). These officers patrol given sectors of the city on regular sorties, with special attention paid to areas of known illegal dumping activity.
- C When concerned citizens call the city about littering, they are referred to the Adopt-a program for that area, if there is one. Otherwise, calls are fielded by Neighborhood Division staff, then routed to the appropriate office in the Sanitation and/or Waste Management Division.
- C Anti-littering education projects currently underway in Jacksonville include:
 - C Painting of anti-littering public information on police cars
 - C School anti-littering education and awareness programs
 - C Increased police enforcement of anti-littering laws
 - C Green Space flower/tree sale
 - C Anti-littering public information television air-time spots
 - C Increased corporate participation in anti-littering projects

- C In Mr. Shellhorne’s opinion, there has been an increase in the amount of litter over the past five years. On a scale of 1 to 10 (with 1 being no litter and 10 being terribly littered), he ranked the city as an 8.
- C He said local waste management services are good and there is a high degree of recycling participation.
- C Programs to discourage or combat illegal dumping and littering include pick up of oversized items, telephone hotlines, beautification programs, and the use of signs about littering and illegal dumping fines. To decrease the incidence of illegally dumped tires, the city will pick up four tires per week per residence.
- C Success of the city’s programs is measured by the number of volunteer hours logged, the number of pounds of litter collected, changes in the Photometric Index, visual improvements, the number of community organizations, businesses and agencies that participate, the number of cleaned lots, the number of community wide clean up events and the number of active programs.
- C Mr. Shellhorne said the primary sources of litter were: uncovered trucks/vehicles, citizens who are careless about the way they put out their garbage, motorists littering from vehicles, and dumpsters at commercial sites.
- C He ranked the large items most often dumped illegally, from most to least, as: construction and demolition debris, old tires, bags of trash, old furniture, auto parts and white goods (such as stoves and refrigerators).
- C In addition to being involved in typical litter prevention and beautification programs such as the Great Florida Clean-Up, Florida Coastal Cleanup, Adopt-A-Road/Street, and Adopt-A-Shore, Jacksonville sponsors some unique programs such as JaxPride Week, The Annual GreenScape Flowering Tree Program, St. John’s River Festival, Litter Free Events, Marine Litter Outreach, GreenScape FDOT Roadway Beautification Program, City of Jacksonville Gateway Beautification Program and the Urban Rangers Litter Program.

5.3 KAB Affiliate Interview

Nadine Armstrong
Keep Jacksonville Beautiful
City of Jacksonville Neighborhoods Department
Jacksonville

- C Keep Jacksonville Beautiful is housed in the Neighborhoods Division. This is very helpful because it facilitates cooperation with city departments on cleanup activities.

- C Ms. Armstrong rated the city as 8 on a scale of 1 to 10, (with 1 meaning no litter, and 10 meaning terrible litter).
- C She ranked the sources of litter in the city as: citizens careless in the way they put out their garbage, dumpsters at commercial sites, uncovered or overflowing public waste receptacles, people waiting at bus stops, pedestrians, and uncovered trucks/vehicles.
- C Ms. Armstrong ranked the most frequently dumped items (from most to least) as: tires, white goods (stoves, refrigerators, etc.), furniture, urban plant debris, construction and demolition debris, brown goods (electronics, computer parts, etc.), auto parts, paint, solvents, motor oil, and bags of trash.
- C Prison labor is used to clean up littered areas.
- C Jacksonville provides free pickup of oversized items (excluding car parts).

Note: Ms. Armstrong and Mr. Shellhorne work in the same office and coordinate activities together. There are few differences in the information they provided, other than their individual opinions of the most significant sources of litter and illegal dumping. They were interviewed at the same time, but their remarks were recorded separately.

.6. MIAMI

6.1 Business Comments

Restaurant: The researchers observed that this small, family-owned restaurant on a major thoroughfare in Miami's Little Haiti area has bars on the windows, the back area is fenced off, and there was furniture and other debris in the fenced area. The person interviewed said litter comes from vehicles and pedestrians. He said the owners clean up daily and they lock their dumpster to prevent dumping. This interview was conducted in Haitian Creole.

Machine Shop: This shop in Little Haiti also had bars on the windows. The person interviewed said people dump things at the back of the property, including papers, cardboard and construction materials. He said their customers don't litter and they are not dumping car parts there. He said homeless people, transients and drug users contribute significantly to the litter problem. He said they have lighted and locked the dumpster area. He said they have received no assistance from the city with illegal dumping.

Convenience Store: This 24-hour drive-through convenience store is near Coral Gables. The person interviewed said each shift picks up litter at least once. They find drink containers, receipts, papers, and cigarette products from emptied ashtrays. She said the wind blows trash from the bus stop and the park across the street. The city maintains trash cans at the bus stop and in the park. She said the dumpster is fenced but not locked and residents of the surrounding neighborhood use it freely without permission.

Medical Laboratory: The person interviewed said they contract with a janitorial service that cleans the offices daily and picks up some of the trash outside. She said a dumpster in a fenced area in the back is hidden from view and is emptied twice a week. She said they have had homeless people sleep in the back doorway and leave litter such as newspapers, food wrappers and drink containers. She said that customers smoke outside and leave cigarette butts on the sidewalk.

Restaurant: The restaurant owner said the front of this restaurant is a catchment area for windblown litter and leaves. He attributes dumping to the customers of the lab next door. He said graffiti is a big problem in this area. He said the dumpster is in the back where there is little public access. He said the city administration is in disarray and he doesn't call them because they don't have the personnel to do anything. He talked about the difference in city services between this area and neighboring Coral Gables.

Convenience Store: This convenience store next to the restaurant also gets wind-blown leaves and litter, as well as newspapers and other small litter. The person interviewed said they have had to chain and lock the dumpster. The researchers observed some trash and "junk" in the back that appeared to have come from this business.

Hotel: This downtown business hotel is involved in Miami's Neighborhood Enforcement Teams (NET) program. The person interviewed explained that the city is divided into NETs. The downtown NET is about seven blocks long by two blocks wide and two street sweepers clean every street every night. She said the nightly cleanup takes about two hours. She said city-owned containers are emptied nightly and a crew cleans up litter in the NET area by hand from 8 a.m. to 4:30 p.m., Monday through Friday. Additionally, the hotel employs a full-time outside cleanup person at minimum wage for 60 hours per week. She said the City of Miami responds to calls for service, but "it takes forever." She said the hotel employs security guards to deter dumping in the dumpster and parking lot. She said the hotel has trash cans in the lobby and has participated in KAB and city-sponsored cleanups in the past.

Fast Food: This store is in a downtown urban renewal area. The person interviewed said they pick up litter on an as-needed basis. It is across the street from a big hotel/shopping/ entertainment complex. He said there is more litter when people leave the shopping complex at night. He said litter also comes from their own customers and litter is also blown by the wind. They keep their dumpster locked at night; it is a compactor type, which discourages use by others. He said that before they locked it, people would go through the dumpster and paper would spill out. He said that urban renewal efforts have improved the character of the area.

Contractor: This contracting office is on-site at the new Miami Heat arena where there are about 450 workers. The person interviewed said four employees clean up the jobsite on a full-time basis. He said much of the litter is from the “lunch wagon.” He said that subcontractors must pick up debris from their work, but cardboard, PVC and other construction debris are sometimes left there. He said they don’t have a problem with illegal dumping because the entire site is fenced and has security guards at the entrances. He said there is less litter in the area now because the homeless people have moved north since the arena construction began.

Motel: The person interviewed at this motel on a busy main street in an older, rundown area said the motel is prone to criminal activity, even in the middle of the day (prostitution, drugs, etc.). She said the front of the property is fenced and the gate is locked at night, and this keeps most trash from traffic and pedestrians on the outside of the property where it is picked up daily. The dumpster is locked. The researchers saw police officers in the area questioning several people.

Convenience Store: This 24-hour convenience store/gas station is just north of downtown Miami. The person interviewed said it takes two people about 10 hours per week to manage the litter, which comes from the customers, neighboring businesses, traffic and pedestrians. He said dumping is a problem, and they have added lighting and enclosed the dumpster to deny public access. The researchers observed beverage containers, newspapers, broken bottles, polystyrene cups and plastic film wrap on the sidewalk next to the business. The area around a public phone in front of the store was heavily littered, as was a bus stop located under a highway overpass next door to this business.

Restaurant: This 24-hour chain restaurant on a busy corner near the downtown business district has employs 36 people. The person interviewed said two employees clean up three times per day for a total of about 11 hours per week to manage litter, which comes from neighboring businesses, traffic and pedestrians. He said they prevent illegal dumping problems with lights, locks and fencing of the dumpster area. Beverage cans, plastic straws, bottles, plastic wrap, newspapers, and a cushioned chair seat were observed around the restaurant grounds.

Medical Office: This plastic surgeon’s office with one surgeon and four office staff have a contract cleaning person who picks up litter in the parking area and around the building. The person interviewed said it takes four hours per week to manage all the litter, which comes from neighboring businesses, traffic and pedestrians. She said that some litter is windblown, and the parking lot under the building is a natural catchment area for windborne litter. She said an off-duty police officer prevents illegal dumping at night. The researchers observed auto parts, food wrappers and other litter items in the parking area.

Bank: The street behind this large bank runs along a railroad track and behind many of the buildings on Biscayne Boulevard. The researchers observed that there is a great deal of dumping of household furniture and other items around dumpsters located there. The person interviewed said the bank’s dumpster is not locked or fenced, but dumping isn’t a problem because of increased security around

the bank. He said litter is managed by contractors and employee labor, taking a total of about 16 hours per week at \$6 per hour. He said litter comes from customers, traffic and pedestrians. The drive-through collects litter faster than the parking area. He said the bank's experience with the city was good and the city responded to calls for assistance. This interview was conducted in Haitian Creole.

Fast Food: This fast food franchise store has two employees picking up litter for a total of about 21 hours per week. The areas that get most littered are the drive-through window area and the bus stop that borders the property. These areas require additional upkeep. In addition to neighboring businesses, traffic, and pedestrians, litter comes from people waiting at the bus stop. Fencing and locking the dumpsters has decreased illegal dumping.

Optician: This eyeglass store on the edge of Little Haiti employs five people. The person interviewed said one employee picks up litter for two hours per week. He said fast food wrappers come from the Chinese restaurant nearby. He said after-hours dumping in the parking lot is a problem, and carpeting is frequently found near the dumpster, which is locked at night. The researchers observed that a busy bus stop at the edge of the parking lot was heavily littered. This interview was conducted in Haitian Creole.

Pastry Shop: The person interviewed said litter comes from a nearby bus stop, as well as from traffic and pedestrians. Windblown litter is a problem. She said bags of garbage are illegally dumped. She said the city is slow in responding to requests for help with littering or illegal dumping, and the city does not clean the street. She said locking the dumpster has eliminated dumping into the dumpster. This interview was conducted in Haitian Creole.

Furniture Store: The person interviewed said three employees clean up litter outside the store, and that litter has to be picked up more than once a day. She said that a bus stop about 100 feet from the store is one of the major sources of litter. The researchers observed newspapers, auto parts, fast food wrappers, plastic straws and beverage containers around the business. They also observed that windblown litter is a problem for many of the businesses in this area.

Supermarket: This large supermarket employs about 52 people. The person interviewed said that two employees perform multiple litter cleanups daily for a total of about 21 hours per week. Paper and plastic wrap are the items found most frequently. He said illegal dumping is a problem in and around the dumpster, on the property and in the parking lot. He said additional lighting around litter-prone areas and fencing-off isolated areas have been effective ways to decrease littering and illegal dumping, and that placing four trash cans by the doors has resulted in less litter on the ground. A piece of carpeting was observed in the parking lot. This interview was conducted in Spanish.

Laundry: The person interviewed at this 24-hour laundry said they employ one person who cleans up litter, which takes about 11 hours per week. He said that placing trash cans in high pedestrian traffic areas has helped to reduce litter. This interview was conducted in Haitian Creole.

6.2 Solid Waste Management Interview

Debbie Higer, Chief
Service Development Division
Metro-Dade County
Miami.

- C Ms. Higer said that during the past five years, the City of Miami has faced very difficult times politically and financially, which has led to decreases in the quantity and quality of solid waste services.
- C The City of Miami consists primarily of commercial properties. There are only about 20,000 homes in the city, compared to 300,000 homes in the unincorporated areas of Dade County.
- C Many services have either been reduced or eliminated due to financial limitations. She said this was the major reason why the city has a lot more litter than five years ago. For example, there has been a major reduction in the frequency of street sweeping and garbage collection.
- C The recycling program has been hampered by a lack of adequate equipment, such as trucks, and a lack of proper maintenance. Pickup is sporadic due to equipment failures, and this has led to low participation because people don't know whether or not there will be a pickup on the designated day.
- C Public education programs concerning litter reduction also have been eliminated due to financial limitations.
- C The city has a very poor track record of responding to citizens' calls about littering or illegal dumping. No specific action is taken in response to these calls.
- C The distribution of city services takes place through "Neighborhood Enhancement Teams" (NETs). The NETs get equipment and manpower based on needs and priorities of their area of the city.
- C Ms. Higer rated illegal dumping as the primary source of litter in Miami. Other major sources are people waiting at bus stops, and uncovered or overflowing public waste receptacles.
- C She said that anti-littering laws are not very effective because of the lack of public education and enforcement.
- C To address littering from uncovered vehicles, Miami fines drivers \$100 for the first offence and \$200 for the second offense. These fines increase with each offense to a maximum of \$750.

- C Items that are most frequently dumped illegally, from most to least, are: construction and demolition debris, furniture, bags of trash, auto parts, white goods (appliances), urban plant debris, tires, paints/solvents, and brown goods (electronics).
- C At the present time, there is no KAB affiliate in Miami. This has led to some difficulty in organizing citywide and countywide cleanups.

7. TALLAHASSEE

7.1 Business Comments

Convenience Store: The person interviewed said the dumpster often overflowed due to sporadic hauler pickup, and complaints get no response. The researchers observed that the area around the dumpster was the most littered part of the property. A drainage ditch behind the store was littered with polystyrene foam cups, food wrappers and assorted paper items.

Medical Devices: A long-time employee of this orthotics and prosthetics manufacturer said that litter has increased as development and traffic in the area has increased. He said the skilled employees of this business earn about \$25 an hour so it is very expensive for them to take time to clean up litter.

Law Firm: The person interviewed said they had to start locking the dumpster because it was being used and filled up by other people. The dumpster is on a back street used by neighboring businesses as an access road.

Nursery: The person interviewed said litter has increased over the last few years as traffic has increased. She said litter in the parking lot comes from people emptying out their car ashtrays. She said increased public education is the best way to combat littering. She said the business participates in local cleanups.

Doctor's Office: The person interviewed said that most of the litter around this business comes from vehicle traffic.

Catering Service: The person interviewed said the business has no problems with litter or dumping. However, the researchers observed paper, plastic film, fast food wrappers, cigarette butts and packaging, and drink containers littered in the parking lot. Also, an old sofa chair was next to the dumpster.

Fast Food: This store is inside a service station/convenience store. The store has a hooded, drive-up disposal bin located in the drive-through lane where customers wait to place their orders. The person interviewed said litter can be reduced with easy access to strategically placed garbage bins in the

parking lot, by the doors, and in the drive-through lane. He said frequent monitoring by the on-duty manager also helps to ensure that litter is picked up quickly.

Pharmacy: This large chain pharmacy has a contractor who cleans the parking lot with a street sweeping machine. The person interviewed said employees also pick up litter as needed. He said the city has been slow or non-responsive to requests for pickup of litter or illegally dumped items. He said, "Sometimes it takes two or three calls to get any response, if they respond at all." The researchers observed that ashtrays and trash cans were placed by the doors.

Grill: This restaurant features live music and includes a game area. The person interviewed said a contractor cleans the parking lot and employees also pick up litter as needed. He said the response of the city to reports of illegal dumping has been poor. The researchers observed that, although part of the parking lot is behind the business and is somewhat isolated, it was relatively free of litter. However, the dumpster area and adjacent wooded area was heavily littered with mattresses, bed springs, furniture, paper items, plastic bags and other plastic items.

Café: This café is in an old remodeled auto garage building with indoor and outside seating. The researchers observed that there are many ashtrays and trash cans located around the seating areas.

Convenience Store: The person interviewed said that trash cans had been placed near the gas pumps and ashtrays were placed near the doors to combat littering.

Gas Station/Convenience Store: The researchers observed that the area around this business was cleaner than the surrounding area. They saw many ashtrays and trash cans located around the gas pumps and near the doors.

Tire Store: The owner of this business said that the cost of disposing of old tires appropriately is the biggest reason why so many are dumped illegally. He said tires are often dumped at his business, and he has to pay for disposal. He said he has tried to work with the city's solid waste department on this, but they were not able to work out a solution. He said diapers are also a frequent litter item.

Auto Repair: The researchers observed that this small auto repair shop is in an area that is very littered. The owner told the researchers of a nearby illegal dump site along an isolated road. On a later visit to that site the researchers observed furniture, tires and roofing material dumped along the roadway. The person interviewed said that furniture and tires are often dumped at this business after hours. However, he said that the amount of litter is less than it was five years ago because of increased public awareness. He said that calls to the solid waste management department about dumping go unanswered.

Welding Shop: The person interviewed at this old established machine shop near Florida State University said the area used to be very littered, but was recently cleaned up by the three primary business owners who own most of the property in the area. She said the business owners coordinate cleanup activities for the benefit of the neighborhood.

Laundry: The person interviewed said that he has to call the solid waste department so many times that he keeps the phone number posted on the wall by the cash register. His major complaint is that the trucks that empty their dumpster do an inadequate job and frequently leave the dumpster half full. He said the solid waste department has been more responsive since the laundry obtained the name of the appropriate person to call to report problems.

Dry Cleaner: This dry cleaner has a drive-through lane. However, most of their litter comes from wind and storm water runoff from the street and parking lot. The person interviewed said litter is picked up by a contractor and by employees as needed.

Sign Shop: The researchers observed that this business was very clean and appeared to be well organized. The person interviewed said the biggest source of litter is “sloppy garbage crews.” He said that calls to the solid waste department to report litter or illegal dumping get no response other than documentation. Paper, dead animals and cardboard have been illegally dumped in and around his dumpster. He said that Adopt-a-Road/Street programs have helped to reduce litter in this part of the city.

Motel: The person interviewed said this motel has a problem with furniture dumped in and around their dumpster.

7.2 Solid Waste Management Interview

Jud Curtis
Director of Solid Waste
Leon County Public Works
Tallahassee

- C Mr. Curtis said there is less litter now than five years ago due to the public education efforts of the local KAB affiliate, the placement of more receptacles in public places, and the availability of Sunday disposal of white goods and household garbage.
- C Mr. Curtis said drainage conveyances are the most serious litter problem. Most of the city's drainage system feeds into Munson Slough and the runoff takes a large amount of litter with it.
- C The city picks up garbage once a week, urban plant debris every two weeks, and recyclables once a week. A fee is collected through property taxes. Collection service is mandatory in the city but not in the county. This encourages city residents to put out their garbage. In the county, residents can take solid waste to a collection center or arrange for private pickup.
- C There is no curbside pickup of tires, but individuals can take 4-5 tires to the landfill per visit. Oversized items are picked up by appointment.

- C Recycling rates are at 30% of the waste stream and 40% participation by households receiving city pickup. Participation may actually be higher but some people don't put their bin out every week.
- C All recycling drop-off centers have an attendant present to deter hazardous waste drop-off.
- C Many different governmental agencies in Tallahassee have resources allocated to litter cleanup. These include:
 - C Public Works: City street sweeping and county road cleanup. Supplies trucks to transport litter picked up by jail and community service cleanup crews.
 - C Florida Department of Management Services: Cleaning of state office properties and public areas accessing them.
 - C Florida Department of Transportation: Cleaning along state roads within the city limits.
 - C Sheriff/Jail/Courts: Jail crews and community service labor are involved in litter pickup on streets, in parks and on other public property.
 - C Keep Tallahassee Beautiful: Coordinates cleanups, Adopt-a-programs, and beautification projects.
- C Much of the litter seen on city streets comes from spillage during waste pickup due to the equipment and work methods used. Trucks using a mechanical arm pickup tend to lose trash during the free fall from the overturned container into the truck, especially on windy days. Those trucks have a temporary hopper on the front, which is initially filled and then dumped into the main hopper and compacted. Sometimes drivers will use the temporary hopper as extra capacity when the load is full and drive to the landfill with this uncovered bin spilling its contents.
- C Mr. Curtis did not see illegal dumping as a problem in the city. His real concern is with rural sites having accumulations requiring front-end loaders and dump trucks for cleanup. The landfill now accepts construction debris and that has reduced the amount of illegal dumping of that type of material.
- C The items most frequently dumped illegally are shingles and other roofing materials.
- C Leon County has a low landfill tipping fee of \$29/ton and that encourages use of the landfill. However, the county is searching for a new landfill site.
- C Mr. Curtis said the Codes Enforcement Department is most familiar with illegal dumping of such things as junk cars and household items. Codes Enforcement is under the Department of Community Development.

- C Public Works spends \$35 per mile per cleanup and cleans up over 500 miles of roadway five times a year.
- C It is now getting harder to place all of the volunteers and school children who want to participate in cleanup activities, which include:
 - C Project Eagle: This program addresses illegal dumping in public green spaces.
 - C Super Clean Sweep: This is a cleanup sponsored by the Super Lube company.
 - C The Great Coastal Cleanup: This cleanup focuses on shorelines.

7.3 KAB Affiliate Interview

Diana Hanson - Executive Director
Keep Tallahassee-Leon County Beautiful
Tallahassee

- C Ms. Hanson listed streets and highways, residential areas, commercial areas and recreational areas as the most littered areas in her community.
- C The major sources of litter (from worst to least) are: Motorists littering from vehicles, illegal dumping, unacceptable materials left at recycling drop-off sites, citizens careless in how they put out their garbage, uncovered vehicles/trucks, and careless garbage crews.
- C Items most frequently dumped illegally, ranked from most to least, are: White goods (stoves, refrigerators, etc.), auto parts, brown goods (electronics, computer parts, etc.), tires, old furniture, construction/demolition debris, and urban plant debris.
- C Keep Tallahassee-Leon County Beautiful participates in The Great Florida Cleanup, Adopt-a-Shore, Xeriscape/Beautification and Adopt-a-Road/Street litter management programs. The operating budget for 1998 was \$60,000.

C The success of the city's programs is measured by the following criterion (information given is for the 1997-98 fiscal year):

- C Total number of cleanups: 84
- C Number of litter-free events: 11
- C Total number of volunteers participating in cleanups: 5,570
- C Number of attendees at litter-free events/presentations: 25,460
- C Number of trees planted for beautification: 100
- C Number of education presentations (number unknown).
- C Number of organizational partnerships in the community (number unknown).
- C Improvements in the Photometric Index.

C Keep Tallahassee-Leon County Beautiful has partnerships with the following groups:

- C Boy Scouts of America.
- C Boys & Girls Clubs of America.
- C Girl Scouts of the USA.
- C USDA, Forest Service
- C Young Men's Christian Assn. (YMCA).
- C Center for Marine Conservation.

8. TAMPA

8.1 Business Comments

Auto Parts: This machine shop rebuilds engines. The owner said he was once charged with a misdemeanor and he picked up roadside litter as his community service. As a result, he has an increased awareness of highway litter. He said that most of the litter around his business comes from the customers of a nearby bar, especially on weekends. He finds beer bottles, plastic cups and newspapers. He said the dumpster is in a fenced in area, but large items are dumped in the parking area about three times a year.

Used Car Sales: The person interviewed said the business employs an off-duty police officer, which has reduced littering and dumping at night. He said the dumpster is fenced, locked, and not accessible by the public.

Auto Parts: The person interviewed said litter is managed by a combination of employee labor and weekly parking lot sweeping by the county. She said that someone dumped a 55-gallon drum of oil and anti-freeze into their retention pond, and it cost more than \$4,000 to clean it up. She said that to

combat illegal dumping into their dumpster, they isolated the dumpster from public access. She said that cans and ashtrays are placed by the front door for their customers' convenience.

Fast Food: The person interviewed said that the litter around this store includes syringes, needles, condoms and "crack bags" left by patrons of a "strip bar" behind the store. She said the dumpsters have been moved to an area that is visible from the drive-through window so that employees can always keep an eye on it. She said that placing garbage cans by the doors and around the parking lot has helped. She said litter accumulates in the drive-through window area, and it takes more time to keep clean than the parking lot.

Restaurant: The person interviewed said the vacant lot next to the restaurant had been used for dumping. He said the vegetation had blocked visual surveillance of the area from the restaurant, so the restaurant cleared it and cleaned it up. He said the most commonly dumped item is urban plant debris.

Video Store: The person interviewed said that a few years ago, when there was an effort to close McDill Air Force Base, this area used to be very littered and neglected. Today, there is a resurgence of interest in this area with new, "classier" businesses moving in. He said there is also less litter due to increased efforts to clean up and beautify the area. He said that placing trash cans outside and cleaning up frequently are effective in managing litter.

Auto Parts: The person interviewed said that one of the major sources of litter for this business has been windblown litter from neighboring businesses. He said frequent cleanups and conveniently located trash cans in the parking lot are used to prevent litter.

Liquor Store: This liquor store/bar/restaurant is in an area that is undergoing revitalization. The person interviewed said this revitalization effort has brought increased business and increased litter. He said that litter comes from customers emptying out their ash trays or dumping construction debris in or around the dumpster. The researchers observed that this business has a unique, cylindrical cardboard recycling container, and there is an attractive mural on one side of the building. However, the parking area was littered with broken glass and cigarette butts.

Auto Repair: The person interviewed said this business has a big problem with drug-related litter such as "drug bags" and syringes/needles left by patrons of the bar next door. He said people were using drugs in the shop's bathroom, so they no longer leave it unlocked at night.

Furniture Store: The person interviewed said they fenced off the back part of the property to limit litter and illegal dumping. This has reduced the dumping of heavy or large items, but now homeless people throw things such as beer bottles over the fence. He said the business does not have a dumpster because it is less problematic to use curbside cans, though they must collect them from the street after pickup to prevent them from being stolen. He said this business calls the solid waste department about twice a month to report missed trash pickups.

Convenience Store/Truck Stop: The person interviewed said they have problems with littering of containers of used oil, packing materials, anti-freeze, batteries and diapers. The researchers noted spilled diesel fuel residue leading from the pump to the retention pond.

Electric Motor Repair: The person interviewed said this business has problems with littering of tires, beer bottles, coke cans, furniture, carpeting and cement. He said the wind blows a lot of litter onto the property. He said little is done to keep the property clean.

Auto Repair: The researchers observed that this auto business is in an industrial area. The person interviewed finds "crack bags" and he once found a human body. He said they stopped using a dumpster because the city's service was unreliable. He said using the trash cans is convenient and they no longer have to pay for a dumpster.

Café: The person interviewed said the area is fairly clean but deteriorating. The researchers observed that the business is in a mixed industrial/low-income residential area.

Feed Store: The person interviewed said they find syringes and drug bags from after hours activity in their parking lot. He said they have had to lock their dumpster. He said that there is more litter in the area than in the past and that frequent cleanups help reduce new litter.

Auto Sales: The researchers observed that this business had a littered appearance, with items such as broken glass, screws, nails and small litter around the property. The person interviewed said that employees pick up litter for about 10 hours per week. He said that tires have been dumped on the property. He said they call waste management "all the time" because of missed pickups. He said the collectors don't want to work and the city usually won't pick up trash put out in different types of cans.

Restaurant/Bar: The person interviewed said that in addition to their own cleanup efforts, the shopping plaza cleans the parking area as part of the lease. The researchers observed that wind blows litter around in this area.

Screen Printing: The person interviewed said that furniture has been dumped in the dumpster. They believe it comes from the apartment complex across the street. The complex is near the University of South Florida.

Hotel: This is a new, modern hotel in a newly developed part of the city. The researchers observed that wind blows litter onto the property. A fast food cup was seen on the ground in front of the entrance. The person interviewed said that development has brought more litter to this area. He said they spend 14 hours per week picking up litter even though they have ashtrays and trash cans outside.

Fast Food: The person interviewed said they spend considerable effort keeping the parking area clean because customers look first at the parking lot to form an impression of the place. They have cans

outside and in the drive through lane. She said they find many beer bottles and she thinks the area is the worst that she has seen. The store is near the Busch Gardens attraction.

8.2 Tampa Solid Waste Management Interview

Anthony McBride, Deputy Director
Solid Waste Department
Tampa

- C Mr. McBride's department spends \$500,000 of its annual budget on cleanup efforts.
- C Mr. McBride said there is less litter now than five years ago because efforts to clean it up are paying off.
- C Litter is a problem in different ways in different parts of the city. Vacant lots were a problem in East Tampa so they began the East Tampa initiative, a program in which a private contractor is paid to mow and clean vacant lots. Abandoned houses were a problem so they began a crack house demolition program. They now use prison labor and Solid Waste Department equipment to destroy about 30 houses per year.
- C Garbage service is excellent; second only to fire services in a February 1999 survey of city services.
- C Recycling participation is rated as moderate to low. One-half of the city has curbside collection with participation rates ranging from 16-50%. There are 26 drop-off sites open 7 days a week for the rest of the city. Urban plant debris is picked up at curbside and recycled.
- C Mr. McBride said there seems to be no public awareness of anti-littering laws. There is some illegal dumping activity, especially in the county.
- C Mr. McBride rated illegal dumping as the number one source of litter. The next biggest source is bus stops. The city relies on the bus company to maintain them and the bus company does not pick up litter at bus stops. Other sources of litter are: posters, flyers, campaign signs, garage sale signs and other temporary signs.
- C Uncovered vehicles and trucks are also a major source of litter. The Department of Transportation issues citations to violators.
- C Overflowing dumpsters are a problem at certain high volume times, such as business inventory time and seasonal moving times for residential units.
- C Tires and furniture are commonly dumped. The city will not pick up construction and demolition wastes or auto parts from homeowners, so those items are frequently dumped. Urban plant debris is also a problem.

- C There is free pickup by appointment for white goods.
- C There is an amnesty program for household hazardous wastes such as paint and solvents.
- C A program called the Peer-to-Peer program that cleans up illegal dumps and posts signs.
- C There is a cooperative relationship between the City of Tampa and Keep Hillsborough County Clean, but not a contractual relationship. During cleanup efforts, private haulers use roll-off containers and the Solid Waste Department pays the disposal costs.
- C The Solid Waste Department participates in the Great Florida Cleanup and contributes \$30,000 to the Parks Department for Xeriscape and Beautification projects.
- C The Stormwater Department does storm drain stenciling.
- C There is a Mayor's program to eliminate graffiti in which those caught doing it are required to paint over it using recycled paint. The program is called "Paint Your Heart Out."

8.3 KAB Affiliate Interview

John Fitzgerald, Executive Director
 Keep Hillsborough County Clean
 Tampa

- C About five years ago, litter began to decrease. In the first three years it dropped 40%. In the last two years it has regained 20% of that and continues to increase with the tremendous population growth experienced there in recent years. The population of the county is now over 1 million people.
- C It is easy to get volunteers to clean up the beaches but very difficult to get volunteers to do urban cleanups. Most of these "non-desirable" areas are cleaned up by prison labor or citizens performing community service hours. More than 12,000 people per year perform community service in Tampa.
- C Abandoned houses and buildings are not as much of a problem now as they were in the past because they are being targeted by codes enforcement. Owners are now cleaning up their properties to avoid citations.

- C Mr. Fitzgerald said Tampa is very good at commercial recycling but not very efficient at residential recycling. This is because there is no mandatory recycling in the city. The county, on the other hand, is good at residential recycling and not as good at commercial recycling.
- C There are two waste-to-energy plants in the Tampa Bay area. One belongs to the city and the other belongs to the county. The local landfill takes ash from both of these sources and also takes tires (which are not incinerated).
- C Mr. Fitzgerald sees the following as major sources of litter: uncovered trucks/vehicles, dumpsters at commercial sites, citizens careless about the way they put out their garbage, motorists, littering from their vehicles, illegal dumping, and loading docks.
- C Bus stops do not have trash cans and are a source of city litter.
- C Illegal dumping was a big problem in the past but it has decreased since the city began mandatory curbside pickup of household solid waste. The fee for garbage pickup is now included in property taxes.
- C Litter in Tampa is managed through numerous departments and groups, include Parks and Recreation, Stormwater, Streets and Roads Department, Keep Hillsborough Cities Clean, volunteers, community service participants and corporate sponsors.
- C There are Community Resource Officers in the sheriff's office who organize neighborhoods to clean up litter and vacant lots. This type of community policing is seen as an effective way to clean up the neighborhoods and to stem illegal activities such as drug use and drug sales. The sheriff also has an environmental unit of 10 deputies who can make arrests for dumping or littering.
- C Wind blown litter is a problem in the Tampa Bay area.
- C Mr. Fitzgerald ranked the items most frequently dumped illegally (from worst to least) as: tires, furniture, construction and demolition debris, bags of trash, white goods, auto parts, urban plant debris, paints, solvents and motor oil, brown goods and boats.
- C City residents have to take their hazardous wastes to regional centers, while county residents have a home pickup once a month.
- C One innovative program in Tampa is the Neighborhood Environmental Action Team (NEAT) program, which is under the Parks and Recreation Department. This program is organized around the principle that global issues, such as litter cleanups, can be better addressed via one program that can coordinate multiple services.

- C There is also a Downtown Taxing Authority which has cleanup crews. Street sweeping is done under the Stormwater Management Department. Though cleanup services are somewhat fragmented, the total amount spent is over \$230,000.

9. WEST PALM BEACH

9.1 Business Comments

Convenience Store: The person interviewed said this business finds shoes and clothing littered around the parking lot. He said security cameras are used to control littering and illegal dumping.

Auto Parts: The person interviewed said that customers often service their vehicles in the parking lot and they spill fluids on the ground. He said that tires are frequently left on the property. He said that more anti-littering messages on TV would help. The researchers observed that the pavement in the parking lot was stained and heavily eroded.

Dental Office: The person interviewed at this dental office near a lake and a public boat ramp said that litter comes from people coming to the lake or the boat ramp, and they also dump things in the dumpster. She said that more anti-littering signs around the boat ramp would help. She said that drug-related litter is also found, such as syringes.

Dental Equipment: The person interviewed at this dental equipment manufacturing business said the business will be moving to another location soon and has discontinued its lawn/parking lot service. She said that syringes and other drug paraphernalia are common. The researchers observed many items littered on the property.

Liquor Store: The researchers observed that this store is on the edge of a “rough” area. The person interviewed said common litter items include drug paraphernalia, “crack bags,” and syringes. He said customers drink under a tree by the dumpster and they litter in that area.

Fast Food: This store is near a “rough” area. The researchers observed that behind the store there is a street next to the railroad tracks that is heavily littered. The person interviewed said the dumpsters are locked because homeless people try to get into them, but locking the dumpster is only a temporary solution because eventually the lock will be broken.

Restaurant: The owner of this small restaurant in a “rough” area said she has problems with drug activity around her business, which also produces drug-related litter. This interview was conducted in Haitian Creole.

Auto Service: The person interviewed warned the researchers that the surrounding neighborhood was “run by drug dealers and prostitutes.” He said that garbage, drug paraphernalia, condoms and diapers are frequently littered. He said that dumped items include construction debris, auto parts (such as bumpers), furniture and urban plant debris. He said they no longer lock the dumpster because they would rather have people dump into it instead of around it. He said the city is responsive to calls from citizens concerning illegal dumping or littering.

Fast Food: The person interviewed said littered items include “drug baggies,” tobacco containers used to make marijuana cigarettes, and other drug paraphernalia. He said the drive-through window area gets a lot of fast food wrappers, drink containers and cigarette butts. He said they have to employ an off-duty police officer to prevent dumping and drinking in the parking lot.

Hotel: The person interviewed said the hotel was getting so many guests involved in drug use or prostitution that they have done away with cash payments. Also, rates were increased to discourage such clientele. She said housekeeping staff had to be careful not to stab themselves with syringes and needles left under mattresses. She said the hotel pays an off-duty police officer in an attempt to control drug and littering activities. She said that to keep people out of the dumpsters, they use a combination of locks and placement of dumpsters in areas that are highly visible, well lighted, and fenced with barbed wire. They also use warning signs.

Restaurant: The person interviewed said there are problems with litter around the dumpster area, especially cardboard boxes. Garbage cans were observed outside near the door.

Pharmacy: The manager of this new large chain store said they contract for monthly service and also use employee labor to maintain a litter free environment. He said the store had been open for only a few weeks and had not yet received their ashtrays and garbage cans for the area around the doors. The manager said that it has been additional work to clean up around the front door and that the garbage cans and ash trays will help, because people will use them if they are conveniently located.

Auto Repair: The researchers observed that this shop near downtown West Palm Beach had a pile of old tires in back of the business. The person interviewed acknowledged that they had a problem with people illegally dumping tires onto their property, but he was not sure how much was dumped, because they have no real count of tires that they pile around the business themselves. He said they pay 83 cents per tire to the Florida Tire Recycling Fund for disposal.

Fast Food: This business uses outside trash cans by the doors, in the parking area, and in the drive-through lane. Litter is also controlled by frequent pickups and locking and fencing of the dumpster area.

Restaurant: The person interviewed said that most of the litter on the street in this area of the city is cleaned by hand cleaning crews, who are city employees assigned to the downtown area.

Retail: This business is in the downtown area that is now the focus of an urban renewal project. The person interviewed said the store has been robbed and a woman was raped in the area during the last year and none of this was in the newspapers. He believes the city is filtering the news to prevent bad publicity. He said that increased waste management services in the downtown area have decreased the litter significantly.

Motel: The person interviewed said the major sources of litter are associated with breakfast (polystyrene foam cups), happy hour (beer cans) and wind (trash along hedges). He said the best way to control litter is with frequent cleanups because people are less likely to litter if the area is not already littered. This interview was conducted in Haitian Creole.

Gas Station: The person interviewed said that homeless people are one of the major sources of litter around this business. He said the major illegally dumped item is tires. He said the best way to prevent littering is to provide ash trays and garbage cans for customers, although “certain individuals won’t use them no matter how convenient you make it.” He said that there are two kinds of customers: one type will litter only if they don’t have a trash can or ashtray to use, and the other type will litter regardless of how conveniently cans and ash trays are placed.

Coffee Shop: This is a very small drive-through coffee business in a mall parking lot. The person interviewed said the major litter items are espresso cups and straws from the customers.

Video Store: The person interviewed said the best way to manage litter was to provide trash cans and ashtrays by their front door. He said the number one littered item was cigarette butts.

9.2 West Palm Beach Solid Waste Interview

Kathleen Hopkins, Director
Customer Information Service
Palm Beach County Solid Waste Authority
West Palm Beach, Florida

- C There is less litter in the county compared to five years ago, except for I-95 and other state roads. Those roads are often under construction and during construction, litter fine signs are taken down and rights-of-way are not mowed.
- C Ms. Hopkins said garbage service is good in the county and excellent in the city of West Palm Beach. There is weekly residential pick-up by contract carrier and twice a week commercial dumpster pick-up.
- C Recycling participation is only moderate because residents of low-income areas do not participate. Some of the city’s recycling grant funds go toward multicultural education efforts. For example, some immigrant residents have to be taught to bag their garbage because that is not the custom in their country of origin.
- C Recycled paint is used to cover up graffiti.

- C Ms. Hopkins said motorists are the greatest source of litter. This area does not have many pedestrians or public waste receptacles.
- C PalmTran, the local mass transit entity, is going to start cleaning up bus stops with litter grant funds.
- C The County has attempted to address the problem of uncovered trucks by charging \$5 extra for uncovered trucks arriving at the landfill.
- C Though litter consists mostly of fast food wrappers and drink containers, there are also a lot of crack bags, syringes, condoms, and mattresses.
- C Illegal dumping is a problem. For one cleanup, they put out two roll-off containers and 40 container loads were dumped there. Illegal dumping reports are referred to Codes Enforcement, which is part of the Police Department. Fines are levied and vehicles can be seized.
- C Rental units often have commingled household trash at the curb after landlords evict tenants. SWA will clean this up one time but Codes Enforcement will fine the landlord for repeat occurrences.
- C The most frequently used strategies to reduce illegal dumping are telephone hotlines, beautification projects, free pickup of oversized items, signs, focused enforcement and prompt cleanup of dumps sites.
- C Urban plant debris is picked up once a week. The amount that can be picked up is unlimited but if it is more than 6 cubic yards, the remainder will be picked up the next day.
- C Two tires per year per residence are picked up at curbside. An additional eight tires per year per residence can be turned in on amnesty days that take place twice a year. However, Ms. Hopkins said that tires are still a big problem.
- C White goods are also a problem. They are picked up twice a week at curbside, except for refrigerators and air conditioning units, which are tagged and then scheduled for pickup the next day.
- C The City of West Palm Beach sponsors a KAB affiliate in the amount of \$70,000 per year. Cleanup programs and costs cut across city and county lines. The county spent \$180,000 in 1997-98 on illegal dumping cleanup and some of that refuse came from city sources. The county spent a total of \$578,000 on all cleanup activities in 1997-98 Of this amount, \$21,000 came from the litter grant and \$30,000 from disposal fees.
- C Keep Palm Beach Beautiful sponsors the Boaters and Anglers Pledge and Clean Builders Program from their funds.

- C The county spends the following amounts on other programs:
 - C Great Florida Cleanup: \$28,000 (promotional material, disposal fees; haulers donate roll-offs.)
 - C Adopt-a-Shore: \$18,000
 - C Adopt-a-Road/Street: \$5,000 (not including Adopt-A-Highway programs)
 - C Xeriscape/Beautification: \$500,000
 - C Adopt-a-Spot: \$7,000
 - C Neighborhood cleanups: \$20,000

- C In the city, the Public Works Department is responsible for collections and street sweeping. Volunteer groups such as the Boy Scouts/ Girl Scouts, Boys Club/ Girls Club, Americorps and other groups participate in litter cleanups. The Court system also requires community service workers and people convicted of drug offenses to assist with litter pickup.

- C Litter program success is measured in a variety of ways, including windshield surveys and comparisons of numbers of complaints received.

9.3 KAB Affiliate Interview

Malissa Booth, Executive Director.
 Keep Palm Beach County Beautiful
 West Palm Beach

- C One of the major litter issues in West Palm Beach County is the I-95 corridor. This corridor is the most littered part of the city, and it is a concern because this is one of the major routes into and through the city.

- C The amount of litter in the city is about the same as five years ago. This is a net improvement because the city has grown during that time.

- C Bus stops are a major problem area because there are not enough trash cans at bus stops.

- C Recreational areas are among the least littered areas due to focused cleanups and frequent services by the city.

- C Urban renewal has led to increased activity in the downtown area, which has resulted in increasing amounts of litter.

- C The city has initiated a program to install cardboard compactors and trash compactors in an effort to counteract the increases in litter in the urban renewal area.

- C There is a high degree of recycling participation in West Palm Beach. The area needing recycling improvement is multi-family housing.
- C Recycling takes place at special events.
- C There is very effective cooperation between various city/county departments/services to address litter and illegal dumping. For example, illegal dumping may be addressed by law enforcement, codes enforcement, solid waste management and the KAB affiliate.
- C The city and Palm Beach County have a \$3.5 million beautification program in association with the Florida Department of Transportation that has contributed greatly to the funds available for litter control.

10. ST. PETERSBURG

10.1 Business Comments

Gas Station: The person interviewed said they frequently find crack bags and syringes littered around the store. She said illegal dumping is a problem, especially furniture. She said that additional lighting, frequent policing of the property, trash cans at the islands/gas pumps and frequent cleanups are helpful in managing litter.

Supermarket: This 52,000-square-foot supermarket employs about 200 people. The person interviewed said that oil cans and diapers are frequently littered. She said the city responds to calls about litter or illegal dumping, but it takes time. The researchers observed lead tire weights and fast food wrappers in the parking lot.

Barber/Beauty Salon: The person interviewed said there are problems with illegal dumping of furniture. He said that the fast food restaurant next door is the source of much of the litter. He said that to prevent contamination of their cardboard recycling dumpster, the dumpster is locked.

Apartment Complex: The person interviewed said that two employees of this 95-acre complex spend a total of 50 hours per week picking up litter, which consists primarily of cigarette butts and wrappers, and beer bottles. She said there is no problem with illegal dumping because the complex is gated. Having a gate and strategically locating trash cans are the two most effective litter control methods. She said that litter is an important issue for this business, because “curb appeal” is an important marketing strategy.

Auto Parts: The person interviewed said they find crack bags, syringes and other drug paraphernalia on the property in addition to auto parts, snack food wrappers, fast food wrappers, drink containers and cigarette butts and wrappers. He said that a lot of the items are the result of people littering from their cars.

Car Wash: This full-service auto detailing business employs about 50 people. The person interviewed said that one of the most littered items is the “cleaning slip” which is a piece of paper taped to the inside of the windshield that tells the employees which services the customer ordered. When the car is finished, the employees take the slip out of the car and sometimes throw it on the ground. He said that frequent cleanups, strategically located trash cans, ashtrays and conveniently located recycling cans are the most effective litter management tools.

Motel: This motel employs eight people and is located on a major route through St. Petersburg. The person interviewed described it as a “tough” part of town. She said litter items include shopping carts, diapers, plastic crack bags, and beer bottles. Beer bottles are a particular problem. She said they have a problem with illegal dumping of carpeting and bags of trash in and around their dumpster. She said they no longer lock their dumpster because when they lock it, they have an increase in materials dumped around the property.

Restaurant: The person interviewed said common litter items include drug bags, condoms and undergarments. He said they have problems with homeless people getting into the dumpster and abandoning shopping carts in their parking lot. He said most of their littering occurs on weekends and after hours when the business is closed. The researchers observed lead wheel weights littered in the parking lot.

Grocery Store: The person interviewed said they use a lawn service and employee labor to manage litter. He said they have a problem with the dumping of furniture and construction debris in their cardboard dumpster. He said it is very difficult and costly for him when the city makes him responsible for the cleanup of other materials that get put into the cardboard recycling dumpster. Consequently, he now locks that dumpster.

Hair Salon: The person interviewed said that the building owner provides cleanup services as part of the lease. He said people are trying to keep the area cleaner than in the past, and this is due to more “upscale” businesses moving into the area.

Restaurant: The person interviewed said they find diapers in the parking lot, among other items. She said she has placed trash cans in front of her business. She sees the area as very littered.

Hotel: The person interviewed said that litter is controlled with frequent pickups and with trash cans and ashtrays placed around the property. He said this area is more littered than the city in general.

Fast Food: The researchers noticed from the outset that this store looked very different from others stores of the same company. The manager and several corporate representatives who were there were willing to be interviewed. The manager said this store is very involved in the community and is very conscious of its appearance. He said they donate bags and drinks for cleanups and trees to schools for environmental projects. He said their outside cleanup includes a full city block around the store, and they monitor the parking lot continuously. He said managers walk the property at 30-45 minute-intervals. Maintenance men using checklists inspect the property each morning, and do frequent cleanups. He said the city cleans the street early in the morning. Sometimes the city charges extra when called for additional dumpster pickups. He said that the problem with locking the dumpster is that it can't be emptied when locked. He said they tried placing ashtrays outside, but people don't always use them.

Pharmacy: The person interviewed said wind brings significant litter to the front of the business, and they have also had construction debris dumped on the property. He said the city has an excellent sanitation department and that public awareness has decreased littering. There is a trash can by the door.

Video Rental: The person interviewed said they have had furniture dumped in and around the dumpster. He said the city sanitation department is actively cleaning up the city and this has resulted in less litter. He said they use frequent cleanups and trash cans by the door to combat litter.

Restaurant: This restaurant is located in a large shopping plaza. The person interviewed said that recycling pickup would encourage recycling and decrease littering. He said wind is a significant factor in this area. He said they have had various items, such as furniture and Christmas decorations, placed in the dumpster and on the property. The researchers observed cans, fast food wrappers and other litter all around the business.

Medical Office: This medical office is owned by a large health care corporation. The person interviewed said that the corporation sends inspectors on surprise visits to assure the clean presentation of the business, and the managers' annual bonuses are linked to positive inspection results. (The researchers were initially mistaken for those inspectors.) The researchers observed that while this company was very concerned with interior appearances, there was a lot of litter outside. Researchers observed litter in the shrubs and on the sidewalks; including cups, cans, papers, wrappers, and nitrous oxide containers ("poppers").

Fast-Food: The person interviewed said this business cleans up litter frequently, and most of the litter comes from neighboring businesses. She said that the dumpster for a large multi-theater complex is very close to the restaurant's property and spillage comes onto their premises. The researchers observed furniture, boards, popcorn and paper outside that dumpster, while the restaurant's drive-through window was clean.

Video Rental: This is a corner business in an older shopping center. Several of the storefronts are empty. The person interviewed said they clean up frequently and have put the store name on the dumpster to warn others not to use it. She thinks this has helped to deter un-authorized use of their dumpster.

Pharmacy: The person interviewed said that dumping has been a problem but it is a consequence of being open 24 hours, because they attract customers from other areas who are not as “tidy” as customers from the immediate vicinity. The researchers observed that the area around the business was very clean.

10.2 Solid Waste Management Interview

Tom Lehmann, Manager
Environmental Sanitation Services
St. Petersburg

- C The researchers met with several key personnel at the St. Petersburg Sanitation Department. The manager, Tom Lehmann, was the primary interviewee. He also invited several of his staff members and representatives from the Leisure Services/Parks Department to the interview. Because of this, questions could be answered more fully and accurately by the people most familiar with each area.
- C There is no curbside pick up of recyclables in St. Petersburg, but rather, conveniently located drop-off centers around the city.
- C Many dumpsters are available to the public. The advantage is that fewer items are illegally dumped.
- C The amount of litter in the city's parks has increased over time due to the increase in population, as well as the increase in public usage of the parks..
- C The litter found in residential areas has decreased recently due to the use of containerized set-outs for residential waste pickups. In the downtown areas, the level of litter has also decreased because of focused efforts by city hand crews.
- C About 25% of all work time of city road crews is spent in some form of litter cleanup.
- C Most key streets in St. Petersburg are cleaned every 11 days by street sweepers or by hand crews. Parks and other high litter areas receive waste management services daily. Mr Lehmann said, "Litter is like a magnet. If you let it get built up, it will get out of hand."
- C Graffiti is seen as a form of public nuisance, like litter, and the city's policy is to get rid of both of these within 24 hours of being reported. The idea is that if you leave graffiti or litter, even for only a few days, it will attract more litter/graffiti at that site and at an accelerated rate.
- C Overall, the staff members interviewed said the level of litter in the city was about the same compared to five years ago.
- C On and off ramps for the interstate were reported to be the most littered parts of the roadway system. It was suggested that this was because of the open container law. Also, because motorists are traveling more slowly on the ramps, they are more likely to litter.
- C To discourage littering in residential areas, the city has a policy of not confronting residents when they call to report missed pickups of household garbage.

- C There are approximately 20 recycling centers around the city that are open to the public. Additionally, there are about 380 commercial recycling participants in the city. These services are in addition to an extensive curbside solid waste management program.
- C There is free curbside pick up of hazardous wastes (23 pick ups per year), tires (5 per visit), flourescent bulbs, batteries, and oversized items.
- C Automated container pickups and bagged set-outs have greatly decreased the amount of litter generated by garbage crews. This, and an active quality control program, have led to a cleaner city.
- C There are Public Service Representatives who travel around the city looking for illegal dumping and litter. They identify and report litter and dump sites so that immediate action can be taken to clean them up. This is a very effective program because the city, via the mayor's office, has made city cleanliness a high priority. The result of this prioritization in labor and funding has resulted in a streamlined program that involves cooperation between a wide range of city departments.

C 10.3 KAB Affiliate Interview

Bill Sanders, Executive Director
 Keep Pinellas Cities Beautiful Inc.
 Clearwater

- C Mr. Sanders has been the Executive Director of Keep Pinellas Cities Beautiful, Inc. since 1992. Most of his efforts are directed toward the county and smaller cities. He sees his main tasks as recycling, litter cleanup and beautification.
- C Because each city in the county is unique, he created teams within the organization to better address the needs of each city. For example, South Pasadena, a high-income area located between Gulfport and St. Pete Beach, is very clean, whereas St. Petersburg has problem areas and clean areas. Litter is a problem in low-income residential areas, as are abandoned houses and buildings.
- C He rates garbage collection and recycling as excellent in the county and but only as good in St. Petersburg. His main concern with city services was that curbside recycling is not offered for households. Items picked up during beach cleanups are not recycled due to contamination. One effective program assists the elderly in disposing of their unwanted items.
- C All storm drains go to the bay, so if litter is not picked up, it gets washed into Tampa Bay.

- C Pickup truck drivers are the biggest source of litter, followed by other motorists. Illegal dumping is only a problem in some areas and overflowing receptacles are a particular problem on the causeways on weekends. He thinks more signs are needed to get the attention of motorists.
- C Most bus stops have no receptacles. Wind blows much of the litter to catchment areas. At traffic lights, many cigarette products are found. Foam cups are the worst litter because when they degrade into smaller pieces, they endanger wildlife.
- C Mr. Sanders believes that charging by weight or by the load at the landfill discourages people from taking things there.
- C Furniture dumping is visually the biggest problem.
- C Mr. Sanders said the budget for his organization is \$10,000. They participate in eight cleanup events and also assist with neighborhood cleanups through a program titled "NICE 24" (Neighborhoods Involved In Community Environment). This is a program that involves 24 municipalities within the county and requires neighborhood participants to volunteer 24 hours per year in cleanup activities.

Appendix B

Survey Forms

Appendix B

Survey Forms

Two separate survey forms were developed. The first was used to survey businesses and the second was used for the Keep America Beautiful (KAB) affiliate whose area most closely matched the city being surveyed and for the Solid Waste Management official most familiar with solid waste programs and practices within the city. Sometimes the KAB area was the same as the city but more often it encompassed the county. In cases where the boundaries of the KAB program being surveyed did not match the city, the interviewee was asked to respond to the questions with regard to only the city portion of their program and knowledge, insofar as possible. The same was true of the Solid Waste Management official interviewed, i.e., more often than not the program is a countywide program and costs and practices as they apply to only the urban sector are sometimes difficult to separate out. The researchers relied upon the knowledge and expertise of the interviewee to make those distinctions.

Business
Survey of Litter in Florida

Date: _____ **Day:** _____ **Time:** _____

Business Name: _____

Contact Name: _____

Address: _____

Phone: _____

Fax: _____

Email: _____

Proximity of business to other business(s) and/or major intersection(s):

_____ <50 ft.

_____ 50-100 ft.

_____ 100-200 ft.

_____ >200 ft.

Shared parking lot: _____ Yes, _____ No.

Business Hours: Mon: _____

Tue: _____

Wed: _____

Thur: _____

Fri: _____

Sat: _____

Sun: _____

1) What type of business is this?

Residential (businesses where people dwell)

Apartment Complexes

Hotels/Motels

Mobile Home Communities

Food/Drink (businesses primarily involved with food/drink)

Convenience Stores

Fast-Food Establishments

Deli-Type Restaurants

Restaurants

Bars/Lounges

Take-Out

Manufacturing (businesses involved with fabricating)

Entertainment (e.g., movie theaters, golf courses)

Retail Businesses

Large Chain Stores

Small Retail Outlets

Service Businesses

Businesses with Drive-Through Windows

2) How many sq. ft. does the business occupy? _____

3) How many employees do you have? _____

4) Do your employees pick up litter?

Yes

No

If no, who does? _____

At what cost? _____

5) How many employees in your business are responsible for picking up litter? _____

6) How often do they pick up litter? (Choose one).

More than once a day

Daily

As needed

Weekly

Monthly

7) How many hours per week do they pick up litter? _____

8) What is the average hourly wage of these employees? _____

9) What types of litter are most often found? (Choose all that apply).

Auto parts (tires, batteries, etc.)

Snack food wrappers (candy wrappers, etc.)

Fast food wrappers (paper bags, clam-shells, etc.)

Drink containers (cans, bottles, etc.)

Cigarette wrappers and butts

Other _____

10) In your opinion, where does this litter originate? (Choose all that apply).

From this business

From neighboring businesses

From illegal dumping

From traffic

From pedestrians

Other _____

11) Do you have problems with people dumping waste/objects/debris in/on your: (Choose all that apply).

- Dumpster
- Parking lot
- Property

12) Which of the following best describes litter in your community today compared to five years ago? (Choose one).

- A lot less litter
- Less litter
- About the same amount
- More litter
- A lot more litter
- Don't know

13) How would you rate the amount of litter in your community? 1 being none, 10 heavily littered. (Choose a number).

- _____
- Don't know

14) To what degree do you feel that the existing anti-littering laws are effective in deterring littering? (Choose one).

- Highly effective
- Somewhat effective
- Not very effective
- Have no effect

15) Which of the following best describes the way your municipality responds, if at all, to citizen complaints about litter or illegal dumping? (Choose all that apply).

- No specific action is taken
- Document the call, but no specific action taken
- Send out a clean-up person/crew
- Referral to an enforcement agency
- Referral to a different government agency
- Referral to a volunteer organization
- Other _____
- Don't know

16) What way(s) has your business found effective in combating littering/illegal dumping?

(Choose all that apply).

- Placement of locks on dumpsters
- Relocation of dumpsters to areas of high visibility
- Use of additional lighting in litter-prone areas
- Placement of signs with reference to litter laws and/or littering fines
- Placement of fences to deny public access to dumpsters and/or isolated areas
- Other _____
- Other _____
- Other _____

17) In your opinion, does the presence of litter lower property values? Yes No

18) Does litter have a negative effect on your business? Yes No

19) Do you think there is a connection between litter and crime? Yes No

Comments: _____

KFB/City Solid Waste
Survey of Litter in Florida

Date: _____

County/City: _____

Contact Name: _____

Contact Title: _____

Department: _____

Address: _____

Phone: _____

Fax: _____

Email: _____

1) Which of the following best describes litter in your community today compared to five years ago?

- A lot less litter
- Less litter
- About the same amount
- More litter
- A lot more litter
- Don't know

2) How would you rate the litter problem in your community? 1 being no problem, 10 the worst.

-
- Don't know

3) Of the following locations, which, if any, would you say is the biggest litter problem? Please rank your answers (1 being the biggest problem).

- Abandoned houses/buildings
- Vacant lots
- Residential areas
- Streets and highways
- Commercial areas
- Recreational areas
- No problem areas
- Don't know

4) How would you rate the garbage service in your community?

- Excellent
- Good
- Fair
- Poor
- Very poor

5) How would you rate the degree of participation in recycling programs in your community?

- High
- Moderate
- Low
- There is no recycling program in this community.
- Don't know

6) To what degree do you feel that the existing anti-littering laws are effective in deterring littering?

- Highly effective
- Somewhat effective
- Not very effective
- Have no effect

7) What do you, yourself, believe are the sources of littering in your community? Please rank your answers (1 being the most frequent source).

- Motorists, littering from vehicles
- Illegal dumping
- Teenagers, hanging out
- Dumpsters at multi-family living sites
- Pedestrians
- Animals such as dogs, raccoons etc.
- Uncovered, overflowing or unaccepted materials at recycling drop-off sites
- Uncovered or overflowing public waste receptacles
- Citizens, careless about the way they put out their garbage
- Citizens, careless about the way they put out their recycling items
- Loading docks
- Construction sites
- Dumpsters at commercial sites
- Uncovered vehicles/trucks
- Careless garbage crews
- People waiting at bus stops
- Other _____
- Don't know

8) Which materials do you, yourself, believe are the most significant types of litter in your community? Please rank your answers (1 being most frequently found).

- Auto parts (tires, batteries, etc.)
- Snack food wrappers (candy wrappers, potato chip bags, etc.)
- Fast food wrappers (paper bags, clam-shells, etc.)
- Drink containers (cans, bottles, paper cups, etc.)
- Cigarette wrappers and butts
- Other _____
- Don't know

9) Which materials do you, yourself, believe are most often illegally dumped in your community? Please rank your answers (1 being most often dumped).

- Auto parts (tires, batteries, etc.)
- Green waste (grass cuttings, tree limbs, etc.)
- White goods (Stoves, refrigerators, etc.)
- Paint, solvents, motor oil, etc.
- Brown goods (electronics, computer parts, etc.)
- Tires
- Construction and demolition waste
- Furniture
- Bags of trash
- Other _____
- Don't know
- Illegal dumping is not a problem in this community

10) Which of the following best describes the way your municipality responds, if at all, to citizen complaints about littering or illegal dumping?

- No specific action is taken
- Document the call, but take no specific action
- Send out a clean-up person/crew
- Referral to an enforcement agency
- Referral to a different government agency
- Referral to a volunteer organization
- Other _____
- Don't know

11) Which of the following methods, if any, does your community use to combat illegal dumping? Please rank your answers (1 being most frequently used).

- Telephone hotlines
- Beautification projects
- Provide free pick-up for over sized items, etc.
- Public education/awareness programs
- Additional lighting in abuse areas
- Signs prohibiting dumping and/or information about fines
- Focused enforcement/assessing fines on offenders
- Other _____
- Don't know
- Illegal dumping is not an issue in my community

12) In your community, is there a formal relationship between the city/municipal government and a Keep America Beautiful affiliate, or not?

- Yes
- No
- No, even though there is a KAB affiliate in my community
- No, there is no KAB affiliate in my community
- Don't know

13) In what programs has your county/city/municipality participated? Please note the total amount spent on these programs and if they were helpful in reducing litter.

Program	Amount Spent	Helpful	
		Yes	No (?)
<input type="checkbox"/> The Great Florida Clean-up	_____	___	___
<input type="checkbox"/> Adopt-A-Shore	_____	___	___
<input type="checkbox"/> Adopt-A-Road/Street	_____	___	___
<input type="checkbox"/> Trash Troopers	_____	___	___
<input type="checkbox"/> Boaters and Anglers Pledge	_____	___	___
<input type="checkbox"/> Storm Drain Stenciling	_____	___	___
<input type="checkbox"/> Clean Builders Program	_____	___	___
<input type="checkbox"/> Xeriscape/Beautification	_____	___	___
<input type="checkbox"/> Adopt-A-Tree	_____	___	___
<input type="checkbox"/> Bag It on Buses	_____	___	___
<input type="checkbox"/> Other _____	_____	___	___
<input type="checkbox"/> Other _____	_____	___	___

14) What was the total expenditure by your county/city/municipality in 1997-98 for litter pickup?

\$ _____

15) In your county/city/municipality, how is success of a litter program measured?

- Number of volunteer hours
- Number of pounds of litter collected
- Changes in Photometric Index
- Visual Improvement
- Other _____
- Other _____

Comments: _____
