



**ASSESSMENT OF EXISTING  
LITTER CONTROL AND BEAUTIFICATION  
EFFORTS IN IOWA**

*Prepared For*

**Keep Iowa Beautiful  
Des Moines, Iowa**

*By*

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## **EXECUTIVE SUMMARY**

### **INTRODUCTION**

Keep Iowa Beautiful (KIB), the state affiliate of the Keep America Beautiful (KAB) organization, is working to improve the beauty of the state of Iowa by educating the public about litter and assisting local communities and organizations with cleanup and beautification projects. KIB has partnered with Iowa Department of Transportation, Iowa Department of Natural Resources, Iowa Society of Solid Waste Operators, landfill planning regions and the private sector on a comprehensive effort to better understand and positively impact the litter situation in Iowa.

This study reports the results of a survey of costs for litter control on federal, state and local government lands in Iowa. A review was also conducted of current litter-related legislation in Iowa and the surrounding states. The purpose of the report is to help guide KIB with benchmark information and a base of measurement for the program's effectiveness over the next several years.

### **OBJECTIVES**

The two main objectives of the study are (1) to determine the fiscal impact of litter across Iowa by gathering information on the annual cost of litter control and abatement efforts across Iowa and (2) to review existing litter reduction state legislation in Iowa and the six surrounding states.

### **SURVEY METHODOLOGY AND RESULTS**

For the litter control cost analysis, surveys were sent to public entities across Iowa including school districts, universities, federal, state, county and city staff as well as solid waste planning area commissions. Table ES-1 shows a complete list of the entities surveyed. A general survey format was developed first, then the survey forms sent to each public sector entity were tailored specifically to apply to that entity. After testing the clarity and design of the survey on a sample group, over 1,800 surveys were sent out.

Examples of litter costs that were listed in the survey included picking up litter, cleaning up illegal dumping, dealing with abandoned vehicles, operational/administrative costs for dealing with litter and law enforcement pertaining to litter. Some samples of costs that were not included in this study are routine solid waste collection, painting, mowing, general maintenance, spill cleanup, vegetation control, recycling costs and hazardous waste removal.

Each survey had two information sections: a program information section and an annual budget information section.

**Table ES-1**  
**PUBLIC SECTOR ENTITIES SURVEYED ABOUT LITTER**

<b>Public Sector Entity</b>	<b>Number of Surveys Sent</b>
School Districts	373
Cities	949
County Facilities and Buildings	99
County Owned Roads and	99
County Conservation Land	99
Solid Waste Planning Area	43
Universities	3
State Conservation Officers	99
State Historical Society	10
Iowa State Fairgrounds	1
State Parks*	1
State Forests	4
State Wildlife Units	21
National Guard Armories*	1
Iowa Department of	1
Iowa Highway Patrol*	1
National Fish and Wildlife	5
National Parks	2
Corps of Engineers	3
<b>Total Surveys Sent</b>	<b>1,814</b>

\* One contact completed a survey for the total number of entities in this category.  
State Park survey covered 54 manned parks.  
National Guard survey covered 47 armories and 1 training site.

The program information section contained questions about staff and hours used to deal with litter, staff hourly wages, and the existence of a litter prevention program. Volunteer time for picking up litter was also included. Volunteer time, although not an actual expense, was valued at the minimum wage. Program costs did not include the purchase, operation, or maintenance of capital equipment used for litter collection, such as street sweepers or trucks to haul away collected litter. Costs for supplies such as trash bags were included in program costs in some cases; in other cases it was not possible to tell. However, there was redundancy among a couple of questions in the survey, which allowed us to better interpret the responses. In any case, the cost of labor is by far the dominant cost in litter programs.

In the annual budget information section of the survey, information on the amount of money budgeted, spent and needed for litter prevention, collection and/or enforcement was requested. This part of the survey was where capital equipment and other costs would be included along with labor costs; however, many respondents did not have separate litter budgets and did not fill out this

section of the survey. Again, the redundancy in the two sections allowed us to interpret the responses more accurately. Also, space for comments was included at the end of each survey.

As each of the surveys was returned, the data were input into an Access database. Response rates from the various sectors varied. Some of the responses received were unusable in part or in total due to insufficient data. As an example, some surveys for county buildings and grounds were returned with zeroes or blanks for litter costs. Each county at a minimum has a county courthouse that requires litter removal from the grounds, so a blank or zero response was inaccurate and therefore was not included in the usable survey data. Other surveys were not usable in part or in total due to extreme data values. For example, of the 101 school districts that provided responses for the program section, four were removed because of extremely high results, such as \$5.81/student/week and \$3.74/student/week, while 90% of the responses ranged from \$0.01 - \$0.41/student/week. This included only the 101 school districts that responded to the program cost section (121 school districts responded to the survey, but not all responses were complete). Response rates and usable responses are summarized in Table ES-2.

The budget and time constraints for this project did not allow for individual follow-up on each survey; however, telephone calls were made for additional data collection or clarification of data when deemed necessary by Franklin Associates staff. When data collection was complete, the completed file was converted to an Excel spreadsheet for analysis.

Each public sector surveyed was analyzed in terms of existence of a litter education program, percent of the relevant population educated about litter, monetary value of the litter control program, litter control budget and actual amount spent. The percentage of population educated about litter was calculated based on the number of completed surveys returned. For each sector, the population covered by those respondents that indicated they had a litter education program was divided by the total population for all the respondents in that sector.

The monetary value of each survey respondent's litter program was calculated by multiplying the number of litter control staff hours per week by their hourly wage(s) and adding the number of volunteer hours per week multiplied by the minimum wage (\$5.15 per hour in Iowa). (Note that this number takes into account the value of volunteers' time but does not represent actual expenditures since volunteers are not actually paid.) The total weekly monetary value was multiplied by the number of weeks of operation to get an annual total. Weekly and annual totals were also expressed on one or more relevant per capita bases (e.g., for schools, per student and per school district resident; for tourist and recreational sites, per visitor; etc.). Finally, the sum of the dollar amounts reported by individual survey respondents was divided by the total population represented by the survey respondents to get a per capita average for the entire sector.

Table ES-2  
SUMMARY OF LITTER PROGRAM DATA BASED ON SURVEY RESPONSES

Public Sector Entity	Number of Surveys Sent	Number of Responses (1)	Number of Usable Responses (2)	Program Average \$/Year (3)	Population Base
School Districts	373	121	105	\$ 6.37	per student
				\$ 1.14	per school district resident
Cities	949	164	160		
Population < 1,000		112	111	\$ 1.49	per city resident
1,000 < Population < 10,000		43	41	\$ 1.85	per city resident
Population > 10,000		9	8	\$ 1.60	per city resident
Counties	297	141	76		
County Facilities and Buildings	99	37	9	\$ 0.19	per county resident
County Owned Roads and Ditches	99	51	23	\$ 0.30	per county resident
County Conservation Land	99	53	44	\$ 0.26	per county resident
Solid Waste Planning Area Roads, Ditches and Fence Lines	43	19	16	\$ 0.11	per county resident
Universities	3	2	2	\$ 4.96	per student (4)
				\$ 2.08	per city resident (4)
				\$ 0.03	per state resident (4)
State Conservation Officers	99	32	31	\$ 0.017	per county resident
State Historical Society	10	8 (5)	8 (5)	\$ 0.34	per visitor
Iowa State Fairgrounds	1	1	1	\$ 0.0046	per visitor
				\$ 0.024	per county resident
				\$ 0.0031	per state resident
State Parks (6)	1	1	1	\$ 0.07	per visitor
				\$ 0.34	per state resident
State Forests (7)	4	4	4	\$ 0.08	per visitor
				\$ 0.05	per county resident
State Wildlife Units	21	15	12	\$ 0.028	per county resident
National Guard Armories (6)	1	1	1	\$ 2.34	per visitor
				\$ 0.059	per county resident
Iowa Department of Transportation (6)	1	1	1	\$ 0.63	per state resident
Iowa Highway Patrol (6)	1	1	1	\$ 0.026	per state resident
National Fish and Wildlife Refuges	5	3	3	\$ 0.045	per visitor
National Parks	2	1 (5)	1 (5)	\$ 0.95	per visitor
Corps of Engineers	3	2	2	\$ 0.036	per visitor

- (1) Responses include returned surveys or information from telephone contact.
- (2) Adjusted for responses that contained no data, unjustifiable zeroes, or extreme data points outside normal distribution limits. Unjustifiable zeroes are zero entries for categories where there are known to be litter costs.
- (3) Includes staff hours at reported wage rates and volunteer hours valued at minimum wage rate.
- (4) Includes costs for special events budgeted separately from litter program.
- (5) Survey for Herbert Hoover National Historic Site was mailed as a National Park survey, but results were included with State Historic Site data.
- (6) One contact completed a survey for the total number of entities in this category.  
State Park survey covered 54 manned parks. National Guard survey covered 47 armories and 1 training site.
- (7) Surveys sent to 4 manned state forests; results include 4 manned and 6 unmanned forests.

To calculate the annual average budget or actual spent amount, each respondent's reported total annual budget or spent amount for each line item was divided by the relevant population(s). Again, to get the annual per capita average for each sector, the sum of the dollar amounts reported by individual respondents was divided by the total population represented by the respondents.

After all public sector entities had been analyzed individually, an estimate of the total dollars spent on litter in the state of Iowa was developed. This is the first time an effort has been made to determine statewide costs for dealing with litter separately from the costs of managing other solid waste in the state. In most cases, this was the first time the survey respondents had considered the costs associated with litter. Some public sector entities were able to estimate total annual amounts spent on litter. For those entities that did not report annual litter costs, the amount was estimated based on the average per capita program costs (described above) multiplied by the appropriate population. These estimated costs were summed to arrive at a total estimated cost of litter for Iowa.

Litter program results for the various sectors on a per capita basis are summarized in Table ES-2. The monetary amounts shown include staff hours at reported wage rates as well as volunteer hours valued at minimum wage rate. By far the highest litter program amounts shown in Table ES-2 are for schools and universities on a per student basis. School and university buildings and grounds are often used for public events such as plays, concerts, or sporting events that can generate sizable quantities of litter not directly related to the size of the student body.

The summary table does not include information on actual budget and spent amounts. In many cases, these were not analyzed for public sector entities, either because the amounts budgeted or spent for litter could not be separated from other uses or because there were too few survey responses for a meaningful analysis. Details for individual entities are available in Chapter 1 of the report.

Table ES-3 provides some perspective on the allocation of hours spent on litter prevention, collection, and enforcement by each public sector entity. Percentages are calculated by litter program task. The table also shows the allocation of hours between hired staff and volunteer time.

Table ES-3 shows that volunteer hours accounted for at least 20% of total hours on litter abatement efforts for the following entities: school districts, cities of all sizes, county roads and ditches, and state parks and preserves. Volunteer hours contributed through the Adopt-A-Highway program were estimated to account for over 90% of the labor hours for the Iowa Department of Transportation. For most of the public entities surveyed, 90% or more of total hours were spent on litter collection. Exceptions were those public sector entities that spend significant percentages on enforcement of litter

**Table ES-3**

**BREAKDOWN OF HOURS FOR LITTER PREVENTION, COLLECTION, AND ENFORCEMENT  
BASED ON INFORMATION FROM SURVEY RESPONDENTS**

Public Sector Entity	Percent of Hours		Percent of Hours		
	Staff	Volunteers	Prevention	Collection	Enforcement
School Districts	79%	21%	I	100%*	
Cities					
Population under 1,000	65%	35%	I	100%*	I
Population between 1,000 & 10,000	77%	23%	I	100%*	I
Population over 10,000	74%	26%	I	100%*	I
Counties					
County Conservation Land	83%	17%		100%*	
County Owned Roads and Ditches	69%	31%		100%*	I
County Facilities and Buildings	85%	15%		100%*	
Solid Waste Planning Area Roads, Ditches, and Fence Lines	94%	6%	I	100%*	I
Universities	99%	1%		100%*	
State Conservation Officers	100%	0%			100%
State Historical Society	88%	12%		100%	
Iowa State Fair	100%	0%		100%	
State Parks and Preserves	58%	42%		93%	7%
State Forests	81%	19%	<1%	99%	<1%
Wildlife Bureau Division	89%	11%	3%	97%	<1%
National Guard Armories	100%	0%		100%	
Iowa Department of Transportation	9%	91%	I	100%*	
Iowa Highway Patrol	100%	0%	25%		75%
Corps of Engineers (1)	95%	5%	5%	90%	5%
National Fish and Wildlife Refuges	88%	12%	19%	54%	27%
National Parks	96%	4%		78%	22%

\* The survey for this entity did not separate these categories.

Note: "I" indicates that there is insufficient data to calculate the percentage.

(1) Contractors are used for collection of litter. Contractor data was given as a dollar amount. The percentages shown in this table are estimates using the percentages by dollars as a guide.

laws. National parks reported spending about 78% of hours on collection and 22% on enforcement, while at national fish and wildlife refuges 54% of labor hours are spent on collection and 27% on enforcement. The Iowa Highway Patrol was the only entity that did not report spending time on litter collection; their labor hours were divided between enforcement (75%) and prevention (25%). The only entities that reported spending significant amounts of time on prevention are Iowa Highway Patrol (25% on prevention) and national fish and wildlife refuges (19% of total hours on prevention).

Some observations for each public sector entity are presented below:

**School Districts**

Litter program covers school buildings and grounds, including gymnasiums and stadiums  
Includes litter from school-sponsored events as well as public use of school facilities

Litter control primarily by janitorial staff, with some volunteer cleanup  
In school districts that responded to the survey, 24.6% of students are  
educated about litter.

Average dollars reported spent on litter was 12% higher than amount  
budgeted

### **Cities**

Includes city buildings and grounds, parks, lakes, golf courses, street  
sweeping, neglected property and illegal dumping on public property  
Only 11% of responding cities have a litter prevention (education) program  
Some small cities (59% of responding cities with populations less than 1,000)  
reported spending no time on litter prevention, collection, and enforcement;  
however, it is likely that some voluntary cleanup of city property by  
individual citizens occurs but was not accounted for.

Results indicate that the larger the population, the more staff hours spent on  
litter prevention, collection, and enforcement, while smaller cities appear to  
rely more on volunteers to clean up public property.

### **Counties**

Surveys included Conservation Lands (35% of total county litter  
expenditures), Roads and Ditches (40%), and Facilities and Buildings (25%)  
Total litter program costs per county resident per year averaged 75 cents.

### **Solid Waste Planning Area Roads, Ditches, and Fence Lines**

76% of respondents indicated covered load policies are enforced  
14% of total dollars spent to collect illegally dumped items along roads and  
enforce law against illegal dumping  
Some wide variations in costs reported by individual respondents due to  
variations in lengths of roads leading to landfills and fence lines that must be  
maintained.

### **Universities**

Results based on responses by University of Northern Iowa and Iowa State  
University. Neither reported a current litter education program.  
Because the University of Northern Iowa spends more on litter collection and  
has a smaller student body and is in a smaller city, its per capita litter costs are  
significantly higher than those for Iowa State University.

### **State Conservation Officers**

Average litter program dollars were about two cents per state resident per  
year. Many officers commented that they continually watch for litter and

violators while on patrol, but it is believed that they did not account for this in their estimates of time spent on litter  
Many officers commented that they usually have one or less litter/illegal dumping case to investigate per year  
Some respondents reported fishermen and underage drinkers as major violators of litter laws

### **State Historical Society**

Size of sites varies greatly—some are only buildings while others include grounds and trails. None reported a litter prevention program.  
Average litter program dollars were 34 cents per visitor per year.

### **Iowa State Fairgrounds**

Litter costs were calculated on three population bases. Results were less than one cent per person per year when calculated on the basis of fair visitors or state residents, while per capita costs based on the population of Polk county (where the fairgrounds are located) were two cents per person per year.

### **State Parks**

Only manned state parks were surveyed. Cuts in the state budget will result in reduced expenditures on mowing, maintenance, and summer employees. The administrator hopes that volunteers will help offset these cutbacks.  
Litter program costs per park visitor per year averaged seven cents; however, on the basis of state population, per capita costs were nearly 5 times as high.  
State parks have adopted a carry-in/carry-out policy concerning trash.

### **State Forests**

A single contact provided data for the 4 manned state forests and 6 unmanned satellite state forests. None of the sites reported a litter prevention program.  
Average litter program costs were less than ten cents per year on both a per visitor and per county resident basis.

### **State Wildlife Units**

Only one of the respondents reported a litter prevention program. Four respondents reported time for litter prevention (such as printing “no dumping” signs) and one reported time for enforcement of litter laws.  
Average annual litter program costs were less than three cents per person.

### **National Guard Armories**

One contact provided information for 47 National Guard Armories and the one training camp.  
None of the armories reported a litter prevention program or reported time spent on litter prevention or enforcement.

### **Iowa Department of Transportation (IDOT)**

One contact provided information for all the highways in the state, including costs for staff time, Adopt-A-Highway (AAH) volunteer program, and equipment (highway signs, collection bags, orange vests for volunteers, etc.). The value of labor by AAH volunteers (2,400 groups in the year 2000) was estimated to account for over half the litter collection dollars for Iowa highways. Litter costs for IDOT (including staff and equipment) were 29 cents per state resident per year.

### **Iowa Highway Patrol**

One contact provided information for the entire state.  
97% of annual litter costs are for enforcement of litter laws. There were 68 litter convictions and about twice that number of warnings issued in 2001.

### **National Fish and Wildlife Refuges**

Survey respondents included 2 small refuges (4,000 acres or less) and one 90,000 acre refuge.  
Only the large refuge reported a current litter prevention program. The large refuge also reported that they do not have sufficient money or manpower to clean the litter on thousands of their acres.

### **National Parks**

This category included only Effigy Mounds National Park (the Herbert Hoover National Historic Site was included with the historic sites).  
Effigy Mounds does not have a litter prevention program, and the litter program cost is 95 cents per visitor per year.

### **Corps of Engineers**

Survey results include two of the three recreational areas controlled by the Corps of Engineers.  
Litter costs per visitor per year are about four cents. Over 90% of the cost is contracted out for litter collection.  
One respondent commented that passage of the bottle/can law resulted in a tremendous decline in the amount of litter found at the recreation facilities.

## **Statewide Estimated Cost of Litter**

The statewide estimated cost was based on the sum of individual factors (average per capita litter program costs developed from the returned surveys) multiplied by the relevant population.

The total annual estimated cost of litter in the State of Iowa was \$13.5 million. Of this, almost \$13.2 million (over 97%) was spent on litter at state facilities (including school districts, cities, counties, and various state entities), while \$326,000 was spent on litter at national facilities (national fish and wildlife refuges, national parks, and corps of engineers).

## **RESULTS OF STATE LITTER LEGISLATION REVIEW**

The second main task in the report was to review and summarize current legislation regarding litter for Iowa and the surrounding states: Missouri, Nebraska, South Dakota, Minnesota, Wisconsin, and Illinois. The review consisted of an Internet search of each state's laws and regulations and the agencies involved (see Table ES-4). Telephone discussions with state agency staff were conducted to fill in data gaps.

Information was gathered on the following questions:

- Are regulations in place?
- Who is responsible for enforcement?
- What are the penalties?
- Who is responsible for collection?
- Who is responsible for education?
- What are the funding mechanisms?

Some of this information is summarized in Table ES-4 (more detailed information is available in Chapter 2 of the report, Table 2-2). Information on collection responsibilities and funding is more difficult to summarize. All the states have adopt-a-highway programs for collecting litter along roadsides. State, county, park or local maintenance is usually responsible for cleanup of litter or illegal dump sites on the public lands in their jurisdiction. In Iowa, Minnesota, South Dakota and Illinois, gathering litter is a penalty for littering in some cases. In Illinois, the Department of Corrections uses inmates to collect litter along the interstates. In Iowa, the DNR is responsible for collection and disposal of illegal dumping on any state lands. The collection and disposal of litter and illegally dumped garbage are mostly funded by whichever department is in charge of maintaining the violated public lands.

**Table ES-4  
REGULATORY REVIEW SUMMARY**

	IA	MO	NE	SD	MN	WI	IL
<b>Agencies Contacted</b>							
Department of Transportation (DOT)	x			x		x	x
Department of Natural Resources (DNR)	x	x			x	x	x
Other			(1)	(2)		(3)	
<b>Regulations Against Littering/Dumping</b>							
Same regulations					x	x	x
Separate regulations	x	x	x	x			
<b>Enforcement Responsibility</b>							
Littering							
State patrol (DOT) for state highways	x	x	x	x	x	x	x
Local authorities	(4)	(5)	x	x	(6)	x	x
Conservation officers				x	x	(7)	x
Illegal Dumping							
State, county, local authorities	(4)	(5)	x	x		x	x
Conservation officers				x		(7)	x
<b>Penalties</b>							
Littering							
Misdemeanor	x	x	x	x	x	x	x
Fines/jailtime possible	x	x	x	x	x	x	x
Gathering litter possible punishment	x			x	x		x
Illegal Dumping							
Fines/jailtime possible	x	x	x	x		x	x
Maximum daily penalty	\$5K	\$1K		\$10K			
May pay for cleanup		x			x		
<b>Education</b>							
Warning signs (highways, parks)	x	x	x	x	x	x	x
Adopt-A-Highway program	x	x	x	x	x	x	x
DNR hotline, billboard ads	x						
DNR Local Env. Enforcement Prog (LEEP)		x					
DOT advertisements, speakers					x		
Keep Nebraska Beautiful (KNB)			x				
DNR signs, flyers, programs							x

- (1) DEQ and Department of Roads
- (2) DENR (Waste Management Program)
- (3) Parks and Recreation
- (4) DNR field officers for dumping and local litter.
- (5) Local Environmental Enforcement Program (LEEP) for counties to handle illegal dumping, excessive litter.
- (6) Solid Waste officers and inspectors enforce litter and dumping regulations in municipalities.
- (7) Park rangers for DNR owned lands

## **CHAPTER 1**

### **ANALYSIS OF THE LITTER SURVEY DATA**

#### **INTRODUCTION**

Keep Iowa Beautiful (KIB), the state affiliate of the Keep America Beautiful (KAB) organization, is working to improve the beauty of the state of Iowa by educating the public about litter and assisting local communities and organizations with cleanup and beautification projects. KIB has partnered with Iowa Department of Transportation, Iowa Department of Natural Resources, Iowa Society of Solid Waste Operators, landfill planning regions and the private sector on a comprehensive effort to better understand and positively impact the litter situation in Iowa.

In 2001, KIB contracted with Franklin Associates, Ltd. to perform a review of the existing litter reduction state legislation in Iowa and the surrounding states as well as a survey of the monetary expenses used for litter control on federal, state and local government lands in Iowa. The purpose of this study is to provide a useful report to help guide the KIB with benchmark information and a base of measurement for the program's effectiveness over the next several years.

#### **OBJECTIVE**

The objective of this report chapter is to determine the fiscal impact of litter across Iowa by gathering information on the annual cost of litter control and abatement efforts across Iowa. Performing a background survey of the public sector included sending surveys to school districts, universities, federal, state, county and city staff as well as solid waste planning area commissions. Table 1 shows a complete list of the entities surveyed.

#### **SURVEY INSTRUMENT**

Each of the public entities in Table 1-1 were sent an introduction letter from Gerald F. Schnepf, Executive Director of Keep Iowa Beautiful, as well as a survey designed specifically for them. An example survey is shown in Appendix A. Surveys were sent to public entities across Iowa including school districts, universities, federal, state, county and city staff as well as solid waste planning area commissions. A general survey format was developed first, then the survey forms sent to each public sector entity were tailored specifically to apply to that entity. After testing the clarity and design of the survey on a sample group, over 1,800 surveys were sent out.

The introduction letter explained the purpose of KIB and their goal for this project. It then introduced Franklin Associates and explained the company's role in the project, mainly the development of the survey followed by the compilation and analysis of the returned data. Overall, the letter urged the survey respondents to complete the

**TABLE 1-1. LIST OF ENTITIES SURVEYED.**

	Number of Surveys Sent
School Districts	373
Cities	949
County Conservation Land	99
County Owned Roads and Ditches	99
County Facilities and Buildings	99
Solid Waste Planning Area Roads, Ditches and Fence Lines	43
Universities	3
State Conservation Officers	99
State Historical Society	10
Iowa State Fairgrounds	1
State Parks*	1
State Forests	4
State Wildlife Units	21
National Guard Armories*	1
Iowa Department of Transportation*	1
Iowa Highway Patrol*	1
National Fish and Wildlife Refuges	5
National Parks	2
Corps of Engineers	3

\*One contact completed a survey for the total number of entities in this category.

survey to the best of their ability and contact KIB or Franklin Associates if they had questions. Franklin Associates and KIB both received a few calls requesting aid on the survey.

The following information was included to assist in the completion of the survey:

- What is Litter?
- Who is Being Surveyed?
- What are Examples of Litter Costs?
- What are Not Considered Litter Costs?

Litter is more than just plastic cups and napkins. It includes these items and other trash not in its proper place. Examples of litter are; bottles, cans, rubber and cloth, metal, plastic packaging, paper products and illegally dumped bulky items (i.e., furniture, appliances) or large quantities of trash.

The survey respondents were also given a list of those being surveyed to demonstrate the comprehensive nature of the project. Those are listed in Table 1.

Examples of litter costs that were listed in the survey included picking up litter, cleaning up illegal dumping, dealing with abandoned vehicles, operational/administrative costs for dealing with litter and law enforcement pertaining to litter. Some samples of costs that were not included in this study are routine solid waste collection, painting, mowing, general maintenance, spill cleanup, vegetation control, recycling costs and hazardous waste removal.

All surveys included a paragraph of general instructions as well as Franklin Associates' phone number in case the respondent had questions. Each of the surveys had two information sections: a program information section and an annual budget information section.

The program information section contained questions about staff and hours used to deal with litter, staff hourly wages, and the existence of a litter prevention program. Volunteer time for picking up litter was also included. Volunteer time, although not an actual expense, was valued at the minimum wage. Program costs did not include the purchase, operation, or maintenance of capital equipment used for litter collection, such as street sweepers or trucks to haul away collected litter. Costs for supplies such as trash bags were included in program costs in some cases; in other cases it was not possible to tell. However, there was redundancy among a couple of questions in the survey, which allowed us to better interpret the responses. In any case, the cost of labor is by far the dominant cost in litter programs.

In the annual budget information section of the survey, information on the amount of money budgeted, spent and needed for litter prevention, collection and/or enforcement was requested. This part of the survey was where capital equipment and other costs would be included along with labor costs; however, many respondents did not have separate litter budgets and did not fill out this section of the survey. Again, the redundancy in the 2 sections allowed us to interpret the responses more accurately. Also, space for comments was included at the end of each survey.

The budget and time constraints for this project did not allow for individual follow-up on each survey; however, telephone calls were made for additional data collection or clarification of data when deemed necessary by Franklin Associates staff.

## **SCHOOL DISTRICTS**

Litter can be found in many places on the school grounds: outside of the buildings, in and around the school stadiums and gymnasiums after public or school events, or even in the hallways. Inside the buildings, a janitor or teacher usually cleans up the litter, while outside the buildings janitorial staff is typically responsible. After school or public events on school property, the clean up may be by janitors, student volunteers, or community groups (such as 4-H clubs). This survey was designed to sample how much money is being spent by Iowa's school districts on litter collection.

A survey was sent the superintendent in each school district in Iowa. Thirty-two percent of the surveys were returned. The returned surveys were mapped to judge whether all geographical areas of Iowa were represented. The returned surveys provided a good representation of the state so no follow-up calls were made to schools that did not respond.

### **School District Objective**

The objective of this survey is to estimate the average amount spent on litter collection on school grounds. The schools were asked for input for both school sponsored events and public use of school facilities.

### **School District Methodology**

Of the 373 surveys sent to the Iowa school districts, 121 surveys (32 percent) were returned. As each of the surveys was returned, its data was input into an Access database. Once returned surveys stopped arriving, the completed file was converted to an Excel spreadsheet for analysis.

Analysis was completed on the percent of students educated about litter, the litter control program information, litter collection budget information and actual amount spent on litter collection information. To calculate the percentage of students educated about litter, the total number of students were counted for each school district that indicated they did have a litter education program, then that student total was divided by the total number of students in the districts that replied to the survey.

To calculate the average monetary value of the litter programs from the survey's program section, for each school district, the number of staff hours per week was multiplied by the hourly wage then added to the number of volunteer hours per week multiplied by the minimum wage. This total was divided by the number of students per school district or the population of the school district depending on the basis (per student or per person). This calculation gave the per capita cost for each school district. An average per capita cost was developed from the responding school districts. To get a yearly average, this number was multiplied by 40 weeks/school year.

To calculate the average budget or spent amount per year from the survey's annual budget section, the following calculations were performed. Each district's budget or spent amount was divided by the number of students in the district and separately by the population of the district. These calculated numbers from each line item (e.g. inside facility, outside facility, etc.) were then totaled. These calculations gave the per capita cost for each school district. An average per capita cost was developed from the responding school districts. To get a weekly average, this number was divided by 40 weeks/school year.

## School District Results

Of the school districts that returned surveys, 53 percent completed the entire survey. Twenty-six percent of the school districts surveyed completed only the program section; while 3 percent completed only the annual budget section. The remaining 18 percent contained only zeroes. While it is possible that some districts spend no money on litter collection, each of these surveys were reviewed and judged whether the actual amount spent was zero or whether the contact did not attempt to estimate the amount budgeted and spent. Of the 18 percent that entered only zeroes, 5 percent were judged to have actually spent zero on litter collection, while the remaining 13 percent contained unjustified zeroes. These unjustified surveys were thrown out when performing the monetary analysis. Judgment was based on any comments made by the respondent and the size of school.

In the 121 school districts that replied to the survey, 24.6 percent of the students are educated about litter. The two largest school districts that returned surveys, almost 16 percent of the students in the responding school districts, did not have a litter education program. The third largest, Ankeny Community School, with 6,000 students, does have a litter education program.

Table 1-2 displays the results for the program, budget and spent information on litter collection in school districts. The average dollars estimated by the school districts per year based on the program information portion of the survey were \$6.37 per student and \$1.14 per person. Based on a 40 week school year, this corresponds to 16 cents per student per week and less than 3 cents per person per week. Of the time spent on litter, 88 percent was by school staff and 12 percent was by volunteers, such as a class volunteering to pick up litter on the school grounds. Volunteer time, although not an actual expense, was valued at the minimum wage.

The average dollars budgeted by the school districts per year based on the budget information portion of the survey were \$5.09 per student and 97 cents per person. Based on a 40 week school year, this corresponds to 13 cents per student per week and a little more than 2 cents per person per week.

The average dollars spent by the school districts per year based on the spent information portion of the survey were \$5.77 per student and \$1.03 per person. Based on a 40 week school year, this corresponds to 14 cents per student per week and less than 3 cents per person per week.

## Statistical Analysis

Extreme values are problematic because they can skew a data set, resulting in the misinterpretation of data. In order to establish a criterion for eliminating extreme values, a statistical analysis was performed. The large number of data points made it reasonable to assume that the data is normally distributed (i.e., it conforms to the pattern of a “bell

Table 1-2

**Comparison Table for Amount of Money Spent on Litter Collection in School Districts**

	<u>Dollars per Week</u>		<u>Dollars per Year</u>	
	Per School District		Per School District	
	Per Student	Resident	Per Student	Resident
Program Information	\$0.16	\$0.029	\$6.37	\$1.14
Budget Information	\$0.13	\$0.024	\$5.09	\$0.97
Spent Information	\$0.14	\$0.026	\$5.77	\$1.03

\* Assuming normally distributed data, a statistical analysis was performed in order to eliminate extreme values. To achieve a 90% confidence level, results greater than the weighted average plus 1.65 times the standard deviation were disregarded. This new weighted average was then calculated.

curve”). In a normally distributed population, 90 percent of the population is within +/- 1.645 standard deviations of the average value of the population. In this analysis, the values that fell outside of +/- 1.645 standard deviations were eliminated.

The above method proved to be useful tool for enhancing the quality of the data. For example, four data points were eliminated in the program information section, while three and six data points were eliminated in the budget and spent information sections respectively. Using the data from the budget dollars section of the survey, before eliminating the extreme data points, the standard deviation of the data was \$33; after performing the statistical analysis, the standard deviation was \$9.56. The values of the revised data set are more clustered around the average value, which allows us to make better conclusions about the data.

**School Districts Observations**

Overall, the school districts that returned the surveys did a good job of filling them out. If you consider the results in Table 2, the program information and spent information results should be very close. The spent information does not take into account the money estimated for the volunteer time by students and faculty. If we multiply the \$6.37 per year per student by 88% (the percent of the staff time), the money spent is \$5.61 per year per student. This is 16 cents, or 3 percent, less than the spent information result of \$5.77 per year per student.

Assuming that the school district respondents did as good a job estimating the budget information, it seems that, on average, schools do not budget enough money for the collection of litter. The money spent on litter was 68 cents, or 12 percent, more than the money budgeted for litter.

## **CITIES**

The cities in this survey were asked to estimate the time and money spent on litter prevention, collection and enforcement on city properties. This would include city buildings and their grounds, city streets, as well as city parks, lakes and golf courses. Janitorial staff would likely clean up the city buildings and grounds. A combination of staff and volunteers clean up the parks, lakes and golf courses. Street sweepers are utilized to clean the litter from the streets. Also, larger cities must have staff to enforce the cleaning of neglected property and illegal dumping on public property. This survey was designed to sample how much money is being spent by Iowa's cities on litter prevention, collection and enforcement. A survey was sent to each city in Iowa (949 total of which 164 were returned or contacted).

### **Cities Objective**

The objective of this survey is to estimate the average amount spent on litter collection on city property. The cities were asked for input on city sponsored and non-city sponsored events on city property.

### **Cities Methodology**

Of the 949 surveys sent to each Iowa city, 164 surveys (17 percent) were returned. As each of the surveys was returned, its data were input into an Access database. Once returned surveys stopped arriving, the completed file was converted to Excel for analysis.

Analysis was completed on the percent of cities with a litter prevention program and the litter control program information. To calculate the percentage of cities with litter prevention programs, the total number of cities that indicated they did have a litter prevention program was counted, then that city total was divided by the total number of cities which replied to the survey.

The average monetary value of the litter programs from the survey for each city was calculated by adding the number of staff hours per week multiplied by the hourly wage to the number of volunteer hours per week multiplied by the minimum wage and finally adding the number of staff hours per week spent on street sweeping multiplied by the hourly wage. Before these were added, each was divided by the population of the city and multiplied by 52 weeks for staff and volunteer costs or 34.67 weeks for street sweeping costs. The per capita cost for the street sweeping was multiplied by 34.67 weeks/year (8/12 months\*52 weeks) assuming that very little street sweeping would take place during the 4 winter months based on phone conversations with city officials. The sum of the dollar amounts reported by cities was divided by the total population

represented by the cities to get a per capita average for the entire sector. Since the cities in Iowa that returned the surveys range from a population of 11 people to 198,682, the cities were split into three groups: population under 1,000, population between 1,000 and 10,000 and population above 10,000.

To calculate the average budget or spent amount per year from the survey's annual budget information section, the following calculations were performed. Each city's budget or spent amount was divided by its population. The calculated numbers from each line item (e.g. city sponsored events, private property, etc.) were then totaled. These calculations gave the per capita costs for each city. An average per capita cost was developed from the responding cities. After careful consideration, it was decided not to include these budget and spent amounts in this report. When discussing this section directly with city officials, most replied that they could not separate out an amount for litter only. Therefore, it is assumed that the cities that did fill out this section likely included budgeted amounts for costs other than litter prevention, collection and enforcement.

## Cities Results

Of the 164 cities that participated in this survey only 18 (11%) have a litter prevention program as defined by KIB. These programs could include KIB membership, producing and distributing educational posters, or a speaker's list on litter.

The results for the Iowa cities litter programs are shown in Table 1-3. These results are split into 3 sections: under 1,000 population (112 surveys completed), 1,000 to 10,000 population (43 surveys completed) and over 10,000 population (8 surveys completed, 1 survey returned not completed). Extreme values are problematic because they can skew a data set, resulting in the misinterpretation of data. In the case of the cities, the data could not be considered normally distributed because of the large number of small cities, which do not have hours or budget for litter prevention/collection/enforcement; therefore, no statistical analysis was performed. However, 1 city with a population under 1,000 and 1 city with a population between 1,000 and 10,000 were thrown out of the analysis because of unusually high amounts per person per year.

Table 1-3

Amount Spent on Litter Prevention/Collection/Enforcement in Iowa Cities

	Average (\$/city resident/year)	Range of \$/city resident/year		Percent of average \$/city resident/year		
		Low	High	staff	volunteers	sweeping
Cities (1-1,000 population)	\$1.49	\$0.00	\$14.37	55%	22%	23%
Cities (1,001-10,000 population)	\$2.08	\$0.00	\$4.71	61%	7%	21%
Cities (over 10,000 population)	\$1.85	\$0.55	\$5.14	72%	9%	5%

**Cities with populations under 1,000.** Sixty-five of the small city surveys (59%) claim to spend no time on litter prevention, collection and enforcement. It is probable that some of the citizens of these cities pick up litter they find on city property. The city governments did not try to estimate any volunteer time for these conscientious citizens. Eighty-six of the 111 surveys (77%) reported zero hours spent on street sweeping of litter. It seemed unusual for 25 towns with populations under 1,000 to be able to own street sweepers. It could be that these small towns lay on the outskirts of larger towns, which either lease or lend the small towns their street sweepers.

The average dollars estimated on litter per person per year in cities with populations under 1,000 was \$1.49. The point values of the estimated amounts range from \$0.00 to \$14.37. This range does not include the city that was thrown out because it had an extreme value (\$23.35 per person per year). Ninety-five percent of the cost estimates are less than \$10. Of this average amount estimated, 55 percent was city staff time and budget, 22 percent was volunteer time (using the Iowa minimum wage), and 23 percent was staff time and budget for sweeping. It is possible that the volunteer time is underestimated, while the sweeping time is overestimated.

**Cities with populations between 1,000 and 10,000.** Eight of the medium city surveys (20%) claim to spend no time on litter prevention, collection and enforcement. With 80 percent of the cities spending some time and money on litter, it seems unlikely that no litter prevention, collection and enforcement on city property is happening in these cities. It is probable that some volunteer or staff time not accounted for is being spent on this duty for city parks. Twelve of the 41 surveys (29%) of these cities reported zero hours spent on street sweeping of litter. This seems reasonable as 8 of the 12 towns have a population of less than 2,000. It is unknown if it is common for a town of less than 2,000 people to own street sweepers. Possibly some of the towns with a population of less than 2,000 that do have street sweeping lay on the outskirts of larger towns, which either lease or lend the small towns their street sweepers. Based on phone conversations with city officials, all survey data for street sweeping was multiplied by 10% to estimate the amount of litter collected by the sweepers as opposed to the total amount of dirt, salt, litter, etc. collected.

The average dollars estimated on litter per person per year in cities with populations between 1,000 and 10,000 was \$1.85. The point values of the dollars estimated range from \$0.00 to \$4.71. This range does not include one city that was thrown out because it had an extreme value (\$20.81 per person per year). Of this average amount estimated, 69 percent was city staff time and budget, 8 percent was volunteer time (using the Iowa minimum wage), and 23 percent was staff time and budget for sweeping.

**Cities with populations over 10,000.** Of the 8 large cities that returned surveys or were contacted, none claim to spend zero time on litter prevention, collection and enforcement. One city did return their survey with no data; however, this city was not included in the analysis. It is unlikely that any city with a population of greater than 10,000 would spend zero time and money on litter prevention, collection and

enforcement. Only 1 completed survey was returned by a city with more than 10,000 people. The remaining 7 cities were surveyed by phone.

The average dollars estimated on litter per person per year in cities with populations over 10,000 was \$1.60. The point values of the estimated amounts range from \$0.55 to \$5.14. This range does not include zeroes for the one city that returned a blank survey. Of this average amount estimated, 84 percent was city staff time and budget, 11 percent was volunteer time (using the Iowa minimum wage), and 5 percent was staff time and budget for sweeping. The volunteer time may be somewhat understated. In our calls to these cities, we were often directed to an organization in charge of the volunteers to find out the hours performed. For the most part, staff time increased with the size of the city. The main exception to this is the one city just over 10,000 in population. The higher number of staff hours for a town with little more than 10,000 people may be an anomaly or may be an error on the part of the city in their estimation. This same city did not include any volunteer time on their survey. The time and budget for street sweeping for the large cities were small compared to the staff and volunteer time. We used our discussions with the large cities to estimate that portion of the street sweeping costs attributed to litter.

### **Cities Observations**

It is difficult to see a correlation between the average amounts estimated by the three size classifications of cities. The largest average amount estimated per capita was \$1.85 by the cities with populations between 1,000 and 10,000. This could be because these medium size cities are not utilizing volunteers as often as the smaller cities. Larger cities realize an economy of scale that may not be experienced by the medium size cities.

Looking at the percent of the average per capita cost, it seems the larger the population, the more staff hours spent on litter prevention, collection and enforcement. The staff in larger cities spend more time filling out paperwork for cleanup of illegal dumping and enforcement of private property cleanup than the smaller cities. The volunteer time is greater for the smaller cities, which suggests these cities rely more on volunteers to cleanup public property. The percent of the estimated cost for sweeping is 23 percent for both the small and medium size cities. The reason for this is unclear. It seems unusual for cities with a population under 1,000 to have a street sweeper. This percentage is more understandable for the medium size cities as they would likely have mostly curbed streets and fewer people to divide the street sweeping costs among. The street sweeping is a small percentage of the average amount spent for the large cities, which seems reasonable as the cost will be spread over a large population base.

### **COUNTIES**

Auditors, engineers and conservation officers were surveyed to estimate the time and money spent on litter prevention, collection and enforcement on county properties. These properties include county buildings and their grounds, county roads and ditches, as well as county conservation lands. Custodial staff and possibly some volunteers would

likely clean up the county facilities and grounds. Volunteers play a small part in the collection of litter on county owned lands. Also, counties have staff that respond to any illegal dumping on county property. This survey was designed to sample how much money is being spent by Iowa's counties on litter prevention, collection and enforcement. A survey was sent to the auditor, engineer and conservation officer for each county in Iowa (297 total of which 141 were returned or contacted).

### **Counties Objective**

The objective of this survey is to estimate the average amount spent on litter collection on county facilities and their properties, roads and ditches and conservation lands.

### **Counties Methodology**

Of the 297 surveys sent to each Iowa county, 141 surveys (47 percent) were returned. Three surveys were actually sent to each county: one to the auditor for county buildings and grounds (37% returned), one to the engineer for county owned roads and ditches (52% returned), and one to the conservation officer for county conservation lands (54% returned). As each of the surveys was returned, its data were input into an Access database. Once returned surveys stopped arriving, the completed file was converted to Excel for analysis.

Analysis was completed on the litter control program information. The average monetary value of the litter programs from the survey's program section for each county was calculated by adding the number of staff hours per week multiplied by the hourly wage to the number of volunteer hours per week multiplied by the minimum wage. Before these were added, each was divided by the population of the county and multiplied by 52 weeks/yr. The sum of the dollar amounts reported by the county respondents was divided by the total population represented by the county respondents to get a per capita average for the entire sector.

After careful consideration, it was decided not to include the budget and spent amounts from the annual budget section. After discussing this section directly with local officials, most replied that they could not separate out litter specific costs. Therefore, it is assumed that the counties that did fill out this section likely included costs other than those for litter prevention, collection and enforcement.

### **Counties Results**

The results for the Iowa counties litter programs are shown in Table 1-4. These results are split into 3 sections: county facilities and buildings, county owned roads and ditches, and county conservation lands. Extreme values are problematic because they can skew a data set, resulting in the misinterpretation of data. In the case of the counties, the data in these surveys did not seem to follow a normal distribution curve and so a statistical analysis was not performed. Some survey values were deemed extreme and

Table 1-4

## Amount Spent on Litter Prevention/Collection/Enforcement Programs in Iowa Counties

	Average (\$/county resident/year)	Range of \$/county resident/year		Percent of average \$/county resident/year	
		Low	High	staff	volunteers
County Facilities and Buildings	\$0.19	\$0.01	\$0.57	92%	8%
County Owned Roads and Ditches	\$0.30	\$0.03	\$1.73	88%	12%
Conservation Lands	\$0.26	\$0.01	\$1.25	91%	9%
Total	\$0.75				

were removed from the analysis (2 in roads and ditches, 3 in conservation lands and 1 in buildings and facilities).

**County Facilities and Buildings.** Although 37 surveys were returned by the county auditors, only 10 contained actual data, while the remainder contained either blanks or zeroes which were not included. It is unlikely that a county doesn't have any litter costs. At a minimum, all counties have a courthouse with grounds that would accumulate litter. One of the 10 surveys contained extremely high data (greater than \$5 per county resident per year) and so was not included in the average. The range of the dollars per person per year estimated in these 9 remaining counties were \$0.01 to \$0.57. The average was \$0.19 per person per year. Most of the time spent collecting litter was by county staff (92%), while the remaining 8% was collected by volunteers, such as school children. Volunteer time, although not an actual expense, was valued at the minimum wage.

**County Owned Roads and Ditches.** Although 51 surveys were returned by the county engineers, only 25 contained usable data, the remainder contained either blanks or zeroes which were not included. Two of the 25 surveys contained extreme data points (greater than \$2.60 per person per year) and were not included in the average. The range of the dollars per person per year estimated in the remaining 23 counties were \$0.03 to \$1.73. The county at the high end of this range noted that their landfill had been closed several years, and they have experienced increased illegal dumping along roadsides since that time. The average was \$0.30 per person per year. A large percentage (88%) of the time spent collecting litter was by staff, while the remainder was collected by volunteers. Some survey respondents noted that their primary litter collection cost was picking up large items, such as furniture and white goods, dumped in the road ditches. Dead deer were noted to be a big problem in some areas.

**County Conservation Lands.** Although 53 surveys were returned by the county engineers, only 47 contained usable data, while the remainder contained either blanks or zeroes which were not included. Three of the 47 surveys contained extreme data points (greater than \$2.50 per person per year) and were not included in the average. In these

calculations, one year was assumed to be equivalent to 10 months, assuming 2 months of winter weather. Some respondents limited the litter collection to fewer months while some collected litter all year round. The range of the dollars per person per year estimated in these 44 counties were \$0.01 to \$1.25. The average was \$0.26 per person per year. Many of the respondents commented that all patrolling staff were to pick up litter where seen. A large percentage (91%) of the time spent collecting litter was by staff, while the remainder was collected by volunteers, such as community service workers, scout groups and school groups. Illegal dumping of tires, junk cars and appliances were mentioned in surveys as being a problem.

**Counties Observations.** The total amount estimated in counties is \$0.75 when the three averages above are totaled. The facilities and buildings average is 25% of the total, while the roads and ditches are 40%, and the conservation lands are 35%. It seems intuitive that the facilities and buildings would average much less for litter collection than the roads and ditches and conservation lands as there is less area to oversee and it is unlikely that any illegal dumping would occur there. From these results, it is probable that more illegal dumping and littering is done on county roads and ditches than on conservation lands.

## **SOLID WASTE PLANNING AREA ROADS, DITCHES AND FENCE LINES**

The Iowa Solid Waste (SW) Planning Areas were surveyed to estimate the time and money spent on litter prevention, collection and enforcement on their roads, ditches and fence lines. Only 3 of the returned surveys reported a role for volunteers in the collection of litter. A survey was sent to each solid waste planning areas in Iowa (43 total of which 19 were returned). Of the returned surveys, 14 respondents (76%) mentioned that they enforce a covered load policy.

### **Solid Waste Planning Area Objective**

The objective of this survey is to estimate the average amount spent on litter prevention, collection, and enforcement on solid waste planning area roads, ditches and fence lines.

### **Solid Waste Planning Area Methodology**

Of the 43 surveys sent, 19 surveys (44 percent) were returned. Two of the returned surveys were not completed and so not included in the averages. As each of the surveys was returned, its data were input into an Access database. Once returned surveys stopped arriving, the completed file was converted to Excel for analysis.

Analysis was completed on the litter control program information. The average monetary value of the litter programs from the survey's program section for each SW planning area was calculated by adding the number of staff hours per week for littering and illegal dumping multiplied by the hourly wage to the number of volunteer hours per week multiplied by the minimum wage. Before these were added, each was divided by the population of the county and multiplied by 52 weeks/yr. The sum of the dollar

amounts reported by the solid waste planning area respondents was divided by the total county population represented by the survey respondents to get a per capita average for the entire sector.

After careful consideration, it was decided not to include the budget and spent amounts from the survey’s annual budget section in this report. Only 2 of the 19 respondents provided information in the budget section, while 6 of the 19 respondents provided information in the budget spent section. Because of the low number of responses in these sections, these sections were not analyzed.

**Solid Waste Planning Areas Results and Observations**

The results for the Iowa solid waste planning areas litter programs are shown in Table 1-5. Extreme values are problematic because they can skew a data set, resulting in the misinterpretation of data. In the case of the SW planning areas, the data in these surveys did not seem to follow a normal distribution curve and so a statistical analysis was not performed. One survey value was judged extreme (\$1.28 per person per year) and was removed from the analysis.

Although 19 surveys were returned by the solid waste planning area directors, only 17 contained actual data, while the remainder contained either blanks or zeroes which were not included. One of the 17 surveys contained extremely high data and so was not included in the average. The range of the dollars per person per year estimated in these 16 solid waste planning areas were \$0.0002 to \$0.62. The average cost was \$0.11 per person per year. Most of the time spent preventing and collecting litter and enforcing the covered load policy was by staff (89%), while the remaining 11% was collected by volunteers, such as community service workers. Volunteer time, although not an actual expense, was valued at the minimum wage. Of the total dollars needed, 14 percent is used to collect illegally dumped items along the roads and enforce the law against illegal dumping.

**Table 1-5**

**Amount Spent on Litter Prevention/Collection/Enforcement Programs in Solid Waste Planning Areas**

	Average (\$/county resident/year)	Range of \$/county resident/year		Percent of average \$/county resident/year		
		Low	High	staff-litter	staff-ID*	volunteers
Solid Waste Planning Areas	\$0.11	\$0.0002	\$0.62	75%	14%	11%

\* ID stands for Illegal dumping

One possible reason for the wide range of dollars per person for this entity is each solid waste planning area has differing lengths of road that they are responsible for servicing. For example, one respondent stated the road he services is less than 40 feet, while another respondent must clean 1 mile of road leading to the landfill. The same is true about the areas of the fence lines, which must also be cleaned sporadically. The excluded high data point was not due to length of road or fence line. Most (76%) of the respondents commented that their county utilizes a covered load policy.

## **UNIVERSITIES**

The three Iowa state universities were surveyed to estimate the time and money spent on litter collection on their campuses. A survey was sent to each of the three state owned universities in Iowa (University of Northern Iowa, Iowa State University and University of Iowa). Two of the three universities completed and returned the surveys. The University of Iowa was contacted by phone and declined to participate in this survey.

### **University Objective**

The objective of this survey is to estimate the average amount spent on litter collection on university campuses. The universities were asked for input on university events at arenas or stadiums, as well as inside and outside the buildings on university property.

### **University Methodology**

Of the surveys sent to each of the 3 universities, 2 surveys (67 percent) were returned. The third university was not included in the averages. As each of the surveys was returned, its data were input into an Access database. The completed file was converted to Excel for analysis.

Analysis was completed on the litter control program information. The average monetary value of the litter programs from the survey's program section for each university was calculated by adding the number of staff hours per week for littering multiplied by the hourly wage to the number of volunteer hours per week multiplied by the minimum wage. Before these were added, each was divided by the bases (population of the city where the university is located or the student body population or the state population) and multiplied by 52 weeks/yr. The sum of the dollar amounts reported by the University respondents was divided by the total city and state population as well as the student body represented by the survey respondents to get a per capita average for the entire sector.

After careful consideration, only the budget spent amounts for special events were included in this study besides the program data. Both universities that responded contract out the collection of litter at their University events, and so this amount does not overlap the program data and can be added to it for the total dollars estimated. The dollars spent

Table 1-6

## Amount Spent on Litter Collection Programs in Iowa Universities

	University of Northern Iowa	Iowa State University	Average*
Program Average			
Per University (\$/student/yr)	\$6.51	\$1.20	\$3.85
Per City (\$/city resident/yr)	\$2.52	\$0.66	\$1.59
University Events Average			
Per University (\$/student/yr)	\$1.43	\$0.79	\$1.11
Per City (\$/city resident/yr)	\$0.55	\$0.43	\$0.49
Total Average			
Per University (\$/student/yr)	\$7.94	\$1.99	\$4.96
Per City (\$/city resident/yr)	\$3.07	\$1.09	\$2.08
Per State (\$/state resident/yr)	\$0.04	\$0.02	\$0.03

\* These averages are based on the 2 Universities responding.

on university events were averaged and divided by either the city population, the student body population, or Iowa's state population. All three bases are shown in the results.

### University Results and Observations

The results for the Iowa universities litter programs are shown in Table 1-6. Because of the small number of State Universities in Iowa, all data points from responding universities were included in this analysis. Neither of the responding universities currently have a litter education program.

The University of Northern Iowa estimated that it does spend more on litter collection than Iowa State University. When contacted to verify their estimates, the University of Northern Iowa replied that a great deal of importance is placed on the appearance of their campus and that collection of cigarette butts is a big expense to them. It should also be noted that the University of Northern Iowa has a smaller student body and is in a smaller city than Iowa State University. Since these population bases are used in the comparison of dollars per year, the larger dollar amounts for the University of Northern Iowa are divided by a smaller population.

The average cost estimated for litter per student per year is \$4.96, while using the city population basis equates to \$2.08 per person per year. As the city is where the money is being used, this is likely the best basis on which to include universities. The total averages were also based on the state population, which came to \$0.03 per person per year. The cost estimated based on the program information averaged 76 percent of the total spent by the Universities. The remaining 24 percent is contracted out for University Events litter collection.

## STATE CONSERVATION OFFICERS

The state conservation officers in the 99 districts of Iowa were surveyed to estimate the time and money spent on litter enforcement on state lands. These properties include state fish and wildlife lands. These officers' jobs comprise citing for litter violations if the violator is caught in the act, as well as investigating illegal dumping for possible evidence to identify the violator and prosecuting that violator if possible. A survey was sent to the state conservation officer for each area in Iowa (99 total of which 32 were returned or contacted).

### State Conservation Officers Objective

The objective of this survey is to estimate the average amount spent on litter enforcement in the state conservation officers' jurisdiction.

### State Conservation Officers Methodology

Of the 99 surveys sent to each Iowa county, 32 surveys (32 percent) were returned. Of the 32 surveys returned, 10 included data, while the remaining 22 were either left blank or contained zeroes. Of these 22 with no input data, 8 contained comments that led us to estimate \_ hour of enforcement time per week. One survey that contained zeroes did not name the counties included in the officer's jurisdiction and so was not included in the average. The remaining 13 surveys were included as zeroes in the average. As each of the surveys was returned, its data were input into an Access database. Once returned surveys stopped arriving, the completed file was converted to Excel for analysis.

Analysis was completed on the litter control program information only. The average monetary value of the litter programs from the survey's program section for each state conservation officer was calculated by adding the number of staff hours per week multiplied by the hourly wage. This was divided by the population of the county(ies) in the officer's jurisdiction and multiplied by 52 weeks/yr. The sum of the dollar amounts reported by the state conservation officers was divided by the total county population represented by the officers' jurisdiction to get a per capita average for the entire sector.

Only four officers included spent amounts in the survey's annual budget section in this report. With so few results in this section, it was decided that this section would not be included in the analysis.

### State Conservation Officers Results and Observations

Thirty-one of the 32 surveys returned were included in the averages in Table 1-7 although some contained either blanks or zeroes. These were included after phone discussions with some of the officers who stated that they rarely had more than 1 litter or illegal dumping violation per year. In these calculations, one year was assumed to be

Table 1-7

**Amount Spent on Litter Enforcement Programs in Iowa's State Lands**

	Program Average (\$/county resident/yr)	Range of \$/county resident/year	
		Low	High
State Lands	\$0.017	\$0.00	\$0.12

equivalent to 52 weeks. The range of the dollars per person per year spent in these 31 areas were \$0.00 to \$0.12. The average was \$0.017 per person per year.

Many officers said that while on patrol they continually watch for litter and violators, but it is believed that they did not take that into account for their estimates of time spent enforcing the litter laws. Many of the officers that input zeroes for their time commented that they usually have one or less litter/illegal dumping cases to investigate per year. Fishermen and underage drinkers were cited in some surveys as major violators of the litter laws.

## **HISTORICAL SITES**

The state historical sites in Iowa were surveyed to estimate the time and money spent on litter prevention, collection and enforcement at their site. A survey was sent to the 10 historical sites in Iowa, of which 7 were returned. Of the seven surveys returned, one noted that their data would already be counted in a survey returned by the State Conservation Officer assigned to their location. Also, one national site (Herbert Hoover National Historical Site) was added to this category from the National Parks category. The managers and staff of these historical sites deal mostly with the collection of litter.

### **Historical Sites Objective**

The objective of this survey is to estimate the average amount spent on litter collection at Historical Sites.

### **Historical Sites Methodology**

Of the surveys sent to each of the 10 state historic sites, 7 surveys (70 percent) were returned, plus one national historic site was included in this section. As each of the surveys was returned, its data were input into an Access database. Once returned surveys stopped arriving, the completed file was converted to Excel for analysis.

Analysis was completed on the litter control program information. The average monetary value of the litter programs from the survey's program section for each historic site was calculated by adding the number of staff hours per week for collection multiplied by the hourly wage to the number of volunteer hours per week multiplied by the minimum wage. Before these were added, each was divided by the bases (number of visitors to the site) and was multiplied by 52 weeks. The sum of the dollar amounts reported by the Historical Site respondents was divided by the total number of visitors represented by the survey respondents to get a per capita average for the entire sector.

Only two of the respondents included budget spent amounts in the survey's annual budget section in this report. With so few results in this section, it was decided that this section would not be included in the analysis.

### Historical Sites Results and Observations

The results for the state historical sites litter programs are shown in Table 1-8. Because of the small number of sites, all data points from respondents were included in this analysis. None of the sites responded that they currently have a litter prevention program.

The average dollars estimated on litter per visitor per year is \$0.34. Of this amount, less than 1 percent is for collection of litter using volunteers. The remaining 99 percent is for the staff time collecting litter. The sizes of these sites vary greatly—one has no grounds at all, while one includes trails. For the sites with grounds, dog excrement was mentioned as a problem by two of the respondents.

**Table 1-8**

**Amount Spent on Litter Collection Programs  
in Iowa's Historical Sites**

	Program Average (\$/visitor/yr)		
	Staff	Volunteer	Total
Historical Sites*	\$0.34 99.2%	\$0.003 0.8%	\$0.34

\* The sizes of these sites vary greatly. Some are only buildings and do not include the exterior grounds.

## IOWA STATE FAIRGROUNDS

The state fairgrounds in Iowa was surveyed to estimate the time and money spent on litter prevention and collection on its grounds. A survey was sent to the state fairgrounds manager in Des Moines. The survey was completed and returned.

### Iowa State Fairgrounds Objective

The objective of this survey is to estimate the average amount spent on litter prevention and collection on the Iowa state fairgrounds.

### Iowa State Fairgrounds Methodology

The one survey sent to the office of the state fairgrounds was returned completed. Its data was input into an Access database and then converted to Excel for analysis.

Analysis was performed on the litter control program information only. The monetary value of the litter program from the survey's program section was calculated by multiplying the number of staff hours per week for prevention and collection by the hourly wage. No volunteer hours were reported on the survey. The total was multiplied by 52 weeks as the respondent commented that the grounds are cleaned year round, then was divided by the bases. The amount spent on litter collection at the state fairgrounds was considered on three bases—per visitor, per county population and per state population.

### Iowa State Fairgrounds Results and Observations

The results for the state fairgrounds litter programs are shown in Table 1-9. The average dollars estimated on litter per visitor per year is less than one cent (\$0.005). The respondent included no volunteer time, only staff time, for which the prevention was incorporated into the collection time. The fairgrounds are in Polk county and so an average was taken on a county population basis; the average cost estimated for litter per person per year is \$0.02. If a state population basis is used, the average cost estimated for litter per person per year is \$0.003.

Table 1-9

#### Amount Spent on Litter Prevention and Collection Programs at Iowa's State Fairgrounds

	Program Average		
	per visitor (\$/visitor/yr)	per county (\$/county resident/yr)	per state (\$/county resident/yr)
State Fairgrounds	\$0.0046	\$0.024	\$0.0031

## STATE PARKS

The state parks in Iowa were surveyed to estimate the time and money spent on litter prevention, collection and enforcement in the parks. A survey was sent to the administrator of the state parks to complete for all state parks. The survey was completed for the 54 staffed state parks. The unmanned parks were not included in this survey. Because of cuts in the state park budget, the state parks will endure reduced mowing and maintenance this year. Also, money will be saved by not hiring summer employees. The administrator of the state parks hopes that volunteer groups and individuals will step up to help with the mowing and litter control. The state parks in Iowa have a carry in-carry out policy.

### State Parks Objective

The objective of this survey is to estimate the average amount spent on litter collection and enforcement in state parks in Iowa.

### State Parks Methodology

The one survey sent to the administrator of the state parks in Iowa was returned completed for the 54 manned state parks. Its data was input into an Access database and then converted to Excel for analysis.

Analysis was completed on the litter control program information. The average monetary value of the litter programs from the survey's program section was calculated from the number of staff hours per week for collection and enforcement multiplied by the hourly wage and 52 weeks. The volunteer dollar amount was calculated by using the amount of money that the state parks will save by not hiring summer employees and replacing them with volunteers. To make the volunteer cost consistent with the other surveys, this amount was divided by the summer employee wage and multiplied by the minimum wage. These amounts for staff and volunteers were added and divided by the bases (number of visitors to the parks or the state population). The hourly wages of staff were estimated from a range provided by the respondent.

### State Parks Results and Observations

The results for the state parks litter programs are shown in Table 1-10. The average cost estimated for litter per visitor per year is \$0.07. If the average is taken on a state population basis, the cost estimated for litter per person is \$0.34. Volunteer time comprises almost 22 percent of this amount, while staff time makes up the remaining 78 percent. Volunteer time, although not an actual expense, was valued at the minimum wage. Of the total amount, 16 percent is used for enforcement of the litter laws, with 84 percent used for collection of the litter itself.

Table 1-10

**Amount Spent on Litter Collection and Enforcement Programs  
in Iowa's State Parks**

	Program Average		Percent of average	
	visitor basis (\$/visitor/ year)	state pop. basis (\$/state resident/year)		
State Parks	\$0.07	\$0.34	78.3%	21.7%

## STATE FORESTS

The state forests in Iowa were surveyed to estimate the time and money spent on litter prevention, collection and enforcement at their sites. A survey was sent to the State Forest Bureau, where a contact collected the information for the 4 manned state forests in Iowa. There are also 6 unmanned satellite state forests, which were included in the data provided.

### State Forests Objective

The objective of this survey is to estimate the average amount spent on litter prevention, collection and enforcement at state forests.

### State Forests Methodology

Of the surveys sent to the State Forest Bureau, all 4 surveys (100 percent) were returned. When the surveys were returned, their data were input into an Access database. The completed file was converted to Excel for analysis.

Analysis was completed on the litter control program information. The average monetary value of the litter programs from the survey's program section for each state forest was calculated by adding the number of staff hours per week for collection multiplied by the hourly wage to the number of volunteer hours per week multiplied by the minimum wage. Before these were added, each was divided by the bases (number of visitors to the site and the county populations where the forests are located) and was multiplied by 52 weeks. The sum of the dollar amounts reported by the State Forest Bureau respondents was divided by the total number of visitors and county population represented by the survey respondents to get a per capita average for the entire sector.

None of the respondents included data in the survey's annual budget section in this report. This section is not included in the analysis.

## State Forests Results and Observations

The results for the state forests litter programs are shown in Table 1-11. Because of the small number of sites, all data points from respondents were included in this analysis. None of the sites responded that they currently have a litter prevention program.

The average cost estimated for litter per visitor per year is \$0.08. Of this amount, less than 8 percent is for collection of litter using volunteers. Volunteer time, although not an actual expense, was valued at the minimum wage. The remaining 92 percent is for preventing and collecting litter and enforcing litter laws by state staff. When based on the county populations for each forest, the average cost estimated for litter per person per year is \$0.05.

Only one of the state forests included staff time for prevention and enforcement and volunteer time; the other three only included staff time for collection of litter. One state forest employee commented that litter was not a big problem in their forest.

## STATE WILDLIFE UNITS

The state wildlife units in Iowa were surveyed to estimate the time and money spent on litter prevention, collection and enforcement at their sites. A survey was sent to the 21 wildlife units in Iowa, of which 15 were returned. Each wildlife unit is staffed by a wildlife biologist and several technicians. Besides managing the public lands in their wildlife units, these biologists also assist with habitat improvement projects and provide information about wildlife populations.

**Table 1-11**

**Amount Spent on Litter Prevention/Collection/Enforcement Programs  
in Iowa's State Forests**

	Program Average	
	per visitor (\$/visitor/ year)	per county (\$/county resident/year)
Loess Hills State Forest	\$0.04	\$0.02
Stephens State Forest	\$0.11	\$0.03
Shimek State Forest	\$0.12	\$0.04
Yellow River State Forest	\$0.06	\$0.13
Average program dollars spent	\$0.08	\$0.05

Note: There are also 6 unmanned satellite state forests, which are included in these results.

## State Wildlife Units Objective

The objective of this survey is to estimate the average amount spent on litter prevention, collection and enforcement on state public lands.

## State Wildlife Units Methodology

Of the surveys sent to each of the 21 state wildlife units, 15 surveys (71 percent) were returned. However, only 12 of these were used in the average. Three survey respondents did not provide enough information to be included. As each of the surveys was returned, its data were input into an Access database. Once returned surveys stopped arriving, the completed file was converted to Excel for analysis.

Analysis was completed on the litter control program information. The average monetary value of the litter programs from the survey's program section for each wildlife unit was calculated by adding the number of staff hours per week for collection multiplied by the hourly wage to the number of volunteer hours per week multiplied by the minimum wage. Before these were added, each was divided by the basis (population of the counties where the unit is located) and was multiplied by 52 weeks. The sum of the dollar amounts reported by State Wildlife Unit respondents was divided by the total county population represented by the survey respondents to get a per capita average for the entire sector. One unit responded that it contracted out litter collection and included the dollar amount per year to this contractor. This amount was taken into account in the results.

## State Wildlife Units Results and Observations

The results for the state wildlife units litter programs are shown in Table 1-12. Of the 21 surveys sent out, 12 (57 percent) were used to calculate the average shown. One of the units responded that they currently have a litter prevention program.

The average cost estimated for litter per person per year is \$0.028. Of this amount, more than 4 percent is for collection of litter using volunteers. Volunteer time, although not an actual expense, was valued at the minimum wage. The remaining 96 percent is for the staff time collecting litter. This includes the contractor used by one of the units.

Of the 12 units included in the results, 4 of them included time for prevention of litter, while only 1 unit included time for the enforcement of the litter laws. Some of the respondents commented that they do not handle enforcement issues. Two of the respondents who included prevention costs commented that this was for printing special signs, such as "no dumping."

Table 1-12

**Amount Spent on Litter Prevention/Collection/Enforcement Programs  
in Iowa's State Wildlife Units**

	Program Average (\$/county resident/yr)		
	Staff	Volunteer	Total
State Wildlife Units	\$0.026 95.6%	\$0.001 4.4%	\$0.028

## NATIONAL GUARD ARMORIES

The National Guard armories in Iowa were surveyed to estimate the time and money spent on litter collection at the armories and at the Camp Dodge Training Site. A survey was sent to a contact at the Army National Guard to complete for all armories and the training site. The survey was completed for the 47 armories and 1 training site in Iowa. The respondent estimated that each armory has 500 visitors per year, while the camp had 108,300 civilian visitors in 2000.

### National Guard Armories Objective

The objective of this survey is to estimate the average amount spent on litter collection and enforcement from public use at National Guard armories in Iowa.

### National Guard Armories Methodology

The one survey sent to the contact at the Army National Guard in Iowa was returned completed for the 47 National Guard armories as well as the one training camp. Its data was input into an Access database and then converted to Excel for analysis.

Analysis was completed on the litter control program information. The average monetary value of the litter programs was calculated from the number of staff hours per week for collection multiplied by the hourly wage and 52 weeks. No volunteers are used by the National Guard for litter collection. The dollar amount for staff was divided by the bases (number of visitors to the armories and camp or the population of the counties where the armories or camp is located), and an average was taken of the armories and camp.

### National Guard Armories Results and Observations

The results for the Army National Guard armories litter programs are shown in Table 1-13. The average cost estimated for litter per visitor per year is \$2.34. If the average is taken on a county population basis, the cost estimated for litter per person is almost \$0.06. These results include only staff time for collection of litter. No hours are spent on prevention or enforcement by the National Guard. None of the armories currently have a litter prevention program.

Table 1-13

**Amount Spent on Litter Collection Programs  
in Iowa's National Guard Armories and Camps**

	Program Average	
	visitor basis (\$/visitor/year)	county basis (\$/county resident/year)
National Guard Armories and Camps	\$2.34	\$0.059

## **IOWA DEPARTMENT OF TRANSPORTATION**

The Iowa Department of Transportation (IDOT) was surveyed to estimate the time and money spent on litter collection along the state and interstate highways. A survey was sent to a contact at IDOT to complete for all the highways in the state. The results for this entity include staff time, equipment costs and Adopt-a-Highway (AAH) volunteer time. Some estimates were made to calculate the costs of the Adopt-a-Highway volunteer time. Equipment costs include highway signs, orange vests for volunteers, collection bags and other miscellaneous equipment.

### **IDOT Objective**

The objective of this survey is to estimate the average amount spent on litter collection by the Department of Transportation in Iowa.

### **IDOT Methodology**

One survey was sent to the contact at the Iowa Department of Transportation. The IDOT contact sent data for their costs over the past ten years including staff and equipment costs. The contact also furnished the approximate number of Adopt-a-Highway groups (2,400) for the year 2000. Franklin Associates assumed each group would contain 10 people collecting litter for 8 hours each year. These assumptions were reviewed by the contact and deemed acceptable.

The 2001 data for department costs per year for AAH litter removal and DOT litter removal (including overhead) were added for the total DOT staff and equipment costs. The number of AAH groups were multiplied by the number of members in each group and the number of hours supplied per year. This total of volunteer hours per year was then multiplied by the minimum wage to result in a total AAH volunteer value per year. The sum of the dollar amounts reported by the IDOT respondent was divided by the total state population represented by the survey respondent to get a per capita average for the entire sector.

Table 1-14

**Amount Spent on Litter Collection Programs  
on Iowa's State and Interstate Highways**

	Program Average (\$/state resident/year)		
	IDOT Costs*	Volunteer time	Total Average
Highways	\$0.29 46.3%	\$0.34 53.7%	\$0.63

\* These costs include field staff time, transport, bags, signs, vests and other equipment.

### **IDOT Results and Observations**

The results for the Iowa Department of Transportation litter program are shown in Table 1-14. The average cost estimated for litter per visitor per year is \$0.63. Almost 54% of this dollar amount is allocated to the AAH volunteer time. Volunteer time, although not an actual expense, was valued at the minimum wage. The remaining 46% is allocated to IDOT staff time and equipment.

When using these results, consideration should be taken into account for the assumptions made for the AAH program. A sensitivity analysis was completed on the number of volunteer groups assumed as well as the number of volunteers per group and their affect on the results. The IDOT contact stated that, in recent years, the AAH groups had been between 1,800 and 2,000 in number. Using 2,000 groups instead of the 2,400 used in this analysis changes the results from \$0.63 to \$0.57 per person per year. A decrease of 9 percent. On a statewide population basis, \$0.63 per person per year equals \$1,842,700 versus \$1,668,00 at \$0.57 per person per year. The analysis shown in Table 1-14 assumed ten volunteers per group; it is unknown what an actual average number of volunteers is per group. Variation of this assumption will impact the average cost. If a lower number of volunteers is assumed for each group, for example 5, the resulting amount decreases by 22% (\$0.50 per person per year or \$1,463,200 statewide per year). If a higher number of volunteers is assumed for each group, for example 15, the resulting amount increases by 38% (\$0.93 per person per year or \$2,721,500 statewide per year).

### **IOWA HIGHWAY PATROL**

The Iowa Highway Patrol was surveyed to estimate the time and money spent on litter prevention and enforcement along the state and interstate highways. The information for this entity was collected through a phone conversation with the contact at the highway patrol. The results for this entity include staff time for litter education programs and enforcement of litter laws. Of the traffic safety education programs

conducted by the state patrol, 1 percent of the time was estimated to be information on litter prevention. In 2001, there were 68 litter convictions in Iowa. The contact estimated that there were double this amount of warnings issued about litter.

### Highway Patrol Objective

The objective of this survey is to estimate the average amount spent on litter prevention and enforcement by the Highway Patrol in Iowa.

### Highway Patrol Methodology

All information collected from the Highway Patrol contact was accumulated during a phone conversation. The calculations for the dollar amount per year required for litter prevention were performed by the Highway Patrol contact. The calculations for the dollar amount per year required for litter laws enforcement were performed by Franklin Associates, Ltd.

The dollar amount per year for litter prevention was divided by the state population resulting in a per person basis for Iowa. The contact provided an estimate of the number of enforcement stops made in 2001 as well as the cost per stop. These data were multiplied to find the dollar amount per year for litter enforcement, which was divided by the state population resulting in a per person basis for Iowa. These results were then added for an average dollar amount per person per year for the Iowa Highway Patrol litter program costs.

### Highway Patrol Results and Observations

The results for the Iowa Highway Patrol litter program are shown in Table 1-15. The average cost estimated for litter per person per year is \$0.026. Only 2.6 percent of this cost is allocated to the prevention of litter. The remaining 97 percent is allocated to the enforcement of the litter laws.

Table 1-15

**Amount Spent on Litter Prevention and Enforcement Programs  
by the Highway Patrol**

	Program Average (\$/state resident/year)		
	Prevention	Enforcement	Total Average
Highways	\$0.0007 2.6%	\$0.0256 97.4%	\$0.026

## NATIONAL FISH AND WILDLIFE REFUGES

The National Fish and Wildlife refuges in Iowa were surveyed to estimate the time and money spent on litter prevention, collection and enforcement on their lands. A survey was sent to the 5 national fish and wildlife refuges in Iowa, of which 3 were returned. The managers and staff of these refuges are in charge of prevention, collection and enforcement of litter programs. Of the three surveys returned, two were from small refuges (3,600 and 4,000 acres) and one was from a large refuge (90,000 acres).

### National Fish and Wildlife Refuges Objective

The objective of this survey is to estimate the average amount spent on litter prevention, collection and enforcement on National Fish and Wildlife Refuge lands.

### National Fish and Wildlife Refuges Methodology

Of the surveys sent to each of the 5 national fish and wildlife refuges, 3 surveys (60 percent) were returned. Only these three returned surveys were included in the averages. As each of the surveys was returned, its data were input into an Access database. Once returned surveys stopped arriving, the completed file was converted to Excel for analysis.

Analysis was completed on the litter control program information. The average monetary value of the litter programs from the survey's program section for each refuge was calculated by adding the number of staff hours per week for prevention, collection and enforcement multiplied by the hourly wage to the number of volunteer hours per week multiplied by the minimum wage. Before these were added, each was divided by the bases (number of visitors to the refuge) and the smaller refuges were multiplied by 34.7 weeks/yr (8 months), while the larger refuges reported their data pertained to all 52 weeks. The sum of the dollar amounts reported by the National Fish and Wildlife Refuges' respondents was divided by the total number of visitors represented by the survey respondents to get a per capita average for the entire sector.

Only one of the respondents included spent dollar amounts in the survey's annual budget section in this report. With so few results in this section, it was decided that this section would not be included in the analysis.

### National Fish and Wildlife Refuges Results and Observations

The results for the national fish and wildlife refuges litter programs are shown in Table 1-16. Because of the small number of refuges, all data points from respondents were included in this analysis. Only the large refuge responded that they currently have a litter prevention program.

Table 1-16

**Amount Spent on Litter Prevention/Collection/Enforcement  
Programs in Iowa's National Fish and Wildlife Refuges**

	Program Average <u>(\$/visitor/year)</u>
Desoto NWR	\$0.024
Upper Mississippi River NW&FR	\$0.057
Union Slough NWR	\$0.054
Average program dollars spent	\$0.045

Note: Surveys were also sent to Mark Twain NWR/Wapello District and Walnut Creek NWR with no response.

The average cost estimated for litter per visitor per year is \$0.045. The large refuge commented that there are thousands of acres that are strewn with litter that they don't have the money or manpower to clean.

## **NATIONAL PARKS**

The National parks in Iowa were surveyed to estimate the time and money spent on litter collection and enforcement on their lands. A survey was sent to Effigy Mounds National Park. The Herbert Hoover National Historic Site was surveyed with the historic sites.

### **National Parks Objective**

The objective of this survey is to estimate the average amount spent on litter collection and enforcement on National Park lands in Iowa.

### **National Parks Methodology**

The data provided by Effigy Mounds National Park were input into an Access database. The Access file was converted to Excel for analysis.

Analysis was performed on the litter control program information only as the annual budget information was not completed. The monetary value of the litter programs from the survey's program section was calculated by adding the number of staff hours per week for collection and enforcement multiplied by the hourly wage to the number of volunteer hours per week multiplied by the minimum wage. No hours were reported for

litter prevention. These costs were divided by the basis (number of visitors to the park) and multiplied by 52 weeks.

### National Parks Results and Observations

The results for the national parks litter programs are shown in Table 1-17. The only national park in Iowa is Effigy Mounds. Effigy Mounds responded that they do not have a litter prevention program.

The average cost estimated for litter per visitor per year is \$0.95. The volunteer time only accounts for 1.4 percent of this amount. Volunteer time, although not an actual expense, was valued at the minimum wage. The staff time utilized for collection accounts for 68 percent of the \$0.95, while the staff time utilized for enforcement accounts for 30 percent of the average dollars per visitor per year.

### CORPS OF ENGINEERS

The Corps of Engineers were surveyed to estimate the time and money spent on litter prevention, collection and enforcement on the recreational facilities in Iowa. These facilities include lakes, reservoirs, dams and other recreational areas. A survey was sent to the 3 Corps of Engineer districts that control the Iowa recreational areas, of which 2 were returned. Both of these surveys noted that contractors are paid to collect litter in these areas.

### Corps of Engineers Objective

The objective of this survey is to estimate the average amount spent on litter prevention, collection and enforcement on recreational facilities overseen by the Corps of Engineers.

**Table 1-17**

**Amount Spent on Litter Collection and Enforcement Programs  
in Iowa's National Parks**

	Program Average (\$/visitor/yr)		
	Staff	Volunteer	Total
Effigy Mounds	\$0.94 98.6%	\$0.013 1.4%	\$0.95

## Corps of Engineers Methodology

Of the surveys sent to each of the 3 Corps of Engineers districts, 2 surveys (67 percent) were returned. Only these two returned surveys were included in the averages. As each of the surveys was returned, its data were input into an Access database. Once returned surveys stopped arriving, the completed file was converted to Excel for analysis.

Analysis was completed on the litter control program information, as well as the litter collection section of the annual budget information. This is due to the fact that the Corps of Engineers contracts out the litter collection of the lands in their jurisdiction. The average monetary value of the litter programs from the survey's program section for each recreational facility was calculated by adding the number of staff hours per week for prevention and enforcement multiplied by the hourly wage to the number of volunteer hours per week multiplied by the minimum wage. Before these were added, each was divided by the basis (number of visitors to the recreational facility) and multiplied by 52 weeks. The contractor dollars spent was calculated by dividing the spent amount by the number of visitors. These amounts were then summed to arrive at the total dollars spent per visitor per year.

One of the respondents included budget spent amounts in the survey's annual budget section. With so few results in this section, it was decided that this section would not be included in the analysis with the exception of the contractor amount.

## Corps of Engineers Results and Observations

The results for the recreational facilities litter programs maintained by the Corps of Engineers are shown in Table 1-18. Because of the small number of districts, all data points from respondents were included in this analysis.

**Table 1-18**

**Amount Spent on Litter Prevention/Collection/Enforcement Programs  
at Corps of Engineers Recreational Facilities**

	Program Average (\$/visitor/year)			Total Average
	Staff	Volunteer	Contractor \$ spent*	
Recreational Facilities	\$0.0021 5.8%	\$0.0009 2.5%	\$0.033 91.7%	\$0.036

\* Most of the litter collection for these areas is done by contractors.

The average cost estimated for litter per visitor per year is \$0.036. Of this average, almost 92 percent is contracted out for litter collection. Volunteer time comprises only a little more than 2 percent, while the staff time (prevention and enforcement) requires almost 6 percent of the dollars.

One respondent commented that when the bottle/can law passed, there was a tremendous decline in the amount of litter found at the recreation facilities.

## **STATEWIDE ESTIMATED COST OF LITTER**

Table 1-19 displays the statewide cost estimates for each of the entities surveyed. The statewide estimated cost was based on the sum of individual factors (average per capita litter program costs developed from the returned surveys) multiplied by the relevant population.

The total annual estimated cost of litter in the State of Iowa was \$13.5 million. Of this, almost \$13.2 million (over 97%) was spent on litter at state facilities (including school districts, cities, counties, and various state entities), while \$326,000 was spent on litter at national facilities (national fish and wildlife refuges, national parks, and corps of engineers). The annual cost estimates from school districts comprises a quarter of the statewide cost estimates. Other entities that comprise more than 10 percent include cities with populations between 1,000 and 10,000, cities with populations over 10,000, counties, and the Iowa Department of Transportation.

Table 1-19

## Summary of Statewide Cost Estimates for all Entities Surveyed

Entity Name	Estimated Annual Costs
School Districts	\$3,336,000
Cities	
Population under 1,000	\$370,400
Population between 1,000 & 10,000	\$1,282,700
Population over 10,000	\$2,117,900
Counties	\$2,194,700
Solid Waste Planning Area Roads, Ditches, and Fence Lines	\$321,900
Universities	\$295,700
State Conservation Officers	\$24,000
State Historical Society	\$65,900
Iowa State Fair	\$9,100
State Parks and Preserves	\$1,001,400
State Forests	\$8,400
Wildlife Bureau Division	\$80,500
National Guard Armories	\$124,000
Iowa Department of Transportation	\$1,842,700
Iowa Highway Patrol	\$76,900
Corps of Engineers	\$171,700
National Fish and Wildlife Refuges	\$78,800
National Parks	\$76,000
State Total	<b>\$13,478,700</b>

Source: Franklin Associates, Ltd.

## CHAPTER 2

### REGULATORY REVIEW OF LITTER/ILLEGAL DUMPING IN SEVEN STATES

#### INTRODUCTION

As a part of the assessment of existing litter control and beautification efforts for Keep Iowa Beautiful, a review was done of the litter and illegal dumping regulations within the following states: Iowa, Missouri, Nebraska, South Dakota, Minnesota, Wisconsin and Illinois. This review was done to compare the following details for each of the seven states.

- Are regulations in place?
- Who is responsible for enforcement?
- What are the penalties?
- Who is responsible for collection?
- Who is responsible for education?
- What are the funding mechanisms?

#### OBJECTIVE

This information will be used by Keep Iowa Beautiful to fulfill their mission to empower individuals with the information necessary to take greater responsibility for enhancing their community's environment. The information will also be useful to state policy and decision makers in Iowa.

**Table 2-1**  
**Agencies Contacted for each State**

<b>State</b>	<b>Agencies contacted</b>
Iowa	DOT and DNR
Missouri	DNR
Nebraska	DEQ and Department of Roads
South Dakota	DOT and DENR (Waste Management Program)
Minnesota	Pollution Control Agency of DNR
Wisconsin	DOT, DNR, and Parks and Recreation
Illinois	DOT (adopt-a highway) and Land Management and Education agency of DNR

## METHODOLOGY

The information for this report was collected using relevant state agency Internet sites, as well as telephone discussions with employees of those state agencies. First, an Internet search was done of each state's laws/regulations and the agencies involved. Table 2-1 presents the agencies contacted for each state. Pertinent information was taken from the laws and placed in the regulatory review matrix shown in Table 2-2. Telephone discussions with state agency staff were used to fill in data gaps.

## RESULTS

Table 2-2 exhibits the regulatory review matrix for the seven states. This matrix answers the six questions listed previously. Similarities and differences among the states are discussed in this section.

All of the seven states have at least one regulation against littering/dumping. Minnesota, Wisconsin and Illinois include litter and illegal dumping in the same regulations. Iowa, Missouri, Nebraska and South Dakota have separate regulations for illegal dumping.

For the most part, enforcement responsibilities of these regulations are the same in all seven states. The state patrol enforces for the state highways. The water patrol enforces for the public waterways. The park rangers enforce for the state parks. Local authorities implement the regulations on public lands in municipalities. However, there are exceptions. In Minnesota, Solid Waste Officers and Inspectors are able to enforce these regulations locally. The Missouri DNR sponsors a Local Environmental Enforcement Program (LEEP) for counties to handle illegal dumping and excessive litter. In this case, a county panel decides who is in charge of enforcement.

Littering is considered a misdemeanor in all seven of the states in this study. The penalty varies depending on the state ranging from no actual penalty at all to a maximum of one year in jail and/or a \$1,000 fine. Gathering litter is also a possible punishment for littering in Iowa, Minnesota, South Dakota and Illinois. Civil penalties are also possible in Minnesota and South Dakota.

Illegal dumping is considered a misdemeanor in most of the seven states. However, in South Dakota, dumping more than 2,000 pounds is considered a class 6 felony with a possible civil penalty of up to \$10,000 per day of violation. This type of penalty is also enforced by Iowa (\$5,000 per day of violation) and Missouri (\$1,000 per day of violation).

**Table 2-2  
REGULATORY REVIEW MATRIX**

	<b>Iowa</b>	<b>Minnesota</b>	<b>Missouri</b>	<b>Nebraska</b>
<b>Existence of litter and/or illegal dumping regulations</b>	Iowa Code Sections 455B.307 dumping, 455B.307A littering, 455B.361-364 debris, and 350.12 County Beautification Program	MN statute 115A.99 - Litter penalties and damages	MO general statute for littering is 577.070 (goes through local courts) DNR 260.210 for illegal dumping - civil case	Nebraska Laws sections 39-310 & 311 sections 81-1523, 1524, and 1525
<b>Who is responsible for enforcement?</b>	DNR field officers for dumping & litter on state lands; local authority for their land. State patrol (DOT) for litter along highways.	Litter - DOT along highways, conservation officers in state parks & campgrounds, local law, SW officer, SW inspector through the Pollution Control Agency.	Litter - state patrols and local authorities. MO now has Local Environmental Enforcement Program (LEEP) for counties to handle illegal dumping/excessive litter.	Litter - state patrols and local authorities. Dumping - state or county authorities.
<b>What are the Penalties?</b>	Litter - misdemeanor, along the highways, the penalty is \$35 plus court costs. For state lands, max penalty is \$500 fine and may have to gather litter. Dumping - max penalty is \$5,000 per day violation.	Litter - 1st offense - misdemeanor, 2nd - fine of \$400-\$700 & may have to pick up litter or jail time. DOT can bill for illegal dumping. Civil penalty of 2-5 times the cost of collection and disposal.	Litter - Class A misdemeanor - max up to 1 yr. jail or up to \$1,000 fine. Dumping - Fine of \$1,000/day of violation and/or cleanup of dump site.	Litter - misdemeanor class 1-3 depending on no. of offenses - max up to 1 yr. In jail and/or \$1,000 fine. Dumping - same as litter.
<b>Who is responsible for collection?</b>	Litter - Adopt-a-highway volunteers, county beautification program employees. Dumping - DNR or local authority.	Litter - volunteer groups & Sentence to Serve litter groups. Dumping - violator, state, or county.	Litter - Adopt-a-highway volunteers. Dumping - state/local authorities or state parks.	Litter - Adopt-a-highway volunteers, KNB affiliates. Dumping - state or county authorities.
<b>Who is responsible for education?</b>	DNR - starting a hot line (anonymous tips) and billboards.	DOT - radio, tv, posters, speakers, school messages. DNR also advertises.	DOT - promotes adopt-a-highway. DNR - promotes LEEP program.	Litter - KNB does newsletter/events/talks to schools. Dumping - DEQ sends flyers to localities where problems are.
<b>What are the funding mechanisms?</b>	DOT funds maintenance for litter along highways. Litter/Dumping - local governments or whoever is in charge of land (e.g. state parks).	Depending on who is in charge of land - DOT, DNR, state or local governments. DNR offers litter grants to counties that have programs to prevent, control, or abate litter.	DOT spends \$6 M annually on retrieving litter. Dumping - funds from dept that controls maintenance.	Litter - Litter Fee - mnfrs, wholesalers, retailers w/annual gross proceeds > \$100,000 pay it (\$175/\$1,000,000 gross proceeds of certain products). Dumping - litter reduction grant program - by DEQ.

Table 2-2 (continued)  
Regulatory Review Matrix

	South Dakota	Wisconsin	Illinois
<b>Existence of litter and/or illegal dumping regulations</b>	SDCL 34A-7 Littering prohibited SDCL 34A-6-1.4 unauthorized dumping SDCL 34A-6-87 Illegal dumping penalties	NR 45.04(3)(d) is for littering From Rules of the Road 346.94(5) &(7) from Wis Stats Database	Illinois statute 415 ILCS 105/ is known as the Litter Control Act and does include illegal dumping
<b>Who is responsible for enforcement?</b>	Litter & Dumping - State and local authorities and conservation officers	DOT responsible for state highways, County gov. for county roads & lands. Land & Forestry Dept. (park rangers) for DNR owned lands	Litter & Dumping- State patrols and local authorities and conservation officers
<b>What are the Penalties?</b>	Litter - class 2 misdemeanor and possibly a civil penalty+ (>5 lb) fine up to \$1,000 and litter patrol the area Dumping (10 lb to 2000 lb)- class 1 misdemeanor Dumping (>2000 lb)- class 6 felony possible civil penalty of up to \$10,000/day violation	Litter & Dumping: Fine maximum of \$209 DOT littering has a fine up to \$500	Litter & Dumping: 1st offense Class B misdemeanor, 2nd offense Class A misdemeanor, 3rd and on is Class 4 felony Penalty includes fine (\$75 Class A) and possibly litter pick-up.
<b>Who is responsible for collection?</b>	Litter - Adopt-a-highway volunteers, municipalities or state park maintenance, and convicted litter offenders Dumping - state, municipalities, park maintenance	Litter - Adopt-a-highway volunteers along hwy, county or state maintenance or park maintenance (for dumping as well)	Litter - Adopt-a-highway volunteers along state hwy's. DOT maintenance & Dept. of Corrections inmates along interstates. Local and conservation maintenance in local and state lands.
<b>Who is responsible for education?</b>	DOT(?) posted warning signs along highways and in parks	DNR(?) posted signs in areas where problems arise	DOT promotes adopt-a-highway Div of Education within Office of Land Management in DNR supplies signs, flyers, programs
<b>What are the funding mechanisms?</b>	Funds from DOT and the department or government that controls maintenance where the violation occurred	Funds from DOT (highway operations) and DNR	DOT funds for state/interstate roads. Local governments funds for local lands. State general revenue and state park fund for state lands

As for collection of litter, all seven states have an adopt-a-highway program in place. In fact, 49 of the 50 states have adopt-a-highway programs (Vermont being the only state without a program). State, county, park or local maintenance is usually responsible for cleanup of litter or illegal dumpsites on the public lands in their jurisdiction. Iowa, Minnesota, South Dakota and Illinois use gathering litter as a penalty for littering in some cases. In Illinois, the Department of Corrections uses inmates to collect litter along the interstates.

Most of the government funded public education consists of posted warning signs along highways and in parks and the adopt-a-highway program. No other education programs were found for South Dakota and Wisconsin. In Iowa, the DNR is starting a hot line for anonymous tips and beginning to put ads on billboards. In Missouri, the DNR promotes the LEEP program to counties so they may educate the public. The Minnesota DOT provides the greatest amount of education variety using advertisements as well as speakers for groups and schools. Most of the education responsibilities in Nebraska fall to Keep Nebraska Beautiful (KNB).

The collection and disposal of litter and illegally dumped garbage are mostly funded by whichever department is in charge of maintaining the violated public lands. For example, the DOT funds the collection and disposal along state highways, while the state funds are used for state parks cleanup. In Minnesota, the DNR offers litter grants to counties that have programs to prevent, control or abate litter. Nebraska is the only state of the seven that has a litter fee. Manufacturers, wholesalers and retailers with annual gross proceeds greater than \$100,000 pay this fee. Each of these businesses pays \$175 per \$1,000,000 annual gross proceeds of certain products that are commonly found as litter, such as tobacco products, beverages and glass metal or plastic containers. Nebraska DEQ distributes the funds collected through the litter reduction and recycling grant program.

**APPENDIX**  
**SAMPLE SURVEY INSTRUMENT**



Gerald F. Schnepf,  
Executive Director

521 East Locust  
Des Moines, IA 50308  
Telephone 515-323-8507

February 19, 2002

Dear Survey Respondent:

**Subject: Iowa Statewide Litter Survey – Wildlife Bureau Division**

Keep Iowa Beautiful (KIB) is the state affiliate of Keep America Beautiful (KAB), the national nonprofit organization charged with empowering individuals with the information, skills, and programs necessary to take greater responsibility for enhancing their community environment. KIB has partnered with Iowa Department of Transportation, Iowa Department of Natural Resources, Iowa Society of Solid Waste Operators, landfill planning regions, and the private sector on a comprehensive effort to better understand and positively impact the litter situation in Iowa. The statewide survey results will provide information necessary to design and deliver to communities:

- An effective public education and awareness campaign
- An educational program for schools
- Other anti-litter projects
- Background research, information, and supporting documentation useful to state policy and decision makers.

In order to determine the fiscal impact of litter across Iowa we are gathering information on the annual cost of litter control and abatement efforts across Iowa. KIB has contracted with Franklin Associates, Ltd. of Prairie Village, Kansas, to perform a background survey of the public sector. Franklin Associates has prepared the attached survey and is asking each Wildlife Bureau Management Unit in Iowa to complete one survey for his/her facility. I am asking for your support in helping to Keep Iowa Beautiful starting with the completion and return of this survey.

We realize this information may not be readily available and your best estimate would be appreciated. The information you provide will assist with the setting of benchmark levels vital to developing sound estimates of current litter control costs in Iowa. This information coupled with other data will allow for the extrapolation of cost estimates for the entire state.

We urge you to complete the survey and to call Shelly Schneider at Franklin Associates (913-640-2225) ext. 224 or myself if you have questions or concerns. Please complete the survey form by March 5<sup>th</sup> and return it in the envelope provided. Thank you for your assistance.

Sincerely,

A handwritten signature in cursive script that reads "Gerald F. Schnepf".

Gerald F. Schnepf, Executive Director  
Keep Iowa Beautiful

Attachment

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OVER

**What is Litter?**

Litter is not just plastic cups or paper napkins, it comprises these items and other trash not in its proper place.

- Bottles
- Cans
- Rubber
- Cloth
- Metal
- Plastics
- Paper Products
- Illegal Dumping

**Who is Being Surveyed?**

- City and County Governments in Iowa
- Public Landfills
- School Districts
- Federal Public Facilities (Corp of Engineers Reservoirs, National Park Service, Fish and Wildlife Refuges)
- State Public Facilities (Fair Board, Historical Society, DNR, IDOT, Highway Patrol)
- Reagent Schools
- Public Facilities (County Fair Board, Conservation Officers, Arenas)

**What are Examples of Litter Costs?**

- Picking Up Litter
- Cleaning Up Illegal Dumping
- Picking Up or Dealing With Abandoned Vehicles/Trash
- Operational/Administrative Costs of Dealing With Litter, Illegal Dumping, Abandoned Vehicles, Etc.
- Law Enforcement Pertaining to Litter

**What are NOT Considered Litter Costs?**

- Routine Refuse and Solid Waste Collection
- Painting
- Mowing
- General Maintenance (i.e. Repair/Maintain Buildings, Wet Mop, Vacuuming)
- Spill Clean-up
- Hazardous Waste Removal
- Vegetation Control (Weed Cutting/Burning)

IOWA LITTER SURVEY			
<b>General Instructions</b>			
In order to develop an estimate of costs associated with litter control and beautification efforts for Iowa, Franklin Associates, Ltd. is gathering information on the litter collection costs your facility has expended for the 2000 calendar year. Please complete the survey to the best of your ability and as accurately as possible. Supplemental information is welcome. This data will be made public in a report to Keep Iowa Beautiful. Please return one survey which reflects all the land within your Wildlife Bureau Management Unit. If you have any questions regarding this survey, please call Shelly Schneider (Franklin Associates) 913-649-2225 Ext. 224 (Fax: 913-649-6494). Please return the completed survey by March 5, 2002.			
<b>Wildlife Bureau Litter Collection Program Information</b>			
Unit Manager	<input type="text"/>	County(ies)	<input type="text"/>
Unit Name	<input type="text"/>	Phone	<input type="text"/>
Address	<input type="text"/>		
City	<input type="text"/>	State	<input type="text"/>
		Zip	<input type="text"/>
Acres of Wildlife Bureau Land	<input type="text"/>		
Number of 2000 Visitors	<input type="text"/>		
Number of 2000 Litter Collection Events	<input type="text"/>		
Number of Staff Assigned to Litter Prevention/Collection/Enforcement Efforts	<input type="text"/>		
Do you currently have an anti-litter program? (Speakers/Posters/KIB Affiliation)	Yes <input type="checkbox"/>	No	<input type="checkbox"/>
<b>Litter Responsibilities for Your Facility:</b>	<b>Prevention</b>	<b>Collection</b>	<b>Enforcement</b>
Number of Staff Hours Assigned on Wildlife Bureau Land - Hrs/Yr	<input type="text"/>	<input type="text"/>	<input type="text"/>
Hrly Rate	<input type="text"/>	<input type="text"/>	<input type="text"/>
Number of Volunteer Hrs Assigned on Wildlife Bureau Land - Hrs/Yr	<input type="text"/>	<input type="text"/>	<input type="text"/>
<b>Wildlife Bureau Litter Collection Budget Information</b>			
	<b>Dollars Budgeted</b>	<b>Dollars Spent</b>	<b>Dollars Needed</b>
Litter Collection	<input type="text"/>	<input type="text"/>	<input type="text"/>
Litter Prevention	<input type="text"/>	<input type="text"/>	<input type="text"/>
Litter Enforcement	<input type="text"/>	<input type="text"/>	<input type="text"/>
Special Expenses Related to Litter Control or Prevention - Please describe	<input type="text"/>	<input type="text"/>	<input type="text"/>
<b>Comments</b>			
<input type="text"/>			

2/19/2002