Engineering Study for Reducing Sign Vandalism

Final Report
Highway Research Advisory Board
Project HR - 246

June, 1992

Highway Division
Iowa Department of Transportation

TECHNICAL REPORT TITLE PAGE

1. REPORT NO.	2. REPORT DATE
HR-246	June 1992
3. TITLE AND SUBTITLE	**4. TYPE OF REPORT & PERIOD COVERED**
Engineering Study for Reducing Sign Vandalism	Final Report, 6-82 to 6-92
5. AUTHOR(S)	**6. PERFORMING ORGANIZATION ADDRESS**
Gary Harris Secondary Rd Research Coordinator	Iowa Department of Transportation Materials Department 800 Lincoln Way Ames, Iowa 50010

7. ACKNOWLEDGEMENT OF COOPERATING ORGANIZATIONS

Iowa State University
Cherokee County
Franklin County
Jackson County
Lucas County
Pottawattamie County

8. ABSTRACT

Sign vandalism has traditionally been a vexing problem for Iowa counties. The extent of the cost and incidence of these acts have never been fully ascertained, but a 1990 survey indicated that they cost Iowa counties more than 1.5 million dollars annually. In 1990, the Iowa Legislature recognized the seriousness of the problem and strengthened the existing sign vandalism law by increasing the penalty for illegal possession of a traffic control device from a simple to a serious misdemeanor. However, the courts must be willing to prosecute vandals to the magnitude provided in the Iowa Code. An educational campaign begun in 1987 involving over 200 Iowa school districts to educate students on the seriousness of the problem evidently did not have the effect of dramatically reducing the overall cost of sign vandalism in Iowa. This study sought to define the scope of the problem and possibly offer some effective countermeasures to combat sign vandalism and theft in Iowa.

9. KEY WORDS	10. NO. OF PAGES
Vandalism, sign maintenance	31

Final Report
Highway Research Advisory Board
Project HR-246

Engineering Study to Reduce Sign Vandalism

By

Gary Harris
Secondary Road Research Coordinator
515-239-1382
Iowa Department of Transportation
Office of Materials
Highway Division
Ames, Iowa

June 1992

TABLE OF CONTENTS

DISCLAIMER

ACKNOWLEDGEMENT

Engineering study HR-246 was sponsored by the Highway Research Advisory Board and the Iowa Department of Transportation. The actual funding used for this project was from the Secondary Road Research Fund in the amount of $27,593.

I appreciate the efforts of each of the counties who provided detailed data without which this study could not have been done. Special thanks also go to Vernon Marks, Kathy Davis and Steve Juhlin of the Iowa DOT for their assistance in preparing this report.

INTRODUCTION

The vandalism of road signs in Iowa has been a problem, especially on lower volume roads. Highway signs are shot at, run over, painted and removed. The latest cost to Iowa counties for sign vandalism is estimated at over $1.5 million per year. Another concern is the potential for an accident between the time a sign is destroyed and the time it is replaced.

Wisconsin began an information and education campaign in 1975 to reduce sign vandalism after a rash of related acts. The Wisconsin Legislature passed stricter sign vandalism laws in 1976 that aided the campaign efforts. The effect of the campaign was a 57 percent reduction in sign vandalism. This resulted in a savings to the taxpayers of about $240,000 in a single year.

At the urging of several Iowa counties, a campaign fashioned after Wisconsin's was begun in 1982. This is a ten-year final report of this engineering study.

OBJECTIVE

The objective of this study was to reduce the rate and cost of sign vandalism in Iowa.

PROCEDURE

This study was comprised of four major phases:

1. Seeking changes in Iowa's sign vandalism law.

2. Developing a public awareness campaign directed at grade school and high school students.

3. Developing an information campaign to make the public aware of the dangers and expense of sign vandalism.

4. Collect data from five Iowa counties on sign vandalism incidents.

There have been efforts for many years to stiffen the state's vandalism law. The old law provided a penalty of imprisonment not to exceed 6 months and/or a fine of not more than $500. The 1991 Iowa General Assembly acknowledged the need for stricter sign vandalism laws and amended Section 321.260 of the Iowa Code. They essentially upgraded the unlawful possession of a traffic control device from a simple misdemeanor to a serious misdemeanor carrying a maximum $1000 penalty and/or a year in jail. This put the penalty for possession of a sign on par with the actual act of vandalism. The amended code reads as follows:

> 321.260 Interference With Devices, Signs, or Signals - Unlawful Possession. 1.a. A person who willfully and intentionally, without lawful authority, attempts to or in fact alters, defaces, injures, knocks down or removes an official traffic control device, an authorized warning sign or signal or barricade, whether temporary or permanent, a railroad sign or signal, an inscription, shield or insignia on any of such devices, signs, signals or barricades, or any other part thereof, shall upon conviction, be guilty of a serious misdemeanor and shall be required to make restitution to the affected jurisdiction.
>
> b. A person who is convicted under paragraph "a" of an act relating to a stop sign or a yield sign may be required to complete community service in addition to making restitution to the affected jurisdiction.
>
> 2. It shall be unlawful for any person to have in the person's possession any official traffic control device except by legal right or authority. Any person convicted of unauthorized possession of any official traffic control device shall upon conviction be guilty of a serious misdemeanor.

A recent court case in Iowa is believed to be the first sign vandalism prosecution under the state's revised law. An organization had in their possession approximately 40 road signs and traffic control devices that were obtained illegally. Under the law, they could have faced $40,000 in unlawful possession charges in addition to a Class D felony theft charge. The final result was a plea bargain agreement for a total fine of only $2,000 and 200 hours of community service. The judge later suspended the fine at the urging of the prosecuting attorney.

What holds true nationally also holds true in Iowa. Law enforcement personnel suggest that large fines are often considered by the judicial system to be excessive and "unconscionable" in relation to other crimes. As a result, many sign vandalism cases are treated with leniency or dismissed outright. This fortuitous case afforded the county attorney's office the opportunity to sponsor a sign amnesty week for people to return stolen signs, no questions asked. Over 100 signs, barricades, and other traffic control devices were handed over.

Phase I also involved identifying physical measures which can be taken to reduce sign vandalism. Several methods have been identified as follows:

1. Mount signs higher and further from the road to make painting and stealing more difficult.
2. Use plywood substrate to replace signs prone to being shot. The plywood sustains less damage when shot.
3. Use vandal resistant fasteners when mounting signs.

4. Use anchor/rods or cleats at the bottom of sign posts to prevent rotation or removal.

Many of these countermeasures have been successful in reducing the negative impacts of sign vandalism.

Another countermeasure utilized was identification of sign ownership through the use of stickers. The decals warn people about tampering with signs and also include the installation date and owner. This was a key element in the recent prosecution of the organization mentioned previously.

Phase II of this study involved the development of an educational awareness campaign directed at grade school and high school students. This effort combined with other countermeasures has proven to be essential in the fight against sign vandalism.

A study conducted in 1985 by the Iowa State University Journalism and Mass Communication Department as part of this project revealed that most teenagers were unaware of the high costs and potential dangers involved with sign vandalism (Table 1). Most were also unaware of the possible penalties a convicted vandal faces. After the study, the department developed material for a public awareness campaign that included a trifold brochure, several posters, and a bumper sticker. These materials were sent to over 200 school districts throughout the state from 1987 through 1990 (Figure 1). Wildlife and sportsmen's clubs were also recipients of these materials.

Incidence of Sign Vandalism

Question	Percent Answering "Yes" Males (N=207)	Females (N=299)	Total (N=506)
Have you ever been part of a group that has taken a sign?	27	14	20
Have you ever been part of a group that has painted on a sign?	5	5	5
Have you ever been part of a group that has shot at a sign?	26	4	14
Have you ever personally taken a sign?	17	7	14
Have you ever personally painted on a sign?	3	3	3
Have you ever shot at a sign?	22	3	10
Have you ever run down a highway sign?	8	4	6

Table 1

1990 SCHOOL PARTICIPANTS
SIGN VANDALISM AWARENESS PROGRAM

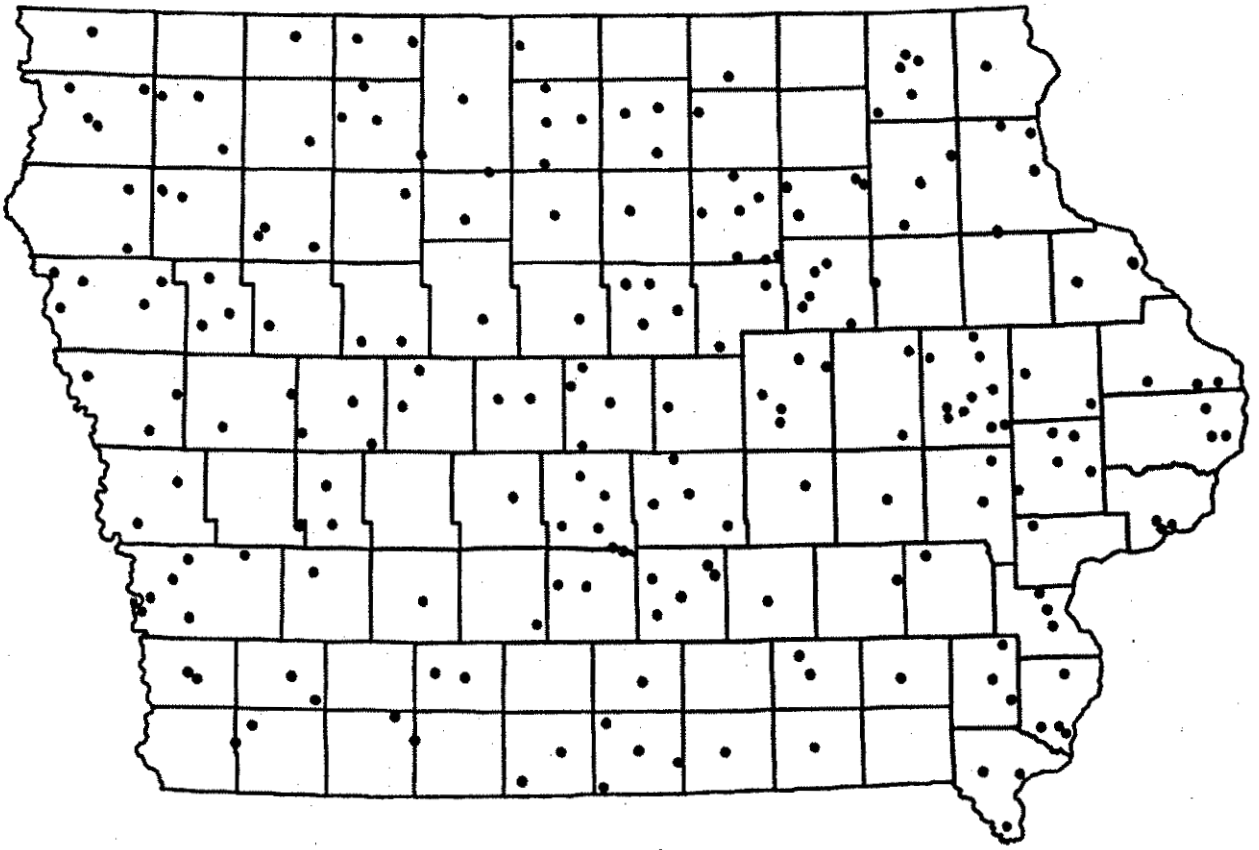


Figure 1

Public service announcements (P.S.A.s) were created as part of Phase III of this engineering study. Much of this material was designed similar to what was used in the Wisconsin campaign. However, some of the statements made in the Iowa PSAs were deemed unacceptable for airplay, and were subsequently dropped.

A small attempt was made to gauge the attitudes of present day college students on the issue of sign vandalism compared to those back in 1985. A random scientific phone survey conducted by researchers at Iowa State University this past spring revealed some interesting results.

When asked if you were ever involved in the theft of a traffic sign, 5 percent of women and 22 percent of men answered "yes." The major reason cited, both by 36 percent of males and 50 percent of females, was that they liked what it said and wanted it in their rooms. Roughly 25 percent of men and women confessed to peer pressure as another reason for stealing or vandalizing signs.

Asked what would be most effective in decreasing the theft or vandalism of highway signs, 34 percent of females and 33 percent of males urged severe penalties including time in the county jail and community service. An average of 30 percent of males and females also favored rewards for turning in those who steal or vandalize regulatory signs. Even though the sample size for this survey was moderate (N = 194), it indicates that attitudes and behavior have not changed appreciably since the 1985 survey of students.

A final aspect of this study involved soliciting specific sign vandalism information from five Iowa counties (Figure 2). The data essentially concurs with the national trends concerning this issue. A "good" example of a bad situation is in Lucas County (Figure 3).

Iowa County Participants
Sign Vandalism Awareness Program

1. Cherokee
2. Franklin
3. Jackson
4. Lucas
5. Pottawattamie

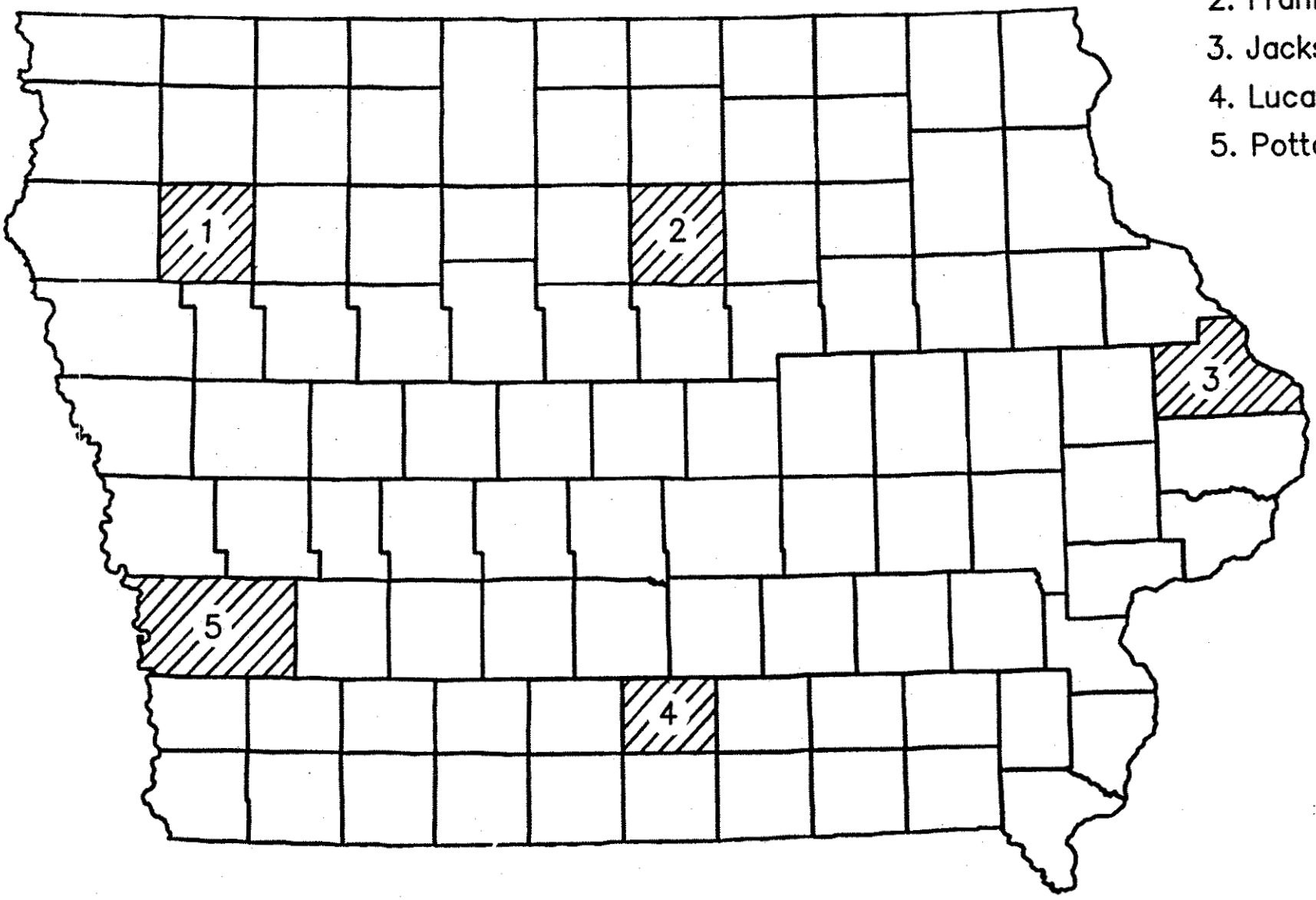


Figure 2

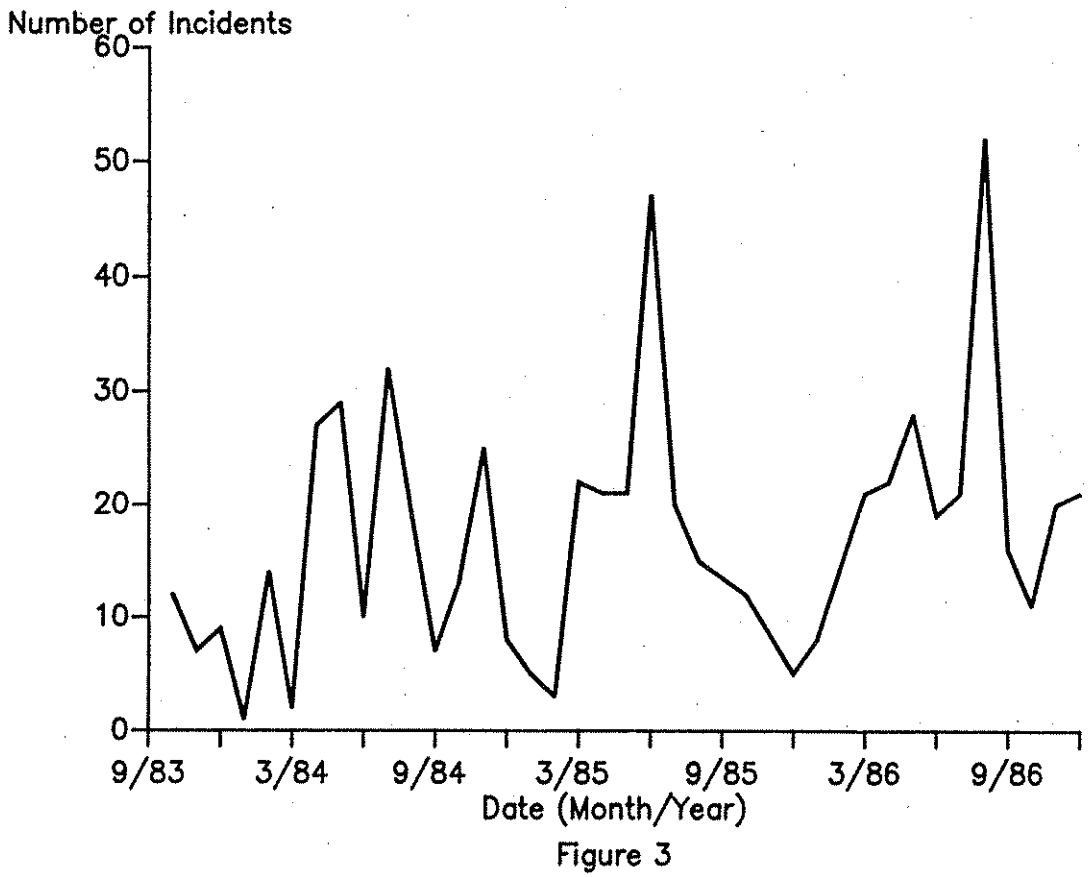


Figure 3

The graph shows higher incidents of vandalism during the summer months corresponding with the break in the school year. When looking at the incidents of signs that were shot at, the data confirms the notions of sign maintenance personnel (Table 2). The predominant hunting season in Iowa occurs between October through January. These four months accounted for approximately 52 percent of all the signs that were shot at.

When it comes to popularity, the "stop" sign is the number one choice of sign vandals (Table 2). Name signs, such as Richard

Street, are also highly coveted objects and are included in the "other" category of signs. The use of these name signs on county roads for the expanding 911 emergency system has brought with it a higher occurrence of vandalism in several counties.

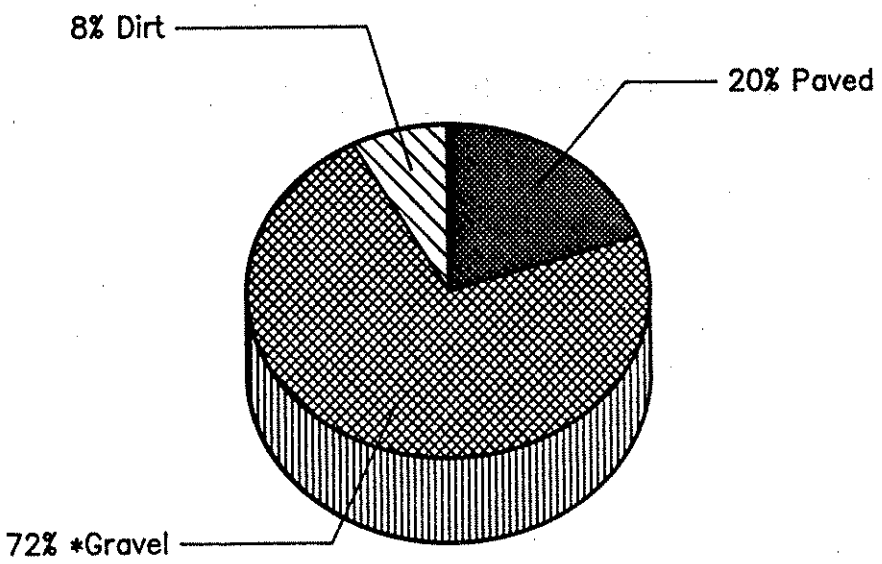
Five-County Sign Vandalism Data
(Fall 1983 – 1987)

Sign Type	Paved	Gravel	Dirt	Not Recorded	Total
Stop	74	561	40	35	710
Stop Ahead	33	327	34	14	408
Curve	67	320	22	28	437
Arrow	34	151	7	16	208
Rte. Marker	97	50	0	3	150
Obj. Marker	39	280	35	34	388
No Passing	129	11	0	18	158
Narrow Bridge	5	140	18	14	177
Dead End	6	90	14	8	118
Wt. Limit	4	133	21	8	166
Yield	2	9	0	0	11
Level "B"	0	21	41	0	62
Pvt. Ends	5	4	2	0	11
Speed	44	63	0	45	152
"T"	1	26	4	22	53
Rd. Closed	5	4	4	2	15
Other	101	184	13	131	429
Total	646	2,374	255	378	3,653

Table 2

A further glance at the data shows that the percentage level of sign vandalism on a particular road surface is essentially proportional to the mileage of that road surface to the total road mileage (Figure 4). For instance, the data shows that 8 percent of all sign vandalism occurs on dirt roads and this corresponds well with 7 percent of all county roads in Iowa classified as earth surfaced roadways. National data suggest that rural roads with low lighting levels and traffic volumes create a conducive environment for sign vandalism.

Sign Vandalism Incidents by Road Type



* Includes Stone and Bituminous Roads

Figure 4

What is quite interesting to note is the swing in patterns of sign vandalism over the past few decades (Figure 5). Shooting and painting of signs have long been popular with teenagers, but responses from Iowa county engineers suggest that a more prevalent pattern has emerged. In a 1990 survey, over 70 percent of the counties that responded stated that vehicles (probably 4x4s) running over or pulling out posts were doing the most damage. These vehicles have become very popular, especially with young people. A few counties even mentioned that large farm equipment sometimes add to this problem of knocked down posts.

Patterns of Sign Vandalism

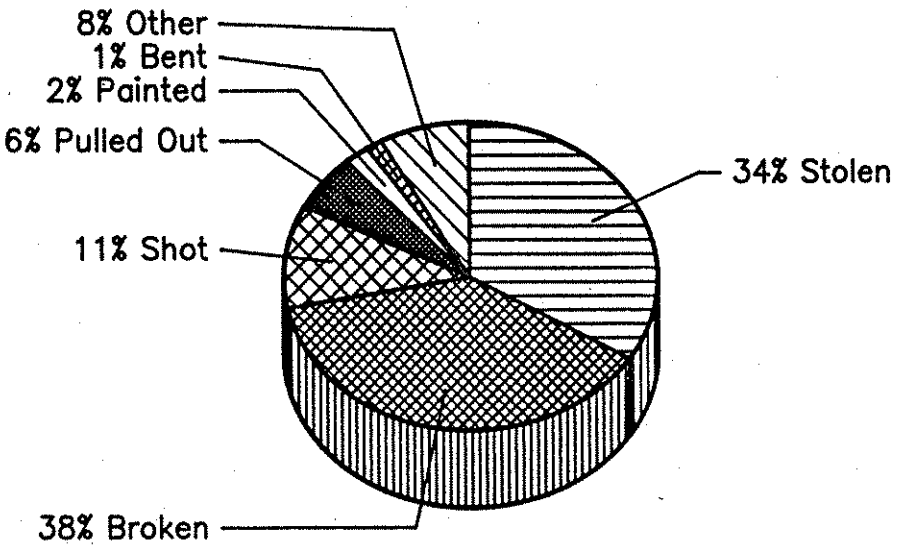


Figure 5

DISCUSSION

There is a dearth of information on the effectiveness of public and educational campaigns as a means to reduce sign vandalism. The data gathered over the past decade has helped to define and identify the scope of the problem in Iowa. Unfortunately, this study gives no indication that public agencies have been victorious in their struggle to reduce sign vandalism. It cost Iowa counties over $1 million ten years ago and that figure still remains true.

The 1990 Iowa Legislature recognized the seriousness of this problem by toughening the law with a stiffer fine and jail term for

illegal possession of a traffic control device. Unfortunately, what is a vexing problem for county transportation officials is not a serious concern of many in the legal system. Some law enforcement personnel are hesitant to spend their time apprehending sign vandals knowing the courts will treat these cases with extreme leniency or dismissal. County engineers also say convincing prosecutors that sign vandalism is more than a prank is a difficult task.

The attempt started in 1987 to educate junior high and high school students on the subject of sign vandalism has evidently produced no appreciable reduction in cost to the counties. The long term effectiveness of this effort should be explored in the coming years.

CONCLUSIONS

From this study on sign vandalism, it can be concluded that:

1. Sign vandalism continues to be a serious and expensive problem.
2. Penalties assessed by attorneys and judges are not of the magnitude set forth by the Code of Iowa.

RECOMMENDATIONS

The following are offered as potential steps to reduce the incidence of sign vandalism and theft:

1. Have enforcement and legal personnel treat sign vandalism as it is stated in the law as a crime, and not as an infraction akin to a speeding ticket.

2. Utilize effective physical countermeasures, such as vandal resistant fasteners and higher mounted signs to curb vandalism and theft.

3. Establish a sign inventory in addition to regular sign inspections to keep track of patterns and trends of vandalism so that selective measures can be taken.

4. Get the community involved in the issue. If they perceive there is no problem, they will treat it as such.

5. Make it personal. Only when it is taken seriously will positive steps be taken to reduce sign vandalism.

REFERENCES

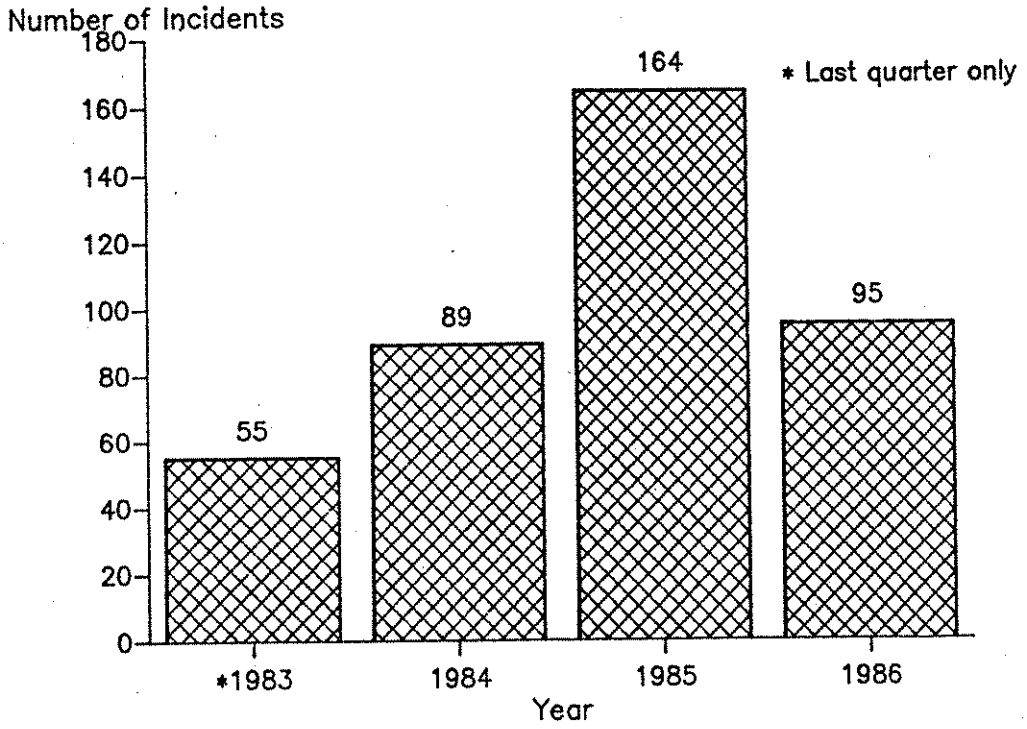
1. Callahan, Mark, "Engineering Study for Reducing Sign Vandalism," Progress Report, Iowa Highway Research Board, HR-246, January 1987.

2. Frith, Katherine, "Countering Sign Vandalism With Public Service Advertising," Transportation Research Record 1069, TRB, National Research Council, Washington, D.C. 1986, pp 68-72.

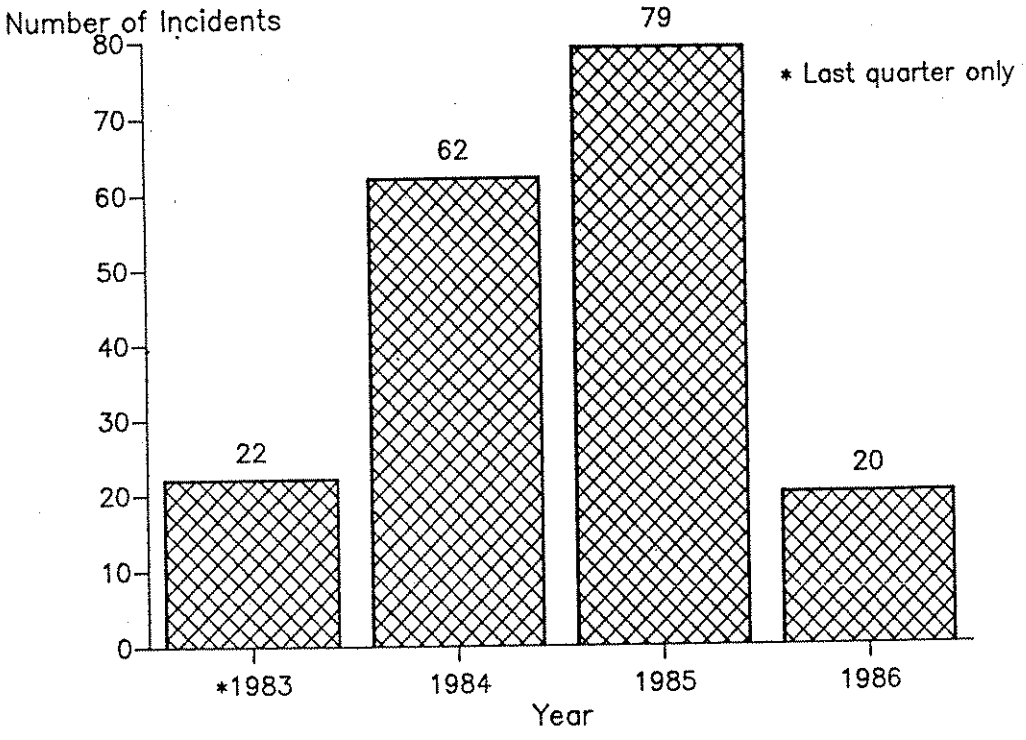
3. Perkins, D., "Countermeasures for Sign Vandalism," Federal Highway Administration, McLean, Virginia, September 1986.

Appendix A
Annual Five-County Sign Vandalism Data

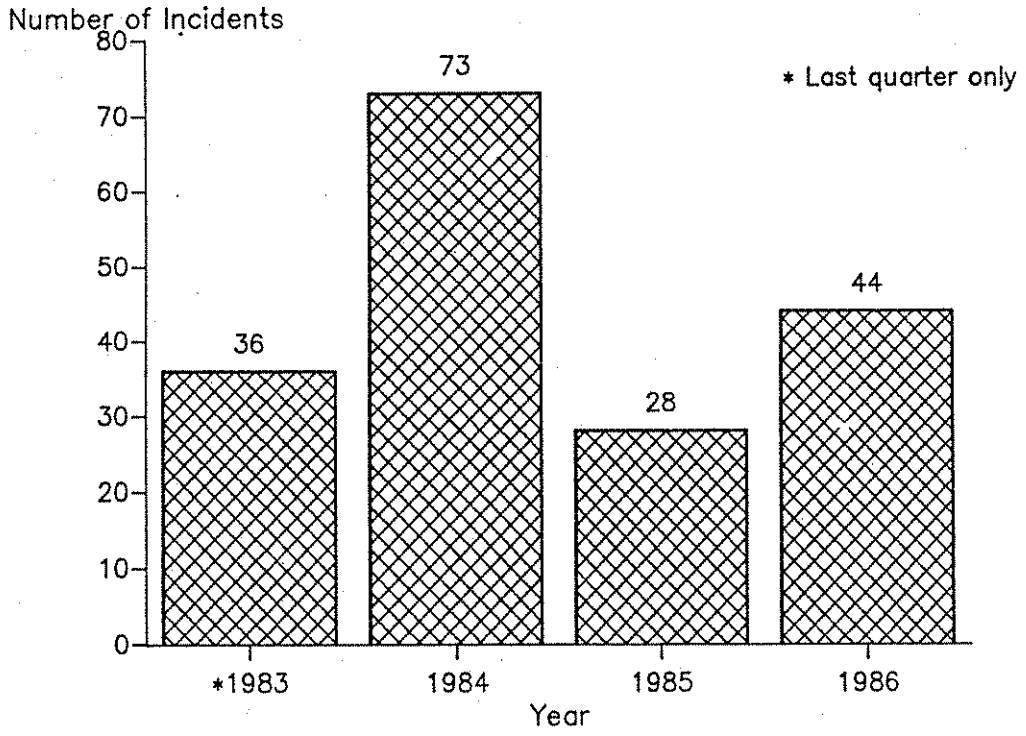
Sign Vandalism - Cherokee County



Sign Vandalism - Franklin County

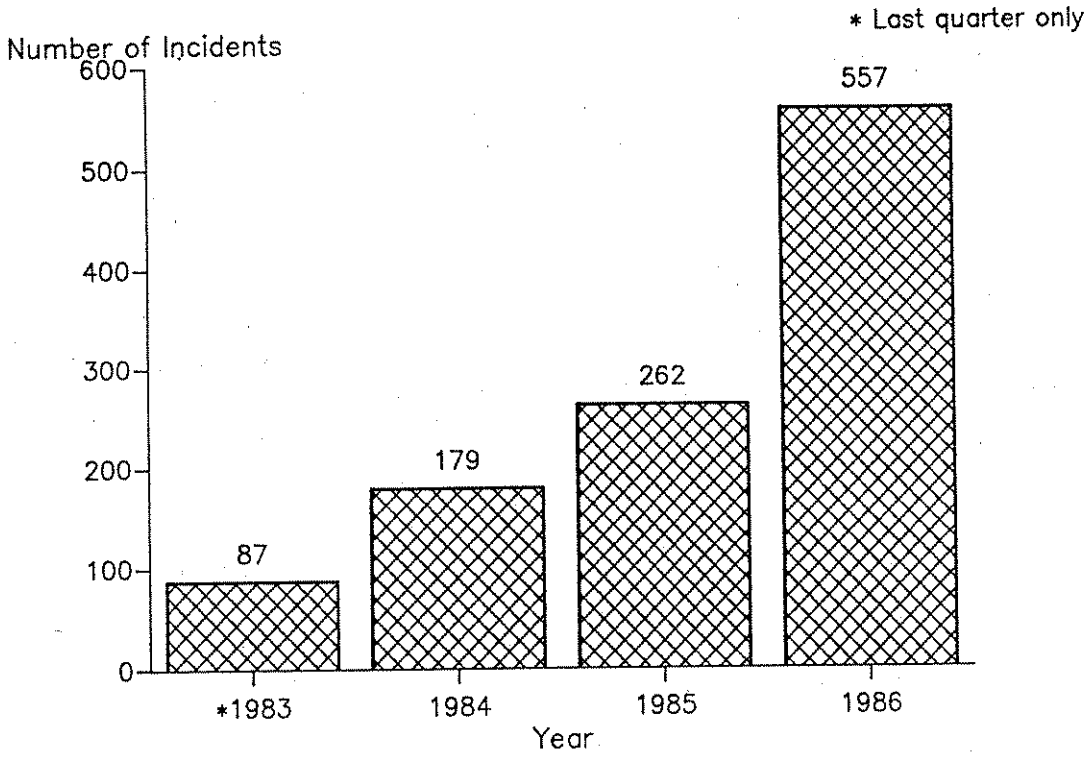


Sign Vandalism - Jackson County



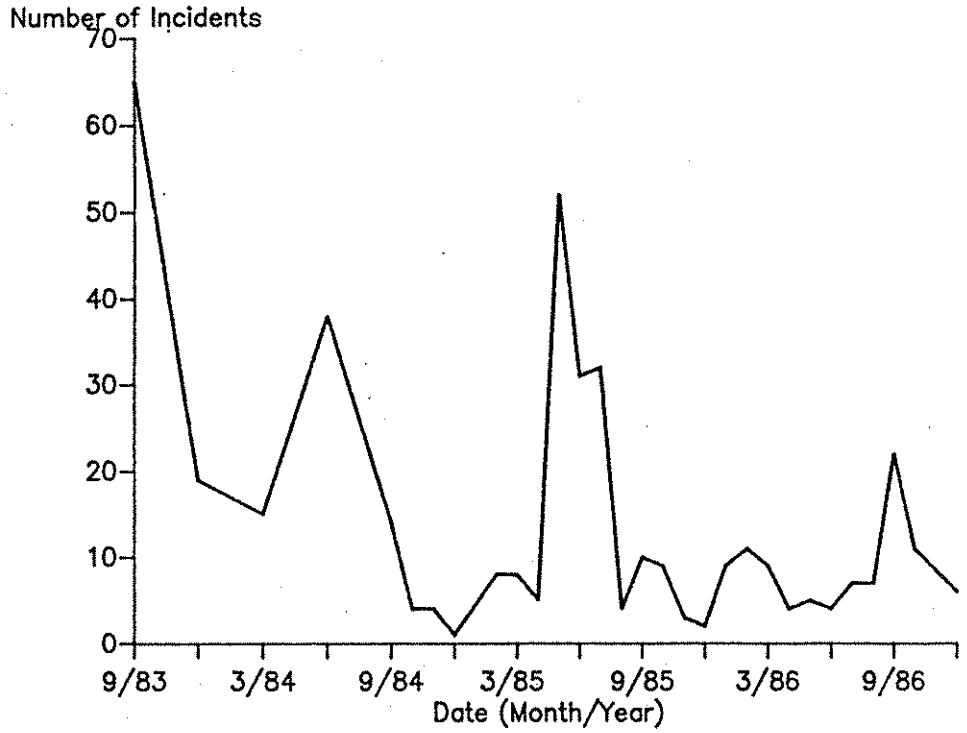
Sign Vandalism - Lucas County

Sign Vandalism - Pottawattamie County

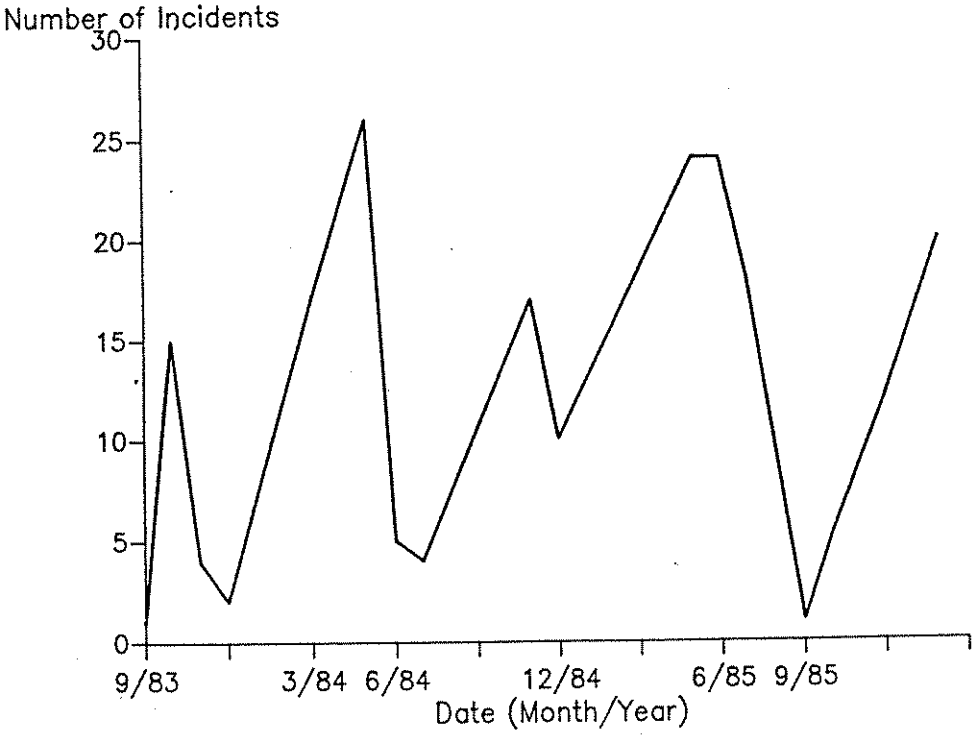


Appendix B
Annual Pattern of Five-County
Sign Vandalism

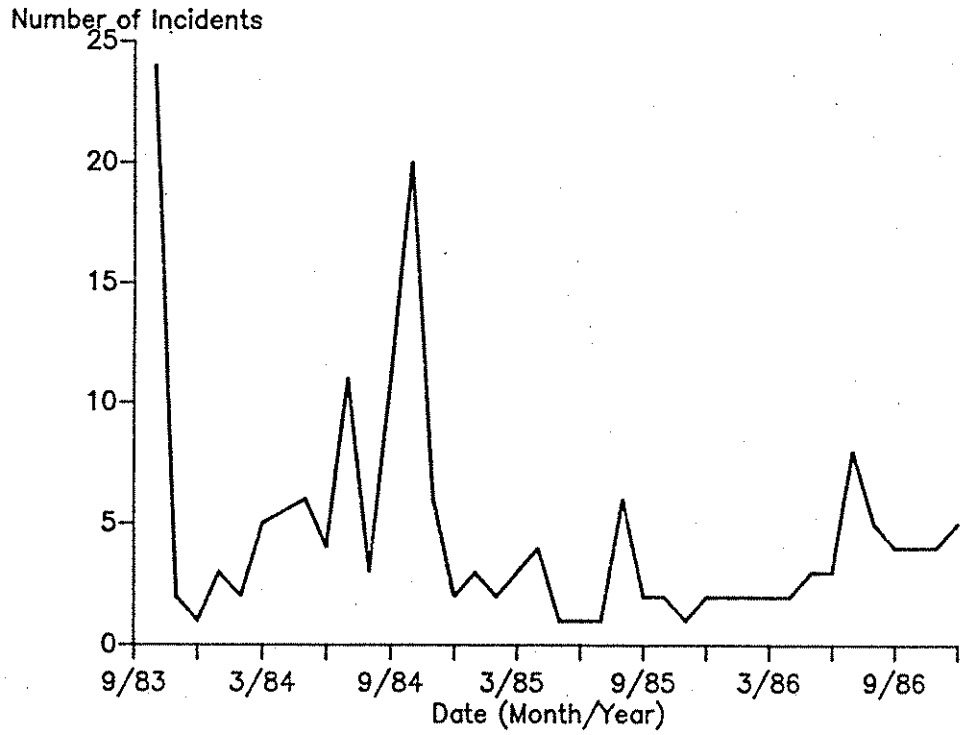
Sign Vandalism - Cherokee County



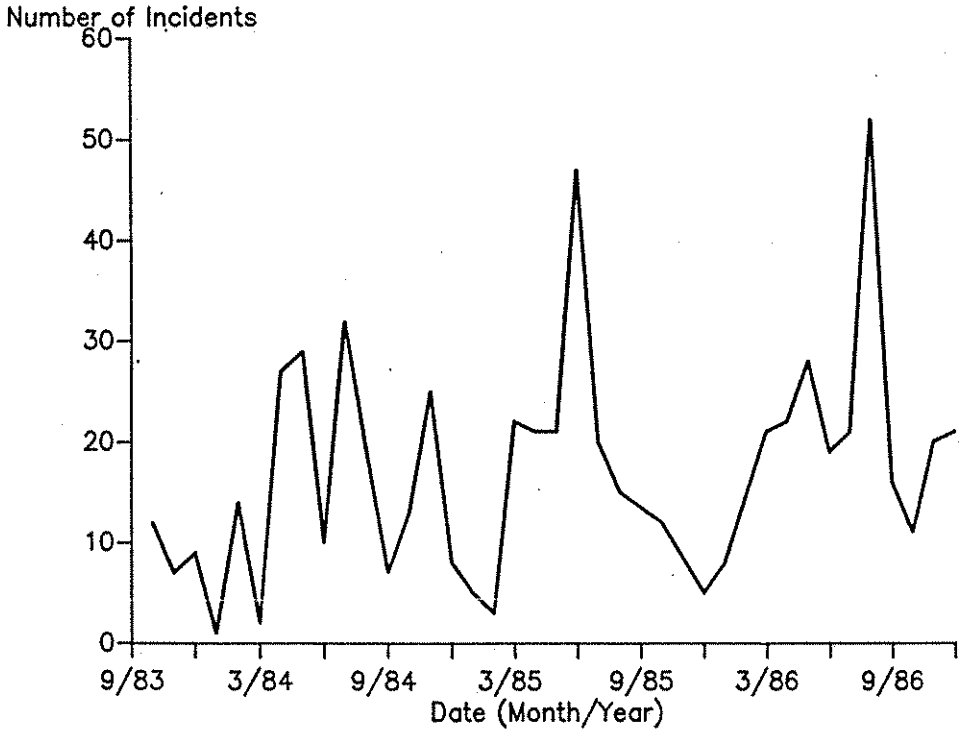
Sign Vandalism - Franklin County



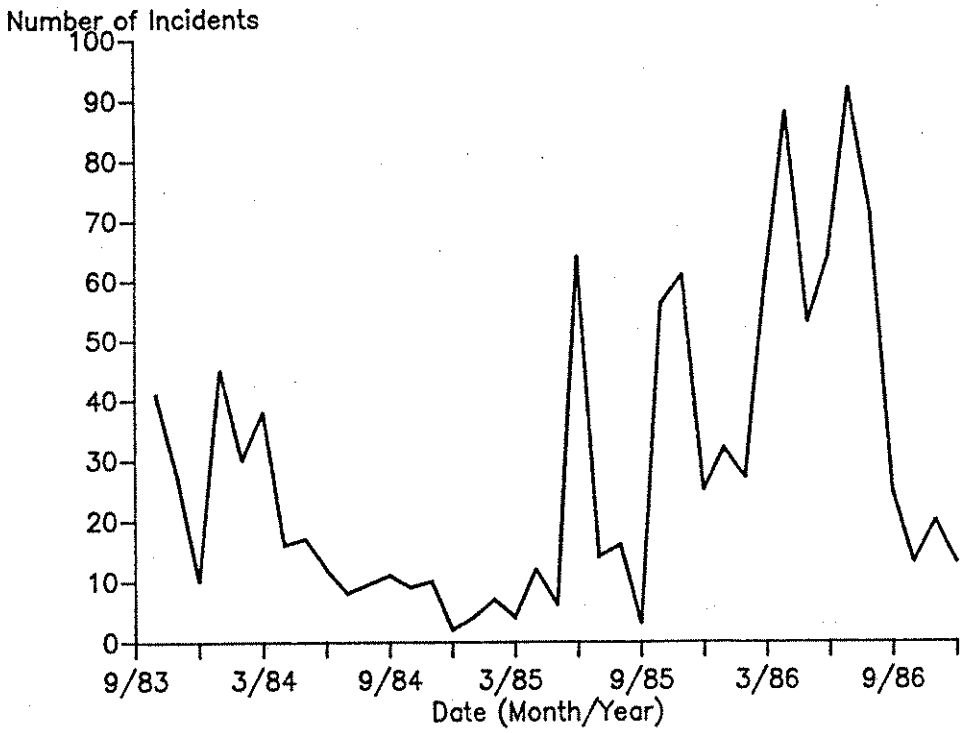
Sign Vandalism - Jackson County



Sign Vandalism - Lucas County



Sign Vandalism - Pottawattamie County



Appendix C
Public Educational Campaign Posters

STEALING SIGNS

IT'S NO JOKE IT'S A CRIME

Some kids think it's fun to steal highway signs. They say that highway signs look great hanging on a bedroom wall.

If you think stealing signs is just a harmless prank, maybe you should take a closer look at the picture above. This accident occurred because a stop sign was missing. Stolen. Taken by a vandal who wanted a room decoration.

Missing and damaged signs cost Iowa taxpayers over $1,000,000 a year. Sign vandalism isn't funny. It's dangerous. Stealing or defacing traffic signs is a serious offense in Iowa punishable by stiff fines and jail *sentences. So if you know someone who* thinks it's fun to steal signs, or shoot at them or spray paint on them, maybe you should do them a favor and show them this ad.

Ask them if they think that picture's funny.

	MAXIMUM FINE	JAIL TERM
CAUGHT IN THE ACT	$1,000	1 YEAR
POSSESSION OF A SIGN	$100	30 DAYS

Iowa Department of Transportation

PAINTING ON SIGNS

IT'S NO JOKE IT'S A CRIME

Every year thousands of highway signs are stolen or destroyed by vandals. You've probably seen the mutilated, bullet-ridden signs along Iowa's rural roads. And the spray painted signs on Iowa's city streets. They're dangerous enough.

But it's the stolen signs that are the most dangerous. Because you don't see them. They're not there when you need them. They're hanging on some vandal's bedroom wall. And without those signs driver's don't know when to stop. Or yield. Or slow down.

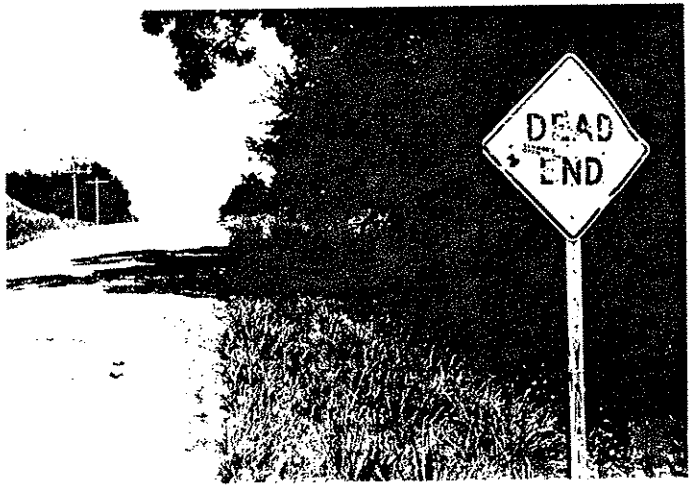
Sign vandalism isn't just a childish prank. It's a serious crime in Iowa. Punishable by *stiff fines and jail sentences.*

Stop sign vandalism.

	MAXIMUM FINE	JAIL TERM
CAUGHT IN THE ACT	$1,000	1 YEAR
POSSESSION OF A SIGN	$100	30 DAYS

Iowa Department of Transportation

SHOOTING SIGNS



IT'S NO JOKE
IT'S A CRIME

Every year thousands of highway signs are stolen or destroyed by vandals. You've probably seen the mutilated, bullet-ridden signs along Iowa's rural roads. And the spray painted signs on Iowa's city streets. They're dangerous enough.

But it's the stolen signs that are the most dangerous. Because you don't see them. They're not there when you need them. They're hanging on some vandal's bedroom wall. And without those signs driver's don't know when to stop. Or yield. Or slow down.

Sign vandalism isn't just a childish prank. It's a serious crime in Iowa. Punishable by stiff fines and jail sentences.

Stop sign vandalism.

	MAXIMUM FINE	JAIL TERM
CAUGHT IN THE ACT	$1,000	1 YEAR
POSSESSION OF A SIGN	$100	30 DAYS

Iowa Department of Transportation

SIGN VANDALISM COSTS IOWA ONE MILLION DOLLARS A YEAR

IT'S NO JOKE

Every year thousands of highway signs are stolen or destroyed by vandals. You've probably seen the mutilated, bullet-ridden signs along Iowa's rural roads. And the spray painted signs on Iowa's city streets. They're dangerous enough.

But it's the stolen signs that are the most dangerous. Because you don't see them.

IT'S A CRIME

They're not there when you need them. They're hanging on some vandal's bedroom wall. And without those signs driver's don't know when to stop. Or yield. Or slow down.

Sign vandalism isn't just a childish prank. It's a serious crime in Iowa. Punishable by stiff fines and jail sentences.

Stop sign vandalism.

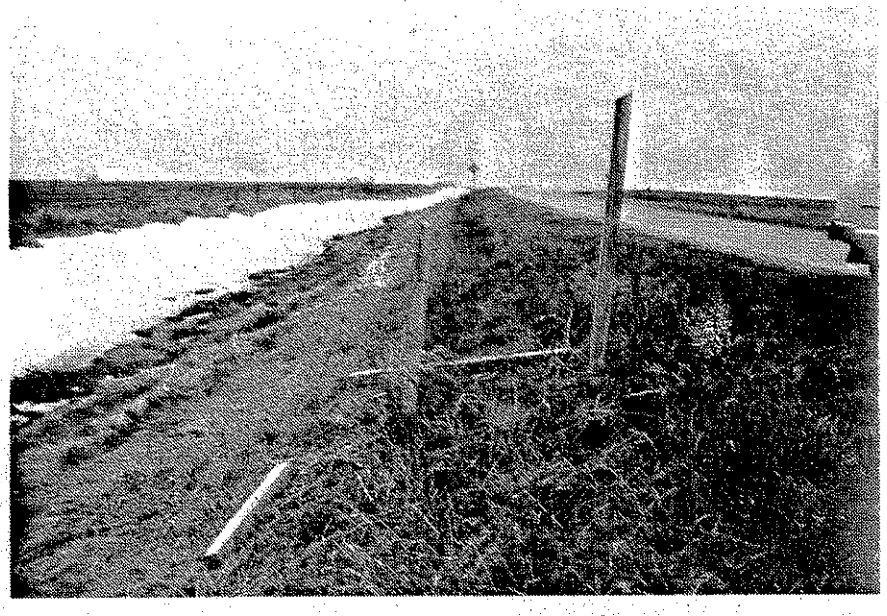
	MAXIMUM FINE	JAIL TERM
CAUGHT IN THE ACT	$1,000	1 YEAR
POSSESSION OF A SIGN	$100	30 DAYS

Iowa Department of Transportation

Appendix D
Sign Vandalism Photographs

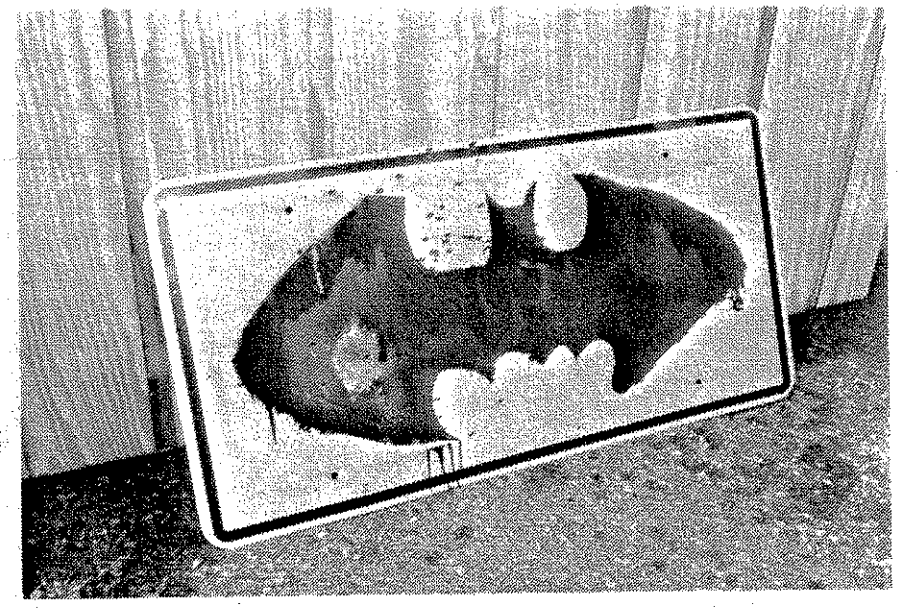
Shooting of Signs

Painted Signs



Broken Posts

Bent Sign



Painted Sign