

HANDICAPPED PARKING

by

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ABSTRACT

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The purpose of this study was to determine the frequency of the use and abuse of handicapped designated spaces in three different population sized communities in a northern midwestern state. This study of handicapped parking violations was conducted in three communities through observational methods. Previous studies found in the literature review suggested factors to be used in the design of the recording instrument.

Subjects for this study were the drivers and passengers of vehicles observed to be parked in a handicapped designated space by a trained observer. A total of 129 vehicles and their occupants were observed for this study. The observer recorded the observations onto the designated instrument.

Three different sized communities were selected to determine if differences would be noted in the use and/or abuse of parking spaces based on population size. In each community two parking lots were selected to be studied for a total of six parking lots. Three WorkForce Center parking lots were selected for study because of the similarity of services the Centers provides statewide and because one of the services is directed specifically to persons with disability. The remaining three sites were grocery store parking lots. The population size of the communities was: (a) under 15,000, (b) 50,000 - 100,000, and (c) over 100,000 according to the 1990 census. The communities were chosen because of size and site similarity.

Prior to the study a determination was made to observe all of the sites for six hours each or for the observation of at least 30 vehicles. The observer did stay for six hours at all but the last site when illness forced her to leave after three hours and 45 vehicles. This resulted in a total of 33 hours of observation.

The trained observer obtained the information by parking her own vehicle where there would be clear vision of all handicapped designated parking spaces. She would also be able to unobtrusively walk around the lot in order to see if there were temporary permits on dashboards or handicapped plates not readily observed from a distance.

Major findings revealed that there were 12 vehicles without some form of handicap indicator (i.e., placard, plate or temporary permit); 16 vehicles with identification whose occupants did not have a discernable physical disability and 20 vehicles with handicap identification whose occupants (14 drivers and 6 passengers) did not get out of the vehicle preventing observation of a possible physical disability.

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Table of Contents

ABSTRACT	ii
ACKNOWLEDGMENTS	iv
LIST OF TABLES	vii
CHAPTER	1
1. INTRODUCTION	1
Purpose	1
Statement of the Problem	6
Hypothesis and Theories	6
Assumptions and Limitations	7
2. LITERATURE REVIEW	9
Introduction	9
Historic Overview	9
Related Research	13
Legislation and Awareness	15
Summary	18
3. METHODOLOGY	22
Introduction	22
Population and Subjects	23
Methods for Data Gathering	24
Data Collection	25
Data Analysis	26
Accuracy and Weaknesses	26
4. RESULTS	28
Introduction	28
Demographics	28
Analysis of Data	32
Unanticipated Findings	38
Summary	39
5. CONCLUSIONS AND RECOMMENDATIONS	40
Introduction	40

Conclusions	40
Recommendations	42
REFERENCES	44
APPENDIX A	47
APPENDIX B	48

List of Tables

Tables

1. Handicapped Identification	29
2. Drivers Observed	30
3. Passengers Observed	31
4. Community Site Comparison	37

CHAPTER I

Introduction

Purpose

“Among my personal frustrations are people parking in handicapped parking spaces who don’t belong there and the fraudulent use of handicapped parking permits” (Warrender, 1996, p.1).

“There is an average of about 36,000 wheelchair related injuries a year in the U.S. that are serious enough for the injured person to seek attention at an emergency room” (Kirby & Sampson, 1995, p.1). The majority of these injuries are a result of tips and falls. The stability of a wheelchair is affected by the activity of its occupant and the level of the ground over which they are rolling. An experienced wheelchair user has learned that leaning forward while going up an incline will reduce the likelihood of tipping. However, not all wheelchair users are experienced nor are they able to shift their position to lessen their chance of accident. When non-disabled persons park in a handicapped parking space, persons in wheelchairs may need to park in an area not conducive to safe travel consequently putting the wheelchair user at increased risk of injury. As indicated above a large number of the injured require emergency room care while the others may have incurred injuries that intrude in their activities of daily living. Persons in wheelchairs may already have medical factors that slow their healing time or cause what may be a minor injury to have a major effect. Being hit by a vehicle or

tipping over a wheelchair while traversing a parking lot is a much more severe penalty than the “up to \$200 fine” the able bodied person may pay for using handicapped designated parking spaces.

“An U.S. Census report has estimated that the disabled community represents an \$188 billion dollar market to businesses” (Warrender, 1996, p. 1). Richard Warrender writes in “The Advocate”, Spring/Summer 1996 edition; “That’s a lot of dollars.” He continues saying that as more persons with disabilities become actively engaged in shopping the figure will continue to grow. “But, in order to shop, we need somewhere to park and access to the business community” (Warrender, 1996, p.1).

The Americans with Disabilities Act (ADA) of 1990 and the ADA Access Guidelines (ADAAG) of 1991 have requirements for accessibility which includes access routes and parking spaces. “What some people may not realize is that people with disabilities don’t park in these spaces because they want to be treated as special” (Warrender, 1996, p.1). The handicapped spaces, curb cuts, etc. are needed just to provide equal opportunity or “level the playing field.”

H. Stephen Kaye, PhD, (Disability Watch, 1998) reports on a national survey conducted in 1993 by the General Accounting office. This survey done two years after the ADAAG found that people with disabilities were reporting public establishments did not have enough handicapped-designated parking spaces, aisles were too narrow, or inclines were too steep. “At the same time, GAO inspectors found that 38% of facilities they visited lacked the number of accessible spaces required under ADA guidelines and that spaces and aisles were not wide enough 57% of the time” (Kaye, 1998, p.68).

ADA Accessibility Guidelines require a minimal percentage of a parking lot to be designated as accessible spaces. Small parking lots of less than 100 total spaces only need 1 in 25 of the spaces to be identified for handicapped. This would reduce to 1 space in 50 for lots up to 400 spaces and the percentage for larger lots is 2% or less of the total. "Since 3.5% of the population uses a wheelchair, cane, walker, or crutches, this proportion is clearly inadequate. And because only one of every eight "accessible" spaces must be designated as "van accessible," the 0.9% of Americans who use wheelchairs are even further limited in their ability to find usable parking." (Kaye, 1998, p. 68).

Jack Wildes, Minnesota Department of Public Safety, was quoted as saying; "About 50,000 people in Minnesota have handicapped license plates" (Budig, 1999, p.1). This writer called to determine if that number included placards and if the information was still current. My call was transferred to the Division of Driver and Vehicle Services. The following information was provided as of July 2000:

- 29,908 permanent handicapped plates were issued.
- 189,612 permanent certificates (renewed every six years) were issued.
- 5,987 6-month temporary certificates were issued.
- 4,669 three year commercial certificates were issued.

This results in a total of 230,176 handicapped parking spaces that may be needed on any one day in Minnesota. Using the 1990 census data for the population of Minnesota of 4,375,099 the July 2000 issuance of permits would be just over 5% of the population. If all parking lots were less than 100 spaces and no able bodied persons were parked in handicapped designated spaces, the 1 in 25 allocation in the ADAAG and Minnesota

regulations would seem to be adequate. However, this is not the case since not all parking lots are less than 100 spaces and able bodied persons do use the spaces.

“According to Jack Wildes of the Department of Public Safety, fraudulent handicapped parking permits on the black market can fetch between \$2000 to \$4000” (Budwig, 1999, p.1). In Hawaii, police Captain Mike Hama said, “In general, not only do some people abuse handicapped parking privileges, they also steal placards or forge them” (Watanabe, 1997, p. 2).

Fraudulent use of handicap parking spaces is a frustration experienced by more than Mr. Warrender as quoted in The Advocate. “Abuse of handicapped parking permits apparently is a sore point with many readers,...” (Watanabe, 1997, p. 1). June Watanabe enumerates complaints by persons observing abuse at parking meters, on college campuses, in front of state agencies, etc. These included complaints of young persons known to be using a parents or some other persons placard.

On the other hand are persons complaining about the number of handicap license and placards that are issued. “Misuse of handicap parking is widespread, but the most prevalent problem is physicians who indiscriminately certify disabilities” (Rausch, 1996, p. 1). Every state has requirements for issuance of the temporary placards and doctors must use their own judgement for determining if the person meets those requirements. In Jacksonville, Florida the chief of the public parking division says; “Some physicians are issuing disabled certifications... without first reviewing what state law considers a handicap” (Rausch, 1996, p.1).

There is research done on the abuse of handicapped parking spaces. Of the

four studies referenced in literature reviewed by this writer none were concerned with availability of the spaces for the number of persons wishing to use the space. The focus was on the abuse of the space by able bodied persons and how to prevent that abuse.

The Suarez de Balcazar study mentions a 1984 study by Jason and Jung comparing the frequency of abuse in spaces with a ground sign versus an upright sign. The article mentions other studies Suarez de Balcazar was part of in 1986 and presents the findings of a 1987 study she was involved in. This study was on the effect of police enforcement of the requirements for parking. In a paper presented in 1989, Bordeaux also dealt with the unauthorized use of designated handicap spaces. The Lenz's thesis completed in 1999 was a descriptive study on handicapped parking violations. All of these studies were completed at one or more sites in one community. Obviously, abuse of parking spaces was observed. No comment was made of non-use of the parking space during the periods of observation.

A study describing the abusive use and non-use of handicapped designated parking spaces may be able to show that too many spaces are allocated for disabled persons even though they are a minimal percentage of the parking lot. When able persons see several handicapped spaces available they may give themselves permission to abuse that space because there is rarely a penalty for doing so. Whatever the reason, the important factor must be to consider the needs of the individual with the legal right to park in that space.

The majority of editorial comment leans to the abusive use of the spaces though

the other side exists. The derisive comments regarding athletes (1999 Sports Illustrated), able students (1998 WCCO-TV) and other able bodied persons are abundant but juxtaposed with derisive comments about inappropriate certification (1996 Business Journal). Everyday someone complains about an abuse of a parking privilege or lack of a place to park.

Statement of the Problem

Many persons, including this writer, have heard the complaints and frustrations expressed by able bodied persons and persons with disabilities about the abuse of handicapped parking spaces. However there is very little data to support the complaints and some of the data is relatively outdated.

The purpose of this study is to describe the use and abuse of handicapped parking spaces in three different sized communities as observed and recorded on the instrument found in Appendix A. Drivers and passengers of vehicles which park in handicapped parking spaces will be observed to see if the vehicle does have a proper identification and, if so, whether either the driver or the passenger has a visible disability. By looking at a comparable service agency and a grocery store in each community the study may show differences in the treatment of handicapped designated sites according to community size.

Hypothesis and Theories

A question arises regarding a comparison of different sized communities and the

number of parking space abusers in each community. Do smaller communities respect handicap-designated spaces more than larger communities? The Lenz's study comparing affluent neighborhoods to non-affluent neighborhoods may be a close comparison but was done in only one community. Additional questions that come to mind are: How long are spaces not in use? Is there a problem with able-bodied persons using spaces that would otherwise not be used at all? The Suarez de Balcazar study did have a percentage of appropriate use and inappropriate use but did not state percent of vacancy.

This study contains and examines data to:

- 1) Determine the number of times a handicapped parking space is used by persons without proper identification on the vehicle.
- 2) Determine the number of times a handicapped parking space is used by persons with proper identification on the vehicle.
- 3) Determine if the driver or passenger of the vehicle had an observable disability to warrant the vehicle having the proper identification.
- 4) Determine if persons in a smaller community abuse handicapped parking spaces less frequently than persons in a large community.
- 5) Determine if the number of designated spaces meet ADA requirements.

Assumptions and Limitations

A major limitation of this study was the use of only one trained observer at a site with a large number of parking spaces. The observer found it was not possible to watch

every vehicle arrive and depart at an observation site with 12 - 18 handicapped spaces.

Although the observer parked her vehicle where all spaces could be observed if cars parked in the spaces occasionally a van, pickup, or other large vehicle would park in a place that would obscure some of the parking spaces. The observer would then try to walk through the lot to a better vantagepoint.

Another limitation was in seeing if temporary permits were on the dashboard of a vehicle. This required the observer to walk past the vehicle. If the driver or the passenger did not leave the vehicle the observer would not walk close to that vehicle.

A third limitation became known when the observer could see a placard was in place but the driver of the vehicle did not exit the vehicle. This prevented the observer determining if the placard was being used inappropriately.

And finally, by not approaching the subjects, the observer may have recorded persons with a disability as not having a visible disability. Persons with Multiple Sclerosis, Fibromyalgia, or disabilities with fatigue issues, walking restrictions, or other non-apparent limitations could be erroneously recorded on the instrument.

CHAPTER II

Review of Literature**Introduction**

Many articles abound regarding handicapped parking spaces. The majority of these articles are editorial comment without reference to any studies for documentation. Some of the comments are derogatory to persons who would usurp the privilege of a person with disability while others expound on inappropriate issuance of parking certificates by medical providers. Unfortunately the commentators do not have an abundance of research to peruse to confirm or deny their allegations. This gives them free rein to promulgate their personal opinion.

Most of the research on the abuse and ideas for remedying the abuse that this writer was able to find referenced studies done prior to the ADA and the ADAAG being written. Current articles being written still expound on the problems and concerns that prompted the original studies.

Historic Overview

In the early 1900s the beginning legislative activity started for persons with disabilities. The were narrowly focused but over the course of time other legislation followed. Then the Department of Veterans Affairs and the Rehabilitation Services Administration were developed to provide education and job training to veterans and civilians with disabilities. In looking at why legislation wasn't working the government

determined that employers who were willing to hire persons with disabilities couldn't because "most buildings were technically inaccessible" (Lynch, 1998, p. 24).

In 1990 the Americans with Disabilities Act was signed into law by President George Bush to support and compensate for previous legislation which did not accomplish its purpose. This Act attempted "to redress many years of ignorance, misunderstanding, and prejudice toward the physically and mentally challenged" (Adams. 1999, p. 37). The ADA and title III of the ADA Accessibility Guidelines of 1991 "make it unlawful for buildings to discriminate against people with disabilities who try to obtain goods and services provided in those structures" (Lynch, 1998, p. 24).

One part of the ADA and the ADAAG tries to alleviate some aspects of the discrimination against persons with disabilities by setting guidelines for accessible parking spaces. This part of the Act has been widely abused and has generated the creation of factions for and against handicapped designated parking. Proponents of each side of the issue have promulgated articles ranging from the ludicrous to the sublime. As Adams said, "Civil rights can be legislated, but tolerance cannot" (1999, p.37). What seems to have been forgotten is the context of Title I.

"ADAAG's Title I makes it unlawful for employers ... to discriminate against people with disabilities" (Lynch. 1998, p.24). Part of this discrimination is the failure to provide accessible parking. Employers would do well to remember that "legalities notwithstanding, hiring the disabled is just plain good business" (Adams. 1999, p. 37). In that context, Title III should not create so much advocacy and dissension. In a review of the guidelines it is difficult to understand all of the controversy.

requirements for parking spaces are dictated. Parking lot owners will find that the ADAAG requirements for handicapped parking spaces are far from onerous. States do have the ability to make more stringent requirements. The following minimums are from page 6 of Appendix B of the ADA Handbook:

Total parking in lot	Required Minimum Number of Accessible Spaces
1 to 25	1
26 to 50	2
51 to 75	3
76 to 100	4
101 to 150	5
151 to 200	6
201 to 300	7
301 to 400	8
401 to 500	9
501 to 1000	2 percent of total
1001 and over	20 plus 1 for each 100 over 1000

The Guidelines go on to describe additional requirements of the parking lots. In the August, 1998 issue of Paraplegia News, Robert J. Lynch, F.A.I.A. enumerates sections of the Americans with Disabilities Act Accessibility Guidelines (ADAAG) of 1991 and graphically displays accessible parking spaces and necessary measurements. On page 26 of the issue he uses a detailed example of accessible parking spaces for a car and a van with side-mounted wheelchair lift, and on page 27 has a drawing of three accessible diagonal spaces. Mr. Lynch says, "Each parking lot should have the appropriate number of accessible spaces that are wider than normal because they contain a five-foot-wide pedestrian access aisle adjacent to a car and an eight-foot aisle for a van"(pp. 26-27). He also describes the need for curb ramps and the requirements of such. The problems for non-compliance are clear when reading

about Richard Warrender's personal experience.

I drive a van that has a power ramp for my scooter, and I need six-to-eight feet of clearance space to put the ramp down and exit the vehicle. There have been many times that I have parked in a well-marked parking area and returned to find a car illegally parked so close to my van that I was unable to bring my ramp down. Stuck, my blood pressure rose by the minute. (Warrender, 1996, p. 1).

Only one of every eight handicapped parking spaces needs to be designated as van accessible. This is 12.5% of the 4% that is allocated for the 0.9% of Americans who use wheelchairs. As H. Stephen Kaye, PhD, remarks in describing the number of spaces that need to be accessible to the 3.5% of the population which uses some type of assistive device for mobility, "this proportion is clearly inadequate."

In 1993, two years after the ADAAG were set forth, a national survey was conducted by the General Accounting Office. In that survey people with disabilities reported problems with the number of handicapped parking spaces, aisles between spaces and the slope of the parking lot. As mentioned in Chapter one, "GAO inspectors found that 38% of the facilities they visited lacked the number of accessible spaces required under ADA guidelines..." (Kaye, 1998, p. 68).

Adding spaces in a parking lot seem to be an innocuous way to enable persons

Handicapped Parking 13

with disabilities to be hired by an employer. As Adams was quoted previously about hiring persons with disabilities as being "plain good business" (1998, p. 37) he seems to be echoing Warrender in the Spring/Summer 1996 edition of the Advocate. Warrender

first asks the question, “ If a customer wanted to spend money in your business, would you knowingly make it difficult...” (1996, p. 1). He then goes on to say businesses becoming barrier-free welcome persons with disabilities. “It’s not only the law -- it’s good business” (1996, p. 2).

Related Research

“Studies on handicap parking reveal the existence of a significant problem of unauthorized use of designated parking spaces” (Bordeaux & Others, 1989, p. 2). In her report on handicap parking spaces Ms. Bordeaux reflects; “of 266 vehicles observed to park in handicapped spaces at grocery stores, 165 (62%) did not display proper handicap identification.” She also references a 1981 study by Matthews in which about 76% of 328 vehicles were found to be in violation of handicap regulations.

Other studies have been done which suggest ways to decrease illegal use of handicap parking spaces. A 1984 study by Jason and Jung compared violations of parking spaces with signs painted on the ground to the upright signs. The authors found vertical signs to be a method for decreasing violations (Bardeaux, 1989). The study demonstrated that the upright sign eliminated violations during the one-week of study but long term effects were only measured for four months (Suarez de Balcazar, 1988). Suarez de Balcazar, et al, (1988) noted the same results with the use of clearly visible

Handicapped Parking 14

signage. She states that the “upright signs produced an immediate reduction in inappropriate parking...”(p. 291). In yet another study referenced by Bordeaux, White, et al, (1988) observed some reduction of violations was also noted with the use of signs threatening a fine for unauthorized use. The study by Ms. Suarez de Balcazar and

others, also involved utilizing a police crackdown and ticket issuance to violators along with upright parking signs and concluded that the combination “is an effective and feasible strategy for reducing inappropriate use of handicapped parking spaces” (Suarez de Balcazar, 1988, p. 297).

In the Suarez de Balcazar study members of the local advocacy organizations of persons with disabilities were involved as well as the local police chief. Respecting the wishes of the advocacy groups the media was not involved and yet the results were very good in attaining the desired effect and reducing inappropriate use of designated parking spaces. In her general discussion points, Ms. Suarez de Balcazar suggests that effects of the police crackdown may have been greater if it had been publicized in the local media.

“Strategies to promote compliance with state and local parking ordinances involve manipulating antecedent and consequent events, such as parking signs and fines” (Suarez de Balcazar, 1988, p. 291). This seems to imply that there is a gap in cause and effect. Persons continue to park in handicap spaces because there is no consequence for doing so.

In the Journal of Social Psychology an article by Taylor expounds on two field experiments that also involved manipulation to explore “ambivalence-induced

Handicapped Parking 15

behavior toward people with disabilities... (1998, p.766). The second experiment was to determine how the presence of a person in a wheelchair would affect abuse of handicapped designated parking spaces. Their premise was “the presence of actors with a physical disability near a parking space... would result in a lowered rate of parking violations... (Taylor. 1998, p.767). The study did show a high rate of violations

but in her general discussion the author states,

...the fact that individuals were deterred from violating parking spaces reserved for those with disabilities when such peoples were present shows that situational influences can foster more considerate behavior, even in the type of brief, anonymous, public encounter that was explored. (Taylor. 1998, p.770).

Legislation and Awareness

The 1990 ADA was certainly a piece of legislation that brought a good amount of awareness to the minority group labeled “Americans with disabilities”. The good that comes out of that legislation will be seen as the consumers the Act protects fight for its implementation. The consumers must be the advocates and therefore they need to have a good understanding of the Act and its protections. Persons with disabilities must continue “dismantling barriers that have prevented consumers with disabilities from pursuing ...opportunities others have enjoyed...” (Turner. 1994, p.163.)

Consumers are becoming involved in the enforcement of the protections of the ADA especially in the area of parking regulations.

A news announcement in the American Rehabilitation, Autumn 1990 issue

Handicapped Parking 16

handicap parking enforcement unit, comprised of people with disabilities and authorized to ticket people parked illegally in handicap parking spaces”(p. 23). There is a minimum fine of \$25 in Ohio. In Hawaii, civilian patrols are created, “in which 20 people have been deputized” (Watanabe, 1997, p. 2). They do not confront drivers but verify there is valid parking stickers. Other states have also developed enforcement units for monitoring handicapped parking spaces. Atlanta, GA has a nine-member

enforcement squad deputized to write tickets. "The unpaid team has ticketed some 1,000 scofflaws since the program began in December" (Zeman. 1989, p. 6). Las Vegas Business Press reported the "private individuals can now enforce handicapped parking laws if they take a training program..." (1997, p. 21). New York has also "... established a cadre of volunteers to work in conjunction with various Nassau law enforcement agencies in order to provide increased enforcement of handicapped parking rules" (1995, p. 48).

Several articles reveal an increase in states awareness of parking abuse by pointing out the legislation in those states that is focusing on ways to decrease the dilemma. Some of the new legislation is encouraging law enforcement officials to get serious and issue tickets. Other new laws recognize there are two sides to the issue and hope to remedy problems caused by persons with disabilities, as well as enforcing abusive use by able-bodied persons.

Legislators in Jacksonville, Florida recognized the increase in fraudulent use and abuse of handicap parking and are hopeful that the new state law may curb some abuses (Rausch, 1996). This new law is aimed at persons with disabilities that are

Handicapped Parking 17

abusing the privilege of parking at meters. Disabled individuals in vehicles equipped with mobility assistive devices will be able to continue parking indefinitely but other individuals with handicap placard or permits are restricted to 4 hours. The intent is to restrict parking by non-handicapped individuals and illegal use of placards.

New York Governor George Pataki signed into law new legislation which ...creates an incentive for enforcement of handicapped parking laws and public education about those laws by imposing a \$30 mandatory surcharge in addition

to any other sentence, fine or penalty for parking illegally in a designated handicapped parking space.

'People with handicaps should not be further impaired by rude and selfish people who put their own needs ahead of those who truly need these parking spots.'
(1999, September 27, p. 24).

The surcharge funds will be divided between the law enforcement agency who caught the violation and the county in which the violation occurred. The county funds will go into an education fund.

This was the only piece of legislation found by this writer that endorsed supporting education with the creation of a fund to pay "organizations to provide education, advocacy and increased awareness of handicapped parking laws" (1999, September 27, p. 24).

In Minnesota the legislation was needed to aid in the reduction of repeating violators. The law enforcement agencies each maintained their own data. "One problem that law enforcement has faced in catching people who abuse handicap parking laws is

Handicapped Parking 18

that data has been inaccessible" (Budig, 1999, p. 1). The legislature allocated \$100,000 in funding to the Department of Public Safety to transfer data onto law enforcement computers. This will allow law enforcement personnel to be able to track repeating offenders. The fines in Minnesota are: "parking without a permit calls for a \$200 fine, while parking in a space using a stolen or fraudulent permit means a \$500 fine..." (Hodges, 1998, p.1).

One piece of legislation that this author relished was passed in Vermont. Governor Whitman "signed into law a bill that requires a person who owns or controls a

parking area to make sure handicapped spaces are not obstructed” (Mulroy. 1999, p. 10). Mulroy states, “Very often handicapped spaces are made inaccessible by obstructions like snow” (Mulroy. 1999, p. 10). This writer was recently given a photograph of a Minnesota parking lot owned by a video store in which all of the snow accumulation during the winter had been piled in the handicapped designated space and remained there until it melted.

Summary

As previously stated there are various editorial comment articles which can give an understanding of the problems encountered by persons with disabilities in parking issues. And there are articles that reveal the lack of understanding. The author encountered one satire that not only reflects the perception that persons with disabilities have the “best parking spaces in a lot” and “the requirements to obtain handicapped permits are too lenient...” but also thinks the signage deserves ridicule.

Handicapped Parking 19

(Available <http://www.ao.net~ted/parking.html>, 1996).

Another editorial opinion excerpts a newspaper column by Andy Rooney “on a ‘touchy’ subject he was uncomfortable writing about” (1992, Summer, p. 44). This author was not able to find the original column but was dismayed by the excerpts reprinted in Accent on Living. Mr. Rooney mused about the number of handicapped spaces at a builders supply store. He did admit that possibly a handicapped person could have shopped there but since he had not seen one he raised the question, “Who decided, I wondered, on eight handicapped parking places?” (1992, Summer, p. 44). Mr. Rooney it seems is not familiar with the ADAAG.

The complaints are not limited to just the number of handicapped designated spaces. There are articles arguing about the use and abuse of handicap permits. This is both the placard that is hung from a visor or mirror and the paper temporary permit.

A Wall Street Journal article in 1995 said that Massachusetts state officials blamed the ADA for flooding the market with handicapped parking permits by “loosening the criteria for them” (1995, May 16, p. A18). In Florida doctors allegedly accept the word of patients who say they are unable to walk 200 feet without stopping even though the patient may not meet the specific requirements in the statute. (Rausch. 1996, p. 34). In Duval County, FL “the Tax Collectors office is responsible for issuing disabled parking permits” (Rausch. 1996, p. 21).

In Minnesota these permits are issued by the State of Minnesota. “The application must be filled out by the individual... and his or her doctor or chiropractor” (Available <http://www.ci.minneapolis.mn.us/services/fagfiles/> 2000).

Handicapped Parking 20

Jacksonville, FL has experienced abuse of parking spaces by both the able bodied and persons with disability. They have instituted a law which limits the time persons with handicapped identification can park free at a meter. “The only exception to the law is that vehicles with mobility assistive devices will still be able to park indefinitely” (Rausch. 1996, p. 21). Duval County issues about 1,000 citations at \$250 each with “The majority of those tickets—about two-thirds—issued to drivers ...with no disabled parking privileges” (Rausch. 1996, p. 21).

This is not surprising. One need only pick up a newspaper to see that persons you would least expect to abuse handicap-parking privileges have been arrested or fined. An article in the August 1999 Sports Illustrated describes members of the

Chicago Bears professional football team as obtaining handicap permits. P. Hodges of WCCO Channel 4000 in Minneapolis writes about parking problems at the University of Minnesota and “some 40-odd students taking the wrong route to solving the annoying situation” (Hodges. 1998, November [online]). Even the New York Times could not refrain from reporting on the U.C.L.A. football players using placards “as a substitute for regular student-parking permits” (Berthelson. 1999, July 29, p. 4).

Some attitudinal barriers appear to be firmly in place in individuals but some corporations and builders are working on building safe and appropriate parking facilities.

A building development in Birmingham, AL considers “parking as essential to new and renovated buildings as water, electricity and sewer connections” (Calvert. 2000, June, p. 33). IBM in Melville, NY expanded and “put handicapped parking less

Handicapped Parking 21

than 100 feet from first-floor desks...”(1999, May 21, p. 21).

J. Lenz in her thesis (1999) observes “changes have occurred to make buildings and transportation modes barrier free...”(p. 25) but previously recognized the attitudinal barriers are still in place.

The government recognized attitudinal barriers and passed the ADA. State Legislatures are recognizing the ADA had no enforcement mechanism and are creating new laws for restricting violations. The next step is for the general public to comply with the law that is not a special privilege for a few but an equal opportunity for persons with disabilities.

CHAPTER III

Methodology**Introduction**

This author reviewed three studies of use and abuse of handicapped parking spaces for ideas of data collection. These included: Suarez de Balcazar, et al, "Effects of Environmental Design and Police Enforcement on Violations of a Handicapped Parking Ordinance" (1988); Bordeaux, and Others, "Handicapped Parking: A Demographic Study of Legal and Illegal Users" (1989); and Lenz, "A Descriptive Study of Handicapped Parking Violations in a Mid-western City" (1999). In all of these studies observation was the standard method for accumulating data. All three did data collection at grocery stores. Ms. Lenz added a shopping mall and three department stores to her study.

The previous studies had trained observers position themselves so they could observe the vehicles parking in a handicapped space and be able to note if the driver or the passenger appeared to have a disability. The observer was able to determine if the vehicle had the appropriate license or placard for legally parking in the space. In some instances the length of time a vehicle remained in the space was recorded, information on the total number of parking spaces in the lot, and the number of handicapped-designated spaces and their location in the lot. Other types of information recorded have been related to gender, age, and ethnic background.

All three studies had data recorded on specifically designed forms. This author designed a similar instrument for collecting the information.

As in the previous studies the author had specific questions in mind when developing the instrumentation. Some of the questions were:

- 1) Are the handicapped designated parking spaces being used by properly identified vehicles?
- 2) Do the occupants of properly identified vehicles have an observable disability?
- 3) What length of time do persons spend in designated spaces?
- 4) Has abuse of handicapped designated parking spaces increased or decreased since the previous studies were done?
- 5) Is there a difference in the use and/or abuse of handicapped designated spaces in communities of differing populations?
- 6) Is there a sufficient number of spaces according to ADA guidelines?

Population and Subjects

This study of handicapped parking violations was conducted in three communities in a northern midwestern state through observational methods. Three different sized communities were selected to determine if differences would be noted in the use and/or abuse of parking spaces based on population size.

The population of each community according to the 1990 census was a. under 15,000 (Bemidji, MN); b. 50,000 - 100,000 (Rochester, MN); and c. over 100,000 (Minneapolis Metropolitan Area). The communities were chosen because of size and site services similarity.

In each community two parking lots were selected to be studied for a total of six

lots. Three WorkForce Center parking lots were selected for study because of the similarity of services the Centers provide statewide and because one of the services is directed specifically to persons with disability. The remaining three sites were grocery store parking lots to relate to previous studies.

Subjects for this study were the drivers and passengers of vehicles observed to be parked in a handicapped designated space by a trained observer. A total of 129 vehicles and their occupants were observed for this study. Subjects were both male and female. No notation was made of the license plate number. The observer did not approach any of the subjects so there was no recording of name, address, ethnic origin, or specific age. The recorder did try to guess approximate age in decades.

Method for Data Gathering

The trained observer parked her vehicle where there would be clear vision of all handicapped designated parking spaces and the persons leaving the vehicles. In choosing the parking place the observer considered the need to allow for the unobtrusive recording of the information as well. The observer was able to walk through the lots in order to see if there were temporary permits on dashboards or handicapped plates not readily seen from a distance. As previously noted the observer did not go close to vehicles with occupants to look for temporary permits. These vehicles were recorded as not having proper identification.

Upon arriving at the site, this author drove through the parking lot counting the

Handicapped Parking 25

handicapped designated spaces and the number of total spaces in the lot. The total number is approximated due to piles of snow covering some spaces and preventing an

exact count. At that time a determination was made of where the observer could park to be able to see the use of the handicapped designated spaces and remain unobtrusive while recording the data. If the observer was required to walk through the lot to better see the handicapped identification she would not carry the instrument with her but would return to her vehicle to record the data.

Data Collection

Prior to the study a determination was made to observe all of the sites for six hours each or for the observation of at least 30 vehicles. The observer did stay for six hours at all but the last site when illness forced her to leave after three hours and 45 vehicles. This resulted in a total of 33 hours of observation.

Thursday was chosen for the day of observation, as this is one of the busy days for WorkForce Centers. The author chose to do the grocery stores on the same day for her convenience. Hours of observation for the WorkForce Centers were 9:00 a.m. - 3:00 p.m. These hours are generally high traffic hours. Observation at the grocery stores was done from 4:00 p.m. - 10:00 p.m. that is usually a high volume time for them.

Using the instrument found in Appendix A, this author noted the type of handicap identification on the vehicle. The observer recorded whether the driver or the passenger appeared to have a visible disability and the nature of that disability. During the recording the gender of the driver and passenger and the approximate age (in decades)

Handicapped Parking 26

of each were noted. A notation was also made indicating the length of time in minutes the vehicle was parked in the space.

Data Analysis

Analysis of the data is done on the basis of how the survey instrument was set up and the kind of information that can be extrapolated from it. Descriptive statistics will be provided including frequencies, averages and standard deviations when possible.

The study took place over a period of 33 hours and six sites. At five of the sites the observer recorded information for six hours. The last site was observed for three hours. The goal was to be six hours or 30 vehicles for each site and this was obtained.

The instrument also allowed for gathering data to compare to that in previous studies. A column was developed with a delineation of identification or no identification to show whether there has been an increase or decrease in the use and/or abuse of designated spaces.

Accuracy and Weaknesses

This author acknowledges that there are distinct questions regarding the accuracy of this study. First and foremost is that the observer must guess whether or not they are really seeing a visible disability. Although the observer works with persons with disabilities on almost a daily basis and feels confident in her ability to notice a disability the distance from the subject could call into question the decision. Second, the author knows that not all disabilities are readily observed even when it is known they exist. And third, with traffic moving between the observer and the subjects there are distractions which may prevent accurate recording.

A weakness of the study is not being able to have contact with the subjects. This

resulted in the inability to confirm a disability. Another effect was not being able to accurately determine the age of the violators. Although this observer feels competent in her ability to notice a disability she is not as confident in age determination. A record was kept in the data collection with a best guess according to decade of age, 20s, 30s, etc., but the information was not assimilated into a chapter of the paper.

Chapter IV

Results

Introduction

The plan of the study was to describe the differences of the use and/or abuse of handicapped parking spaces in communities of different sizes. The procedure was to first determine the population range for the communities. They must be: under 15,000; between 50,000 and 100,000; and over 100,000 according to the 1990 census. Then the author reviewed a map of the state of Minnesota to determine the cities which met that criteria. A second criteria was then added being: the community must have a WorkForce Center that housed an agency designed to provide services specifically to persons with disabilities. This writer ascertained the day of the week that would seem to have the most traffic for the WorkForce Center. After selecting Thursday as the day for observing the parking lots at a WorkForce Center the author determined to observe the Grocery Store parking lots on the same day for her convenience.

The data was collected on a survey instrument and reviewed to determine if the proposed questions were answered.

Demographics

As mentioned previously, the subjects were the occupants (drivers and passengers) of vehicles parking in handicapped designated parking spaces. These subjects were observed at six sites in three different sized communities in a northern

midwestern state. A total of 129 vehicles were observed over a 33-hour period. Of these vehicles 10% (n = 13) had no visible plate, placard, or temporary permit to identify them as legally able to park in the handicapped designated space. The remaining 116 vehicles had one of the aforementioned handicap identification. Table 1 shows how many vehicles had which type of identification. As seen in the Table 1 placards accounted for the majority of identification for vehicles at almost 75%.

Table 1

Handicapped Identification

Vehicle Identification (n = 129)		
plate	16	12.5%
placard	96	74.5%
temp. permit	04	03%
none visible	13	10%
Total	129	100%

As can be seen the identification breakout was 16 with permanent plates, 96 with placards and 4 with temporary permits.

Referring again to the vehicles which had no visible identification, eight of the drivers were male and five were female. There were five vehicles with female passengers, one with a male passenger and seven without any passengers. Although the vehicles did not have identification, three male drivers, one child and two female

passengers exhibited visible disabilities.

Of the 13 vehicles, four drivers did not get out of the car so the observer did not approach the car to see if there was a temporary permit on the dashboard. It is possible that there was a permit or the drivers chose not to hang the placard since they would be in the car if a law enforcement official approached.

The occupants of properly identified vehicles in 16 cases had neither the driver nor the passenger showing an obvious disability. Fourteen of these cases had placards, one had a handicap plate and one had a temporary permit. In 25 instances the driver (18) or the passenger (7) did not get out of the car so the observer was not able to note if there was a visible handicap.

Looking further at the information one sees that there were a total of 70 passengers and 129 drivers observed. Of this total 101 had some sort of visible disability noted by the recorder, 25 could not be determined, and 73 persons without an observable handicap. The drivers were split 72 with to 39 without an observable disability noted by the recorder. Passengers were more likely to be without an apparent disability with 34 of 63 persons so indicated. (Seven passengers did not leave the vehicle and are not included in either the with or without column.)

The subjects were the occupants of the vehicles and were recorded according to their status in the vehicle, gender and with or without an observable disability. As seen in Table 2 the 129 drivers were comprised of 47% male (n = 61) and 53% female (n = 68). Of these drivers 14% or 18 (14 men, 04 women) did not get out of the vehicle.

Handicapped Parking 30

Because the observer could not make a determination of with or without a disability

they are recorded separately in the following table for drivers observed. Of the remaining 111 drivers 72 had a visible disability while 39 did not appear to have a disability.

Table 2

Drivers Observed

Drivers (n = 129)		
Male	61	47%
Female	68	53%
With observable	72	56%
Without observable	39	30%
Not get out of car (M = 14; F = 04)	18	14%

As can be seen in the table the total number of passengers is less than the number of drivers. Of the 129 total vehicles 62 or 48% had the driver as the sole occupant. There were nine vehicles or 07% with more than one passenger. There was never more than two passengers in a vehicle. In the vehicles with two passengers, two had a child as the third occupant of the vehicle. Passengers were 20% male (n = 14) and 76% female (n = 53). There were only three (04%) children in the study. In one vehicle the only passenger was a child with a disability. The observer was not able to identify the gender of any of the children. Table 3 shows the gender count for all except

Handicapped Parking 31

the children. It also shows the separate count for those passengers with or without an observable disability. As noted in the table for drivers there were also passengers who

did not get out of the vehicle. Again the observer separated them in the table from those with or without an observable disability. The children are also separate in the table even though the observer could see the visible disability.

Table 3

Passengers Observed

Passengers (n = 70)		
Male	14	20%
Female	53	76%
Child (2 w., 1 w/o)	03	04%
With observable	29	42%
without observable	34	48%
Not get out of car (M = 03; F = 04)	07	10%
No passenger in car	62	48%
Vehicles w/ multiple	09	07%

As noted previously ages of subjects were recorded on the data collection instrument in a best guess by decade of age. Because of the potential for gross inaccuracy this author did not see any value in including age statistics in the demographics of the study.

Analysis of Data

Previous studies gave suggestions for instrument development, methodology, questions and hypothesis. One of the questions repeated in the preceding studies and in this study is: Are the handicapped designated parking spaces being used by properly identified vehicles? As seen in Table 1 the answer is yes. Of 129 vehicles 116, or 90% of the vehicles parking in designated spaces do have some form of the requisite identification. This study did show more abuse of parking spaces by vehicles without identification than in the Lenz study. The Lenz study states "Two percent (n=3) of the sample (n=133) ...did not utilize a hang-tag or license plate/sticker when parking..." (Lenz, 1999, p. 33). This study was 10% (13 of 129). However, it is significantly less than the studies completed prior to the ADA.

Another question duplicated from the previous studies is that which asks: Do the occupants of properly identified vehicles have an observable disability? Again the answer is yes. There is room for improvement but there is a definite decrease in the survey data for this question over the Lenz study of 1999.

One statistic not included with tables 2 or 3 is the number of vehicles in which neither the driver nor the passenger had a visible disability. Of the vehicles for which there was only one occupant or all of the occupants departed from the vehicle 22 did not have a person with an observable handicap. Four of these 22 did not have visible identification on their vehicle. This leaves 18 vehicles of the 116 (less than 16%) which had identification but no subject with a discernable disability. In the Lenz study 129

Handicapped Parking 33

vehicles had proper identification but 85 of the subjects were "recorded as not having a physical disability" (Lenz, 1999, p. 34).

The recorder did note the length of time each vehicle spent in the handicapped

designated space. Of interest to this author was that the shortest period a vehicle was at any site was 3 minutes or less. In all but one instance this was by vehicles with no handicap identification. In the one instance the vehicle had a placard but the driver had no observable disability.

The length of time vehicles remained in designated spaces was recorded to determine if complaints about too many spaces for too few persons were justified. In many articles reviewed by this writer the complaint of too much abuse of the spaces is offset by complaints on the number of spaces. This complaint is addressed from both sides as: a) too few spaces for ADA compliance, and b) too many spaces for the number of persons needing to use them. The first aspect of this complaint is addressed later. The second is addressed in the recording of time used.

At WorkForce Centers, beginning with Community One, the shortest period of occupancy was two minutes (neither any identification nor visible disability) and the longest was 87 minutes (placard and a visible disability). (The author found it humorous to note this lady did not even go into the WorkForce Center but to a nearby residence.) Ten vehicles parked less than 10 minutes; four parked between 10 - 30 minutes; and four parked more than 30 minutes. There were times when all of the spaces were in use and a person with vehicle identification could not use a designated space.

At the WorkForce Center in Community Two the same vehicle parked in the
Handicapped Parking 34
space for all but 20 minutes at noon time. This vehicle had a temporary permit. Another properly identified vehicle parked in the time limited parking space adjacent to the designated space.

Community Three WorkForce Center had spaces occupied from 3 minutes to 73

minutes duration. Three vehicles parked for less than 10 minutes; four for 10 - 30 minutes; and nine parked for over 30 minutes. Of those nine, four were parked in the space for over two hours. One of these did not have handicap identification and parked in the space closest to the entrance. There were sufficient other spaces for those wishing to use the spaces.

At the grocery store in Community One, the shortest period of occupancy was 3 minutes while the longest was 100 minutes. Of the 12 vehicles observed, three were parked less than 10 minutes and three were parked more than half an hour. The remaining six vehicles parked from 10 - 30 minutes. For brief periods all six spaces were occupied and two other properly identified vehicles parked in close proximity to the designated spaces.

Community Two's Grocery store came close to the same division in numbers. Of the 37 vehicles, nine parked for less than 10 minutes and seven parked for over 30 minutes. The greater amount of vehicles (21) parked for between 10 to 30 minutes. This store had twelve designated spaces that were ample for the needs during the time of observation.

The third Grocery Store site, the author learned, was near a senior citizen apartment complex. Although the majority of the persons were older than at previous

Handicapped Parking 35

sites, the breakdown of numbers still showed the greatest use (25 vehicles) was in the time frame of 10 to 30 minutes. The other pattern of equal users for under 10 minutes or greater than 30 minutes did change. At this site six vehicles parked for less than 10 minutes while 14 parked for over 30 minutes.

Looking at the question: Has abuse of handicapped designated parking spaces

increased or decreased since the previous studies were done? makes the author wish she had allowed for speaking to the subjects. The answer to the question is yes, but no.

Clearly since the Suarez de Balcazar study in 1988 and the Bordeaux study in 1989, abuse of parking spaces should have decreased. These studies were done prior to the passing of the Americans with Disabilities Act and were at the beginning of enforcement of the parking regulations. Looking at the Lenz study and the data in this study raises a different question similar to question two above. This question would be: Are appropriate persons using the handicap identification?

The first two studies show that vehicles without proper identification were abusing the handicapped designated spaces. The other studies are showing a lower proportion of improperly identified vehicles but questions the disability of the occupants of those vehicles.

The author again had a preconceived notion refuted when this study showed that there is no difference in the use or abuse of handicapped designated spaces in different sized communities. One of 18 (5%) and two of 12 (20%) in Community One is 10% for combined sites. In Community Two, none of one (0%) and four of 37 (10%) again results in 10% for the community. And in Community Three, two of 16 (13%) and four of

Handicapped Parking 36

45 (9%) is barely more than the others at 11% for the community. See Table 4, Comparison of Community Sites.

This table is separated by the community size and the community sites. Community One is the smallest population (less than 15,000), Community Two is (50,000 - 100,000), and Community Three is the large population (over 100,000). Site ones are the WorkForce Centers while site twos are the Grocery Stores. The columns

indicate: 1) Number of designated spaces; 2) the vehicle had no visible handicap identification; 3) a handicap license plate was visible; 4) a placard/hang tag was observed; 5) the vehicle had a temporary permit; 6) Driver with an observable disability divided by gender; 7) driver without an observable disability divided by gender; 8) passenger with a visible disability divided by gender; 9) passenger without a visible disability divided by gender; 10) occupants not exiting the vehicle divided by driver and passenger.

Table 4

Comparison of Community Sites

Community One, Site One									
1 No. of Desig. Spaces	2 No ID Visibl e	3 plt	4 pl d	5 tem prm	6 Driver with M F	7 driver without M F	8 passngr with M F	9 passngr without M F	10 not exit vehicle

													D	P
10	01	03	13	01	04	02	04	04	-0-	03	02	05	04	02
Community One, Site Two														
06	02	03	06	01	04	04	02	01	-0-	01	02	04	01	-0-
Community Two, Site One														
03	-0-	-0-	-0-	01	-0-	01	-0-	-0-	-0-	-0-	-0-	-0-	-0-	-0-
Community Two, Site Two														
12	04	03	29	01	10	10	01	09	02	11	01	04	07	03
Community Three, Site One														
14	02	04	10	-0-	01	05	01	05	01	02*	-0-	05	04	-0-
Community Three, Site Two														
18	04	03	38	-0-	13	18	07	05	02	07*	01	10*	02	02
<u>Totals</u>	13	16	96	04	32	40	15	24	05	24	06	28	18	07

* is indicator of one child (gender unknown) included in column

The last question this author wanted to address is whether there is a sufficient number of spaces according to ADA guidelines. This study found the answer to be yes for all but one of the sites observed. Even without a totally accurate count of the

Handicapped Parking 38

available parking spaces because of the snow piles the number of handicapped designated sites met or exceeded the number required. As previously noted, the surprise was that none of the sites had a sign posting "van accessible". This does not mean that the space size was not appropriate, and in some cases the ground markings may have been seen without snow on the ground, it means that at the time of observation there was no visible indicator of a space for vehicles with a ramp.

Unanticipated Findings

One finding, which the observer noted but was not previously thought of in question development, was the location of the designated spaces and the number of violations observed. If the handicapped parking spaces were adjacent to the building and in close proximity to the entrance, not allowing time limited parking to be as close, there were more incidence of abuse. If the handicapped spaces were across a fire lane, a driving lane, or some type of “no parking” space, then that space would be abused not the handicapped spaces.

The author recorded the number of handicapped parking spaces and tried to approximate the number of total parking spaces at each site. Minnesota mimics the ADA in determining the number of handicapped spaces in a parking lot. All but one, of the sites, more than adequately met ADA requirements for that portion of the regulations. The major problem this author noted was the failure at all of the sites to designate at least one space as “van accessible”. The one site in violation of required number of spaces is short about two handicapped designated spaces. During the

Handicapped Parking 39

period of observation at that site the author did note that a person with a placard and an obvious disability was not able to park in a handicapped designated space since it was already in use by a vehicle with appropriate identification. This writer did interview the supervisor of the agency that works with persons with disabilities in the building. He stated the building owner had been apprized several times of this failure to meet codes.

Summary

The findings of this study like that of previous studies are based on a very small sample. It has several areas of weakness that could result in an inaccurate assessment of the data. However this author felt the study was sufficient to refute some of her assumptions and to answer the previously posed questions.

The results found that 10% of drivers, regardless of community size, will park in a handicapped designated parking space. Similar to a previous study, findings appear to indicate that persons are quite willing to use another persons parking privilege. By this the author references the number of vehicles with handicap identification whose occupants did not appear to have a disability. The amount of time users spent in the space is relatively consistent for differing services and disparate communities.

The finding most pleasing to this writer is that most of the parking lots did have sufficient numbers of spaces to meet ADA guidelines.

Chapter V

Conclusions and Recommendations

Introduction

As with all things, conclusions are dependent on beginnings. One starts with the curiosity and a theory to develop questions. The questions need to be worked to determine if they will elicit the information needed to satisfy the curiosity and prove the theory. This author finds that the results that answer questions in ways to stimulate more curiosity or further questions is always more exciting than getting a dead end answer. This study did indeed answer the questions originally proposed. And the answers promulgated further questions. Hopefully others will also hear those questions and develop a study which will titillate the curiosity of even more.

Conclusions

The major conclusion of this study is that more time and more persons should have been involved for the results to be credible.

This was a small sample taken over a short span of time. The data collected did provide answers to the questions proposed but with questionable validity. The fact that the answers paralleled the conclusions of other studies gives this author some consolation.

Reviewing the data this author separated the WorkForce Center and the

grocery store information. The WorkForce Centers did not appear to have a pattern in the time frame for use of the parking spaces. The author thought there was a pattern of use at the Grocery Stores. This pattern was that most persons using handicapped designated spaces shopped for 10 to 30 minutes. Equal numbers fell into less than 10 minutes or greater than 30 minutes.

This study did show more abuse of parking spaces by vehicles without identification than the Lenz study. That study showed 3 of 133 violators while this study shows 13 of 129 inappropriate vehicles in the parking spaces.

The results were sufficient to refute some of this writers preconceived notions. For example, the author expected more abuse of handicapped parking spaces in communities with larger populations. The thought behind that concept was that larger communities would have stores with larger parking lots. Larger parking lots would require more handicapped designated parking spaces. More spaces means more opportunity for abuse. The numbers do not prove that to be true. At the grocery store of a community with a population under 15,000, two vehicles out of 11 were violators. At a grocery store in a metropolitan area with over 100,000 population, there were four violators out of 45 vehicles. At both of the observation sites in each community there was about 10% of the vehicles whose drivers would abuse a handicapped designated parking space.

A conclusion can be drawn that the abuse of handicapped parking spaces is becoming less obvious to the casual observer as the visible identifiers are being used. Both the Lenz study and this study came to the conclusion that persons without

disability are abusing handicap-parking permits. This abuse cannot be recognized as

easily or penalized as frequently as the parking without proper identification. Previous studies have shown that penalties aid in the control or prevention of abuse.

Recommendations

This writer recommends that further studies be conducted utilizing more persons and completed over a longer period of time. The Lenz study found a difference in the number of violations at department stores and grocery stores. This study showed no difference between a grocery store and a service agency. Both of these studies were of short duration with the Lenz study being in one hour increments over a three week period. This study was for six hours on one day. Although both were conducted on what was determined to be high traffic times the results were different. A future study could combine the time frames for observation, i.e. six hour increments over a three week period, to determine if the duration of observation would result in different findings.

Another recommendation would be to develop a survey instrument to use in approaching persons who park in handicapped spaces or to use more trained observers. The Suarez de Balcazar study did use four trained observers who compared notes on their judgement of age and disability perception. Both the Lenz study and this study suggest that basing information on one observers judgement, on whether the person appears to have a disability, may adversely affect the results.

This writer also recommends allocating more columns on the survey instrument. The observer found herself recording what she considered necessary information in the

Handicapped Parking 43

comment column because of not fully considering the multitude of variables. The information found in Table 4 would have been easier to compile if the information, for

those columns, had been listed separately on the survey instrument.

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Handicapped Parking 47

Appendix A

Community Name and Size:
Name of Business:

Number of Regular Spaces (Approximate):

Number of Regular Spaces (Approximate):

Number of Vehicles Observed:

[illegible]

Appendix B - Data Compilation**Community Name and Size:** Community One - less than 15,000**Name of Business:** Site One - WorkForce Center**Number of Handicapped Designated Spaces:** 4 in front of building; 8 in adjacent lot**Number of Regular Spaces** (Approximate): 8 (30 minute) in front of building; 19 (two hour) across the street from building; over 200 in lot across side street**Time:** 6 Hours. 9:00 a.m. - 3:00 p.m. Thursday: March 01, 2001**Number of Vehicles Observed:** 18

No./ time	Placard/plate/ temp. permit	Driver w/ visible H.	Pass. w/ visible H.	Nature of visible H.	comments:
1. 5 m.	placard	20s fem. no	60s male no	none	
2. 6 m.	placard	30s fem. ??	20s fem. no	none	driver did not get out of car
3. 4 m.	placard	50s fem. no	40s male ??	none	passenger did not get out of car
4. 5 m.	plates	60s male ??	50s fem. yes	walked w/ cane	driver did not get out of car
5. 3 m.	placard	20s fem. no		none	
6. 2 m.	none	30s male no	30s fem. no	none	space open across street
7. 87	placard	70s fem. yes		walked slowly	did not go into business. Went across street
8. 3 m.	plates	30s fem. yes		walks very slow	very obese
9. 6 m.	placard	50s fem. no		none	
10. 25	placard	40s male yes		odd gait	extremely obese
11. 81	placard	60s male yes		breathing difficulty	also had severe tremors in hands

C. 1, S. 1 - WorkForce Center (cont.)

No./ time	Placard/plate/ temp. permit	Driver w/ visible H.	Pass. w/ visible H.	Nature of visible H.	comments:
12. 10	placard	70s male ??	70s fem. yes	walked w/ limp	driver stayed in car
13. 13	placard	70s male ??	70s fem. yes 50s fem. no	walked slowly	driver stayed in car
14. 10	placard	60s male no	40s fem. no	none	driver stayed in car left w/o pass. drove around block and parked across st. from entrance in non- handicapped space
15. 17	plates	30s male yes		cane and limp	
16. 21	placard	40s male no	50s fem. ??	none	passenger stayed in car
17. 45	temporary permit	40s male no	40s male no	none	asked passerby where to go for DOT phys.
18 35	placard	40s male yes	30s fem. no	limp	

Community Name and Size: Community One - less than 15,000

Name of Business: Site Two - Grocery Store

Number of Handicapped Designated Spaces: 6 (first space of each parking row) in front of building

Number of Regular Spaces (Approximate): 168

Time: 6 hours. 4:00 p.m. - 10:00p.m.

Thursday: March 01,2001

Number of Vehicles Observed: 12

No./ time	Placard/plate/ temp. permit	Driver w/ visible H.	Pass. w/ visible H.	Nature of visible H.	Comments:
1. 100	placard	50s fem. yes		very obese	could see used motorized cart in store
2. 16	plate	60s fem. ??		walked slowly	
3. 35	placard	80s male yes	60s fem. yes	used cane	both driver and passenger had canes
4. 30	Temp. permit	60s male yes	50s fem. no 30s fem. no	walked slowly with odd gait	driver also had trouble bending to get into car
5. 35	placard	50s fem. yes		used cane	had difficulty getting into pickup
6. 5 m	none	30s male no			looked very able bodied
7. 30	placard	30s male no	30s male no pre-teen male no	none	all three walked quickly without obvious difficulty
8. 7 m	plate	40s fem. ??		walked slowly	out of state plates that looked like handicapped
9. 11	placard	30s fem. no		none	no obvious physical disability
10. 13	plate	80s male yes		walked carefully	not too slow but cautious

C. 1, S. 2 - Grocery Store (cont.)

No./ time	Placard/plate/ temp. permit	Driver w/ visible H.	Pass. w/ visible H.	Nature of visible H.	Comments:
11. 3 m.	none	female	20s fem. no		driver did not get out, passenger no obvious
12. 11	placard	60s male yes	60s fem. no	walks slow	

Community Name and Size: Community Two - 50,000 -100,000

Name of Business: Site One - Work Force Center

Number of Handicapped Designated Spaces: 1 in front of building; 1 at side employee entrance; 1 at rear employee entrance (which had 6" curb to climb to ramp)

Number of Regular Spaces (Approximate): 8 (30 minute) spaces immediately in front of building; 41 additional spaces in front lot of building; 29 spaces at side of building; 21 spaces at rear of building with an additional 37 in a lower lot at rear of building

Time: 6 Hours. 9:00 a.m. - 3:00 p.m. Thursday: March 22, 2001

Number of Total Vehicles Observed: One

No./ time	Placard/plate/ temp. permit	Driver w/ visible H.	Pass. w/ visible H.	Nature of visible H.	Comments:
1. All day	temporary permit	30s fem. ??			did not seem to have a disability but did hold railing when climbing the steps. Car was in the only space when study started. female left for about 20 minutes at noon.
2. 8 m.	placard	60s male yes		difficulty walking and breathing	parked in 30 minute space next to handicapped designated space.

Community Name and Size: Community Two - 50,000 -100,000

Name of Business: Site Two - Grocery Store

Number of Handicapped Designated Spaces: 12 spaces; four spaces each at the front of three rows across from store entrance. Driving lanes between store and spaces

Number of Regular Spaces (Approximate): 154 in five rows of parking lot

Time: 6 Hours. 4:00 p.m. - 10:00 p.m. Thursday: March 22, 2001

Number of Total Vehicles Observed: 37

No./ time	Placard/plate/ temp. permit	Driver w/ visible H.	Pass. w/ visible H.	Nature of visible H.	Comments:
1. 7 m.	none	70s male ??			driver sleeping in car when study started, woke up, drove to other space. wheelchair in rear seat.
2. 17	placard	50s fem. no		none	already in space when study started. When fem. left no obv. phys. dis.
3. 23	placard	70s fem. yes		cane	
4. 25	placard	70s fem. ??	70s male yes	walked slowly	seemed to lean on female for support.
5. 32	placard	70s fem. no	80s male yes	walked slowly	
6. 30	placard	70s male ??	70s fem. ??		dropped passenger at door and then parked and stayed in car.
7. 15	none	? Male ??	70s fem. ??	walked slowly	driver stayed in car
8. 15	placard	70s fem. yes		used cane	
9. 15	placard	80s fem. yes		walked slowly	walked with odd gait as if had a brace on ankle
10. 60	plate	? Male ??	80s fem. ??	walked slowly	driver stayed in car.

C. 2, S. 2 - Grocery Store (cont.)

No./ time	Placard/plate/ temp. permit	Driver w/ visible H.	Pass. w/ visible H.	Nature of visible H.	Comments:
11. 7 m.	placard	60s fem. yes		walked slowly	seemed to have breathing difficulty
12. 46	placard	30s fem. yes		walking	seemed to be dragging one foot
13. 25	placard	? Male ??	60s fem. no	none	driver did not get out of car.
14. 43	placard	? Male ??	40s fem. no	none	driver did not get out of car.
15. 29	plate	60s male yes		used cane	
16. 28	placard	30s male no	80s fem. yes	used cane	
17. 21	placard	60s male ??	50s fem. yes	limped	driver did not get out of car
18. 64	placard	30s fem. no	teen fem. yes teen fem. no		Teens were in van for long time. When they got out I saw that one was in a wheelchair and the front passenger seat was removed for wheelchair.
19. 23	placard	20s fem. no	20s fem. no 60s fem. yes	walk unsteady	60s fem. was supported by the young females as she walked into the store.
20. 7 m.	placard	40s fem. no	?? fem. ??	none	Passenger did not get out of car
21. 21	placard	30s fem. yes		odd gait	very obese
22. 21	plate	70s male yes		walked slowly	seemed to be very unsteady

C. 2, S. 2 - Grocery Store (cont.)

No./ time	Placard/plate/ temp. permit	Driver w/ visible H.	Pass. w/ visible H.	Nature of visible H.	Comments:
23. 30	placard	50s male yes		walked slowly	very unsteady
24. 9 m.	none	50s male yes		limping	had difficulty getting into car
25. 22	placard	60s male ??			Was obese but no other obvious disability
26. 19	placard	50s male yes		limp	wore brace on leg
27. 37	placard	60s fem. ??		Walked slowly	not the same slow walk as person with disability
28. 3 m.	placard	30s fem. no	80s fem. ??		Passenger stayed in car
29. 17	placard	40s fem. ??	50s male no	walked slowly	female was obese
30. 7 m.	placard	70s male yes	70s fem. yes	walked slowly	both were unsteady and slow
31. 24	none	40s fem. no	60s fem. ??		Walk into store fine, return was slow as if fatigued
32. 20	placard	70s male yes		back?	slow getting out of and into car, walked ok
33. 37	placard	50s fem. no	70s fem. yes	slow walk	quite unsteady. Needed support of other
34. 7 m.	temporary permit	70s fem. yes		used cane	
35. 7 m.	placard	50s male yes		walked slowly	walked with slight limp or odd gait
36. 17	placard	20s fem. no	50s fem. yes	walked slowly	driver got grocery cart for passenger to lean on

C. 2, S. 2 - Grocery Store (cont.)

No./ time	Placard/plate/ temp. permit	Driver w/ visible H.	Pass. w/ visible H.	Nature of visible H.	Comments:
37. 3 m.	placard	50s male yes	? Fem. ??	walked with odd gait	Passenger did not get out of car.

Community Name and Size: Community Three - Metropolitan Area - over 100,000

Name of Business: Site One - WorkForce and County Government Center

Number of Handicapped Designated Spaces: 13 spaces to left of front entrance

Number of Regular Spaces (Approximate): 487+ (some spaces were filled with snow and not able to be counted) four reserved for service provider vans; four reserved for service provider buses; two reserved for food shelf customers; one for postal delivery

Time: 6 Hours. 9:00 a.m. - 3:00 p.m.

Thursday: March 29, 2001

Number of Total Vehicles Observed: 16

No./ time	Placard/plate/ temp. permit	Driver w/ visible H.	Pass. w/ visible H.	Nature of visible H.	Comments:
1. 208	plate	60s fem. yes		used cane	car in space when study started
2. 315	none	50s fem. no		none	car in space when study started. Sheriff walked by and did not ticket
3. 198	placard	40s fem. yes		breathing	had oxygen tank on portable cart
4. 14	placard	30s fem. no		none	nothing visible
5. 45	placard	50s fem. ??		Walked slowly	
6. 30	no plate or placard	? Male ??	40s fem. no child yes	child with physical deformity	driver did not get out of car. Dropped female and child at door and then drove to space. Female came out w/o child.
7. 190	placard	20s fem. yes		obvious limp	
8. 5 m.	placard	? Fem. ??	50s fem. no		driver did not get out of car
9. 3 m.	placard	40s fem. no		none	could not discern physical disability
10. 67	plate	50s fem. yes		limp and slow	

C. 3, S. 1 - WorkForce Center (cont.)

No./ time	Placard/plate/ temp. permit	Driver w/ visible H.	Pass. w/ visible H.	Nature of visible H.	Comments:
11. 3	Plate	30s male ??	30s fem. no		van equipped with ramp driver didn't get out of van
12 34	placard	60s male ??	50s fem. ??		Driver not get out, passenger obese & slow
13. 25	placard	30s male no	70s fem. ?? 30s fem. no		older passenger walked slowly. Young women had baby in stroller
14. 74	placard	30s male yes		slow & limped	Still there when study ended
15 35	plate	60s fem. no		none	still there when study ended
16. 30	placard	40s fem. no	20s male yes	wheel- chair	young man also had scars on head

Community Name and Size: Community Three - Metropolitan Area - over 100,000

Name of Business: Site Two - Grocery Store

Number of Handicapped Designated Spaces: 18

Number of Regular Spaces (Approximate): 451+ (spaces were filled with snow and were not able to be counted)

Time: 3 Hours. 4:00 p.m. - 7:00 p.m.

Thursday: March 22, 2001

Number of Total Vehicles Observed: 45

No./time	Placard/plate/temp. permit	Driver w/visible H.	Pass. w/visible H.	Nature of visible H.	Comments:
1. 55	placard	50s fem. yes		Unsteady on feet	
2. 35	placard	70s male yes	70s fem. yes	walked slowly	walked holding each others arms, she leaned on cart on return
3. 25	placard	80s male ??	70s fem. no		driver stayed in car
4. 25	placard	60s male no	60s fem. yes	breathing	pass. walked very slowly, had difficulty breathing
5. 35	plate	50s fem. no	70s fem. no ? Male ??		Male passenger stayed in car
6. 20	placard	70s male yes	70s fem. yes		fem. had problems getting in & out of car, male frail & unsteady
7. 30	None	60s male yes		walked slow	needed cart for support on return to car
8. 60	placard	60s fem. yes	20s male ??		driver walked slow with odd gait, male obese
9. 25	placard	60s male yes	60s fem. yes		driver unsteady, pass. limped
10. 21	placard	60s fem. no	20s fem. no child no	none	no obvious disability

C. 3, S. 2 - Grocery Store (cont.)

No./ time	Placard/plate/ temp. permit	Driver w/ visible H.	Pass. w/ visible H.	Nature of visible H.	Comments:
11. 31	plate	20s male ??			Very obese, walked very slowly
12. 5 m.	placard	50s male no		none	no obvious visible disability
13. 17	placard	70s fem. yes			difficulty getting out of car, breathing difficulty on return to car
14. 6 m.	None	30s fem. ??	30s male no		driver not get out of car
15. 51	placard	70s fem. yes		had a cane	leaned on cart to go into store
16. 21	placard	60s fem. ??		shaky	Could see tremors in right hand, no other visible
17. 8 m.	placard	40s fem. ??		walk	Walked with odd gait going into store, walked fine coming out
18. 57	placard	70s fem. yes		walked slowly	leaned on cart to go into store
19. 24	plate	50s fem. ??			Very obese
20. 17	placard	30s fem. ??			Obese but not extreme, no other visible
21. 15	placard	30s male no	70s fem. yes		leaned on cart to go into store
22. 3 m.	none	teen fem. no		none	nothing visible, ran into store
23. 51	placard	70s male yes	70s fem. no		Had deformed leg

C. 3, S. 2 - Grocery Store (cont.)

No./ time	Placard/plate/ temp. permit	Driver w/ visible H.	Pass. w/ visible H.	Nature of visible H.	Comments:
24. 28	placard	70s fem. yes	80s male yes	walking difficulty	barely able to walk, leaned on cart on return.
25. 69	placard	70s male yes	70s fem. no	limp	walked bent over like arthritic back
26. 30	placard	50s fem. yes		used cane	
27. 73	placard	40s fem. yes	20s fem. no	walked slowly	driver leaned on cart
28. 25	placard	60s male yes		used crutch	
29. 25	placard	80s male ??		None	no obvious disability
30. 26	placard	30s fem. yes		walk	very knock-kneed
31. 8 m.	placard	20s fem. yes		limp	very obese and walked slowly with limp
32. 17	placard	40s male no		none	no obvious disability
33. 43	placard	60s fem. yes		walking breathing	leaned on cart, puffing badly,
34. 20	placard	40s fem. no	?child		child in wheelchair could not determine gender
35. 20	placard	70s male no	70s female	none	could not see obvious disability in either
36. 22	placard	50s male no		none	no visible disability
37. 10	placard	20s fem. no	40s fem. no	none	no visible disability in either woman

Handicapped Parking 62

C. 3, S. Grocery Store (cont.)

No./ time	Placard/plate/ temp. permit	Driver w/ visible H.	Pass. w/ visible H.	Nature of visible H.	Comments:
38. 22	placard	70s fem. yes		walking	used riding shopping cart
39. 19	placard	40s fem. yes	30s fem. yes	walking	driver had limp, pass. was very obese
40. 16	placard	40s male no	40s fem. no	none	could not see obvious disability on either
41. 52	placard	70s male yes		cane	
42. 50	placard	30s male yes		cane	did not use cane properly
43. 5 m.	none	60s male ??	? fem. ??		Driver may have had slight limp, pass. not get out of car
44. 31	placard	60s fem. yes		stooped and slow	
45. 25	placard	50s male yes		crutches	