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USING A NEIGHBORHOOD CRIME PREVENTION PROGRAM
TO REDUCE RESIDENTIAL BREAKING AND ENTERING.

WESTERN MICHIGAN UNIVERSITY, PH.D., 1978

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USING A NEIGHBORHOOD
CRIME PREVENTION PROGRAM
TO REDUCE
RESIDENTIAL BREAKING AND ENTERING

by

Paul H. Selden

A Dissertation
Submitted to the
Faculty of The Graduate College
in partial fulfillment
of the
Degree of Doctor of Philosophy

Western Michigan University
Kalamazoo, Michigan
August 1978

THE GRADUATE COLLEGE
WESTERN MICHIGAN UNIVERSITY
KALAMAZOO, MICHIGAN

Date March 23, 1978

WE HEREBY APPROVE THE DISSERTATION SUBMITTED BY

Paul H. Selden

ENTITLED Using a neighborhood crime prevention program

to reduce residential breaking and entering

AS PARTIAL FULFILLMENT OF THE REQUIREMENTS FOR THE

DEGREE OF Doctor of Philosophy


Dissertation Review Committee Chairman


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APPROVED


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Without the cooperation of the Kalamazoo Police Department,

evaluation of the project's impact on crime would have been nearly impossible to assess. Police Chiefs Dean Fox and John Ross, Sgt. Dale Camburn, and Sgt. Stephen Sarle will always be remembered for their belief in the project and their helpfulness in encouraging citizens to combat crime. The many other fine policemen, policewomen, and staff members who operate the city's Crime Prevention Bureau deserve special mention for their friendly cooperation, the extra spice which helped to make my work with the Kalamazoo Police Department so rewarding. The efforts of the officers expended in helping to rid our neighborhood of a persistent thief deserve a vote of thanks from me on behalf of the entire Stuart Area neighborhood, as well.

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Paul H. Selden

TABLE OF CONTENTS

	Page
INTRODUCTION	1
METHOD	14
Subjects and Setting	14
Apparatus	15
The Project	15
Design	16
Treatment sequence	19
Chronology of changes in program operation	20
Data collection	21
Project Implementation	22
Obtaining community support and police cooperation	23
Obtaining and organizing volunteers	25
Training volunteers--specific volunteer duties	27
Dealing with problems	30
Observing volunteer reliability	31
Homeowner security survey	35
Crime prevention bulletin impact survey	37
RESULTS	39
Reliability of the Patrollers	39
Patrol Operation	40
Major Comparisons	41

	Page
RESULTS (cont'd)	
Ancillary Findings	46
Decrease in successful burglary	47
Decrease in dollar value stolen	49
Residential burglary committed during programmed patrol hours	51
Decrease in multiple burglaries	52
Sequential Patterning	53
Identification engraver sign-outs	55
Premise inspections	56
Police dispatches	57
Measures of Possible Displacement Effects	58
Fringe street burglary	59
Burglary in Police District 24	59
Survey Results	61
Homeowner security survey	62
Crime prevention bulletin impact survey	62
Additional Information	63
DISCUSSION	66
FIGURES	87
TABLES	91
APPENDICES	107
REFERENCES	119

The present study assessed the effectiveness of one type of community based crime prevention program, specifically, one in which volunteers from an older neighborhood patrolled their area of town on certain evenings at scheduled times and distributed crime prevention literature to area residents. The program was directed at reducing the frequency of breaking and entering in residential dwellings.

Local concern about residential breaking and entering is well justified. The Department of Police Annual Report (1976) in Kalamazoo states, for example, that the number of residential burglaries in 1976 was more than twice that of the frequency in 1971 (more than 1500 burglaries in 1976 as compared with less than 750 burglaries in 1971). Since the population of Kalamazoo has declined approximately five percent during that time, the actual intensity of the problem is greater than the raw figures would indicate. The monetary loss from those burglaries reported to the police increased from about \$240,000 to nearly \$400,000 during those years, a pace that more than keeps up with "single digit" inflation. Although decreases on the order of 10 percent have been reported for many types of crime during the first third of 1977 (Kalamazoo Gazette, May 15, 1977), the level of crime has not decreased to the previously low levels cited above (that is, in 1971).

The problem of burglary reaches far beyond local proportions, however. Although popular headlines frequently identify "crime" in general to be a major or the major source of concern to modern

citizens, the particular crimes responsible for this concern were suggested in a report by the President's Commission on Law Enforcement and Administration of Justice (Katzenbach, 1967) in the late 1960's, when the crime problem was beginning to surge. The Commission found that:

"Burglars are probably the most numerous class of serious offenders in the correctional system. It is a plausible assumption that the prevalence of the two crimes of burglary and robbery is a significant, if not a major, reason for America's alarm about crime, and that finding effective ways of protecting the community from those crimes would do much to make 'crime' as a whole less frightening and to bring it within manageable bounds."

Further, the Commission discovered that only one out of four burglaries are solved, and that burglary may actually occur nearly three times more often than is reported to the police. There is ample reason for active interest in the topic of burglary prevention, both locally and nationally.

In the face of this crime problem an increasing interest in citizen involvement in crime prevention has emerged. As Washnis (1976) has observed:

"More than in any past years, police officials and criminologists believe that active and serious citizen involvement is essential if crime is to be substantially reduced. Out of necessity the general public has been stimulated to assist undermanned, overtaxed, and often non-community-oriented police forces in the development of healthy and secure neighborhoods."

As Washnis suggests, the reason for this increased citizen activity is to be found in the inability organized law enforcement agencies have shown in dealing with this increase in crime. Pleas for assistance from the general public in controlling the problem have been mounting in recent years, as have reports of the attempted

community based crime prevention programs. A few examples may be cited. The President's Commission on Law Enforcement and Administration of Justice (Katzenbach, 1967) reiterated the common advice that citizens should report all crimes and suspicious persons promptly, and cooperate with police investigation of crime. James Q. Wilson (in Gordon, 1968) argued that "perhaps most important, the President of the United States should use his office and prestige to enlist citizen interest and citizen action in crime prevention programs". C. Ray Jeffery (1971) suggested that "citizen patrols could be established. Citizens can be trained in crime prevention measures, which would include measures to be taken to ensure personal safety as well as the safety of property". By 1973 the U. S. Department of Justice noted that indeed, "private group activity specifically directed at preventing crime is increasing. Although no hard statistics are available, during the late 1960's and early 1970's hundreds of local projects emerged in communities across the country" (Peterson, 1973a). The use of neighborhood crime prevention patrol projects is not novel. One recent evaluation of community based crime prevention programs identified more than 200 resident patrol projects operating in major cities within the United States (Yin, Vogel, Chaiken and Both, 1977). The total number of community based crime prevention programs is estimated to number above 3000 (Washnis, 1976).

Although this experiment evaluated the impact of only one special type of crime prevention program, its place among the many types of community based crime prevention programs may be

illustrated by listing the largely self-explanatory variety of programs in operation. They include the Block Club, in which neighbors make a deliberate attempt to organize their neighborhood in pursuit of both lighthearted and more serious goals, and Neighborhood Watch programs, in which people living near to each other exchange telephone numbers and information which would allow them to more easily detect the presence of a prowler on each other's property. Whistle Alert programs attempt to convince residents (especially females) to wear and use whistles to alert the neighborhood of the wearer's imminent danger at the hands of a criminal. Operation Identification projects involve engraving valuables with permanent personal identification to enable law enforcement agencies to more easily return stolen goods once they are recovered. Radio Watch participants monitor Citizen's Band radios for distress calls; other radio frequencies are also monitored. The public media also conducts various sorts of informational and promotional anti-crime "crusades". Other programs offer rewards for "hot tips" concerning criminal activities. Campaigns for improved street lighting are waged by various groups, as are programs for increasing home security protection through the use of stronger locks, alarm systems, and appliance timers. Apartment surveillance programs, neighborhood patrols, courtwatch committees (which monitor court sentencing and legal procedures with an eye to preventing undue leniency) are also being used. Many varieties of social service organizations, such as local education centers, drop-in organizations, Big Brothers and Sisters programs, and drug abuse treatment centers, attempt to

reduce crime, directly and indirectly.

Although such community based crime prevention programs have overlapping objectives and common techniques, in general, four distinct elements may be discerned among these programs which help to categorize the nature of their goals. These programs attempt to intervene so to prevent criminal acts at at least one of four points. First, there are programs which attempt to provide a long range learning history conducive to non-criminal activity in later years. The Big Brothers program, for example, tries to provide substantial non-criminal models for fatherless children. These adult males directly and indirectly try to teach their "little brothers" appropriate behaviors, among other things. Second, there are programs which help to arrange stimuli discriminative for avoidance of criminal behavior. In such programs citizens attempt to conspicuously display posted warnings, watchpersons, or other devices indicative of a likelihood that punishment will follow unsavory acts on the part of would-be criminals. Decals and stickers warning that property is marked with special identification numbers, that the homeowners are members of Neighborhood Watch, or that the premises are patrolled by a neighborhood apartment surveillance team, are instances of this sort of approach. Third, some community based crime prevention programs attempt to alter the schedule upon which the consequences for criminal activity are delivered. Typically, such programs attempt to increase the likelihood that punishment will follow criminal activities, that the certainty of being caught engaged in criminal acts is increased.

Citizens who install alarm systems, who purchase watch dogs, who support neighborhood patrol programs, or who themselves report instances of possible wrongdoing to the authorities exemplify this third approach. Fourth, many crime prevention programs stress the upgrading or installation of devices which render the commission of criminal acts physically impossible, or by arranging the goods which thieves are likely to steal in such a way that their removal from ones possession is not physically possible, or at least, is less possible. Such programs emphasize the installation of safes, strong doors and locks, bars, locked gates, and fences, and they recommend keeping valuable possessions where thieves cannot reach them, such as in bank vaults, hidden boxes, or in any other place the thief is not likely to have access to.

The specific organizational characteristics and goals of particular community based crime prevention programs may be found in numerous popular magazine articles (for example, "War on crime by fed-up citizens" in U. S. News and World Report, September 29, 1975). Several more centralized sources summarize the activities of hundreds of such programs for the interested reader (see Peterson, 1973b; Trojanowicz, Trojanowicz and Moss, 1975; Washnis, 1976; Yin, et al., 1977).

The present experiment utilized an approach that combined elements involving presentation of stimuli discriminative for avoiding commission of criminal behaviors, increased likelihood of punishment for criminal behaviors, and rendering such behavior physically impossible or much less likely. This experiment was

designed to test the effectiveness of these elements as a unitary package. The separate functional characteristics of the individual elements were not tested.

Given the widespread interest in curbing crime through community action it is somewhat surprising that more scientific research on the topic is not available, however. As Jeffery (1971) observed:

"Some quasi-experimental studies on the effectiveness of treatment has been made, but we do not know the relationship of variables to crime since proper controls over extraneous variables have never been achieved."

Not until 1971 did the Federal government establish a commission to outline methods by which citizens could reduce crime in their neighborhoods, when the National Advisory Commission on Criminal Justice Standards and Goals was created. The Commission itself declared that, "never before has a blueprint been drawn up that sets out citizen responsibilities in all areas of social life that can contribute to crime reduction" (Peterson, 1973b). The fact that such a commission has not until recently been established can not entirely account for a lack of previous research in the area, though. Citizen action to reduce crime in America predates the rough and tumble frontier vigilante period of the 1800's, of course. If citizens have been active in crime prevention for such a long time, how are we to account for the relative lack of research into this important area?

The President's Commission on Law Enforcement and Administration of Justice offers a more plausible explanation in a startling comparison:

"Approximately 15 percent of the Defense Department's annual budget is allocated to research. While different fields call for different levels of research, it is worth noting that research commands only a small fraction of 1 percent of the total expenditure for crime control. There is probably no subject of comparable concern to which the nation is devoting so many resources and so much effort with so little knowledge of what it is doing" (Katzenbach, 1967).

Regardless of the well intentioned personalities involved, this lack of budget allocation in turn suggests a lack of scientific training and effective leadership in crime control command positions, at least in 1967.

Another reason for the lack of research on the topic may be that we simply lack convenient and practical scientific techniques with which to analyze community based crime prevention programs. Many problems confront the researcher working in this area. It is difficult, if not impossible, to use experimental designs with control groups, for example, because most citizens would undoubtedly protest being randomly assigned to anything, not to mention to a group in some sort of experiment on crime control. Potentially negative political consequences may threaten the rigor with which programs are evaluated if the evaluating agency is the same as the agency administering the project. Ethical problems also arise when deliberately withholding a potentially beneficial treatment from certain groups. The inability to define and carefully measure treatment variables, dependent measures, and to identify the subjects of an experimental setting contribute to the difficulties involved in any evaluation of social action programs (Weiss, 1972). Finding satisfactory designs with which to evaluate community based crime prevention programs certainly must be a major contributor to the

lack of scientific research in the area.

Finally, it seems reasonable to assume that if the traditional agencies involved in crime prevention (such as the police) receive so little money for research, then citizens banding together in private organizations not chartered by local, state, or federal governments would receive even less money to evaluate their activities. It also seems reasonable to assume that the traditional agencies would use their own scarce resources to finance evaluations of their own programs rather than projects initiated by citizens.

Given these obstacles, the nature of the research that has been carried out leaves much to be desired from a scientific point of view. Currently, the success of most community based crime prevention programs is typically reported in an anecdotal or case history format. The media rarely report failures of such groups. Much of the objective literature on crime, including burglary, is confined to simple description of crime frequencies, patterns, criminal personality "types", and common sense advice on how to ward off crime (for example, Osterman, 1966; Katzenbach, 1967; Conklin, 1972; Palmer, 1973; Scarr, 1973; David, 1974; Reppetto, 1974; Pope, 1977).

What success has been reported is encouraging and demonstrates resourcefulness, however. For example, the Indianapolis Anti-Crime Crusade begun in March 1962 under the leadership of just a few outraged women now includes 60,000 active participants who work toward improvement of street lighting, rape prevention, coping with drug abuse, offering vocational guidance, the monitoring of police and

correctional systems and high school drop out prevention. Peterson (1973b) mentions no specific success in his coverage of this group, though, except for improved street lighting and the return of some 2000 dropouts back to school. The normal rate of street light renovation and the typical rate of dropout returns are not provided. The Indianapolis model has nevertheless been used in an estimated 50 larger cities and 500 smaller towns. Peterson (1973b) does report the results of street lighting programs in other cities, one of which did provide comparisons with a non-treated control group. A pre-post comparison of improved street lighting in St. Louis, Missouri's downtown business district (1963 vs. 1965) showed that crime against persons had decreased by about 41 percent, that incidents of auto theft decreased by more than 28 percent, and that business burglaries decreased by about 13 percent following the street light improvement. Decreases or increases for those crimes in other parts of the city during those years are not reported. Improved street lighting in major New York City playgrounds (no dates given) is reported to have decreased vandalism in those areas by an average of about 80 percent. No control areas for these pre-post observations were mentioned. In Detroit, Michigan, street crimes in lit areas decreased "by as much as" 55 percent. Again, in this study no dates were mentioned and no control groups were indicated. Lastly, in Washington, D. C. (in 1970), after sodium vapor lights were installed in one area, robberies decreased over a three month period by 25 percent. City-wide, robberies during that period decreased by just 8.3 percent.

Burglary in the area of improved lighting decreased by about 63 percent. City-wide, the decrease in burglary was just six percent. Although this last study reported by Peterson apparently utilized a non-treated control group comparison, the reviewer did not mention the rate of decrease for this area prior to introduction of the improved street lighting. Without this information it is possible that in the target area, these crimes were decreasing at a high rate before the improved lighting was introduced. The provision of city-wide statistics did allow comparisons to be made between "normal" or expected fluctuations in the crime rate for the city as a whole and the crime rate in the target area. This is a desirable comparison to make because one would not want to attribute changes in the target area to a special program when the expected rate of change for the rest of the city could account for it.

Further illustrating this kind of reporting, a U. S. News and World Report article (September 29, 1975) mentions results (no controls) but no treatment! As the result of "increased citizen concern", the story noted, burglary in Orinda, California decreased 48 percent after two and a half years of effort; and, in Camden, New Jersey non-violent crime dropped 41 percent in two years of "work by citizens", the nature of which was not specified.

No controls were mentioned in a human interest story concerning a group of elderly women (known to local residents as "Charlie's Angels") in Issaquah, Washington, which patrolled designated neighborhoods in automobiles equipped with Citizen's Band radios.

As was reported, the old ladies checked homes for any signs of unlawful entry while the homeowners were away on vacation; homeowners would call them to ask for this voluntary service. At the time of reporting no burglaries had occurred over the summer in homes checked by the women (ABC News, August 16, 1977). Controls were not cited either, when NBC News (November 15, 1977) reported that painting alleys white cut burglaries near those alleys by half in an Iowa town.

These examples are presented not to exhaust available experimental or quasi-experimental evidence regarding the success of community crime prevention programs. They are given merely to illustrate the "popular" nature of many of the accounts, and to show that much of the available "serious" evidence does not allow us to address the issue of causality in the crime prevention programs: we cannot say whether or not the intended treatment was responsible for any changes noted in the crime patterns observed. These problems are not peculiar to crime prevention research; it is difficult to evaluate the effects of social action programs in general (Campbell and Stanley, 1963; Weiss, 1972). This is not to say that sound research is not being accomplished at all, however.

Schnelle, Kirchner, McNees and Lawler (1975) addressed these difficulties in their evaluation of "two police patrolling strategies", concluding that where treatment is difficult to control with precision, an "evaluation researcher must attain optimal experimental analysis given the limitations of each social evaluation". In their case, use of a multiple measures with non-equivalent control design

allowed the experimenters to assess the effects of saturation patrolling by police cars on home burglary rates. They found, incidently, no effect of the intensified patrol on burglary rates even though arrest rates increased. In a second study, the experimenters' use of a multiple baseline design allowed them to assess the impact of a police foot patrol on reported crime and arrests. In this study crime reporting increased but arrests did not. Thus, using time series methodology, the researchers were able to analyze important police practices at a time when more costly (e. g., randomized) experimental designs were not available. Their use of control territories for observation, though not randomly selected, minimized the threat of the chief source of invalidity in the application of time series analyses, namely, "historical validity" threats.

Recent experimentation in the area of crime control indicates the potential for more scientific appraisal of police methods (see, for example, Schnelle, Kirchner, Casey, Uselton, and McNees, 1977) using the time series methodology familiar to applied behavior analysts.

The present study employed time series methodology, specifically, a seasonally adjusted reversal design with a non-treated control comparison population supplemented by measurements taken on conceptually related variables, to assess the impact of a neighborhood patrol project on residential breaking and entering. A recent governmental study (Yin, et al., 1977) concluded that no scientific evaluation of neighborhood patrol project success has been conducted.

METHOD

Subjects and Setting

The activities of the neighborhood patrol and its impact were studied from the initiation of project activities on March 1, 1977 until December 31, 1977, when inclement weather and a seasonally lower rate of residential burglary allowed the group to retire for the winter. The volunteers were drawn from and patrolled a neighborhood in Kalamazoo, Michigan, known locally as the "Stuart Area". This area is part of census tract five, and straddles what was the southern border of Police District 24 and the northern boundary of Police District 27. More specifically, the volunteers walked through and on the perimeter of the area bounded by West Main, Elm, North, and Douglas, including the Eleanor spur off Elm and all streets within these boundaries. The population of the area is roughly 1200; at the time of the 1970 national census there were 555 year-round housing units, 461 (83 percent) of which were multiple units. In 1970 the U.S. Bureau of Census described nearly 20 percent of the units as owner occupied (with a mean valuation of about \$17000) and about 70 percent of the units as renter occupied (with mean rental expense at approximately \$110). About five percent of the neighborhood's population was Negro at that time, about 15 percent under 18 years of age, and about eight percent of the residents were older than 62. The Stuart Area (SARA) is at this time dominated by stately large homes built in the late eighteen and early nineteen hundreds, the interiors of which have now been partitioned off to provide rental housing for the many university

students who live in the neighborhood. The Stuart Area borders on its east and north a section of town of historically low socioeconomic level (primarily non-Caucasian), and there is a high amount of automobile and walk-through pedestrian traffic on the part of residents from that area through the Stuart Area. The identities of those burglars operating in the Stuart Area were not known to those involved in this crime prevention project, however.

Apparatus

No special equipment (such as walkie-talkies or Citizen's Band radios) was used as part of the project. Telephones were used when communication was necessary between members of the project. Brief one page lists of crime prevention suggestions were distributed throughout the neighborhood, however, at a total cost of less than \$250. The volunteers were not armed, and they were not instructed to carry whistles or flashlights; volunteers were asked to carry pencil and paper in case they needed to write down important information.

The Project

Dependent and independent variables. In this study change in the rate of residential breaking and entering within the Stuart Area was the dependent variable of major interest. According to Michigan State Law, breaking and entering (B & E) occurs when a building is entered without appropriate permission or authority, with the use of force (even opening an unlocked door constitutes "force"), and with the intent to commit a felony therein. Taking a possession is not a necessary element of the crime. When analyzing the data, instances of reported residential breaking and entering and instances of

attempted breaking and entering reported to the Kalamazoo Police Department were counted as instances of residential breaking and entering. Inclusion of attempted residential breaking and entering in the analysis is consistent with Kalamazoo Police Department practice and is socially valid as well, since the aim of the program was to reduce the offense entirely, not just to foil the crime once initiated.

The major independent variable manipulated in this study was the neighborhood crime prevention program, which may be conceived of as a stimulus class whose major elements involved the various activities of the volunteers who patrolled the Stuart Area during scheduled evening hours, Monday through Thursday, and distributed crime prevention literature to each dwelling unit in the project area. As it turned out, another major independent variable was manipulated during the course of this study; the unanticipated presence and absence of a "career" burglar was controlled by local law enforcement agencies. The effects of this intervention were studied and analyzed, as well.

The specific procedural and analytic details regarding these variables are provided below.

Design. The fundamental experimental question addressed in this study was, to what degree did the neighborhood crime prevention program contribute to any observed change in residential breaking and entering (or, burglary) rates in the Stuart Area during its operation? To answer this question, monthly residential burglary rates from May 1976 through February 1978 were compared with residential burglary

rates from the prior year, that is, from May 1975 through February 1977. Although the raw data so gathered is interesting, to correct for seasonality in the monthly burglary frequencies (burglary is committed more frequently during the warmer months in Kalamazoo) and to facilitate analysis of changes in burglary rates between the Stuart Area and other parts of Kalamazoo, the comparison of present year burglary rates with prior year burglary rates is expressed throughout this experiment as a percentage or ratio, namely the percent of change in burglary rate. The use of ratios (present year burglaries divided by prior year burglaries) allowed changes in burglary trends to be detected and compared across different times of the year and between different neighborhoods.

The natural course of events in the neighborhood lent itself to a time-series reversal design. The availability of additional information made possible several other features which strengthen the conclusions by limiting a major source of internal invalidity. In this instance of primary concern is the possibility of historical invalidity. It would not have been accurate to attribute changes in the Stuart Area to the neighborhood crime prevention project when in fact they may have been due to fluctuations controlled by broader socio-economic factors (frequently cited are unemployment, drug use, and changes in the law enforcement and criminal justice systems). Therefore, burglary rates were gathered from a non-equivalent control group, namely, from the rest of the "untreated" city of Kalamazoo. Burglary rates for the rest of Kalamazoo were assumed to reflect the degree to which the burglary rate would have changed without the

intervention of this neighborhood crime prevention project. Therefore, in the final analysis of the data, the city-wide or "expected" fluctuations in burglary rates were subtracted from those changes seen in the Stuart Area.

There remains the possibility that for some reason the Stuart Area should not be compared to the rest of the city in this way. Chiefly because the Stuart locality is not composed of residents or dwellings like any other portion of Kalamazoo, and because its location in Kalamazoo with respect to other high crime areas is unique, it was not possible to randomly select a comparable area to serve as an equivalent control. The Stuart Area itself was not randomly selected. However, since the Stuart Area largely rested within Police District 24 it was possible to compare burglary changes in the Stuart Area with concurrent changes in this bigger district. Police District 24 included much of the lower socio-economic area surrounding the Stuart neighborhood which the Kalamazoo Police Department has identified as a high crime area. Thus, another comparison with a more nearly equivalent non-treated control population was also made.

A further refinement of this design was made possible, since the Kalamazoo Police Department routinely collected data on other variables which were conceptually related to the supposed effects of this crime prevention program. Among these were records of the dollar amounts reported stolen in burglaries, probable dates and time of burglaries, copies of dispatches issued throughout the city, logs of residential premise security inspections made by the

Kalamazoo Police Department's Crime Prevention Bureau, and logs of identification engravers signed out to citizens by the Crime Prevention Bureau. Information gathered from these records was used to supplement the basic experimental design with conceptually related measures.

Treatment sequence. In general, the delivery of treatments may be summarized briefly. Upon an unexpected series of manipulations (controlled largely by the Kalamazoo Police Department), the Stuart Area's crime prevention program was imposed, then removed, in a reversal sequence. The apparently confusing sequence of experimental phases described immediately below becomes clearer when keeping this general summary in mind.

The final analysis of the data treated May through September (1976 divided by 1975 monthly rates) as the first "presence of professional burglar" phase, and, due to the individual's arrest in late September 1976, October through February (1976 and 1977 divided by the 1975 and 1976 monthly rates) was regarded as the first "absence of professional burglar" phase. March through August (1977 divided by 1976 monthly rates) was considered to be the first intervention of the Stuart Area's crime prevention program without the contaminating influence of the professional burglar. During September and October (1977 divided by 1976 monthly rates) the second "presence of professional burglar" phase was imposed (accidentally, by virtue of this same individual's parole) upon the ongoing crime prevention program. In November 1977 the individual was again arrested, leaving the neighborhood crime prevention

program's impact in the months of November and December 1977 free to be compared with the previous months of November and December in 1976 without any contaminating influence of this burglar's presence during these four months. Finally, during January and February 1978 the program was discontinued due to cold and snowy weather, providing a natural return to the pre-program, absence of professional burglar conditions which prevailed prior to the neighborhood crime prevention program's introduction.

Chronology of changes in program operation. For the sake of completeness, the following chronology of changes in program operation is provided. These changes were made more with an eye to organizational ease than experimentation.

Patrol shifts were operated from 7 - 9 pm and from 9 - 11 pm March through May. From June through August shifts operated from 9 - 11 pm; it was still daylight outside during what would have been the earlier shift, and the neighborhood was counting on increased visibility to make the early formal patrol unnecessary. From September until November a single 8 - 10 pm shift was employed. In December volunteers were asked to start distributing crime prevention literature to specific homes only (identified by the director as those dwellings most frequently burglarized in the neighborhood), after which time they were told they could go home.

Crime prevention literature was distributed to every home in the neighborhood at the start of the program in March. In April and May only a few bulletins were distributed during each patrol shift. During June no literature was distributed. During July and August

a few handouts were distributed during each shift, then in September the entire neighborhood received crime prevention bulletins again. In October and November a few bulletins were distributed during each shift. In December the bulletins were given to dwellings with a high incidence of burglary.

Finally, during March and again in June, a census of most of the neighborhood was conducted by the Stuart Area Restoration Association, the neighborhood's "block club". One of the ostensive purposes of the census taking was that it would help that organization's block captain system determine who "belonged" in each of the neighborhood's dwellings. The block captains explained this to those surveyed. More of the Stuart Area Restoration Association's role in the crime prevention project will be explained shortly.

Data collection. All of the data pertaining to the various dependent and conceptually related variables were collected from statistics kept by the Kalamazoo Police Department, primarily, by the Crime Prevention Bureau. All of these records were available for inspection after obtaining appropriate agreement from the authorities involved. The Police Department has internal double-check systems which minimize the possibility of miscategorization of crimes or the non-reporting of incidents an officer is called to investigate. Briefly, if a citizen calls for police assistance a police car is dispatched to the scene. A log entry is then made of the dispatch and the presenting complaint. The officer arriving at the scene writes an offense report after preliminary investigation. A typed copy of this report is later compared with the

dispatcher's log entry to make certain that the car sent actually arrived at the scene. Since the police officers are required as a matter of duty to file a report for every incident they are called upon to investigate, the possibility of non-reporting is remote. The possibility of miscategorization is reduced further; a command officer proofreads all cases and checks for accuracy before categorizing the cases. Therefore, all data reported in this experiment which were derived from Police Department statistics were considered to present a reliable image of reported crime. It was not possible within this experiment to gather information pertaining to possible unreported crime occurring in Kalamazoo.

The methods of data collection pertaining to implementation of the crime prevention program (the independent variable) are best described within the context of the description of the project's implementation, which follows. Two surveys of resident homeowners in the neighborhood were used to gain additional information related both to the independent variable's effects and to mechanisms which may have supplemented the experimenter-manipulated features of the crime prevention program. These are described below, as well.

Project Implementation

The following description of how this crime prevention project was implemented in the Stuart Area is provided not only to help researchers replicate the project, but also to help convey some of the more "intuitively necessary" non-experimental features one might profitably consider when attempting to initiate community action programs.

Obtaining community support and police cooperation. It is difficult to determine the extent to which the implementation of the Stuart Area crime prevention program would have been hampered by general community antipathy toward the project and a lack of police support for it. Certainly, these were possibilities that had to be avoided. Therefore, to lend credibility to the goals and methods of the program and to sample potential community reaction toward such a program in order to avoid negative publicity, legal suits, or other detrimental activity, several steps were taken.

To insure police support and simultaneously engender a positive image for the planned crime prevention program, personal appointments with ten community leaders were arranged. This process was initiated in September 1976. The President of the Kalamazoo School Board, a University Professor of Law, two City Commissioners, two officials from Western Michigan University, the Chief of Safety and Security at the University, a criminologist employed by the University, a member of the Kalamazoo Police Department's Crime Prevention Bureau, and the Editor of the Kalamazoo Gazette were contacted. Rough features of the citizen's crime prevention program were explained to each one, and their advice was solicited. At the conclusion of each appointment the individual's support was asked, specifically to write or to communicate directly to the Chief of Police in Kalamazoo their belief in the project's potential value for the community and their confidence in the experimenter's ability to appropriately conduct the program. This process took approximately six weeks to complete. As of yet, no specific

neighborhood had been selected as a target area.

All but one of the individuals agreed to offer support for the program. This individual cited fears of potential legal liability and adverse publicity in the event that a volunteer should be injured while working on the project. That this individual refused to offer written support of the program is interesting. Bad timing may have been responsible, because the particular agency involved had recently received adverse news coverage of a law enforcement event within its jurisdiction. Thus, the individual's unwillingness to support the project may have been due in part to some heightened negative sensitivity toward any source of potential embarrassment. In any event, the other people agreed to give written or direct verbal support for the program to the Chief of Police. All but two of these actually did so.

An appointment was scheduled with the Chief of Police after preparing a brief statement of intent for his office and after making certain that communications of support had been delivered directly to him or to the experimenter for presentation to the Chief during the meeting. During the appointment, the experimenter's need to be able to review certain police statistics was expressed. At that meeting the Chief mentioned the positive impression the various messages to him from the community leaders had had, and indicated his tentative support for such a project, pending further study by the Department. Final support from the Police Department was granted in mid-November.

In the meantime, fortuitously, a local neighborhood

organization (the Stuart Area Restoration Association) gave notice of an upcoming meeting at which the local crime situation would be discussed. The experimenter attended this meeting and suggested that the neighborhood adopt the citizens crime prevention program, describing his positive contacts with other local leaders and the Kalamazoo Police Department. The group (about 20 people were present) gave tentative acceptance to the idea and asked the experimenter to individually discuss the proposal with four members of their executive council, which was done during December. On January 11 the assembled executive council of the Stuart Area Restoration Association approved a final plan of the project and okayed the experimenter's role as director of the project.

During the latter part of January, notices were distributed throughout the entire Stuart Area asking residents to attend an organizational meeting of the crime prevention project on February 8. These notices were distributed by means of the Association's block captain system, by which each block had a representative on the executive council who was responsible for distributing the group's notices to fellow residents on their own blocks.

Obtaining and organizing volunteers. At the February 8 meeting 18 residents from the Stuart Area were in attendance. The experimenter briefly explained the nature of the neighborhood crime prevention project (as described above), essentially, calling for volunteers to walk through the entire neighborhood at their own pace, returning home after two hours of walking and distributing literature. The residents were told that any suspicious acts could be reported

immediately to the police by asking the occupants of the nearest occupied home to telephone in the details of the incident as described by the volunteers. The benefit of protecting their own property was pointed out to them, as was the relative ease of the task and the benefits to be had by becoming more acquainted with their own neighborhood and the people living in it. The reported success other neighborhoods had had with such projects was also described to those attending. Residents interested in volunteering their time were asked to place their names and telephone numbers on a calendar on the times and dates they found most convenient for themselves. Thirteen of the 18 persons present signed up; the group's preference for a Monday through Thursday period of weekly operation was unanimous. As it turned out, throughout the entire project volunteers were scheduled for these weekdays only, due to an inability to attract enough weekend "walkers".

Not all the available time slots in March were volunteered for at the initial organizational meeting. The open slots were filled during the next few weeks before the actual walking began by personally contacting other neighborhood residents, asking them to participate. Their names were suggested to the program director by other volunteers, primarily, especially those most active in the Stuart Area Restoration Association.

During the remainder of the program's activity in 1977 three major methods of obtaining volunteers were used. The director usually solicited volunteers during the week prior to a new month's activity. First, as the program continued, experienced volunteers

were asked to participate again. Second, the more active members of the neighborhood group and crime prevention volunteers suggested names of likely volunteers whom they had met informally. Third, volunteers were asked to sign up for the project at the pre-announced neighborhood-wide meetings, which were held on March 29, June 23, and November 1 of 1977 in addition to the meeting held on February 8. The director either telephoned or personally asked prospective volunteers to join the program.

Beyond the simple matter of scheduling the volunteers to walk through the Stuart Area, organizing them posed little problem. Throughout the project, one day prior to a volunteer's turn to walk, a "telephone volunteer" telephoned each walker, reminding them that they were scheduled to patrol on the following day. The telephone volunteers usually performed this task for two to three months at a time; they were given complete copies of the walking schedules with the volunteer's telephone numbers. Finally, during the first three months of program activity a written sheet of volunteer guidelines was delivered to each volunteer during the first week of each month. The project director delivered these, writing their assigned dates and times on the back of the guidelines.

Training volunteers--specific volunteer duties. Volunteers were instructed in specific procedures to follow to help maximize their effectiveness in reducing residential breaking and entering, to increase neighborhood awareness of crime prevention, and to minimize the possibility of personal danger and inadvertant wrongdoing on their own part.

Initially, volunteers for the crime prevention project were given a sheet of volunteer guidelines (see appendix A) outlining their duties. Essentially, the director individually instructed volunteers to walk with their partner through the Stuart Area for the two hours they were scheduled, and to report any suspicious activity (any obvious criminal activity or any other activity or circumstance which to them appeared to involve a likelihood of criminal activity) to the police. This police report was to be delivered in any of a number of ways. First, if the volunteers happened to be near their own home at the time, the report could be submitted over their own home telephone. Second, two police emergency call boxes in the Stuart Area could be used. Third, if the volunteer was near the home of one of their friends, acquaintances, fellow volunteers (many of the volunteers knew each other as neighbors) or members of the Stuart Area Restoration Association, their phone could be relied upon, although no formal list of these names was distributed. Fourth, volunteers were instructed to approach the nearest occupied home at the scene of an incident, to identify themselves (but not ask to be admitted) to the occupants, and to ask these persons to telephone the report in to the police. Thus, a crime could be reported to the police within minutes of observing it.

The director asked volunteers to remind a few neighborhood residents who failed to light their porchlight in the evening to turn them on. This was done in order to deprive potential burglars of places to hide themselves and stolen property and to provide the

neighborhood with a friendly, well-lit atmosphere in the evenings. This was to be done each time a volunteer patrolled the neighborhood.

The director also regularly asked the volunteers to distribute crime prevention literature during their shifts (see appendix B for a sample copy). Usually the literature was given to those people who were asked to turn their porch lights on, but occasionally an entire block of homes and apartments or specific problematic dwellings were selected by the director for delivery of the literature. All literature was hand delivered personally to the residents of the particular units selected, except when no one answered the door. In this case the bulletins were simply left in a convenient location.

Volunteers were specifically instructed not to arm themselves in any way, not to undertake hot pursuit of a suspect, not to challenge suspicious persons or to ask for the identification of persons suspected of committing a crime. In all cases volunteers were instructed to passively report incidents directly to the police and not to become involved in active efforts of apprehension. Neither were volunteers given any special pocket-sized or outerwear emblazoned identification, for two reasons: there would thus be less probability of someone using a forged or stolen ID to obtain entry for criminal purposes, and the absence of conspicuous outerwear was reasoned to make more casual pedestrians potential neighborhood patrollers in the eyes of a criminal--just about everyone could have been a volunteer, in "plainclothes".

No formal group indoctrination, role-playing, or other training

devices were used.

Dealing with problems: absenteeism, non-performance of duties, and obtaining substitutes. The behavior of the volunteers while patrolling the neighborhood was not the subject of modification efforts. Like many other organizations, the purpose of the program was not to educate individual citizens to become dependable humans; rather, it was to provide the neighborhood with a consistent and reliable patrol. Therefore, volunteers who did not meet with their partner at the scheduled times, who did not patrol when scheduled, or who did not perform other duties in a reliable fashion were not retrained or shaped into performing more proficiently; they were simply not asked to volunteer again. No strict criterion was employed in determining how many absences (which produced the logistical problem of finding substitutes) were sufficient to invoke this reaction on the director's part. In general, a second or third consecutive absence produced the non-resolicitation consequence, but the contingency was never explicitly specified to the volunteers.

Non-performance of requested special duties, in particular, failure to distribute crime prevention literature to selected residents, was dealt with differently. In most cases the director did not pair two volunteers too shy to introduce themselves and ask fellow area residents to turn on porch lights a second time. Instead each were paired with a more outgoing volunteer who would not hesitate to perform the special distributions requested. This particular problem arose only a few times during the entire ten months of the program's operation; mention is made of it here to

suggest ways of dealing with it in similar programs.

Not only did telephone volunteers remind the patrol volunteers of their scheduled obligations, the director personally telephoned all of the volunteers shortly before they were scheduled to walk, in addition. This allowed the director to detect any possible absences in time to make arrangements. Early in the program's development an informal, rotating pool of potential substitutes was obtained from other program volunteers who were willing to walk an extra turn on short notice, and from volunteers who had friends not interested in patrolling at scheduled times, but as possible substitutes. These people were contacted when needed; the director, his close friends, and roommate would sometimes fill in as substitutes when necessary.

No problems associated with vigilantism or harrassment of the volunteers acting in the line of their duties arose during the entire ten months of project operation.

Observing volunteer reliability. It was important to monitor the reliability of the volunteers in carrying out their duties for a number of reasons. First, the director was responsible for assuring the neighborhood that the crime prevention program entrusted to him was being carried out as authorized. Inappropriate actions on the part of the volunteers or dereliction of duty by the volunteers would have undoubtedly undermined the neighborhood's confidence in the program and its director. Second, the director of any program must be able to determine whether problems are arising in that program, so that they may be remedied effectively. Third,

since the program's success was being experimentally evaluated, the director needed to know to what degree and in what manner the variables of interest were being applied. Certainty that the program's treatment was responsible for observed changes in residential breaking and entering would be cast in doubt otherwise.

The volunteers' performance was monitored in at least one of the following ways. First, the pre-patrol telephone conversations with the volunteers allowed the director to ask the scheduled volunteers whether they would in fact be walking that evening. There was no reason to doubt the honesty of their replies, since the director could neither deliver tangible reward nor punishment to them, and these were willing, responsible citizens in the first place who had freely volunteered for their duties. Except during brief vacation periods and rare unavoidable conflicts of schedule, these telephone calls were placed to every assigned volunteer, giving the director immediate, albeit somewhat indirect, confirmation of the volunteers' presence at the scheduled times. Second, occasional post-walk interviews with the volunteers were held to determine whether they had had any problems in carrying out their rounds. These conversations (personal or by telephone) were held at varying lengths of time after the start of the volunteer's scheduled patrol, ranging from about an hour and a half to several days later. In this way it was possible to roughly determine for how long the volunteers walked at a time and to find out what their experiences had been. The director held these post-walk conversations with approximately one-quarter to one-half of the volunteers

who were scheduled during any given week. Third, conversations with the partner of any particular volunteer of interest were held, though infrequently, to find out how that particular volunteer had performed. Usually this technique was employed when the director wanted to know how a new volunteer had fared that evening, in which case the more experienced volunteer would be asked. Fourth, the director could tell whether volunteers had picked up any special crime prevention literature for distribution to target residences by looking in his mailbox to see whether they had been picked up by the volunteers for distribution or not. Alternatively, when the director was home in the evening he would ask the volunteers to ask him for the materials in person. Volunteers were asked to pick this material up at the start of their shift, so a rough estimate of how prompt volunteers were could be gathered. Fifth, conversations with many local residents and the results of a survey of neighborhood homeowners were used to confirm their receipt of crime prevention literature and the presence of patrollers in the neighborhood. Although none were contacted immediately following distribution of bulletins to their home, and none were asked to remember specific volunteers, these conversations and survey sufficed to lend a fair confirmation of information gleaned from other sources. Sixth, personal observation of the various crime prevention activities on the part of the volunteers was also made. The director would either seek out the volunteers on patrol to converse with them about how things were going, sit on his front porch to observe the patrollers walking through the neighborhood, meet the volunteers by chance

while on other business in the area, or accompany a volunteer as a patroller himself. During any given month the opportunity to personally observe the volunteers varied with the clemency of the weather; in general, personal observations were made on an average of once every six scheduled walking days.

It should be pointed out that not all of these contacts were director-initiated. The volunteers and residents of the neighborhood initiated as many as one-third to one-half of all these contacts. People regularly called to chat with the director about many neighborhood problems once the program was underway, including crime related concerns. For example, many residents called to ask whether the volunteers would be able to keep a specially close watch on homes left vacated during holidays, or who had been asked by the volunteers to try to turn their porch lights on but for some reason could or would not do so. Others called who had been burglarized and wanted help in better protecting their property.

This rather large array of reliability checks was necessary for the administrative and scientific reasons stated above. They were casual and unobtrusive; rarely did any of the residents or volunteers involved take offense at being "checked up on". On one occasion only did a volunteer take umbrage. In that instance the director, suspicious because the volunteer was still late in beginning the shift in spite of an earlier inquiry, telephoned the volunteer a second time in one evening to ask whether the person had forgotten the obligation. The director was rebuked for not "being considerate of busy people's own schedules". The volunteer was not

asked to participate in the program again.

Homeowner security survey. In order to provide the crime prevention program with an empirical set of recommendations to pass along to the neighborhood, a homeowners security survey was conducted during the months of August, September, and October. The main purpose of the survey was to attempt to detect possible differences between those homes which had been burglarized and those which had not been. Due to the exigencies of the situation, the survey was drawn up and administered in a relatively crude fashion.

On August 3, 1977 the director of the neighborhood crime prevention program issued a communique to the new Chief of Police in Kalamazoo, who was interested in the project's progress. In this letter the director informed the Chief of his intentions to conduct a homeowners security survey and enclosed a copy of the survey questions proposed. The director also requested that the Police Department issue a letter of identification on their letterhead to be used by him in satisfactorily assuring the contacted homeowners of his intent and identity. On August 5 the Chief issued this letter of identification.

The set of security questions had been drawn up by the director to supplement a pamphlet used by the Crime Prevention Bureau in assessing home security, entitled, "How Secure is Your Home?" Both this pamphlet and the supplemental questions were used in the survey. In addition, a set of 13 "attitude" questions were drawn up. These primarily asked how the resident felt about the crime situation in the Stuart Area, whether the resident was afraid of crime in the area,

whether the resident was confident in the local police and neighbors, and asked what the resident could do to help reduce any crime problem there might be. On July 27 the Associate Director of Testing and Evaluation Services at Western Michigan University reviewed and helped to modify the attitude questions and assented to their face and content validity. On July 28 an officer of the Crime Prevention Bureau was asked to judge the questions, which the officer approved of. This final set of attitude and home security questions was used in the survey.

During June the Stuart Area Restoration Association's block captain system had compiled a list of some 70 known homeowners and their addresses as part of a neighborhood census. This list was incomplete, since some block captains did not return their completed block by block surveys. Nevertheless, the census was used as the only practical source of current homeowners in the Stuart Area.

Twenty of these 70 homeowners were eventually chosen to participate in the survey. Although an initial selection of names from the list was random, unwillingness to be interviewed, failure to keep appointments, failure to answer the telephone when called to set up an initial appointment, and a lack of complete records of past burglaries in the neighborhood prevented the gathering of truly random samples. The latter factor prevented the director from dividing the 20 sampled into two groups of 10, those not burglarized and those burglarized. The final sample was composed of six homeowners who had never been burglarized, eight who had been burglarized

just once, and six who had been burglarized more than once. The sample size was kept rather small by a lack of personnel to administer the survey and by a three month deadline set for the completion of the survey by the Police Department.

The director conducted the actual surveys in a series of personal interviews in the homes of the 20 persons surveyed. All responses kept by the director were recorded in a shorthand code on a separate sheet of paper from the questions asked, to help preserve confidentiality of the answers. In addition, only the director of the program viewed these responses, and only cryptic identities of the respondents were placed on the response sheets. The precautions were taken in light of the extremely sensitive and potentially damaging nature of the information gathered during the interviews.

Crime prevention bulletin impact survey. The crime prevention literature distributed through the neighborhood during the experiment essentially asked residents to: 1) conduct a security inspection of their dwelling; 2) turn their porchlights on at dusk; 3) take daily 10 minute walks through the area; 4) report instances of crime; 5) volunteer to participate in the neighborhood patrol; and, 6) let trusted neighbors know when they would be on vacation. A sample bulletin may be found in appendix B.

In order to help determine whether these suggestions were being followed by neighborhood residents, and to in turn suggest other possible variables operating during the operation of the crime prevention program, a post hoc telephone survey was conducted.

During the first week of December, telephone calls were placed to homeowners in the Stuart Area, their names drawn in the same manner as done in the security survey described above. The calls were placed on two different days; the director stopped when 20 residents had been interviewed over the telephone. The director asked seven questions to ascertain whether the respondents had complied with any of the suggestions contained in the crime prevention bulletins.

Together with the rest of the data collected during the course of the experiment, these responses would help suggest any related variables acting to possibly reduce burglary in addition to the neighborhood crime prevention program. The functional role of such variables was not assessed in this experiment, which did not manipulate these variables experimentally.

RESULTS

Reliability of the Patrollers

Using the methods of observation described above it was determined that 93 percent of the assigned two hour patrol periods were covered by at least one volunteer. In other words, of the 227 total periods of patrol scheduled from the program's inception in March to its termination in December, only 16 of these periods were completely vacant of volunteer patrol or other assigned activity. However, of the 454 individual patrol shifts that could have been filled during this time (227 periods x two people per period), 55 people reported or were found to be absent from their duties. Thus, the absentee rate was 12 percent; the five percent difference between absenteeism and total patrol periods covered reflects the extent to which the director was able to secure last minute substitutes for absent volunteers.

Using the above described methods it was further determined that during at least nine patrol periods the volunteers did not distribute the crime prevention literature as asked. This means that as much as 96 percent of the time that the volunteers were present for duty, they distributed the crime prevention literature when they were asked to. The results of the crime prevention literature impact survey lend support to this figure; the survey will be discussed below.

It is estimated that each volunteer shift patrolled for at least one hour and 45 minutes each time they walked through the neighborhood. The 15 minute "slack" period was usually taken up by a break

the volunteers would allow themselves part way through the two hour walk, during which time they would either rest in their own homes or stop to chat with a neighbor out of doors. Occasions when the volunteers would stop to go home 15 minutes early after a non-stop patrol session were also observed. The observations are rather informal, as no strict "punch in - punch out" system was employed.

With rare exceptions volunteers carried a writing instrument and a piece of paper to take notes with in an emergency.

Finally, it was observed that only the director of the program spot-checked neighbors' willingness to phone in police reports for the volunteers. As it turned out, the volunteers knew or were acquainted with so many of the Stuart Area's residents that they felt this spot-checking was unnecessary, and they simply did not do so even though requested to do this on the sheet of volunteer guidelines distributed early in the program's operation. No attempt was made by the director to force the volunteers to do this spot-checking, and the guideline was not mentioned again by the director after the program began.

Patrol Operation

A total of 64 volunteers served patrol duty during the 10 month operation of the program, with four other people serving as telephone "reminders" (not including the director). At least 24 of these volunteers were homeowners. A total of 174 days were scheduled to be covered during the 306 days of the year included from March through December 1977, or about 57 percent of the possible days which might have been covered in a seven day per week operation. This patrol

operated four days per week only. Out of these 174 days a total of 227 different two hour time periods were arranged, or, since two people were usually scheduled to walk during one time period, there were 454 different volunteer slots to be filled during the program. Of these, on 55 different occasions volunteers were absent for one reason or another, but enough substitutes were found so that only 16 out of the 227 different two hour time periods went completely uncovered. Since two hours of walking were assigned to each person, 908 total possible manhours of patrolling were scheduled during the program. A closer estimate of the actual total manhours spent patrolling is arrived at by multiplying the 454 possible shifts by 1.75 (to compensate for the 15 minute average time spent not walking during a typical two hour shift), then subtracting the 32 hours lost for the 16 uncovered shifts. This yields the more accurate figure of 762.5 manhours spent actually patrolling and passing out literature. The director did not log his own time, nor is it possible to reliably estimate the many hours spent by volunteers and neighbors engaged in unscheduled crime prevention activities.

Major Comparisons

In time series analysis it is important to take into account any changes in the trend as well as changes in the level of the dependent variable (for excellent discussions of these points, see Campbell and Stanley, 1963; Jones, Vaught and Weinrott, 1977). Changes in level during non-stationary trends are usually expected; a reversal of a non-stationary trend might be meaningful without any change in level at all. Thus the two must be taken into account.

Two major series of interventions were studied during the course of the neighborhood crime prevention experiment; the series involving the presence, absence, presence, and absence of a "career" burglar operating in the Stuart Area, and, the series involving the neighborhood crime prevention program (baseline, program, return to baseline). In Figure 1 both major series of interventions are presented in a longitudinal depiction of the percent change in residential breaking and entering frequencies from the prior year, both in the Stuart Area and the rest of Kalamazoo.

Insert Figure 1 about here

The manipulations involving the "career" burglar will first be discussed.

Examining the effect the presence of the profession burglar had on the Stuart Area, it is clear that during the first period of this individual's presence an average of 78 percent more burglaries were committed in May through September 1976 than during those same months in 1975, with respect to the relative decline in burglary reported city-wide during that period that one would have expected otherwise. This average represents an unstable level whose range extended from a 12 percent relative decrease in May to a 249 percent relative increase in September.

Immediately following this person's arrest in late September 1976, the number of burglaries reported in the Stuart Area fell to 31 percent (a 53 percent relative decrease) of the Stuart Area's burglary rate

during the previous October. This relative improvement gradually diminished. By December 1976 a relative increase in Stuart Area burglaries (with respect to the rest of the city's rates) had developed, and during January and February 1977 the percent change in burglaries in the Stuart Area closely matched the rate of change occurring in the rest of the city, which at that time was 25 percent below the previous year. During the next six months of the individual's absence from the Stuart Area the degree of improvement in that area began to exceed the city's improvement in most months until finally, in August the Stuart Area's decrease in burglary exceeded that of the rest of the city's by some 75 percent.

In late August 1977 this individual was parolled and immediately began to burgle in the Stuart Area again. During the months of the burglar's second presence in the neighborhood burglary increased to a rate more than two times the rate observed during the previous year.

In late October the police arrested this person once more on a warrant for breaking and entering. The decrease in breaking and entering in the Stuart Area during November 1977 was 78 percent, relative to the city-wide change at the time. During the next three months of the burglar's absence this improved situation diminished again, eventually rising in February 1978 to a relative 19 percent increase in burglary.

The neighborhood crime prevention project began in March 1977 and continued until December 1977, but its effectiveness must be carefully analyzed, in view of the activities of the "career" burglar.

The absence of the "career" burglar during the five month period prior to the crime prevention program's initiation in March provided a baseline period extending from October 1976 through February 1977 free of the individual's direct influence. As shown in Figure 1, immediately after the burglar's arrest the frequency of burglary in October 1976 fell from the previous month's relative increase of 240 percent to a relative decrease of 53 percent. From this low point, however, the percent change in burglaries diminished steadily. During February 1977 the number of burglaries being committed in the Stuart Area was only about 25 percent below the number of burglaries committed during February 1976; the city-wide decrease in burglaries was about 25 percent during February, too. Therefore, relative to the number of burglaries being committed city-wide during this baseline period, the rate of burglary in the Stuart Area began this phase much improved over the city, but this improved condition gradually diminished until both the city's and the Stuart Area's condition was nearly equivalent.

Introduction of the neighborhood crime prevention program in March coincided with an immediate 25 percent reduction in residential breaking and entering, relative to the rest of the city. In April it appeared as though the program was of no benefit at all, but during the following four months the reduction in Stuart Area burglary was steady. During July and August the Stuart Area experienced decreases in burglary 67 percent and 74 percent above and beyond those the rest of the city was experiencing.

During September and October 1977 the "career" burglar returned

to burglarize from the Stuart Area again. During these two months burglary in the Stuart Area increased to an average level of 268 percent above that of the rest of the city's level.

Following the burglar's rearrest in late October a reduction in burglary slightly more pronounced than the previous post-arrest reduction occurred, relative to the rest of Kalamazoo. In November 1977 there was a relative decrease in burglary of nearly 80 percent, and in December the Stuart Area experienced a relative decrease in burglary of nearly 50 percent. Thus, the improvement was diminishing.

Lastly, a return to baseline conditions obtained during January and February 1978. During these months the Stuart Area experienced a rate of burglary increased by an average of 15 percent over the rest of the city.

In Table One the raw frequencies of residential breaking and entering within the Stuart Area and the rest of Kalamazoo are presented to demonstrate the data from which the ratios graphed on Figure 1 were derived.

Insert Table One about here

It may be seen that in many months prior to the introduction of the neighborhood crime prevention program, burglary in the Stuart Area accounted for nearly 10 percent of the total number of burglaries committed in Kalamazoo. During the program's operation (with the exception of September and November 1977) burglary in the Stuart Area accounted for only about five percent of the total.

Ancillary Findings

Before the ancillary results are presented, a few comments are in order. Because the activities of the "career" burglar interrupted the operations of the neighborhood crime prevention program in September and October, the analysis of certain ancillary data supporting the fundamental time series analysis would have become cumbersome were it not possible to identify this person as the same individual who pillaged from the neighborhood until being arrested in late September 1976. Because this was the same burglar, it was possible, and more convenient, to conceive of the crime prevention program as being operative from March through August 1977 and "terminated" by the burglar on the individual's return. The prior five months, from October 1976 through February 1977, could be again conceived of as a baseline free of this individual's presence. By doing so, some statistics indirectly supporting the time series analysis of the actual change in burglary frequencies are greatly simplified. Specifically, statistics dealing with the sequential patterning of residential burglaries, decreases in the dollar values stolen in the area, multiple burglaries in the same dwelling, burglaries committed during the programmed patrol hours, changes in the proportion of dispatches received in the Stuart Area, changes in the proportion of residential premise inspections made by the Crime Prevention Bureau, changes in the frequency of identification engraver sign-outs from the Crime Prevention Bureau, and changes in the proportion of burglaries by type of occupancy (rental or owner) were gathered strictly to supplement the stronger and more direct results of the

longitudinal analysis; hence, they were all treated as though the neighborhood crime prevention program ended at the end of August 1977. These prefatory comments are made to alert the reader to the shift in perspective between the main results and the ancillary data, thus avoiding possible confusion later. These data may be considered as conceptually related to the dependent and independent variables. If these ancillary results had appeared to contradict the major findings, the relationship between the treatment and the main findings would have been called into doubt. These additional findings and other conceptually related data are presented below.

The following eight sets of descriptive statistics describe events which took place from October 1976 through August 1977, comparing them with the same 11 months of a year previous.

Decrease in successful burglary. From the burglar's point of view a successful burglary is one in which something was actually stolen. To be foiled by a lock or chased off by a dog or to fail to locate where valuables are hidden before being forced to leave are not examples of what most burglars would call an evening well spent.

With all of the neighborhood crime prevention program's emphasis on increasing home security, reporting suspicious incidents, and guarding ones property against theft, were burglars less successful in stealing property during the project? Although it was difficult to determine exactly which crime prevention measures the neighborhood as a whole were taking during the crime prevention program, it is possible to demonstrate the conceptually related fruit of their increased vigilance.

Data recorded in monthly summaries of residential breaking and entering maintained by the Crime Prevention Bureau demonstrated that burglars were 38 percent less successful in their attempts at breaking and entering during the crime prevention program than before, adjusting for changes in burglar success during this same time period throughout the rest of Kalamazoo. Table 2 summarizes this interesting result.

 Insert Table 2 about here

Burglaries were first parceled into those occurring in the Stuart Area and those occurring in the rest of the city. By subtracting the number of attempted burglaries (these are labeled by the Police Department) and burglaries in which no property was reported stolen during an incident of reported residential burglary from the total number of residential burglaries occurring in each of these areas per month, a measure of successful burglaries per month, per area was obtained. This figure was placed in the ratio:

$$\frac{\text{current month's successful burglaries}}{\text{same month (one year ago) successful burglaries}},$$

which equals the percent change in successful residential burglary rates. This immediate conversion of the raw data helped to preserve some of the autocorrelation found in longitudinal data and to control for seasonal variation, where the effects during one month in part determine what effects will be found during the next month. An alternative would have been to simply sum across months within any

given phase to eventually arrive at a mean, but this procedure invalidly ignores autocorrelation and therefore invalidly assumes a random monthly fluctuation in the time series. To complete the explanation of this particular derivation, then, the mean of these transformed ratios for the Stuart Area from October through February was subtracted from the mean of the ratios for a comparable period for the rest of the city. This revealed a nine percent decrease in successful residential burglary in the Stuart Area during the five months prior to introduction of the neighborhood crime prevention program. However, this transformation for the months of March through August yielded a 47 percent decrease in successful burglary during the first six months of the crime prevention program. Therefore, the net reduction in successful breaking and entering during the crime prevention program (before being contaminated by the "career" burglar's influence) was 38 percent.

This same process of transforming the raw scores into month by month ratios, then into means of the ratios, and adjusting Stuart Area figures for the rest of Kalamazoo's performance, finally subtracting pre-program results from post-intervention results will be followed in determining the remaining seven sets of descriptive statistics. This formula will not be repeated for each different set of statistics, therefore. Exceptions to the procedure are noted.

Decrease in dollar value stolen. With the decrease in successful burglary one would expect a decrease in the amount of property stolen as well. However, it was possible that the burglars were becoming more selective in picking their targets, striking less

frequently but stealing just as much as before. The data do not support this.

Table 3 shows that there was a 51 percent reduction in monetary value removed from the neighborhood through breaking and entering, adjusted for city-wide changes.

Insert Table 3 about here

During the five month baseline period the Stuart Area experienced a three percent adjusted increase in property stolen. During the crime prevention program, however, the Stuart Area showed a 48 percent reduction in property value stolen in residential burglary, adjusting for city-wide expected fluctuations. Therefore, the net reduction in property value stolen in the Stuart Area was 51 percent during the neighborhood crime prevention program.

The dollar amount saved in prevention of this much residential burglary can be estimated (a guarded estimate, that is, because it is impossible to demonstrate the quantity of something which did not actually happen) by multiplying the actual amount of property stolen during the March through August 1977 period by 51 percent. This derivation estimates the amount saved by program operations during these months at 51 percent of \$9144, or \$4663.44.

For the statistics cited above it was possible to adjust neighborhood data to take into account expected fluctuations in residential burglary rate by subtracting city-wide variations. Because the city's logs for residential burglary were not

computerized during the time of this study it was not possible to assess the great amount of information pertaining to the city as a whole when analyzing the next three statistics. Thus, the data reported below are not adjusted for normal and expected fluctuations. They are included, nevertheless, because they further clarify and support the effects noted above.

Residential burglary committed during programmed patrol hours. The volunteers never actually discovered an instance of burglary in progress during the entire ten months of program operation. However, the neighborhood was given crime prevention literature and reminded to turn on porch lights by the volunteers during evening hours, Monday through Thursday, and at least one neighborhood notice was circulated calling for volunteers to help out specifically during those times. It is not unreasonable to suppose that if the program deterred burglars it would be especially likely to do so between those hours, since the neighborhood had been alerted to the presence of patrollers during these times.

This is supported by the available data. Stuart Area burglaries were first sorted into those which may have been committed during the four hours between 7 pm and 11 pm, Monday through Thursday and those which were probably committed during other times. (The monthly logs kept by the Crime Prevention Bureau listed the probable time of occurrence of residential burglaries). Four such crimes took place during the months of October 1976 through February 1977, but six were committed during those months a year earlier. Thus there was a 33 percent drop in burglary committed during what would have been

patrol hours in the five months of baseline. From March to August 1977 there were three burglaries committed during the patrol's scheduled hours; however, eleven such burglaries occurred during these same hours during the previous year in those months. This represented a 73 percent reduction in burglaries committed during programmed patrol hours. The net reduction in burglary occurring during patrol hours due to the crime prevention program is on the order of 40 percent, then, not taking into account the expected city-wide fluctuations.

This figure must only be taken as a rough estimate, for the above reason, and due to the difficulty inherent in establishing precise times of the crime and due to the elimination of the earlier 7 pm to 9 pm patrol shift in June through August.

Decrease in multiple burglaries. There is some evidence suggesting that one reason for the program's effectiveness was that the project increased the likelihood that a burglar's misbehavior would be detected. From the burglar's point of view, any increase in the likelihood of detection might lead him or her to decrease the number of times he or she would strike one building repeatedly. Whatever the reason may be, during the first six months of the crime prevention program the number of dwellings burglarized more than once was cut in half. From October 1975 to February 1976 there were seven instances of multiple breaking and entering (that is, when a single dwelling was struck by burglars more than once); from October 1976 through February 1977 only four occurred, representing a decline of 43 percent. From March through August 1976 a total of 21 different dwellings were repeatedly burglarized, but during the first six months of the crime

prevention program only three dwellings were multiply burglarized. This represents a decline of 86 percent in the number of different dwellings repeatedly burglarized. Thus, the overall decline in multiply burglarized dwellings was 43 percent, twice the drop seen during the baseline period.

Sequential patterning. If the crime prevention program reduced the frequency of residential breaking and entering, did it affect the way burglary was distributed throughout the month? Was there any change in the way burglaries were sequentially patterned? Since the monthly logs of residential breaking and entering maintained by the Crime Prevention Bureau list the probable date of burglaries committed it was possible to examine this patterning.

The raw data and computations for this analysis are presented in Table 4.

Insert Table 4 about here

To arrive at the statistics presented, burglaries for each month were recorded on a calendar. Those possibly occurring on the same day were counted as one "same day" incident or cluster. Those possibly occurring over a two day period were counted as one "next day" incident or cluster. For each month these figures were then divided by the total number of burglaries reported for that month to yield a proportion. This proportion allowed comparison between the current year and previous year in spite of the unequal number of burglaries observed in a given month across years. Finally, because there were a number

of zeroes in the cells these proportions were added together to yield sums of proportions for present year and previous year baseline and intervention comparison periods. Otherwise, the proportions containing zeroes in the denominator would have been meaningless. The sums were then converted to means for each such period and divided by the appropriate comparable period of the previous year to yield the more familiar percent change scores.

As shown in the table, there was a 20 percent increase in the number of instances in which two or more burglaries were committed on the same day during the October through February comparison period, whereas there was a 48 percent decrease in the number of "same day" burglary incidents during the crime prevention program comparison period. Thus there was a net 68 percent reduction in the frequency of the "same day" burglary incidents in the Stuart Area during the operation of the first six months of the neighborhood patrol. The table illustrates that when making this comparison for burglary incidents involving burglaries taking place on the next day following a previous burglary, there was a net 29 percent decrease (from an increase during baseline of 13 percent to a decrease during the crime prevention program of 16 percent). The average reduction in tightly sequenced burglaries was slightly more than 48 percent, therefore.

Since city-wide statistics were too difficult to analyze in order to correct for normal fluctuations in burglary sequencing, and due to the difficulty of determining which day a burglary was committed on (there would be little hope of determining, for example,

when a burglary was committed during a week long vacation unless there were witnesses) the above statistics must be interpreted rather loosely.

The following three statistics describe changes in the behavior of neighborhood residents which may have been caused by the intervention of the neighborhood crime prevention program. These behaviors may have in turn affected the reduction of burglary in some way, but their role in doing so was not tested by directly manipulating them in this study. It is difficult to tell whether they were concomitant effects or supplementary causes, or both. These three statistics have been adjusted for city-wide fluctuations expected to have influenced results in the Stuart Area.

Identification engraver sign-outs. It is possible that the crime prevention program encouraged residents to better secure and protect their property, thus in turn helping to reduce burglary. One piece of evidence suggesting that this may have happened was found when examining the log entries of identification engraver sign-outs kept by the Crime Prevention Bureau. Since residents signing out the engravers provided at no charge by the Bureau were asked to identify their address of residence, changes in Stuart Area usage of the engravers could be noted.

Due to the small numbers of engraver users involved it was necessary to pool data, summing across the five month baseline and six month intervention (March through August) periods. Table 5 illustrates the number and percent change in residents of the Stuart Area and the rest of the city who registered to use the identification

engravers during the periods of interest.

Insert Table 5 about here

As is shown in the table, there was a net adjusted increase in engraver registration in the Stuart Area during the crime prevention program of 18 percent.

Premise inspections. The Crime Prevention Bureau also logged the location of dwellings which have requested and received a free home security survey, provided by the Bureau. It was possible, therefore, to note whether any increase in security surveys had taken place due to the program. (The crime prevention literature distributed through the neighborhood told residents about this service, but it also suggested ways in which residents could do this for themselves.)

Again, due to the small numbers of residents involved it was necessary to pool data summing across the baseline and intervention comparison periods. Table 6 illustrates the number and percent change in residential premise inspections in the Stuart Area and the rest of Kalamazoo.

Insert Table 6 about here

It can be seen that there was a 111 percent decrease in the number of Stuart Area dwellings given security inspections by the Bureau during the first six months of the crime prevention program.

Police dispatches. Another factor contributing to the success of the program (and indicative of the program's success) could have been the frequency with which Stuart Area residents asked the Police Department to dispatch a patrol car to the neighborhood. Speaking qualitatively, a measure of this sort would suggest heightened attentiveness to potential sources of crime, less apathy, and in general, a more active sort of citizen involvement in protecting the neighborhood against crime. Since the Police Department keeps a running log of all instances in which a police car is dispatched on police business, it was possible to determine whether any change had occurred in the frequency with which police cars were dispatched to the Stuart Area during the first six months of the crime prevention project.

The large number of dispatches issued during any given month (approximately 2500) and the lack of computer assistance required the analysis of this data to be based on a sample of the dispatches logged rather than a complete tabulation of them all. The dispatches are logged on numbered typed pages, so for each month of interest it was possible to randomly select different pages to use as month by month samples. Once a page had been selected the dispatches listed on that page were sorted into those sent to the Stuart Area and those sent to some other part of the city. For each month this process was carried out until about 85 total dispatches had been sorted. For each month and its "year later" comparison month the total number of dispatches sampled was held at a constant (this number varied from 84 to 89, depending on how many dispatches were logged on the five

pages sampled each month) so that the number of Stuart Area dispatches within each month would represent an automatic proportion of the total dispatches sent for each comparable comparison month.

Due to the small number of dispatches sent to the Stuart Area, the raw data per month was pooled within comparison periods. A total of 395 dispatches were sampled from October 1975 through February 1976; of these, 11 police cars were dispatched to the Stuart Area. A total of 395 dispatches were sampled from October 1976 through February 1977; of these, seven police cars were dispatched to the Stuart Area. Thus, during the five months prior to the introduction of the crime prevention program, a 37 percent reduction in Stuart Area dispatches took place. A total of 521 dispatches were sampled from March through August 1976; of these, nine police cars were dispatched to the Stuart Area. A total of 521 dispatches were sampled from March through August 1977; of these, 21 police cars were sent to the Stuart Area. Thus, during the first six months of the crime prevention program there was a 233 percent increase in the number of requests for police assistance generated in the Stuart Area. The net increase in requests for police assistance during the first six months of the neighborhood patrol program was 270 percent over the baseline period, adjusted for expected city-wide fluctuations.

Measures of Possible Displacement Effects

While the residents of any locale would be pleased to note a decrease of crime in their area, it is of interest to those responsible for managing crime control on a city-wide basis whether or not such reductions occur at the expense of possible increases in crime

in adjacent areas. Police statistics logged by the Crime Prevention Bureau made it possible to obtain a rough measure of two sorts of changes in residential breaking and entering in locales adjacent to the Stuart Area.

Fringe street burglary. Were residences in the area immediately surrounding the Stuart Area burgled any more or less frequently during the operation of the crime prevention program? The answer points to an increased incidence of such fringe street burglary.

The incidence of residential burglary on all streets directly abutting the Stuart Area was counted. Since the length of those street varies, only those burglaries which occurred within the first "hundred block" abutting the Stuart Area were counted. A measure of changes in burglary frequency on the perimeter of the Stuart Area was thereby obtained.

Due to a number of months in which no or only a few burglaries were committed, the monthly frequencies were pooled within comparison periods. From October 1975 through February 1976, 19 fringe street burglaries were reported; from October 1976 through February 1977, 15 fringe street burglaries were reported. Therefore, 21 percent fewer fringe street burglaries occurred during the baseline period than during the prior year. From March through August 1976, 11 such burglaries were reported; during this period in 1977, four more, or 15 burglaries were reported. This represents a 36 percent increase in fringe street burglary during the first six months of program operation, or a net increase over baseline of 57 percent.

Burglary in Police District 24. As mentioned above, Police

District 24 included the north half of the Stuart Area and much of the high crime "northside" area in Kalamazoo. As much as one quarter to one third of all residential burglary in Kalamazoo is committed in Police District 24. The Kalamazoo Police Department discontinued the practice of dividing the city into districts in late November 1977, but until that time each residential burglary logged by the Crime Prevention Bureau was tagged with its district number. It was therefore possible to count, month by month, which burglaries outside of the Stuart Area were committed in the larger Police District which partially surrounded it.

The frequency of residential burglary in Police District 24 (excluding the Stuart Area) was counted, month by month, each month's frequency being divided by the previous year's frequency for that month, until a set of percent change scores were obtained for each month of interest. These scores, or ratios, were then plotted longitudinally across the various comparison periods, and the city-wide fluctuations in residential breaking and entering (excluding District 24) were plotted with them, to provide a basis for adjusting for expected fluctuations. These change scores are plotted in Figure 2. The raw scores are included for reference in Appendix C.

Insert Figure 2 about here

The results may be summarized briefly. Many opposing trends are observed in the figure, but the consequent appearance of instability in the data was primarily due to the high crime rate in District 24.

Since District 24 burglaries constituted such a high proportion of the city-wide rate, the more burglary committed in District 24, the lower the percent change in city-wide rates would appear to be, and vice versa. This instability, while preventing refined analysis, does not prevent a general account of the pronounced trends. It may be observed that the city-wide rates of burglary were not decreasing as much as seen in Police District 24 throughout the period extending from May 1976 through February 1977. During this time District 24 appeared to be enjoying a degree of improvement in burglary that surpassed that of the rest of Kalamazoo by an average of some 24 percent. During the first six months of the neighborhood patrol, however, the rate of breaking and entering increased to a level 25 percent above that of the city's. In the final three month comparison period graphed there was a slight reduction in burglary rates for District 24, relative to the increased rate of the rest of the city. When the average change in burglary rate for District 24 is compared with the average change in the rest of the city from March through November 1977, there appears a 13 percent relative increase in District 24 burglary over the city-wide expected fluctuation. Thus, there was actually a net adjusted increase over the May through February baseline period of 37 percent during the nine months of crime program operation graphed above.

Survey Results

Two homeowner surveys were conducted during the operation of the crime prevention program. The first, conducted in late August, September and October 1977 concerned home security practices and

homeowner opinions toward crime and crime protection in the neighborhood. The second, conducted in December 1977, concerned the influence the crime prevention bulletins had on residents' self-reported crime prevention behavior. Together they were designed to suggest further reasons for the crime prevention program's success.

Homeowner security survey. The small number of residents the director was able to interview limits the confidence which may be placed on the results of the homeowner security survey. It appears, however, that consistency in the practice of security precautions is of importance in reducing the chances one's home will be burgled. The particular results of this survey may be found in Appendix D.

Crime prevention bulletin impact survey. The results of the telephone survey conducted to help determine the impact of the crime prevention literature which had been distributed during the course of the neighborhood crime prevention program are presented in Table 7.

Insert Table 7 about here

As is shown, almost all residents said they had heard of the crime prevention program and that it had made them more aware of crime prevention. A little less than half said they had conducted a security inspection of their home, used porch lights every nights, and volunteered to walk in the neighborhood patrol program. Very few took ten minute walks through the neighborhood every day. In

addition to those performing these activities due to the influence of the neighborhood program, about a third of the residents said that they had engaged in many of these activities before the crime prevention program began.

Additional Information

To the body of information gathered above, three more pieces of data may be added to help complete our understanding of the results and the program's impact.

On four occasions during the program the number of porch and yard lights turned on in the evening were counted throughout the neighborhood. The counts were always taken at least one hour after dark. On June 7, 55 lights were counted; on July 7, 61 lights were counted; on August 6, 78 lights were counted; and, on September 26, 118 porch and yard lights were noted as turned on. Thus, the number of porch lights turned on during the evening in the Stuart Area seems to have doubled during the course of the program, but no control measures were employed to confirm this.

The abrupt increase in residential breaking and entering during April 1977 was of interest; when asked, an officer of the Crime Prevention Bureau attributed the increase to the early spring which visited the city in that month. The summary of monthly temperatures presented in Table 8 supports this possibility.

Insert Table 8 about here

As seen in the table, the early part of 1977 was colder than during

the early months of 1976. In the latter half of April 1977, however, the weather abruptly changed, becoming some 14 degrees warmer than the average maximum daily temperature during either March or the first part of April. Thus, there is a correlation between an abrupt (not necessarily early) spring warming trend and the increase in burglary during April 1977. Whether there was a causal relationship between the weather and burglary is not clear, nor is the exact nature of that relationship.

Finally, it was possible, due to the relatively small number of dwellings involved, to estimate whether a dwelling burgled in the Stuart Area was owner occupied or rented by transients. (This identification was not carried out for the entire city of Kalamazoo, so it was not possible to adjust this next statistic for city-wide expected fluctuations and rates.) The relative impact of program effectiveness could be roughly weighed, however; was there any difference in the burglary reduction for homeowners as opposed to transients?

There seemed to be a small difference. The burglary rate for homeowners had dropped from 11 (October 1975 through February 1976) to nine (October 1976 through February 1977) during the five month baseline period. In the first six months of the crime prevention program it dropped to seven, down one from the previous year. These statistics represent a six percent relative increase in burglary of homeowners, however. For transient dwellers there was a drop during the five month baseline comparison period of 19, down from 47 burglaries during the previous year. During the first six months of

the crime prevention program's operation, however, the number of burglaries dropped to 36, down from the previous year's figure of 83. These statistics represent a relative net decline in transient dwelling burglary of 17 percent over the baseline period. Thus, it appears that the crime prevention program was slightly more effective in reducing burglary in dwellings occupied by transients (such as college students) than in decreasing burglary in owner occupied dwellings.

DISCUSSION

In the present study a neighborhood crime prevention program staffed by volunteers who patrolled the neighborhood and regularly distributed crime prevention literature reduced the frequency of residential breaking and entering during a ten month period by 26 percent. The study also illustrated that timely arrests by police officers appeared to be more than four times this effective in reducing breaking and entering, and that neighborhood efforts to reduce burglary may at times be relatively powerless to deter the activities of "career" burglars.

The neighborhood crime prevention program operated without any injury to participants, with a minimum of funds, without any instances of "vigilantism", and with a group of reliable volunteers who showed that it is indeed possible for small neighborhoods to affect decreases in the crime rate, a source of major community concern across the nation.

A review of the results should clarify these points and help piece together details of just how the program changed burglary behavior during its operation.

There can be no doubt as to whether a decrease in residential breaking and entering within the Stuart Area occurred during the operation of the neighborhood crime prevention program. Except for the two month period in which the "career" burglar returned to plague the area, the number of burglaries committed during March through December 1977 declined markedly as compared with the same period of

a year before. The question is, therefore, to what extent was the neighborhood crime prevention program really responsible for this decrease? Secondly, if it can be shown that the program did contribute to the decrease, how do we reconcile these results with what we know about human behavior? How are the findings to be explained in terms of the familiar principles of human behavior? These same questions should be asked with regard to the drop in burglaries attributed to the arrest of the "career" criminal by the Kalamazoo Police Department.

To determine the contribution made by the crime prevention program to the observed decrease in burglary, an experimental design employing features of a time series analysis and a control group comparison was used. Specifically, an individual organism reversal model was supplemented by a concurrent comparison with a "whole population" group. Randomization of subjects was avoided in two ways. First, use of the reversal design permitted the performance within the Stuart Area to "serve as its own control" (see Sidman, 1960, for an excellent treatment of the logic of individual organism designs). Second, the availability of relevant data as it pertained to the "whole population" (of Kalamazoo, that is) made unnecessary the random sampling of locales from that population to serve as controls for expected (that is, due to generally acknowledged socioeconomic factors) fluctuations in burglary rates. Because the analysis was time series, or longitudinal, analysis of important trends and idiosyncrasies in the data could be more easily detected than if the data was pooled or averaged within conditions.

In this instance, it is doubtful whether the experimenter would have been able to detect and isolate the effects of the "career" burglar's presence in the neighborhood had not a longitudinal approach been used. There is much to recommend single organism designs for use in this type of research, therefore.

The rationale behind use of the particular seasonal adjustment employed in this experiment can be explained in a brief digression. The seasonal adjustment spoken of involved the simple comparison of previous year's month by month burglary rates with the current year's burglary rates. This allowed direct statements to be made regarding current trends in burglary rates. The often accepted formula for seasonal adjustment weighs the average performance of interest of the three prior years with the performance of interest during the current year. In this experimenter's opinion this averaging dulls the sensitivity of the comparison, possibly blurring or distorting direct statements regarding changes in the current year's performance. For example, observed declines in burglary rates for any current year might be reported as statistical gains if two and three years before exceptionally low frequencies of burglary were reported. Thus, in this example an encouraging initial reversal of burglary trends might be masked. The often accepted formula applied indiscriminately to the present experiment also assumes that trends in burglary are so unstable that the smoothing function of a three year average must be employed. The reader in agreement with this logic is free to ignore the month by month comparisons entirely and look only at the mean results for each period of intervention. The fine-grained analysis

of month by month changes in trend would be obscured by doing so, but it would not affect the general conclusions expressed in this paper. In this case the experimenter preferred a more sensitive comparison. The burglary rates within each locale involved were not so unstable that statements and observations regarding comparisons between them become ambiguous or confused.

Bearing this in mind, we are now able to more clearly see how the neighborhood crime prevention program's contribution to the observed decrease in burglary was assessed. Granted that the rate of burglary was reduced in the Stuart Area by an average (not including September or October) of 44 percent, the expected change in burglary rate due to broad socioeconomic factors had to be parceled out. This expected change was automatically arrived at while monitoring the drop in burglary rates for the rest of Kalamazoo, which was three percent. One final adjustment remained, because without knowing whether a difference of this order existed prior to the program's implementation one could not make assertions as to the amount of novel change introduced upon the program's initiation. Since the Stuart Area was already experiencing an ongoing 15 percent decrease in residential breaking and entering (relative to the expected city-wide decrease) five months prior to the neighborhood crime prevention program, this figure had to be parceled out, too. A 26 percent decrease in residential burglary due to the influence of the Stuart Area's program remains. This percentage figure itself is merely a convenient summary of these various factors, but is no substitute for the month by month analysis of the trends and

interventions involved. Trend analysis of the program's influence showed that its introduction reversed an increasing trend in burglary. Withdrawal of the program was followed by an increase in burglary. Only during April 1977 did the results of the newly organized crime prevention program seem opposed to a generally improving trend that continued until September. The available data suggest that the weather may have played a role in this exceptional month's high incidence of burglary; the rapid increase of temperatures in mid-April were correlated with an increase in burglary throughout all of Kalamazoo. The neighborhood crime prevention program did not appear to suppress this increase in the Stuart Area.

This same approach was taken in the analysis of the "career" criminal and arrest data, by which it was shown that the arrests of this burglar produced immediate decreases in Stuart Area residential breaking and entering on the order of nearly 150 percent.

The question of how these events are to be explained in terms of known principles of human behavior remains to be answered. It was observed in the introduction that the neighborhood crime prevention program incorporated three of the four behavioral components characteristic of other community based crime prevention projects. These had to do with its role as a class of stimuli discriminative for non-burglary, its operations which altered the schedule of punishment delivery for burglary, and its influence in altering the physical environment such that burglary was rendered less likely due to "mechanical" prevention of such responses. In the program these factors were not experimentally separated, so the following

account must be considered to be strictly speculative. Nevertheless, in practice, it appeared that two major factors, the content of the crime prevention program and changes in the behavior of Stuart Area residents were involved.

Immediately suggested is the possibility that by increasing the likelihood burglars would be detected committing their crimes, the neighborhood crime prevention program helped to increase the chance that burglars would be caught and subsequently punished for their inappropriate behavior. Schedule control of actual consequences by patrol activities seems a likely factor. However, to this experimenter's knowledge the frequency with which burglars were detected and subsequently caught was not increased during the program. The patrollers themselves never "caught" a burglar in the act, although other residents might have.

If it was not the delivery of an actual consequence which led to the behavior changes observed, another likely alternative is that some aspects of the program were discriminative for non-burglary behavior in the Stuart Area. Many possible discriminative stimuli were presented in the course of the program. Actual receipt of leaflets describing the program's activity by potential burglars, their friends, acquaintances or relatives may have discouraged the criminal activity. Physically sighting the volunteers on patrol may have warned burglars not to act, and any conspicuously observant residents in the vicinity may have been discriminative for leaving the neighborhood, too. The increased use of porch lights likewise may have been discriminative for non-burglary behavior. Since more Stuart

Area residents called for police assistance during the project, the probable increase in police car visibility in the neighborhood may have warded off potential thieves, too.

Again, this account is only speculative because the stimulus function of each of these potential factors was not tested. However, the results are consistent with results McNees, Egli, Marshall, Schnelle and Risley (1976) obtained while devising techniques for reducing shoplifting in a department store. The experimenters posted an attention-getting sign above racks of women's clothes which were popular with the shoplifters, which said, "Attention shoppers and shoplifters: The items you see marked with a red star are items that shoplifters frequently take". Shoplifting from racks so marked dropped to near zero levels immediately. The authors mention the "threat of apprehension" as a likely contingency involved in reducing the shoplifting behavior. Since the authors do not mention that shoplifters actually experienced delivery of the consequences the sign was indicative of, apparently in their case, as well as in the present experiment reduction of the undesirable behavior was achieved through stimulus control. In their study items continued to be stolen from racks not so marked; this also resembles the results of the present study in that control over the inappropriate behavior failed to generalize to non-target settings.

As regards the role the increased number of police cars dispatched to the Stuart Area may have played, other studies are not directly applicable. At least two studies have found that an

increased level of police patrol by itself does not always decrease residential burglary (Kelling, Pate, Dieckman and Brown, 1974; Schnelle, et al., 1975). In those studies, however, no attempt was made to increase the propensity residents in the patrolled areas had to report potential sources of crime. Had the residents known about the project they may have made more use of the increased police presence. Thus, in the present study the increased level of direct police involvement in the Stuart Area as indicated by police dispatch records cannot be discounted as a variable with possible functional effects. Likewise, Schnelle, et al. (1975) found that use of a police foot patrol led to an increase in the number of crimes reported to the police in the target areas, but that the incidence of arrests in those areas did not increase. Since the experimenters did not report whether the introduction of the foot patrol coincided with any change in the frequency of residential burglary, however, there is no way to judge whether the foot patrol may have been effective in reducing burglary in spite of the lack of arrests. If it may be assumed that the experimenters intended to alter the consequences of burglary (inferring that arrests would be greater if more citizens reported offenses), they seemed to neglect testing the foot patrol's impact as a discriminative stimulus for non-burglary behaviors. In the present study, the volunteer patrollers did not see any burglaries in progress; yet, there was an observed decline in home burglary.

In terms of producing more positive results, Schnelle, et al. (1977) employed a multiple baseline design to test the effectiveness

of day and night hour police saturation patrols (30 times the normal level) in controlling crime. The experimenters found statistically reliable reductions in reported levels of Part I crime (which includes homicide, forcible rape, burglary, robbery, aggravated assault, larceny, and auto theft) during the night hour patrols. Changes in arrest rates were not mentioned in this study; it is possible that stimulus control over these crimes was an important factor.

The other aspect of the present program's success, namely, changes in resident behavior in the form of improved security strategies taken, involves both the display of the above-mentioned discriminative stimuli (for example, decals and better outdoor lighting) and rearrangement of the physical environment (such as the strengthening of entryways and hiding of valuables). That residents did indeed employ these strategies as a result of the neighborhood crime prevention program is suggested by their increased use of identification engravers, their increased requests for police assistance, their increased use of porch lights, their performance of home security inspections, and the observed decrease in successful burglaries during the program's operation.

Thus, it appears that the neighborhood crime prevention program was successful primarily due to the numerous discriminative stimulus functions involved and to the physical prevention of burglary behaviors. However, it is not possible to entirely rule out the possibility that the program somehow altered the schedule upon which punishing consequences for burglary were usually delivered. The issue

is extremely complex, given that presentation of a so-called discriminative stimulus may actually be delivery of a conditioned consequence (stimulus), and that respondent as well as operant principles of behavior are involved.

One thing is certain, though. The physical or mechanical prevention of undesirable responding explains the great success found when the police arrested the "career" burglar. Someone locked in prison is automatically and effectively "prompted" to remain where commission of residential burglary is impossible. An operant analysis of the "career" burglar's incorrigibility in the face of prison terms must remain unsatisfactorily vague since the details of this individual's past are unknown to the experimenter. The actual analysis would probably discover a history of early reinforcement for delinquent acts, ultimately delivered on a fairly rich schedule of reinforcement (as this individual had committed hundreds of burglaries before being caught the first time). Apparently the intensity and probability of the punishment received for committing those offenses was not sufficient to suppress that undesirable behavior. The individual certainly was not affected by the neighborhood crime prevention program, or so it appeared.

Conceptually related data gathered during the course of the experiment support the analysis suggested above. A few of these data were mentioned above, but it is worthwhile to review them in consideration of other points as well.

The 38 percent decrease in successful burglary (that is, in

which property was actually stolen) indicates that burglars were being foiled more often while committing burglaries during the months of program operation. The exact way in which burglars were thus frustrated is difficult to determine. There are at least two possibilities. First, burglars may have been frightened off by the presence of a potential witness at the scene. As mentioned above, neighborhood patrollers never had the occasion to notify police of an actual break-in in progress, but that does not mean that someone or something else could not have done so. The number of citizen requests for police assistance in the Stuart Area more than doubled during the first six months of program operation, so it is quite possible that non-patrolling residents foiled would-be burglars. Second, burglars may have been thwarted by more consistently locked doors or other security precautions such as the hiding or safe storage of valuables while on vacation. The home security survey conducted revealed that those never burglarized were more consistent in their employment of existing security devices (though the devices themselves were not necessarily more exotic), and the results of the telephone crime prevention bulletin survey suggested that many residents in fact had become more conscientious in their employment of security strategies. These two factors also help to explain the overall reduction in burglary in the Stuart Area.

The 51 percent decrease in the value of property stolen during the crime prevention program was not directly proportionate to the decrease in successful burglaries in the neighborhood; it represents an additional 13 percent decline. Although one must be careful not

to overinterpret results of this sort, they do suggest that the burglars operating in the Stuart Area did not or were not able to become more discriminating in the type of property they were stealing as the program continued. Due to an increased possibility of detection those involved may no longer have had as much time to study potential targets or to carefully plunder once inside a dwelling. Here as well, heightened security measures may have played a role in preventing the burglars from removing more valuable property.

Although unadjusted for city-wide fluctuation, the fact that 40 percent fewer residential burglaries were committed during scheduled patrol periods in the first six months of the program suggests that the actual or announced presence of the patrollers had an effect on the burglary rate. During this same six month period the unadjusted rate of burglary itself was reduced only some 10 percent in the Stuart Area during the rest of the week (including the scheduled patrol times), so it does appear as though burglars were avoiding the Stuart Area especially during scheduled walking hours. This evidence supports the hypothesis that the patrol aspect of the crime prevention program deterred burglars from theft in the Stuart Area.

The reduction of multiple and tightly sequenced burglaries supports both the possibility that the crime prevention program deterred burglars and the possibility that it led to increased precautions taken by area residents. The specific mechanisms involved are not clear, but these changes in burglary patterning, together

with the major evidence indicating an overall reduction in residential burglary, are consistent with the body of research conducted on aversive control of behavior (see Azrin, 1966). This suggests that the contingencies modifying the burglars' behavior in the neighborhood primarily involved punishment, and not reinforcement, of behavior. Increasing the probability of punishment for behavior tends to decrease the frequency of that behavior, and the crime prevention program did contribute to the likelihood that a burglar would be detected and reported to the police, even though the actual consequences may not have been delivered.

The data on identification sign-outs provides us with another piece of evidence suggesting that Stuart Area residents were in fact increasing the number of security measures they employed during the crime prevention program. Although the 18 percent increase in sign-outs can hardly be called phenomenal, it supports the self-reported evidence that residents were becoming more "security conscious".

One might have expected the number of security inspections conducted by the Kalamazoo Police Department in the Stuart Area to have increased during the crime prevention program, as well. This was not the case; instead, a 111 percent drop in premise inspections was logged. Since 45 percent of the homeowners surveyed said they had conducted their own home security surveys after receiving the literature distributed during the program, it is possible that they were simply conducting their own security checks instead of asking the police to do so for them. The fact that nearly half of those

interviewed reported that they had conducted their own survey is another indication that homeowners (and possibly tenant-occupants, too) were devising more effective security strategies.

The specific impact of the two neighborhood censuses taken by the Stuart Area Restoration Association in March and June 1977 was not directly assessed in the program. They should be regarded (until further experimentation suggests otherwise) as another component within the neighborhood crime prevention program which may have contributed to its success. The presence of the Stuart Area Restoration Association within the neighborhood during the crime prevention program's operation must be regarded in the same fashion. There can be no doubt that the existence of this block club facilitated the implementation of many aspects of the crime prevention program. Whether the program would have been successful without its help is an experimental question.

Little difference seems to have resulted from the minor changes made in some of the operational features of the program. Readjusting scheduled patrol hours and discontinuing formal use of written volunteer guidelines seemed not to disrupt the program's success, and these adjustments did aid administration of the program. One operational feature was informally tested, however, with telling results. The few times when the director was not able to insure that a telephone reminder was delivered to the scheduled patrollers, the patrollers often "did not remember" their previously arranged commitment. Therefore, these pre-patrol reminders seemed to be a necessary part of volunteer coordination and management.

No data were analyzed to determine whether burglars switched to other forms of crime in the Stuart Area once frustrated in their attempts to commit burglary there, but other data indicate that the burglars may have been driven elsewhere to commit their burglary. Analysis of both fringe street and District 24 burglaries reveals that an upturn in burglary took place in those areas during the operation of the Stuart Area crime prevention program. These increases were on the order of 57 and 37 percent for the fringe street and District 24 areas, respectively. This information suggests that the Stuart Area program was situation specific in its impact on the burglar's behavior. Burglars did not give up their "life of crime" just because the Stuart Area became more alert; they practiced their dubious craft somewhere else. District 24 (to which the Stuart Area contributes membership) has had a historically high crime rate; the Stuart Area program simply shifted more of the crime into other parts of the same overall district. District-wide, it should be mentioned, there was actually an adjusted 10 percent decrease in residential burglary during the first six months of the Stuart Area program. These statistics do not rule out another possibility, namely, that the neighborhood patrol did not cause displacement of burglary. Another possibility is that the Stuart Area's program was successful in spite of a coincidental increase in burglary throughout the rest of the vicinity.

But whatever else it may indicate, this observed upturn in District 24 burglary strongly argues against the possibility that burglary in the Stuart Area just happened to decrease during those

months of crime prevention program operation due to a general decrease in burglary in that part of Kalamazoo. Together with the information on how burglary was changing throughout the rest of Kalamazoo, these data discount historical sources of invalidity.

These results were not distressing to the residents of the Stuart Area, however, since the aim of the program was to reduce crime in their neighborhood, which it did; but it does have ramifications for law enforcement officials. It suggests that police would not need to send as many men on routine patrol into areas where successful citizen based crime prevention programs are operating. Instead police could more profitably concentrate on the identified high crime areas. This would have to be carefully arranged, however, for a neighborhood organized well enough to carry out such a crime prevention program would undoubtedly be able to voice strong political complaint against such a policy of "good intentioned neglect".

The results of the homeowner security survey support a bit of common sense. They affirm that it is the consistency with which one uses a home security system that is important (once one has a moderately strong set of locks) in preventing burglary. This finding in turn suggests a pattern of constant probing of security gaps by would-be burglars in the Stuart Area. Personal interviews revealed that residents with dogs would be burgled while the dog visited the veterinarian for the afternoon; unlocked fraternity houses with strong young men at home would be struck when they were all in a meeting in some other part of the house; and, otherwise security

conscious couples would be broken into from the open-doored rear of the house while they were out gardening on the side of their home! Those never burglarized left their shades open in the evening on the first floor of the home, surprisingly, but this may have allowed would-be burglars to see that the home was occupied and that nothing of great value was in it. It is not feasible to stay at home all the time or to leave first floor shades open in the evening every night, however. The results suggest that it is most important, therefore, to consistently use whatever security devices are available to prevent casual entry, if nothing more.

In sum, the ancillary data collected on these conceptually related measures strengthen the conclusion that the neighborhood crime prevention program indeed was responsible for the observed reduction in residential breaking and entering in the Stuart Area. They further help to identify factors possibly involved in this reduction which may be amenable to later experimental analysis. Use of conceptually related measures is recommended in experimental analyses of many field experiments of this nature, it would seem.

Although much interesting data was gathered during this experiment, it would have been ideal to have worked with more information in certain areas. Anything which can help experimenters move closer to direct inspection of the phenomena they are interested in is desirable, of course. In the present experiment, for example, it appeared as though residents did in fact alter some of their behavior as a result of the crime prevention program's influence.

The exact amount which the residents' increased use of security devices and porch lights or appliance timers, their increased predisposition to call the police, and their increased use of identification engravers helped to lower burglary is difficult to determine since these behaviors were not experimentally manipulated. There is no doubt that they contributed to the success of the program, though, so for the meantime their contribution must remain a mystery. One crucial variable, the amount of exposure would-be burglars had to written or spoken notices of the neighborhood patrol's activities could not be assessed at all. Rumors burglars heard about the neighborhood's activities, receipt of crime prevention literature, and other comments made by parents and friends of burglars could all have conceivably played a role in reducing burglary in the Stuart Area, too. But the role this class of variables played was not assessed either. Nor would such variables be very easy to manipulate on a large scale.

Two major aspects tempered the success of this neighborhood crime prevention program. Although mentioned above, they bear reiteration in this context. First, the observed decrease in reported residential breaking and entering did not extend into January and February 1978, when the program was temporarily discontinued. Apparently the presence of the neighborhood patrol and the near-daily distribution of crime prevention literature were necessary to decrease burglary and keep it suppressed. These comments extend to the second cautionary aspect, namely, that the

reduction in breaking and entering failed to spread into the neighborhoods surrounding the Stuart Area. If anything, the results suggest an opposite trend; residential burglary increased in the surrounding vicinities not receiving the benefits of this crime prevention program. Together, these two points suggest limits to potential benefits other neighborhoods might expect when employing such programs. Of course, this particular program in no way should be conceived as an exhaustive test of all the different techniques communities can apply to resolve the problem of crime.

These considerations aside, it should be reiterated that this neighborhood crime prevention program accomplished its goal of reducing residential breaking and entering within the Stuart Area. It was possible to reach this conclusion only because recent developments in behavior analysis methodology permit sound experimentation within the practical boundaries imposed by such field situations. Randomizations of subjects was not required, elaborate and far-removed-from-the-data statistical "proofs" were unnecessary, and a more detailed picture of how burglary frequency changed over time as a function of some very interesting manipulations was achieved through use of the time series mode of experimentation.

Unlike experiments involving increased levels of police involvement, the present experiment showed that with the help of volunteers (who contributed an estimated 700 - 900 hours of their own time) burglary can be reduced without spending thousands of dollars. The present experiment required the expenditure of less than \$250 over a period of 10 months, for the purchase of crime

prevention literature. These monies were obtained from existing community funds. Schnelle, et al. (1977) reported that it cost more than \$300 to salary an officer and maintain a patrol car for one week alone. The authors concluded that:

"In reality, no matter what cost savings resulted from night crime suppression, the Nashville police (sic) Department cannot afford to maintain patrol at the levels demanded in this study."

In contrast with their study, the estimated cost/benefit ratio in the present experiment was approximately \$250/\$4660. In other words, for every dollar of benefit, only 5.3 cents outright expenditure was required. There is much to recommend the encouragement of neighborhoods to contrive crime prevention programs of their own.

The evaluation methodology was also relatively inexpensive, requiring only the experimenter's time and existing police records. To the other factors recommending use of time series methodology, the economy of approach made possible should also be added as an incentive to further experimentation in the area.

The extent to which this program and analysis themselves represent a planned intervention in a large, extra-laboratory social environment is an indication of at least three things. First, it is within the power of those social agencies most concerned with the problem of crime to ethically and feasibly support meaningful experimentation on methods to reduce crime. One can only hope that previous trends in funding these research efforts will be positively affected. Second, it is within the power of a single individual

to initiate changes which positively affect much larger social environments; similarly, it has been shown that neighborhoods contain within themselves the means to positively affect their community. Individuals and neighborhoods need not sit idly while crime increases. It was also shown that existing agencies of law enforcement can dramatically reduce crime when the offender responsible can be put behind bars. Third, together with a growing body of literature, this study demonstrates the impact of carefully planned interventions on large social environments (see Tuso and Geller, 1976, for a thorough review of experimentation in environmental "psychology").

Figure 1. Percent change in residential burglary rate from prior year, by month, May 1976 through February 1978, in the Stuart Area (SARA) and in the rest of Kalamazoo.

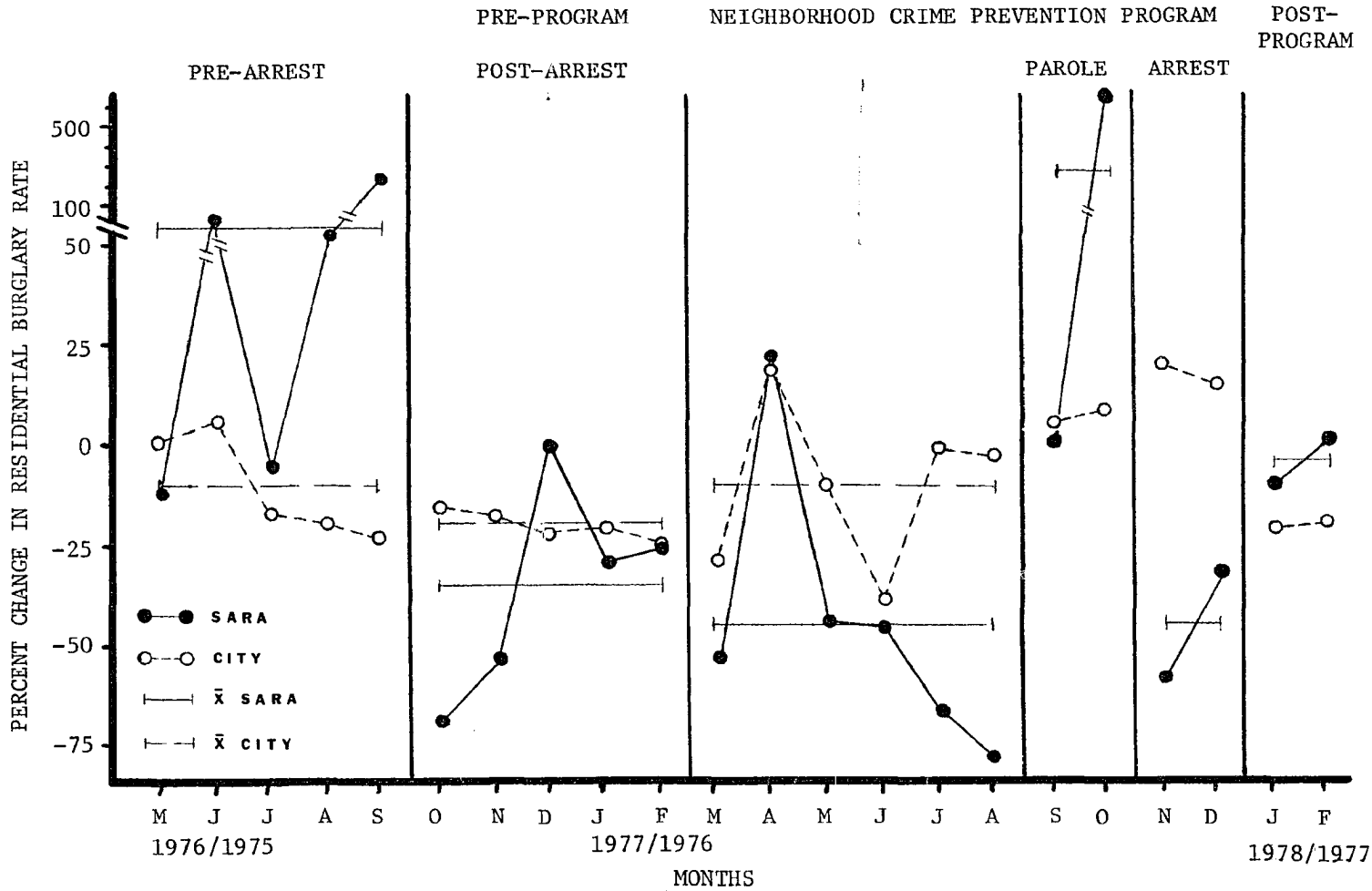


Figure 2. Percent change in residential burglary rate from prior year, by month, May 1976 through November 1977, in Police District 24 (excluding the Stuart Area) and in the rest of Kalamazoo (excluding Police District 24).

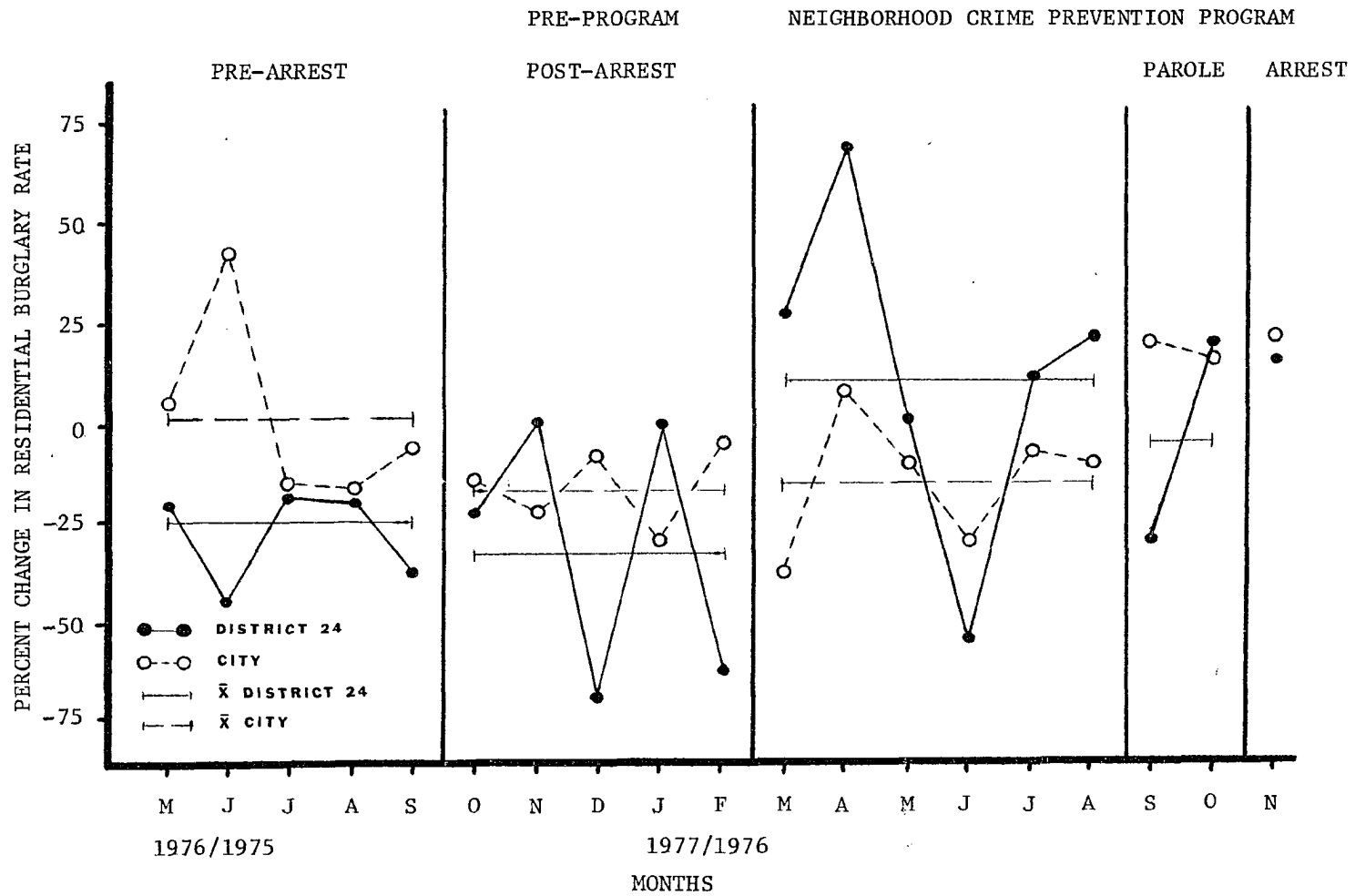


Table 1. Monthly frequencies of residential breaking and entering, May 1975 through February 1978, listed for the Stuart Area (SARA) and for the rest of Kalamazoo.

TABLE 1
Monthly Frequencies of Residential Breaking and Entering

	<u>1975</u>												<u>1976</u>			
	<u>May</u>	<u>Jun</u>	<u>Jul</u>	<u>Aug</u>	<u>Sept</u>	<u>Oct</u>	<u>Nov</u>	<u>Dec</u>	<u>Jan</u>	<u>Feb</u>	<u>Mar</u>	<u>Apr</u>				
City - SARA	134	131	166	173	192	164	143	134	100	116	122	109				
SARA	8	10	16	17	12	13	17	12	14	4	15	9				
	<u>1976</u>												<u>1977</u>			
City - SARA	135	138	137	141	148	137	118	105	79	88	88	130				
SARA	7	18	15	27	26	4	8	12	10	3	7	11				
	<u>1977</u>												<u>1978</u>			
City - SARA	122	86	135	138	160	148	142	135	63	71						
SARA	4	10	5	6	26	22	5	8	9	3						

Table 2. Frequencies of successful burglary: Stuart Area
versus the rest of Kalamazoo.

TABLE 2

Frequencies of Successful Burglary: Stuart Area vs. rest of City

		<u>Stuart Area</u>												
		<u>Oct</u>	<u>Nov</u>	<u>Dec</u>	<u>Jan</u>	<u>Feb</u>	\bar{X} : <u>(A/B)</u>	<u>Mar</u>	<u>Apr</u>	<u>May</u>	<u>Jun</u>	<u>Jul</u>	<u>Aug</u>	\bar{X} : <u>(A/B)</u>
1976-7 (A)	3	5	9	5	2		6	4	3	7	3	5		
1975-6 (B)	10	11	6	11	2		13	5	5	10	11	21		
ratio, A/B		.30	.45	1.5	.45	1.0	(.74)	.46	.80	.60	.70	.27	.24	(.51)
		<u>Rest of City</u>												
1976-7 (A)	104	90	72	55	65		64	99	89	61	110	109		
1975-6 (B)	111	107	88	72	81		93	77	94	97	84	105		
ratio, A/B		.94	.84	.82	.76	.80	(.83)	.69	1.3	.95	.63	1.3	1.0	(.98)

Table 3. Amount of Property Stolen: Stuart Area versus the rest of Kalamazoo.

TABLE 3

Amount of Property Stolen: Stuart Area vs. rest of City

(Value in Dollars)

	<u>Stuart Area</u>												
	<u>Oct</u>	<u>Nov</u>	<u>Dec</u>	<u>Jan</u>	<u>Feb</u>	<u>\bar{X}: (A/B)</u>	<u>Mar</u>	<u>Apr</u>	<u>May</u>	<u>Jun</u>	<u>Jul</u>	<u>Aug</u>	<u>\bar{X}: (A/B)</u>
1976-7 (A)	1823	1981	3228	2389	81		1469	1239	850	3164	500	1922	
1975-6 (B)	5277	3417	1645	6508	465		5841	2784	875	4626	4571	10080	
ratio, A/B	.35	.58	1.96	.38	.17	(.69)	.25	.45	.97	.68	.11	.19	(.44)
	<u>Rest of City</u>												
1976-7 (A)	42749	28695	18718	16131	18160		24948	27283	25029	18775	24132	29628	
1975-6 (B)	42882	41748	28072	34221	37045		26127	22042	31164	30718	37547	23228	
ratio, A/B	.99	.69	.67	.47	.49	(.66)	.95	1.24	.80	.61	.64	1.28	(.92)

Table 4. Sequential burglary patterning in the Stuart Area.

TABLE 4

Sequential Burglary Patterning in Stuart Area

	<u>Monthly Total</u>	<u>Same Day B & E</u>	<u>Next Day B & E</u>	<u>Monthly Total</u>	<u>Same Day B & E</u>	<u>Next Day B & E</u>
<u>1975</u>				<u>1976</u>		
<u>Oct</u>	13	2 (.15)	1 (.08)	4	1 (.25)	1 (.25)
<u>Nov</u>	17	5 (.29)	4 (.24)	8	0 (.00)	2 (.25)
<u>Dec</u>	12	2 (.17)	0 (.00)	12	3 (.25)	1 (.08)
<u>1976</u>				<u>1977</u>		
<u>Jan</u>	14	2 (.14)	4 (.28)	10	4 (.40)	1 (.10)
<u>Feb</u>	4	0 (.00)	0 (.00)	3	0 (.00)	0 (.00)
Sum of Proportions		.75	.60		.90	.68
Percent Change From Previous Year					+20%	+13%
<u>1976</u>				<u>1977</u>		
<u>Mar</u>	15	3 (.20)	1 (.07)	7	1 (.14)	0 (.00)
<u>Apr</u>	9	2 (.22)	0 (.00)	11	2 (.18)	4 (.36)
<u>May</u>	7	4 (.57)	0 (.00)	4	1 (.25)	0 (.00)
<u>Jun</u>	18	2 (.11)	6 (.33)	10	1 (.10)	2 (.20)
<u>Jul</u>	15	5 (.33)	3 (.20)	5	0 (.00)	1 (.20)
<u>Aug</u>	27	5 (.19)	8 (.30)	6	1 (.17)	0 (.00)
Sum of Proportions		1.62	.90		.84	.76
Percent Change From Previous Year					-48%	-16%
Net Change, Pre- vs. Post-Intervention					-68%	-29%

Note.--Numbers in parentheses indicate proportion of sequential B & E's as compared with monthly total.

Table 5. Identification engraver sign-outs: Stuart Area versus
the rest of Kalamazoo.

TABLE 5

Identification Engraver Sign-Outs: Stuart Area vs. rest of City

	<u>October 1975 through February 1976</u>	<u>March 1976 through August 1976</u>
<u>Stuart Area</u>	5	3
<u>Rest of City</u>	146	124
	<u>October 1976 through February 1977</u>	<u>March 1977 through August 1977</u>
<u>Stuart Area</u>	2	3
<u>Rest of City</u>	66	108
Net Percent Change, Pre- <u>vs.</u> Post-Intervention, Stuart Area	+60%	
Net Percent Change, Pre- <u>vs.</u> Post-Intervention, rest of City	+42%	
Increased Percent Change in Use, Stuart Area vs. rest of City	+18%	

Table 6. Residential premise inspections: Stuart Area versus the rest of Kalamazoo.

TABLE 6

Residential Premise Inspections: Stuart Area <u>vs.</u> rest of City			
	<u>October 1975 - February 1976</u>	<u>March 1976 - August 1976</u>	
<u>Stuart Area</u>	3	2	
<u>Rest of City</u>	11	5	
	<u>October 1976 - February 1977</u>	<u>March 1977 - August 1977</u>	
<u>Stuart Area</u>	3	4	
<u>Rest of City</u>	12	16	
Percent Change, Pre-Intervention Period, Stuart Area			00
Percent Change, Pre-Intervention Period, rest of City			+9%
Percent Change, Post-Intervention Period, Stuart Area			+200%
Percent Change, Post-Intervention Period, rest of City			+320%
Percent Change, Stuart Area minus rest of City, Pre-Intervention			-9%
Percent Change, Stuart Area minus rest of City, Post-Intervention			-120%
Net Pre- <u>vs.</u> Post-Intervention Change in Stuart Area alone			-111%

Table 7. Crime prevention bulletin impact survey.

TABLE 7
 Crime Prevention Bulletin Impact Survey

Percent responding (N = 20):		<u>Yes</u>	<u>No</u>	<u>Did it before</u>
<u>Question</u>				
"As a result of the Stuart Area's crime prevention bulletins, do you, or have you...				
1.	"...know about the Stuart Area crime prevention program?"	95	5	
2.	"...been made more aware of crime prevention?"	75	5	20
3.	"...conducted a security inspection of your home?"	45	15	40
4.	"...turn your porch lights on at night?"	45	25	25 (5% not applicable)
5.	"...now take a ten minute walk every day through the neighborhood?"	15	80	5
6.	"...let your neighbors know when you'll be on vacation?"	25	40	35
7.	"...volunteered to participate in the Stuart Area crime prevention program?"	40	60	

Table 8. Temperature Summary.

TABLE 8

Temperature Summary
(degrees Fahrenheit)

<u>1976</u>	<u>\bar{X} maximum</u>	<u>\bar{X} minimum</u>	<u>1977</u>	<u>\bar{X} maximum</u>	<u>\bar{X} minimum</u>
January	28	14		20	6
February	44	25		33	17
March	52	30		52	34
(March: 2nd half)	60	35		52	34
April	65	37		66	42

APPENDIX A
VOLUNTEER GUIDELINES

SARA CRIME PREVENTION PROGRAM

Volunteer Guidelines

Paul Selden
444 Any Avenue

Dear Volunteer,

On behalf of the Stuart Area Restoration Association I'd like to thank you warmly for demonstrating your responsibility as a resident in our neighborhood. You have a right to be proud, and you have a right to expect others to cooperate with you in your efforts to reduce crime in this great part of town. We're lucky we have people like you to count on!

Below you'll find a list of instructions to help make our activities maximally effective. Please make your participation count!

1. Do not hesitate to quickly call the police (385-8111) if your suspicion is aroused in any way. A barking dog, for example, may be barking at an intruder. Observe carefully any unusual activities or noises. Either use your own phone, a police call box, or go to the nearest occupied home and ask them to turn in the report for you. Do not waste any time! Do not ask to be admitted to their home; make certain they get all the details and will faithfully report the incident, however. Do not leave until you have been told the call has been turned in. Identify yourself as a member of the SARA crime project, and give them your name if they ask for it. In your notepad, note the name of the person you've asked to report the incident for you. Also, if you have seen something a description of the incident will also be vitally helpful for later reference!

2. Do not involve yourself in any way, shape, or form with the pursuit, arrest, or apprehension of any suspicious person! Merely report the person to the police!

3. Be prompt and reliable. Fulfill your pledge now; it'll become easier as more residents join in our project.

4. Walk through the entire area, from North to W. Main, from Douglas to Elm, and all the streets in between. Our volunteers are drawn from this whole neighborhood, and we have an obligation to watch out for their streets, too.

5. Again, be sure to bring a notepad and pen to write down license numbers and any descriptive items that you'll need later. Also, keep a tally of how many porch lights are on, per street, as you walk down the block. You don't need to mark specific house numbers, but we do want to know about where people are failing to properly light their property after dusk.

6. This is important: Please remind people to turn their porch lights on, wherever several houses in a row are unlit! Even though they may not be helping in other ways, we have a right to respectfully ask their cooperation in this respect. Please notify Paul Selden (345-0336) if anyone treats you rudely or fails to cooperate in this simple matter.

Volunteer Guidelines (continued)

7. Once per shift, spot-check your neighbor's willingness to phone in a report for you. Do this by approaching them just as you would when making a real police report, identifying yourself and noting their name and address. However, don't report anything, of course; just ask them if they would be willing to do so in a real emergency. Note their reply on your notepad. This particular activity and the porch light check are extremely important to carry our, because it lets the neighborhood know we're on the job, and it gets them into the spirit of the project as well. Notify Paul Selden if anyone treats you rudely or fails to cooperate. Cooperation in this particular matter is absolutely crucial to the success of the program--we've got to be able to rely on our neighbor's help in an emergency!

ASSORTED REMINDERS

Call Paul Selden (345-0336) if you have any questions or if problems arise.

Perform a security check of your own dwelling.

Join Operation ID.

Meet your partner at a designated spot on time.

POLICE CALL-BOXES ARE LOCATED AT THE CORNERS OF WOODWARD & NORTH, AND AT THE CORNER OF W. MAIN AND W. MICHIGAN.

Take a ten minute stroll up and down your own block every day in March.

Some break-ins occur during the day-time--keep your eyes open!

Walk along Eleanor, too; some of our members live there.

Once again, thank you for your help in this vital project. The security of our neighborhood is literally in your hands, but aside from that, this should be a lot of fun, and a great way to get acquainted with the neighborhood!

APPENDIX B
SAMPLE CRIME PREVENTION BULLETIN

Save this sheet; give it to new tenants if you move.

Read carefully...review frequently...follow these guidelines.

STOP THEFT!

Dear Members of Our Neighborhood,

To help reduce the great amount of property theft in our neighborhood, you are urged to follow the simple instructions printed below. During the upcoming months, residents from the area will be contributing their time to participate in a crime prevention project, and someone may be contacting you to ask for your help. Please do whatever you can to lower crime in this neighborhood!

1. Conduct a security inspection of your dwelling. Install pry-proof deadbolt locks on all outside doors. If your door has a glass pane, replace it with plexi-glass or add a plastic sheet over the glass. Or, install a double cylinder lock (one that must be opened with a key from either side). Pin all windows by drilling a hole through the window frames and inserting a long, removable nail. This keeps the window closed even when the latch is opened. Never leave a window open unless it is pinned or locked in position; crooks cut screens to get in. Engrave valuables with the free etching tool you may borrow from the Police Department; and within reason, post Operation Identification stickers which say valuables are engraved. If you feel your security is weak, or you're not sure what to look for, call the Crime Prevention Bureau (385-8104) for a free security assessment.

2. Always turn your porch lights on at dusk. Don't turn them off until you are ready to go to sleep; or, leave them on all night.

3. Each day of the week, take a 10 minute walk up and down your block. Many crimes occur during the day. Report anything suspicious to the police (385-8111), and give all the details. Don't hesitate to call if you're not sure you've seen a crime; let the police decide. Identify yourself as a member of the Stuart Restoration Association when calling. The police are aware of our project.

4. Residents of our neighborhood have been walking through the area and systematically keeping watch for suspicious activities concerned with theft. Always immediately call the police (385-8111) on any report of a crime given to you by a neighborhood volunteer. It could be a matter of extreme importance. Do not open the door; volunteers will not ask to be admitted. It is only necessary for you to copy the message and phone the police immediately.

5. If a volunteer reminds you that your porch light does not seem to be working, please try to correct the problem. We want to

Crime Prevention Guidelines (continued)

create a pleasantly lit atmosphere for our volunteers to walk in during the evening hours. We also want to discourage criminals from using the cover of darkness to their advantage. Please keep your porch light on.

6. If you hear a whistle blowing in the neighborhood, immediately notify the police. Do not assume others will do it. There may be someone in great danger.

7. Let trusted neighbors and SARA know when you'll be on vacation. SARA will make a special effort to double-check your home while you're away. Call Paul Selden (345-0336) for details.

8. Volunteer to participate in the neighborhood crime prevention walks. Little work is involved, and the effort will pay off tremendously. Call Paul Selden (345-0336) to get on the list. You're living in a great neighborhood. Participate!

9. Police call boxes in our neighborhood are located at the corner of Woodward and North, and the corner of W. Main and W. Michigan.

This crime prevention project is sponsored by the Stuart Area Restoration Association (SARA), the neighborhood association in the Douglas-Main-North-Elm area. Paul Selden is project director. This publication was supported in part by a Community Development Block Grant from the U. S. Department of Housing and Urban Development (HUD), administered by the City of Kalamazoo.

APPENDIX C

MONTHLY FREQUENCIES OF RESIDENTIAL BREAKING AND ENTERING:

POLICE DISTRICT 24 (EXCLUDING STUART AREA) AND

KALAMAZOO (EXCLUDING DISTRICT 24)

Monthly Frequencies of Residential Breaking and Entering

	<u>1975</u>								<u>1976</u>			
	<u>May</u>	<u>Jun</u>	<u>Jul</u>	<u>Aug</u>	<u>Sept</u>	<u>Oct</u>	<u>Nov</u>	<u>Dec</u>	<u>Jan</u>	<u>Feb</u>	<u>Mar</u>	<u>Apr</u>
District 24 - SARA	44	63	56	45	77	54	50	43	37	41	31	29
City - District 24	142	141	182	190	204	177	160	146	114	120	137	56
	<u>1976</u>								<u>1977</u>			
District 24 - SARA	38	45	46	48	54	36	41	23	36	16	30	46
City - District 24	142	156	152	168	174	141	126	117	89	91	95	141
	<u>1977</u>											
District 24 - SARA	34	21	43	38	43	49	44					
City - District 24	126	96	140	144	186	170	147					

APPENDIX D
HOMEOWNER SECURITY SURVEY RESULTS

Homeowner Security Survey Results

Attitude Survey

<u>Questions</u>	Percent Responding:	Never Burglarized (N = 6)		Multiply Burg'd (N = 6)		Singly Burg'd (N = 8)	
		<u>Yes</u>	<u>No</u>	<u>Yes</u>	<u>No</u>	<u>Yes</u>	<u>No</u>
1. Are you fearful of crime in this neighborhood?		67	33	33	67	75	25
2. Do you feel safe when walking alone in the ... daytime?		83	17	100	0	100	0
... at night?		67	33	67	33	50	50
3. Do you feel your home and property is secure?		67	33	67	33	63	37
4. Do you believe this neighborhood has a high, moderate, or low amount of crime?		H	M	H	M	H	M
		83	0	67	33	50	50
5. Do you have confidence that the police could help you in a crime related emergency?		50	50	67	33	50	50
6. Do you feel that your neighbors would help you in a crime related emergency?		83	17	67	33	50	50
7. Do you worry about the safety of your possessions at home while you're away on vacation?		50	50	33	87	37	50
8. Are you ever fearful that your own neighbors might steal things from you or otherwise harm you?		33	67	50	50	37	63
9.. Do you know many of your neighbors?		67	33	67	33	50	50
10. What is the biggest crime problem in our neighborhood?		All respondents replied, "Burglary or theft"					

<u>Questions</u>	Percent Responding:		Never Burglarized (N = 6)		Multiply Burg'd (N = 6)		Singly Burg'd (N = 8)	
	Yes	No	Yes	No	Yes	No	Yes	No
11. Do you believe our neighborhood is adequately facing the crime problem?	67	33	67	33	88	0		
12. Do you feel personally unable to help decrease the crime problem in our neighborhood?	50	50	17	83	37	50		

Note.--Totals do not always equal 100% due to presence of undecided respondents and rounding errors.

Security Strength Survey

<u>Category</u>	<u>Percent of respondents in each category</u>		
	Never Burglarized (N = 6)	Multiply Burg'd (N = 6)	Singly Burg'd (N = 8)
1. Uses door locks for security	100	67	88
2. Uses lights for security	83	100	75
3. Has inventory of possessions	66	50	13
4. Has dog at home	17	17	38
5. Uses window locks for security	100	100	100
6. Security system strength (locks on doors, windows, and number of doors)	all of moderate strength		
7. Presence of crime prevention decals	33	67	68
8. Shades drawn on first floor at night	17	42	75
9. Occupation of home: all time	83	33	68
irregular	17	50	25
evenings		17	13
10. Vacation protection: doesn't take		33	25
calls neighbor	83	50	50
cuts services	50	33	38
calls police	37		25
house sitter	17		
11. Crime prevention activities:			
calls police department	50	83	100
volunteered for patrol	17	83	13
notes suspicious incidents	66	100	0
other programs	33	67	25

	Never Burglarized (N = 6)	Multiply Burg'd (N = 6)	Singly Burg'd (N = 6)
<u>Category</u>	<u>Percent of respondents in each category</u>		
12. Personal observations:			
doors left open, nonchalance	0	67	13
no conspicuous possessions	83	33	75
Average length of residence in Stuart Area (years)	19	18	14

Note.--Totals do not always equal 100% due to rounding errors.

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