*POLICE EVALUATION RESEARCH: AN EXPERIMENTAL
AND COST-BENEFIT ANALYSIS OF A HELICOPTER
PATROL IN A HIGH CRIME AREA¹*

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The significance of a helicopter patrol procedure directed toward prevention of home burglaries was evaluated from experimental and cost-benefit perspectives. The helicopter patrolled one city zone from 9 a.m. to 5 p.m. for two 12-day periods. Each 12-day period was separated by a baseline period in which only normal patrol-car levels were maintained. Significantly reduced burglary levels during the intervention periods, compared to baseline periods, documented the experimental significance of the helicopter procedure. The cash costs of implementing the patrol procedure were compared to two estimates of the resulting cash benefits. This latter cost-benefit analysis was supplemented by a discussion of the intangible costs and benefits of the helicopter procedure. Taken together, these analyses documented that the marginal costs of the helicopter intervention were exceeded by all estimates of benefits.

DESCRIPTORS: police patrol evaluation, burglaries, helicopter, patrol car, cost-benefit analysis, residential zone, police

Applied behavior analysis has long been concerned with the experimental and applied significance of behavior change (Baer, Wolf, and Risley, 1968). Traditionally, the experimental significance of change has been determined by visually comparing behavior patterns alternating between baseline and treatment conditions in an intrasubject replication design. Statistical methods to estimate the probability of a change in behavior from baseline to treatment phases have also been suggested (Jones, Vaught, and Reid, Note 1).

Recently, there has been some discussion of determining the social significance of behavior changes even if the change is experimentally and statistically significant. Risley (1970) proposed that in addition to documenting experimental

changes in frequency of behavior, it is also important that people who are familiar with the target behavior can discriminate the improvement brought on by the new behavioral patterns. For example, Porterfield, Herbert-Jackson, and Risley (1976) socially validated procedures for reducing instances of disruptive play. Audio-tapes of ambient sound levels were taken during baseline conditions when disruptions were high and during treatment conditions when disruptions were low. Naive observers then rated the taped segments as pleasant or unpleasant. The observers rated the baseline conditions as less pleasant than the treatment conditions, thus indicating that socially significant changes supplemental to objective behavior changes could be discriminated.

In addition to people's perception of the social significance of behavior change, another useful social significance criterion is the relationship between the cost of implementing a change procedure and the tangible benefits produced by that procedure. The measurement of

¹The authors would like to thank Todd R. Risley for assistance in the conceptualization of this project.

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this relationship has been called cost-benefit analysis.

The value of cost-effectiveness analysis and cost-benefit analysis to social significance has been reviewed by Levin (1975). If an agency is routinely to employ a procedure, then it must not only be an effective problem-solving procedure (experimentally validated), but it also must be affordable. If either the costs of the intervention exceed benefits or if the costs of the procedures are very high relative to the service agency's budget, then the social applicability of the intervention procedure is in doubt. Illustrating these points, Zimring (Note 2) cited the example of a Chicago False Fire Alarm project, in which two-man surveillance teams reduced false alarms in 16 schools over a two-week period. However, the expenditure per false-alarm prevention was so high that the project could not be maintained beyond the experimental period.

This paper evaluates a police burglary prevention procedure. The intervention involved the use of a helicopter to patrol a city area during hours when home burglaries were particularly high. In the first stage of evaluation, the experimental significance of the helicopter patrol was documented by visually inspecting the different rates of burglary in helicopter-patrol and no-helicopter-patrol conditions. In the second stage of evaluation, the cost of the helicopter patrol, plus the costs of burglaries in the helicopter-patrol condition, were compared with the cost of burglaries in the no-helicopter-patrol condition. The latter analysis was done to assist police department administrators in deciding whether the helicopter procedure could be justified within budgetary limitations. In addition to this latter analysis of the direct cash costs and benefits, a discussion of the more intangible costs and benefits, as related to future deployment of the helicopter, was also presented. The entire cost-benefit analysis provided an estimate of the social significance of the helicopter procedure for use in police crime-prevention programs.

EVALUATION I: EXPERIMENTAL VALIDATION OF HELICOPTER PATROL

Police patrols directed toward preventing crime have only recently been empirically evaluated, despite the fact that such patrols occupy the largest percentage of a metropolitan police department's budget (Kakalick and Wildhorn, 1971). Experimental evaluations (Kelling, Pate, Dieckman, and Brown, Note 3; Schnelle, Kirchner, Casey, Uselton, and McNees, 1977) have indicated either zero or marginal crime deterrent effects when car patrol levels are increased. Car patrols, however, are only one facet of the police department's patrol activities. Bicycle patrol, aircraft patrol, walking patrol, and various types of surveillance patrol techniques have also been used (Shanahan, 1975). The present study provided an experimental evaluation of an aircraft patrol (helicopter) directed particularly toward prevention of residential burglaries.

Most typically, metropolitan police departments utilize helicopters to assist in traffic surveillance or search activities. However, the Lakewood California Police Department reported nonexperimental data suggesting that helicopters could be successfully used as preventive patrol techniques (Shanahan, 1975).

Based on such preliminary data, the Nashville Police Department experimentally evaluated the preventive capabilities of helicopter patrol. The target crime of interest in this evaluation was home burglaries, which in Nashville, as well as nationwide, have more than doubled since 1960 (White, Regan, Walker, and Waley, 1975). Besides accounting for a large dollar loss to the general public (an estimated \$337 per burglary in 1973), a statewide survey of citizens in Maryland indicated that burglary was the second most feared crime, and was given the third highest priority for solution of all crimes (White *et al.*, 1975). These latter data support the contention that the public finds home burglary to be an extremely high priority problem.

Despite public interest in burglary prevention, there have been few experimental evaluations of police anti-burglary programs published in the professional literature. The most publicized and controversial of the preventive patrol experimental evaluations was accomplished by Kelling, Pate, Dieckman, and Brown (Note 2). In this study, the preventive patrol responsibilities of squad cars were reduced in five police zones and left constant in five other zones. Finally, the number of patrol cars was increased in five zones in an attempt to increase the visibility of police patrol. There were no significant differences in the frequency of serious crime, including burglaries, between the three groups of zones at the end of one year.

Patrol programs directed specifically toward burglary prevention have also been evaluated in Nashville by Schnelle, Kirchner, McNees, and Lawler (1975), and in California cities by the System Development Corporation (White *et al.*, 1975). Once again, there was no evidence that burglary-specific patrol reduced burglaries. More recently, the San Diego Police Department, in a report to the Police Foundation, reported data indicating that patrol techniques involving frequent field interrogations may have more of a deterrent effect on burglaries than on other crimes (Boydston, Note 4). Field interrogation involves a contact between a police officer and citizen under circumstances not amounting to probable cause for arrest. The Rochester Police Department also has reported preliminary quasi-experimental data indicating that a team-policing concept may have some deterrent effect on burglars (Bloch and Bell, Note 5). Team policing involves assigning multiple police responsibilities (patrol and investigative work, for example) to a team of officers operating exclusively within a geographical area.

Finally, there have been a number of attempts to reduce burglaries by installing hardware, *i.e.*, locks, burglary alarms, at potential burglary targets. The results of such efforts have been largely inconclusive because of poor or non-existent evaluation procedures. A notable ex-

ception has been an evaluation in Cedar Rapids, Iowa, of silent burglary alarms (White *et al.*, 1975). In the latter evaluation, 350 locations receiving burglary alarms connected directly to the police station were compared to a control group of 350 locations. There were no between group differences over a 2-yr period in the frequency of burglaries, even though burglary apprehensions were higher in the experimental zone.

METHOD

Setting

To test the viability of helicopter patrol as a residential burglary-prevention technique, one police zone of 33 was selected as the experimental area. The experimental zone incorporated 5.66 square miles and a population of approximately 12,000. The target zone was selected by the patrol chief because of chronically high burglary levels. The average number of home burglaries in the experimental zone per 24-hr period for one month before the intervention was 2.8, compared to an average of 1.9 per zone for the entire city. Most residential burglaries were reported to have occurred between 8 a.m. and 4 p.m. in the experimental zone, and all zones in the entire city.

Measures

The frequencies of burglary reports from all Nashville zones were monitored daily from computer reports detailing the reported time and location of all serious crimes in Nashville. In some cases, a specific time range as to when the burglary occurred within one 24-hr period could not be identified. For example, if a home owner was gone for several days and discovered the burglary only on return, then the estimated time range of the burglary occurrence could span several days. The latter types of burglary reports were analyzed separately from the reports in which a specific time span could be reported. Similarly, in several instances, the burglary could have occurred during a time span

that crossed several shifts. For example, if a victim left home at 1 p.m. (second shift) and discovered a burglary on returning at 6 p.m. (third shift), then the burglary could have occurred during either shift. In these cases, the burglary was assigned to the shift that accounted for most of the potential burglary hours. For example, in the previous case, the burglary was assigned to the second shift (9 a.m. to 5 p.m.), because four of the potential burglary hours fell on this shift. The addresses of all reported burglaries were crosschecked against a zone map to assure that burglaries would be assigned to the correct zones and the details of the burglary; *i.e.*, method of entry, missing property, were crosschecked, when possible, by comparing the initial crime report prepared by a patrol officer against a supplementary report prepared independently by a detective.

These latter two reporting sources, patrol officers and detectives, also served to check the accuracy of the computer information. In all cases, the fact that a burglary occurred as documented by "on-scene" crime reports was also documented in the computer reports. In less than 5% of the cases was there a time-span discrepancy between the "on-scene" burglary report filed by patrol officers or detectives and the computer print-out. In the latter cases, the more detailed "on-scene" report was accepted as the correct time of the burglary occurrence. There were no differences between treatment and control conditions in the number of discrepancies between "on-scene" reports and computer reports.

Intervention

Car patrol only 1. During a 21-day baseline period, the target zone was patrolled by one police car during the second shift. The helicopter was not flown in this zone during this time period.

Helicopter and car patrol 1. During this condition, the helicopter was scheduled to patrol the target zone in combination with the patrol car. (The helicopter was scheduled to fly be-

tween 9 a.m. and 5 p.m. over the experimental zone and was to stay in the air as much as fuel and weather permitted. The decision about refueling and weather conditions was left to the pilots. The physical boundaries of the zone were shown to the pilots, who recorded their air time at the end of each shift. The pilots could make radio contacts with ground patrol cars at any time and were told to fly low enough so that they could detect suspicious ground activity. The beginning of each 12-day intervention period was defined by the first day the helicopter flew, and each intervention period was terminated 12 days later, even if weather prohibited flying on some days during the interim. The helicopter did not fly on Saturdays and Sundays during the 24 days of intervention in this evaluation; therefore, Saturday and Sunday burglary data were not included in either baseline or treatment phases.)

Car patrol only 2. Because of cost limitations, the helicopter was removed during this condition for 18 days; the patrol car continued normal activity.

Helicopter and car patrol 2. This condition was a replication of helicopter and car patrol 1.

Car patrol only 3. This condition was a replication of the previous two-car patrol-only conditions.

The helicopter flew 19 days for a total of 101.9 hr. The first helicopter intervention began on January 15 and the second on February 26.

RESULTS AND DISCUSSION

Figure 1 shows the daily frequency of burglary reports during the 9 a.m. to 5 p.m. shift. There is an obvious visual relationship between the helicopter patrol and reduced levels of burglary. The average burglaries per day during the first baseline was 0.89, during the first intervention 0.33, the second baseline 0.95, second intervention 0.33, and during the third baseline 1.22. There was no evidence of a displacement effect in the form of an increase in home burglaries in any zone touching on the experimental

Fig. 1. Daily frequency of home burglaries. Arrows indicate the days the helicopter was prevented from flying.

zone; nor was there any change in city-wide home burglaries.

This area displacement of crime was checked by monitoring home burglaries in all zones surrounding the experimental zone for 30 days before helicopter patrol, during all experimental conditions, and for 30 days after helicopter patrol. Visual inspection of the latter data indicated that time-series statistical analyses of displacement data were unnecessary. A rationale for the absence of displacement effects on crime such as burglaries was given by Repetto (1976) who, based on interviews with known burglars, determined that most burglaries were executed by delinquents within the delinquent's individual neighborhoods. There was little movement of these delinquent burglars across geographical areas.

There was also no evidence of displacement in burglary levels to crimes other than burglary within the experimental zone, nor evidence of displacement effects of any type of Part One crime (murder, assault, rape, car theft, robbery, burglary) to shifts other than the 9-a.m. to 5-p.m. target shift. The lack of displacement to other crimes or times was assessed in the same manner as the area displacement. The helicopter did not decrease burglary levels by apprehending burglars, as no arrests for home burglaries within the target zone occurred during either intervention period.

The number of instances in which a time for the burglary occurrence within any one 24-hr period could not be established decreased

during the experimental periods. There was an average of 0.51 such burglaries per six-day period during the experimental periods and an average of 2.2 per six-day period during baseline. This difference is due to the general decrease in burglaries during helicopter patrol.

Finally, there were no obvious differences within each intervention period between the 19 days the helicopter flew and the five days it did not, due to weather conditions. One of the reported burglaries occurred during a day in which the helicopters were prevented from flying.

This study corroborates the nonexperimental data reported by the Lakewood California Helicopter Patrol Study. The relationship between the helicopter as flown under conditions of this experiment and home burglaries is experimentally documented. The next step was to determine if the data were significant from a cost-benefit viewpoint. In other words, would cost-benefit data support investing more resources in helicopter patrol tactics? The questions to be addressed in Evaluation II included the following:

1. Did the direct cash benefits of the helicopter patrol exceed the direct cash costs?
2. If the benefits do exceed the costs, can the police department budget absorb the costs of helicopter patrol tactics?
3. What are the noncash costs and benefits of the helicopter patrol, and do the non-cash benefits exceed the noncash costs?

EVALUATION II: COST-BENEFIT VALIDATION OF HELICOPTER PATROL

In general, the focus of cost-benefit analysis in this experiment was to determine the applied significance of the experimentally validated data reported in Evaluation I. The cost-benefit analysis first analyzed the costs of the intervention.

Cost Analysis

Levin (1975) reviewed two basic steps in determining costs in evaluation research: first, it is necessary to determine all specific resources required and to place a monetary value on their use. Second, there should be a determination of which of these costs should be taken into account by any particular decision maker and a statement as to how these costs should be analyzed for the application the decision maker is concerned with. To illustrate the importance of both of these steps, consider the obvious direct costs of the helicopter intervention: the initial price of the helicopter, personnel to maintain and to fly the helicopter, storing it when not used, and insurance. These fixed costs, as they are called, exist whether or not the helicopter is deployed to reduce burglaries.

Thus, the costs most relevant to decisions concerning future burglary patrol uses of the helicopter were the additional costs incurred when the helicopter burglary patrol was experimentally validated. Such costs are called marginal costs, and these are broken down on an hourly and total-projects basis in Table 1.

For example, the cost of fuel was determined by calculating the gallons of fuel the helicopter used each hour it was flying, multiplied by the price per gallon. Eighteen quarts of oil must be replaced for every 100 hr of flying; at the current price level for oil, the hourly oil replacement cost was 25 cents. The entire motor unit of the helicopter was overhauled after every 1200 flying hours. Based on past overhaul expenses (\$4800), every hour of flying time costs

Table 1
Marginal Costs of Helicopter Procedure

	<i>Hourly Cost</i>	<i>Project Cost</i>
Fuel	24.00	2445.60
Oil	.25	25.47
Motor overhaul costs	4.00	407.60
"Other" costs	1.50	152.85
Total project costs		<u>\$3031.52</u>

approximately \$4 in motor overhaul cost. Also, the prop assembly and other movable parts of the aircraft were overhauled after every 5000 flying hours, at a cost of \$7500 for the most recent replacement. Thus, the estimated cost per flying hour for prop replacement was \$1.50.

Other marginal cost factors that could have been allocated to the burglary patrol were those associated with the helicopter being removed from other jobs (opportunity-lost costs). In fact, the helicopter was not removed from its normal traffic and search activities. Other considerations could include such situations as if the helicopter were called to assist in an emergency (*e.g.*, bank robbery); then, response time of the helicopter would be reduced because it would have been already in the air. During this experiment, the helicopter was not called for such an emergency.

Benefit Estimates

The benefits resulting from most crime-prevention programs are generally measured as a reduction in costs that occur as a result of deviant behavior (Glaser, 1973). Since there is typically a margin of error in making cost-savings estimates, savings should be estimated in several alternative ways. A reasonable upper and lower dollar-savings boundary can be estimated using alternative estimates of benefits; any cost savings estimate within these boundaries can be used to make decisions (Levin, 1975). If decisions about the cost significance of the data do not change within the upper or lower boundary levels, then clear conclusions can be drawn about the cost effectiveness of the par-

ticular set of data. Applied to the helicopter intervention, there seem to be two logical methods of calculating the cost savings that resulted from the lower burglary rates.

During the initial police investigation of the burglary, the victim was asked to describe the items taken and to estimate their value. A supplementary report filed by a detective at a later date allowed the victim to add items to the list. Shoup and Mehay (Note 6) suggested that this latter cost figure should be corrected according to the amount of property that the police recovered and returned to the owner. Since a police record of recovered property was kept by the police property section, this correction factor was relatively easy to compute.

The basic problem with victim cost estimates is the possibility that the victim will intentionally or unintentionally inflate the actual dollar loss of the burglary. The correction for recovered property does not control for this problem because the police recover property on a relatively infrequent basis. Nevertheless, even though the victim estimates might be distorted, it is still true that insurance companies base their payments directly on victim and police reports. Thus, a second estimate of the cost of a burglary can be gained through insurance company records. These estimates represent an actual cash flow from the insurance company to the victim, and are perhaps a more objective measure of money lost due to burglaries.

It would have been desirable to gain from the insurance company figures specific to the particular burglaries that occurred during the period of the intervention. To do this, it would be necessary to (1) ask the victims the name of the insurance company (a step not normally done in the police investigative process), and (2) ask the victim's permission to contact insurance companies about payments, and (3) contact the insurance companies to gain the specific records. Because this research was sponsored by the police department, the latter three steps would have been technically possible to execute, but police administrators were concerned that

the public and insurance companies would react as if the victims were under suspicion if the three steps were attempted. Thus, instead of asking insurance companies for information about specific individuals, the insurance companies were asked for the average payments they made to burglarized homes in the entire Nashville area in 1975.

The average dollar cost reported by the two largest companies with headquarters in the Nashville area which insure a total of 20,500 Nashville homes was \$486.50 (\$455.26 and \$517.74, respectively). These latter figures seem to be comparable to a national burglary loss figure reported by White *et al.*, (1975) of \$337 in 1973.

Cost-Benefit Comparison

To estimate the cost-benefit comparisons between helicopter patrol and no-helicopter patrol conditions, the total amount of property loss resulting from burglaries was added to the marginal costs of the helicopter patrol. When the helicopter was not used during the baseline conditions, there were no such marginal costs to add to the property loss estimates. The upper panel in Figure 2 illustrates the cost-benefit comparisons when the property loss estimates were based on police reports; the lower panel in Figure 2 illustrates the cost-benefit comparisons when the property loss figure was based on average insurance company data. It is clear from both panels that the total costs incurred during the helicopter periods (helicopter plus burglary costs) were reliably less than the total costs incurred during the no-helicopter patrol periods (burglary costs only). Thus, the savings resulting from the helicopter intervention support administrative decisions to risk additional money to investigate further the practical use of helicopter patrol procedures (Table 1 indicates that the total marginal cost to the police department for the current project was \$3031.52). Although the cost-benefit data seem to be clear, there are three problem areas in this analysis.

Fig. 2. Cost-benefit comparison of helicopter and no-helicopter patrol conditions.

First, long-term changes in both costs and benefits can drastically change the picture. The extreme reversibility of the crime-suppressant effect and the short intervention periods (forced by cost factors) do not preclude the possibility that the helicopter might be a reactive intervention that would have a diminishing effect if continually employed. Although the nonexperimental data reported by the Lakewood, California project over a 1-yr period mitigates against such an argument, if there were such a diminishing return, the entire cost-benefit picture could change.

In contrast, if burglary levels could be reduced over time, then police personnel now spending a large proportion of time with burglary related activities (detectives and property room personnel) could be redeployed, with cost savings to the police department. Similarly, if burglaries are reduced over time, it is also pos-

sible that there would be fewer apprehended burglars to be processed through the criminal justice system, with consequent savings in prosecution and jailing costs. The long-term potential change in burglaries, savings, or costs for the police department could obviously not be objectively estimated during the short intervention period.

A second area in which costs and benefits are difficult to assess concerns such potential benefits as the feelings of increased security that citizens may have when protected by helicopter patrol. This area also includes such costs as dissatisfaction with the noise or pollution produced by the helicopter. In cost-benefit jargon, the latter noncash factors would be labelled consumption benefits as opposed to investment benefits. Investment benefits are increased capitalized net economic worth attributable to a procedure (Neenan, 1974). Even though it is

obvious that citizens in different areas might estimate these consumption benefits differently (citizens in high crime, high ambient-noise level areas would probably weigh security effects above noise effects), survey data collected by Simonson (1975) in Columbus, Ohio, indicated that citizens strongly support helicopter patrol procedures to which they were exposed.

A final area concerns the potential distribution of benefits resulting from helicopter patrol, as compared to the distribution of costs. The helicopter procedure would probably never be cost effective and should not be attempted in some areas of the city that experience low levels of home burglaries. The geographical areas of the city could be rated according to burglary cost levels and a picture could be developed of the different areas of the city that could potentially benefit from the helicopter procedure. If the number of such areas proves to be extremely low, given the optimum cost-benefit ratio of the helicopter intervention, then the significance of the helicopter as a general burglary reduction technique would be diminished. This latter point is true because it would be difficult to justify the marginal costs of the intervention, which are borne by all taxpayers in Nashville, against the benefits of the intervention, which might be received by only a few. Alternatively, even if the helicopter procedure would prove to be effective only in a few areas in the city, it still might be justified if indirect benefits of the helicopter were more widespread. For example, if insurance companies decreased insurance premiums in Nashville as a result of a reduction in burglaries in the helicopter patrol areas, then indirectly the entire county would benefit.³

GENERAL DISCUSSION

The intent of this evaluation was to determine the experimental and cost-benefit significance of

a helicopter patrol procedure. Determining both types of significance in turn was relevant to assisting police in making decisions about future deployment of the helicopter patrol. The decision rule recommended in cost-benefit analysis when there are budgetary constraints on implementing a program is "the difference between the present value of benefits and costs should be maximized" (Neenan, 1974). Thus, the police should make the decision to invest more resources in implementing the helicopter procedure on a more long-term, experimental basis for the following reasons: (1) the procedure was experimentally significant, (2) the investment (cash) benefits of the program exceeded the direct marginal cash costs, and (3) there is no alternative experimentally documented patrol procedure that is known to be a burglary deterrent and, therefore, there is no "opportunity-loss" to committing resources to the helicopter patrol rather than to an alternative program.

The future implementation of the patrol procedure should continually be evaluated to ascertain the cash values and costs of the procedure on a long-term basis and, also, to determine the distribution of patrol benefits as compared to the costs.

In particular, there is a question whether citizens would be willing to pay for increased patrol, given the fact that home owners who are reimbursed by their insurance company may suffer almost no loss from the burglary. Furthermore, insurance companies compensate for burglary losses by raising premiums. Consequently, whatever losses are involved in a burglary may be spread over a very large portion of the population and be relatively insignificant. There is also the issue that the benefits resulting from burglary suppression are quite unequally distributed. If there were to be payment for increased helicopter patrol, it would seem reasonable that the people living in the high-risk areas would pay proportionally for that patrol; whether they would be willing to pay the full cost is questionable.

³Four insurance companies were contacted about the possibility of reducing premiums, but none would make a definite statement as to the conditions that would lead to such a reduction.

The total area the helicopter can cover and the optimum time scheduling of the helicopter patrol are other unknown variables relevant to decision making that should be considered in future research. It is clear that such future cost-benefit data could dramatically change the cost-benefit significance of the helicopter procedure and lead to decisions not to employ the helicopter routinely on preventive patrol functions, or to utilize the patrol differently than was done in the present experiment.

Finally, it should be noted that the cost-benefit analysis done in this evaluation applies primarily to cities that now own helicopters. This latter group includes at least 200 law enforcement agencies in the 50 states (Nelms, 1976). Currently, police helicopters can be purchased at costs ranging upward from \$15,000. Such purchasing costs obviously would greatly change the cost-benefit ratio of helicopter patrol if the helicopter were to be purchased solely for patrol purposes. Furthermore, such costs cannot be logically contrasted to the burglary deterrent benefits that were documented in this study with one city zone over a 24-day intervention period. The Nashville Police Department is extending the helicopter over progressively larger areas in an attempt to document the optimum area of coverage and also to document the permanence of burglary deterrence. Once the latter evaluation is completed, the high cost of buying helicopters can be more objectively compared to the benefit resulting from helicopter deployment.

In short, supplementary to the experimental significance of the helicopter intervention, the cost-benefit data at present supports the applied significance of the procedure for uses intended by the Nashville Police Department and, furthermore, supports decisions to risk further marginal resources in testing the feasibility of the patrol procedures if police departments currently own helicopters. The types of cost-benefit data that should be collected in the future are also apparent. Finally, the possibility that such additional cost-benefit data might lead to the discontinuation of the experimentally successful

procedure is a clearly documented risk of any future helicopter patrol project.

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Received 20 September 1976.

(Final Acceptance 27 June 1977.)