NATIONAL EVALUATION PROGRAM
PHASE I REPORT

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[illegible] Robbery [illegible] Projects: An Assessment of Performance

Final Report

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ABSTRACT

Results of a survey of information available about police silent-alarm anti-robbery projects are presented. The survey showed that under certain conditions police can apprehend robbery suspects at the scene of the crime where early-warning alarms are installed and that under some conditions this capability is effective in reducing the incidence of robbery. However, it also found that existing data collected by projects are insufficient to permit definitive conclusions to be drawn regarding the degree of improved police performance achieved. A research and evaluation program to obtain the missing data and to determine the practical performance levels possible for such projects is described for consideration under Phase II of the LEAA-sponsored National Evaluation program.

ACKNOWLEDGMENT

The authors are grateful to police officers and agency officials in literally dozens of communities across the nation for their time and assistance in locating the available data about Early-Warning Robbery Reduction projects. In addition, the authors are grateful to John M. Chester and Jacob H. Parness of The MITRE Corporation for critical guidance and assistance in planning the work and collecting the data; and to Lawrence M. Gunn, formerly of The MITRE Corporation, and now with the Seattle, Washington, Law and Justice Planning Office, whose original research into EWRR in 1973 contributed significantly to the design of this study. Finally, the authors also thank Mary Grooms, also of The MITRE Corporation, for her unflagging support throughout the entire effort.

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EXECUTIVE SUMMARY

Conducted under the auspices of the National Evaluation Program (NEP) of the National Institute of Law Enforcement and Criminal Justice, this study sought to assess the state of "knowledge" about police robbery-reduction projects that employ silent alarm devices that transmit alarms directly to police when robbery is underway. In particular, the study attempted to find conclusive documentary evidence that would establish (1) whether Early-Warning Robbery Reduction (EWRR) projects were generally applicable throughout the country, (2) how cost-effective they were, (3) what design features were most impactive on project success and (4) what performance could be expected from EWRR. In brief, the study found that projects did achieve their basic objectives of enabling police to intervene while robberies were still in progress and to arrest suspects at the scene. However, the study also found that the data collected by police departments were largely administrative in nature and were not designed for research applications. As a consequence, definitive conclusions about the degree of performance could not be drawn in the key areas of project assessment.

Results of the study are summarized below to correspond with the National Institute's work plan organization for individual NEP investigations.

I. ISSUES IN THE CRIME OF ROBBERY AND THE EWRR APPROACH (SECTIONS I & II)

Early-warning robbery reduction using silent alarm devices to alert police to the commission of a crime is an increasingly popular approach to dealing with the problem of commercial robbery. The alarm devices are frequently installed in convenience stores and are used in conjunction with police stake-outs; the combination is designed to enable police to reach the scene of the crime while the robbery is still in progress--in time to arrest a suspect. However, despite the apparent attractiveness of the approach and its widespread implementation (more than 50 communities have EWRR experience), little has been written about EWRR projects, in part because of the covertness with which most police departments conduct such operations and partly because it is not in the nature of operational projects to conduct and report definitive assessments and retrospectives.

The circumstances that EWRR is designed to deal with relate to the speed with which commercial robbery is normally carried out: robbery of a convenience store may take only 30 seconds. While robbery is not an economically consequential crime--perhaps 100,000 commercial robberies a year account for a total take of $35,000,000, for an average of $350 per crime--it does account for much of the violent crime recorded annually. The motivation to reduce robbery stems as much from the fear that robbery induces as it does from the financial loss that results.

Analysis of robbery shows that ease of execution is a prime consideration for a robber. He will strike where he can readily achieve surprise in confronting his victim, dominating the scene by instilling fear of violence, and quickly securing money and leaving. Usually robbers work in groups, are strangers to their victims, and are armed. The clearance rate for the crime in recent years has been less than 30 percent.

A profile of robbers shows them generally to be males with records of prior violence who plan their crimes methodically. The size of the potential take may not deter a robber if he can "string together" a number of small robberies.

The targets of commercial robbery typically are easily-accessible convenience stores that afford fast entry and exit by automobile, especially at night, when visibility is low and most other stores are closed. Owners of stores when operating as clerks are less likely to be robbed than non-owner clerks, because owners are more likely to resist. Resistance is dangerous, however, and frequently leads to serious injury or death.

Police countermeasures to robbery include routine patrol, saturation, patrols and stake-outs, as well as education of potential victims in reducing the risk by "hardening" the target. It is known that shortening response times significantly improves the chances of on-scene arrest, hence, early-warning systems are designed accordingly.

II. SURVEY OF EWRR PROJECTS (SECTION III)

Approximately 50 EWRR projects were identified nationwide; only anti-robbery projects that feature police-owned portable alarm equipment were included. A field survey of approximately half the projects identified showed that EWRR provides no new police service but was only a way of delivering conventional service more rapidly. Projects were essentially alike, differing mainly in style of operation and type of alarm equipment. About half the projects targeted on burglary as well as robbery; three out of five projects employed dedicated tactical units to answer alarms; two out of five intervened surreptitiously at the scene of an alarm in order to preserve their covertness; one out of three deliberately shunned publicity; one-half reserved a communications channel for EWRR use, the other half broadcast on the regular dispatch frequency. One-half the projects surveyed reported having some formal evaluation design, although little could be conclusively established on the basis of the evaluation findings.

Project officials typically reported difficulties in processing grant applications, equipment installation problems, high false alarm rates, and low arrest rates.

Additional considerations reported by local officials included what appeared to be dramatic deterrence of robbery in alarmed stores, and the possibility of local resistance to projects from either commercial alarm interests or targeted storeowners. Another complication was frequent alarm misuse by store-clerks.

Yet, despite the difficulties encountered, virtually all officials surveyed reported some amount of success in apprehending robbers and indicated that they intended to continue their EWRR projects in some form after the initial funding period.

III. EWRR ASSESSMENT: PROJECT ASSUMPTIONS AND EVALUATION FRAMEWORK (SECTIONS IV & V)

Five fundamental, interrelated assumptions govern the selection and evaluation of EWRR as a robbery countermeasure: (1) activating special direct-transmission silent-alarm equipment will lead to earlier warning to police that robbery is underway; (2) earlier warning will lead to timelier response to the call for police service represented by the alarm transmission; (3) timelier response will lead to an increase in the robbery arrest rate, at least in alarmed stores; (4) increased arrests will result in increased robbery convictions; and (5) the existence of the project will result in reduced incidence of robbery. From these assumptions may be drawn a framework for assessing all EWRR projects and arraying what is known about the performance of EWRR projects in comparison with conventional police operations. Accordingly, five measures can be used to establish the degree to which EWRR projects achieve success in (1) earlier warning; (2) timelier response; (3) increased apprehensions; (4) increased convictions; and (5) reduced incidence of robbery. Each measure is designed to determine the degree of change observed upon introduction of the project into departmental operations.

IV. FINDINGS ABOUT EWRR PROJECTS (SECTION VI)

Project documentation gathered during the field survey provided information regarding each of the framework elements; however, sufficient critical data were not available to permit satisfactorily conclusive analysis and assessment. Of the 21 projects reviewed, four specifically reported alarm activation coincident with robbery (and, by inference, earlier warning), but no figures are available to establish the degree of early warning achievable. Eleven communities reported response times short enough to permit arrest of suspects on-scene, but, again, the degree of timelier response cannot be established. Apprehensions due to EWRR projects are reported by 16 departments (in some cases due to a combination of stake-out and alarm activation), but the significance of the increase cannot be established in terms of normal police performance. Only three projects traced EWRR-related convictions, reporting that between 85 percent and 100 percent of all suspects arrested were subsequently convicted. (Clearly, EWRR can lead to a dramatic increase in convictions, but the data available are not extensive enough for general conclusions.) Finally, reduced incidence of robbery in stores associated with EWRR was reported in almost all communities although data were available from only four communities; however, the significance of the reductions was not established in terms of normal robbery-pattern fluctuations in those communities.

Another information area that was inconclusively documented was the cost-effectiveness of EWRR vs. other police operations to achieve the same objectives as the EWRR project. Basic alarm equipment costs, which accounted for a minority fraction of project costs, ranged from $700 to $4000 per installation, but other costs (personnel, vehicles, accessories) varied according to the bookkeeping procedures used in departments. By the same token, establishing the productivity of EWRR called for more data than was available from projects.

A number of additional factors lying outside the assessment framework were found to influence project performance. These ranged from mischievous alarm activation that drew attention to responding officers and compromised project covertness, to departmental administration complications that impeded the free flow of robbery investigative information to project officers. Solutions ranged from aggressive police liaison with owners of high false alarm locations, to reassignment of projects in order to achieve better intra-departmental coordination.

V. STRATEGIES FOR PHASE II EVALUATION OF EWRR (SECTION VII)

Four major questions must be answered conclusively if decision-makers at the national/state, local, and operational levels are to make informed decisions regarding the concept of EWRR generally and the design of projects for individual communities:

- Is EWRR generally applicable to robbery problems across the country?
- Is EWRR a good investment?
- What design features are associated with project success?
- What level of performance can be expected from EWRR?

Answers to these questions conceivably could save hundreds of thousands of dollars annually in terms of project set-up costs and set-up time, operational effectiveness, and decisions to implement projects (or not to implement them) based on a realistic perspective on the magnitude of expense involved in successful project operation.

Three research strategies are possible, but only one appears to be feasible:

Option 1: Historical file review: an intensive version of the Phase I NEP project involving two or three researchers examining already existing files for periods of three to six weeks in up to 10 communities to uncover information not available to Phase I. The review would take 12 to 15 months and would cost approximately $250,000. (It is not a feasible strategy because it assumes the data are available; Phase I did not provide evidence that such data has been collected.)

Option 2: Planned variation data collection: an augmentation of up to 10 existing projects to add a systematic data collection and evaluation design. Projects would be selected on the basis of the variety of design features to permit examination of the impact of different features. Two to three researchers would be needed for a period of between 18 and 21 months, for a total cost in the neighborhood of $300,000. (This approach is judged the most feasible.)

Option 3: Controlled experimentation: an implementation of one or two new EWRR projects with the aim of conducting a series of controlled experiments with a controlled variety of project features and operational tactics to determine the most successful. Three researchers would be required for a period of 21 to 24 months, with total cost lying between $600,000 and $1,000,000. (This approach is considered too expensive in terms of the results expected because of the need to pay for the EWRR projects as well as the assessments.)

Option 2 appears to offer a sufficiently high potential to answer the four major decision-maker questions for a cost reasonably in line with the savings expected to result.

An evaluation design for individual projects is published separately.

SECTION I

INTRODUCTION

A. Scope of the Report

This report presents a summary of the findings of an investigation of police early-warning robbery reduction (EWRR) projects. The study was conducted under the auspices of the LEAA/National Evaluation Program administered by the National Institute of Law Enforcement and Criminal Justice. It sought to determine what is known and what is not known about the successful implementation of EWRR projects and the potential of EWRR as an effective tool in the control of commercial robbery. It addressed both the immediate outcome of the changes introduced by the project and the ultimate impact of the changes on the control of commercial robbery.

B. Description of Early-Warning Robbery Reduction

Early-warning robbery reduction projects are police operations directed against robbery of convenience stores, gas stations and other vulnerable, largely storefront businesses. The basic concept involves the use of covert dedicated response forces stationed near the threatened stores, (see Exhibit I-1). By maintaining the stake-out patrol only a short distance from the store, often in a cruising, unmarked car, and by providing the direct radio alarm to alert the patrol when a robbery is in progress, the police are able to arrive at the scene while the robbery is still in progress, in some instances in a matter of seconds, and to apprehend the robber with the stolen goods in hand. This is the tactical benefit sought by the patrol force (see Exhibit I-2).

An alternate benefit, perhaps stemming in part from this apprehension capability, is to reduce the incidence of robbery. Increasing the apparent risk of apprehension and conviction would presumably reduce the inclination of a would-be robber to commit a robbery in the project area and robbery incidence would decline.

Projects of this type have been undertaken by a number of police departments (see Section III) using a variety of tactical approaches and alarm equipment designs. Some projects use undercover officers in unmarked cars equipped to receive the alarm signals directly over dedicated communications channels. Others use uniformed patrol officers dispatched by means of the regular communications channels in response to alarms transmitted to headquarters. Some use only victim-actuated "sensors" to activate the alarm; others use bill-clips and cash register sensors in addition. All are characterized by the use of a police-owned and -deployed alarm system to trigger a planned response.

C. Nature of the Study

Research into the performance of EWRR projects has been meager. University of California researchers Russell Grindle and Thomas Aceituno summarize the state of knowledge about this anti-robbery approach as follows:

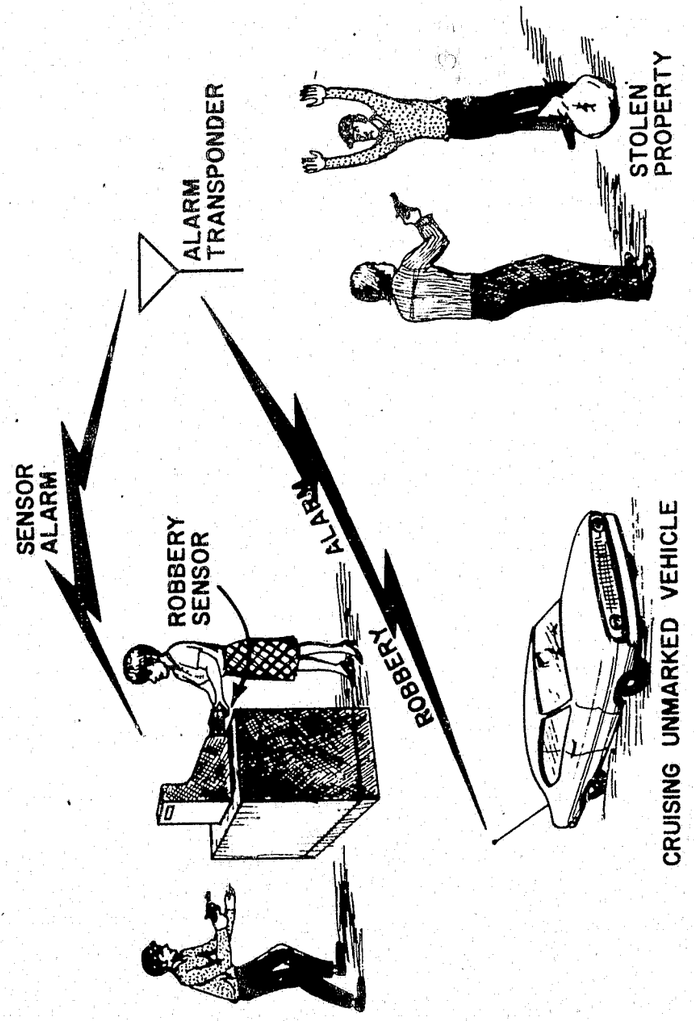

EXHIBIT I-1 -- CONCEPT OF AN EARLY-WARNING ROBBERY REDUCTION PROJECT

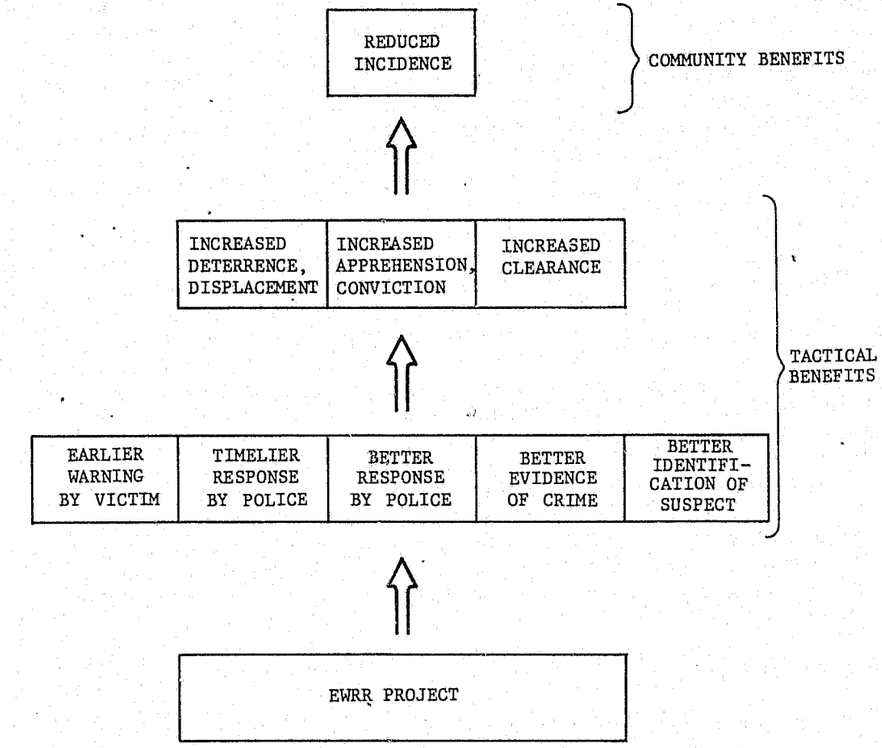

EXHIBIT I-2 -- BENEFITS OF EWRR PROJECTS

> On the whole, very little is known about these (EWRR project) innovations. Their use has been largely unevaluated and in many instances has been episodic and unstandardized in any way.[1]

This observation appears to be entirely accurate. Organized literature on completed EWRR projects is virtually nonexistent. In this Phase I NEP study none of the projects investigated was able to provide evaluation reports or data summaries that offered definitive evidence of project effectiveness -- clearly not a sufficient basis for conclusions about the general applicability of EWRR projects. On the other hand, most officials interviewed during the field survey indicated they were satisfied with their own EWRR projects and planned to continue. This indicates a sense of accomplishment and success whether or not there are formal evaluation results to support the impression.

The study therefore concentrated on identifying the key assumptions underlying EWRR projects, whether or not they were recognized as such by the projects; and on obtaining a judgmental assessment of the validity of the assumptions. Approximately one-half of the currently active EWRR projects were reviewed on-site. Design features and operational procedures were noted; available evaluation and data summaries were collected; project officials were interviewed; and a logical chain of assumptions that would fit all of the projects was developed.

The framework for assessing the EWRR projects was then based on the chain of assumptions. Evidence of the performance of each project in accordance with each underlying assumption was sought. In the absence of past evaluations or data summaries, a consensus of project experience was compiled. This was the basis for the judgmental assessment of EWRR project performance.

D. Summary of Findings

Several major findings emerged from this investigation:

- EWRR projects appear to achieve the basic objective of reducing the incidence of robbery.
- They also appear in general to achieve an improved capability to apprehend and convict robbery suspects but often are prevented from demonstrating the capability because of the reduced incidence.
- Project documentation from past evaluations is insufficient to establish the degree to which the objectives are met and the extent to which the EWRR project is generally applicable as a robbery control measure. Further controlled evaluations are necessary.

[1] Russell Grindle and Thomas Aceituno, The Robbery Setting, Vol. I of The Prevention and Control of Robbery, ed. Floyd Feeney and Adrienne Weir (5 vols.: University of California, Davis, April 1973), p. 313.

- The basic cost of an EWRR project is the cost of the alarm equipment alone (between $700 and $4000 per alarm unit) although total project cost is often an order of magnitude higher because of an administrative decision to charge the project with the cost of the police officers and patrol cars.

SECTION II

GENERAL KNOWLEDGE ABOUT COMMERCIAL ROBBERY

A. Background

Robbery in the United States is a major social problem, accounting for nearly half of all crimes of violence reported to police.[1] Approximately one-quarter of the 382,680 robberies reported in 1973 may be categorized as commercial.[2] In comparison with other types of crime, robbery accounts for a relatively small fraction of the overall value of property stolen each year: $100 million vs. a total of $1.6 billion;[3] nevertheless, the total take associated with commercial robbery -- $30 million in 1973 and as much as $35 million in 1974[4] -- is not insignificant, making the need for countermeasures even more compelling.

From the above, it may be concluded that the principal motivation for undertaking commercial robbery countermeasures such as EWRR projects is not the average dollar loss -- approximately $350 per hit[5] -- but the risk of personal violence associated with the crime. People are afraid of robbery -- and with good reason: as many as 30 percent of all robbery victims suffer some injury.[6]

[1] Clarence M. Kelley, Uniform Crime Reports for the United States--1973, (Federal Bureau of Investigation, U.S. Department of Justice; Washington, D.C.: U.S. Government Printing Office, 1974), p. 15. (Hereafter cited as UCR 1973.) The F.B.I. estimate is 44 percent of crimes of violence.

[2] UCR 1973, pp. 58, 120. The imprecision is partly due to differences in the definition of commercial robbery (which is limited in this report to holdups of retail outlets and other businesses at specified locations, that are vulnerable to walk-in robbery), which makes isolation of the value from UCR statistics impossible. A second factor is the reliability of the absolute numbers reported in the UCR: victimization studies indicate a substantial portion of all crime goes unreported to the police. It is not clear whether commercial robbery would be subject to the same degree of error as other forms of crime -- especially street crime -- but the question has not been resolved.

[3] In addition to robberies excluded in Footnote 2 (above), bank robberies and hijacking are considered to be outside the scope of the EWRR study.

[4] Clarence M. Kelley, Uniform Crime Reports (1974 Preliminary Annual Release), (Federal Bureau of Investigation, U.S. Department of Justice; Washington, D.C.: March 31, 1975.) Preliminary indications are that robbery rose by 14 percent in 1974, hence the $30 million estimate is adjusted upward. The UCR 1974 was received too late to incorporate in this section. It appears, however, that findings reported here are consistent with 1974 statistics.

[5] UCR 1973, p. 120. The estimate includes "commercial house, gas or service station, and chain store" robberies.

[6] John E. Conklin, Robbery and the Criminal Justice System (Philadelphia: J. B. Lippincott, 1972), pp. 119 ff.

B. Robbery Analysis

Until the advent of federally-sponsored research in the mid-1960's, robbery as a category of crime had not been researched in depth. Even today, much of the knowledge about robbery apparently remains unorganized although efforts are underway to systematize research findings.[7] Nonetheless, a literature search has revealed that enough is known about the crime, its perpetrators and victims, and the success of various police and community efforts to control it to permit the development of context for the Early Warning Robbery Reduction (EWRR) approach. The following paragraphs recapitulate these findings. Discussions of these robbery characteristics constitute the remainder of this section on general knowledge about the crime of commercial robbery. All are essential to an understanding of the crime from the standpoint of potential EWRR effectiveness as a countermeasure.

Exhibit II-1 summarizes the general nature of robbery and of commercial robbery's place in the total picture. The exhibit outlines the principal characteristics of robbery, robbers, victims, targets, and the efficacy of certain citizen and police attempts to control the crime.

1. The Crime of Robbery

Following are major characteristics of the crime of robbery itself.

- A Robbery Must Be Perceived As Easy by a Robber

  Researchers have found that ease of execution is the prime consideration of robbers in planning and preparing for a robbery.[8] Therefore, countermeasures that raise the level of difficulty--or even of inconvenience--of conducting the robbery can be instrumental in deterring it.

- Surprise is Essential to the Conduct of a Robbery[9]

  The first tactic of a robber is to avoid detection until he confronts his victim and announces his purpose. Measures that reduce the chances for the element of surprise can contribute to controlling the crime.

[7] See the Bibliography. Arnold Sagalyn, The Crime of Robbery in the United States, U.S. Department of Justice, Law Enforcement Assistance Administration, Publication ICR 71-1, (Washington, D.C.: U.S. Governemnt Printing Office, 1971), presents a useful, readily available survey of issues and the literature dealing with them.

[8] The literature cites planning as virtually universal among robbers. Conklin, op. cit., is a convenient source.

[9] Werner Einstadter, Armed Robbery - A Career Study in Perspective (Ph.D. Dissertation, University of California, 1966. Ann Arbor: University Microfilms, 1973), pp. 88 ff.

THE CRIME OF ROBBERY

- A ROBBERY MUST BE PERCEIVED AS EASY BY A ROBBER
- SURPRISE IS ESSENTIAL TO THE CONDUCT OF A ROBBERY
- CONFRONTATION IS ALWAYS AN ELEMENT IN ROBBERY
- DOMINATION OF THE CRIME SCENE IS PART OF ROBBERY EXECUTION
- THE THREAT OF FORCE AND ITS RESULTANT FEAR ARE THE MEANS BY WHICH THE ROBBER NEUTRALIZES THE RESISTANCE OF VICTIMS
- A POSSIBILITY OF VIOLENCE ALWAYS EXISTS IN ROBBERY
- ROBBERY MUST BE EXECUTED RAPIDLY
- COMMERCIAL ROBBERS ARE USUALLY STRANGERS TO THEIR VICTIMS
- AT LEAST HALF OF ALL COMMERCIAL ROBBERY INVOLVES MORE THAN ONE ROBBER
- WEAPONS ARE MORE LIKELY TO BE USED IN COMMERCIAL ROBBERY THAN IN OTHER TYPES OF ROBBERY
- ONLY ONE OF EVERY FOUR ROBBERIES IS CLEARED BY ARREST

THE PERPETRATORS OF COMMERCIAL ROBBERY

- ROBBERS ARE ALMOST ALWAYS MALE AND CAN BE CATEGORIZED BY BACKGROUND AND CAREER PATTERNS
- ROBBERS HAVE A HIGH INCIDENCE OF PRIOR-VIOLENCE RECORDS
- ROBBERS APPEAR TO APPLY A PLANNING METHODOLOGY TO THEIR CRIME
- ROBBERS WILL ROB EVEN WHERE THE "TAKE" IS SMALL, STRINGING TOGETHER A NUMBER OF HOLD-UPS TO ACCUMULATE AN APPRECIABLE AMOUNT

THE TARGETS AND THE VICTIMS

- SELECTED COMMERCIAL ROBBERY TARGETS TYPICALLY ARE EASILY ACCESSIBLE BY AUTOMOBILE, APPEAR EASY TO ROB, AND OFFER GOOD GETAWAY POTENTIAL
- THE MORE ATTRACTIVE COMMERCIAL ROBBERY LOCATIONS ARE ISOLATED FROM THEIR NEIGHBORS BY PLACE, TIME, OR LIGHT LEVEL
- BYSTANDERS ARE USUALLY NOT ROBBED AND NON-OWNER CLERKS ARE PREFERRED AS VICTIMS OVER OWNERS

THE CONTROL OF ROBBERY - IMPLICATIONS FOR EWRR

- VICTIM RESISTANCE DURING ROBBERY IS EXCEPTIONALLY HAZARDOUS
- BOTH ROUTINE AND SPECIALIZED PATROLS CAN BE EMPLOYED AS ROBBERY REDUCTION TECHNIQUES
- SHORTENING POLICE RESPONSE TIMES SEEMS TO IMPROVE THE ON-SCENE APPREHENSION AND CONSEQUENTLY THE CONVICTION RATES OF ROBBERS

EXHIBIT II-1

GENERAL KNOWLEDGE - COMMERCIAL ROBBERY AND ITS CONTROL

- Confrontation is Always an Element in Robbery

By definition,[10] robbery involves confrontation with a victim. Any steps that will reduce the person-to-person aspect of the crime can also help reduce the crime itself.

- Domination of the Crime Scene is Part of Robbery Execution[11]

Because the success of a robbery depends upon neutralizing or discouraging the resistance of a victim (and perhaps even using him to help collect money), it is essential that a robber achieve mastery of the situation. Anything that distracts him or the victim reduces his dominance of the scene and can thwart the robbery. On the other hand, such threatened loss of mastery could result in violence.

- The Threat of Force and Its Resultant Fear are the Means by Which the Robber Neutralizes the Resistance of Victims

The success of a robbery is dependent upon victim compliance with the robber. That is achieved when the robber instills fear in the victim. Where countermeasures can reduce the fear in victims, the dominance of the robber can be reduced.

- A Possibility of Violence Always Exists in Robbery

The possibility of robbery-associated violence threatens not only the immediate victim, but innocent bystanders, intervening police, and the robbers themselves. The types of violence may range from inflicting minor injury on victims or bystanders to shoot-outs with police that can result in deaths. Effective robbery control measures, therefore, must take cognizance of the possibility of adding violence to the scene. Conversely, if the probability or opportunity of violence can be reduced, or even neutralized, a prime community benefit will have been achieved. It is the violence that occurs in robbery, not the amount stolen, that has real societal significance; and recourse to a countermeasure like the EWRR approach may be justified if it can be shown that it will reduce violence.

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[10] The most generic definition is given in the UCR: "Robbery is a vicious type of crime which takes place in the presence of the victim to obtain property or a thing of value from a person by use of force or threat of force." (UCR 1973, p. 15) "Stealing or taking anything of value from the care, custody, or control of a person by force or violence or by putting fear, such as strongarm robbery, stickups, armed robbery, assaults to rob, and attempts to rob." (Ibid., p. 55).

Legal definitions of the crime vary according to the value of the take, use of weapons, degree of injury, etc.

[11] Einstadter, loc. cit.

- Robbery Must be Executed Rapidly[12]

  Typical robbery execution times are on the order of 60 to 90 seconds. Robbery countermeasures that are designed for on-scene apprehension, therefore, must be capable of response within very short intervals following activation of the alarm.

- Commercial Robbers are Usually Strangers to Their Victims

  The victim of robbery is usually unknown to the robbers and vice versa.[13] The stronger-to-stranger nature of the contact in robbery makes later positive identification difficult where the robber is not apprehended on-scene. That fact argues for incorporation of improved evidence-collection techniques in the design of anti-robbery projects.

- At Least Half of All Commercial Robbery Involves More Than One Robber

  Statistics indicate that approximately 50 percent of robbery is the work of more than one robber.[14] Research indicates that a substantial number of robberies are conducted by gangs, each member of which has a clearly-defined functional role during the commission of the crime.[15] Countermeasure programs, therefore, should be designed to cope with multiple perpetrators in apprehension at the scene.

- Weapons are More Likely to be Used in Commercial Robbery Than in Other Types of Robbery

  Limited research to date[16] indicates that perhaps 10 to 20 percent of the robbers of commercial enterprises are likely to be armed with handguns, 20 percent with knives, and perhaps 10 percent with other weapons. Programs designed to counter the crime must be prepared for possible breakdown of the threat-based confrontation into violence in which these weapons are actually used.

- Only One of Every Four Robberies is Cleared by Arrest

  Robbery has the lowest clearance rate for all offenses classified as "violent crime" by the F.B.I. Nationwide, the rate fluctuates between

[12] Ibid., p. 86. R.S. Carper and S.H. Roth, A Review of the Tampa STAVS Operation: An Anti-Robbery Alarm System (McLean, Virginia: The MITRE Corporation, 1974), and others make this point.

[13] Andre Normandeau, Trends and Patterns in Crimes of Robbery (With Special Reference to Philadelphia, Pennsylvania), 1960 to 1966 (Ph.D. Dissertation, University of Pennsylvania, 1968. Ann Arbor: University Microfilms, 1973, p. 130.) See also Conklin, op. cit., p. 92, for similar data from Boston, Massachusetts.

[14] Normandeau, op. cit., p. 171.

[15] Einstadter, op. cit., pp. 66 ff.

[16] Conklin, op. cit., pp. 105-119. The conclusion is based on the statistics given for all robberies (including purse-snatching, etc.) and the characteristics of robbers involved in each type (see also pp. 82-102). UCR 1974 reports that firearms were used in 44.7% of all U.S. robberies, and knives or other weapons in an additional 22.2% (p. 26).

21.6 percent in the Middle Atlantic states and 35.4 percent in the West South Central Central states.[17]

2. The Perpetrators of Robberies

In addition to nationwide statistical reports, several researchers have developed detailed profiles of robbers. Some of the findings are relevant to developing target prediction and post-crime investigation strategies.

- Robbers are Almost Always Male[18] and Can be Categorized by Background and Career Patterns

  One typology[19] of robbers identifies four major types. The first is the professional criminal in his mid-20's. He is from a white, middle-class background and derives much, if not all, of his income from crime. The professional seeks more lucrative targets than do other robbers. The second category is the opportunist. He is in his late teens or early 20's, comes from a lower-class black background, and derives only a small portion of his income from robbery. Typically, opportunists employ less planning in executing their robberies than do professionals. As their category name implies, opportunists rob almost on impulse when a target appears to be easy prey. The third robber-type is the addict seeking to support an expensive drug habit. Contrary to the stereotype of the drug-crazed armed robber, addicts are usually found to be reluctant to use weapons because of the fear of prolonged loss of access to drugs if charged with the serious crime of armed robbery. They are usually unable to meet bail on an armed robbery charge and could be incarcerated for long periods while awaiting trial. The fourth type of robber in this typology is the alcoholic who commits robberies randomly, usually while intoxicated, Anti-robbery programs must provide for differing approaches to each type of robber. In areas where opportunists and addicts are likely to operate, reducing the perceived easiness of robbery can deter it. In areas with a predominance of professional robbers, more elaborate robbery control techniques are required in order to make the risk prohibitive.

- Robbers Have a High Incidence of Prior-Violence Records

  Robbers differ from the statistical profile of the population at large in a number of respects, including a history of violence (as many as

[17] UCR 1973, pp. 109-111. There is some speculation that commercial robbery may be over-reported. Theft by dishonest clerks may account for some portion of robbery reported to police.

[18] Ibid., p. 131.

[19] Conklin, op. cit., pp. 63-78. Field survey interviews indicate the percentage of drug-addict robbers may be increasing, but conclusive evidence is not yet available.

five out of six have violence-associated arrests on their records).[20] The risk of violence in robbery was discussed above as a component of the crime. It is clear that the proneness to violence manifested by the typical robber requires a countermeasure project design that can minimize the potential for violence from police-robber confrontation where gunfire or use of other weapons could jeopardize bystanders.

- Robbers Appear to Apply a Planning Methodology to Their Crime

The literature indicates that robbery is not ordinarily a casually undertaken crime. It appears that the motivation to rob begins when the perpetrator perceives a need for money[21] and decides to satisfy it. The first step, then, is target-selecting: identifying a suitable store or business. After identifying a likely robbery target, a robber ordinarily makes at least a cursory investigation of the layout of the premises, of access and escape routes, and of potential sources of interference in the neighborhood of his target.[22] Most robbers are at least minimally familiar with the entire situation before they attempt a robbery. The final step before executing the robbery is a last-minute surveillance of the target to ensure that the level of risk has not increased.

Robbery countermeasure projects, such as EWRR, can profit from this knowledge of the crime methodology by designing tactics to take advantage at each critical step. Such programs should anticipate the robber's planning efforts in order to determine possible modus operandi and likely escape routes. An even more effective counter-planning strategy is that of undermining the bases upon which the robbery and escape routing are planned for a given business (e.g., varying the routine within the store, providing high-intensity street lighting along adjacent routes leading to the escape, altering the movement pattern of patrol cars on beats).

- Robbers Will Rob Even Where the "Take" is Small, Stringing Together a Number of Holdups to Accumulate an Appreciable Amount

There is evidence[23] that robbery is initiated even where it is known that relatively small amounts of money are likely to be involved. The most promising deterrent techniques are those that nearly eliminate available cash--such things as strong-boxes used in place of cash registers, coupled with "credit cards/no change made" policies during high-robbery hours. These techniques make the potential take so small that the robber loses interest.

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[20] Normandeau, op. cit., p. 297.

[21] Conklin, op. cit., p. 79.

[22] Ibid., Chapter 5, "The Theft of Property", pp. 79-101. See also Carper, op. cit.

[23] Einstadter, op. cit., p. 95.

3. The Targets and the Victim

A number of conclusions relevant to the design of robbery reduction projects have emerged from recent studies:

- Selected Commercial Robbery Targets Typically are Easily Accessible by Automobile, Appear Easy to Rob, and Offer Good Getaway Potential[24]

Many features that make a given location an attractive commercial site also make it an appealing robbery target. Sites that are easy to drive into and out of and are located on main roads are desired locations for quick-service commercial establishments. The same characteristics qualify them as preferred robbery targets. Target prediction methodology could perhaps draw from marketing research in this respect.

- The More Attractive Commercial Robbery Locations are Isolated from Their Neighbors by Place, Time, or Light Level

Isolation can be achieved by geography, by time of day, or by darkness. Robbery is more likely to occur in locations that are separated from neighboring businesses.[25] The most likely time for robbery is between 8:00 p.m. and 2:00 a.m., on Friday or Saturday, when many other businesses have closed their doors. Darkness would also appear to be a factor during the same hours: the increase in robbery during the winter months (and, conversely, the decline during the summer months) indicates that low-light levels favor robbery.

- Bystanders are Usually not Robbed and Non-owner Clerks are Preferred as Victims over Owners

Research indicates that robbers usually do not rob customers in a store; additionally, they prefer to take money or property from a disinterested store clerk rather than from a store owner.[26] There is a dual rationale: robbery of a clerk does not financially injure him directly since the take belongs to a business; hence, the robber has deprived an institution--not a person--of his money. Secondly, store owners are likely to resist robbery when their own property is involved, thereby raising the level of difficulty for the robber. In terms of the design of robbery reduction projects, predicting probable robbery targets should consider the question of personal involvement of the potential victim.

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[24] Carper, op. cit., pp. 4 ff.

[25] Ibid. See also Normandeau, op. cit., pp. 211-222, for a discussion of the points presented in this paragraph.

[26] Einstadter, op. cit., pp. 96 ff. Some inner-city robberies may differ: racial and economic factors may increase the likelihood that a white store-owner will be robbed, especially when he is not a neighborhood resident and is perceived as "ripping off" residents.

4. The Control of Robbery - Implications for EWRR

In his examination of innovative measures to reduce robbery, Albert M. Bottoms observes:

> ... the police are only one component in the campaign against robbery. In addition to the public-at-large, the courts and correctional systems take part in the campaign. The social and economic causative factors that are said to underly [sic] robbery are usually unaffected by police actions or the use of public resources. Given an environment where robbery is widespread, the police resources are devoted to apprehension of offenders and to deterrence of potential offenders. Deterrence is accomplished, in part, by sure and swift apprehension and the meting of justice to an offender.[27]

Traditionally, then, the control of robbery has meant reducing a community's robbery rate (1) by reducing the attractiveness of robbery targets, and (2) by increasing the operation of police resources directed against the crime to apprehend the robber at or near the scene and obtain high quality evidence.

a. Victim Countermeasures to Robbery

In addition to the conventional robbery-prevention steps of improving the design of buildings, increasing visibility in stores, and reducing the potential take,[28] available countermeasures include proprietary burglary/holdup alarm systems operated by private companies. These are extensively employed and are widely discussed.[29] For design of EWRR projects, however, only one victim countermeasure seems pertinent:

- Victim Resistance During Robbery is Exceptionally Hazardous

  Statistics indicate that individuals who resist robbery are more likely to be injured than those who cooperate.[30] Accordingly, it seems clear that EWRR systems should incorporate alarm systems that are activated covertly and easily during robbery without alarming the robber.

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[27] Albert M. Bottoms, Police Tactics Against Robbery, Final Report (Pilot Grant NI 70-065-PG-2, National Institute of Law Enforcement and Criminal Justice; Washington, D.C., 1971), p.2.

[28] See, for example, National Advisory Commission on Criminal Justice Standards and Goals, A National Strategy to Reduce Crime, (Washington, D.C., 1974), pp. 62-65. R.H. Ward, et al., Police Robbery Control Manual (Prescriptive Package), (U.S. Department of Justice, Law Enforcement Assistance Administration, National Institute of Law Enforcement and Criminal Justice; Washington, D.C. U.S. Government Printing Office, April 1975).

[29] Thad L. Weber, Alarm Systems and Theft Prevention (Los Angeles: Security World Publishing Co., 1973) is a readily available source. Its focus is on anti-burglary systems.

[30] Conklin, op. cit., p. 115.

b. Police Countermeasures to Robbery

Standard police operating practices are designed to provide the entire range of police service to a community, not just to focus on specific crimes.[31] Since EWRR projects fall into the category of crime-specific efforts, two general observations have surfaced from the search of available literature.

- Both Routine and Specialized Patrols can be Employed as Robbery Reduction Techniques

  Routine police patrols, involving two-man teams in vehicles driving through designated "beat" areas until called by a dispatcher or until they intervene at the site of a crime, are the most customary police services. Such patrols are intended to have high visibility in the community and to suppress robbery and other criminal activity by imposing a police presence. Saturation patrols and dedicated teams are essentially concentrated applications of routine patrol forces. Stake-out patrols deploy police under cover at the predicted crime location. When accurate prediction techniques are employed, stake-outs are highly successful.[32] In virtually all cases, however, crime-specific tactics that employ dedicated units have high manpower costs. An additional observation is in order: no more than 5 percent of all robberies are detected and reported by conventional patrol forces.[33] The essential lesson for EWRR systems, it would appear, is that more effective (and more costly) patrol techniques must be employed.

- Shortening Police Response Times Seems to Improve the On-Scene Apprehension and Consequently the Conviction Rates of Robbers

  Shortening police response times is cited as a means of increasing on-scene arrests and conviction rates: "...the clearance rate of crime goes up as response time of patrol units is reduced. The figures show that police solve two-thirds of the crimes they respond to in less than 2 minutes, but only one out of five when the response time is 5 minutes or longer."[34]

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[31] See, for example, Raymond E. Clift, A Guide to Modern Police Thinking (Third Edition; Cincinnati: The W.H. Anderson Co., 1970), pp. 19-26, and R.H. Ward, et al., op. cit.

[32] A recent discussion of the matter is given in James B. Richardson and Raymond K. Stout, "Incident Prediction Model for Police Placement," The Police Chief, April 1975, pp. 38-40.

[33] Conklin, op. cit., p. 124.

[34] National Advisory Commission on Criminal Justice Standards and Goals, Police (Washington, D.C., 1973), p. 193. The whole question of response time and

(Footnote continued on page 16.)

the important aspect for EWRR project design is that some level of quick response is necessary for on-scene apprehension. Additional concern about early arrival of police on the scene of an armed robbery and the resultant risk of violence dictate that project design include alternative tactics to direct, in-the-store confrontation with suspects.[35]

34 (continued from page 15)

its contribution to police effectiveness in terms of arrests and convictions requires further investigation to establish the degree of change to be expected from various levels of improvement. In particular, analytic focus is needed on such factors as the delay associated with citizen reports of crime. A one-minute response time (from receipt of call until police arrival on scene) is pointless if the call for service is delayed 20 minutes. An effort is currently underway in Kansas City, Missouri, to examine the components of response time, with a first report on the relationship between variations in police response time to Part I crimes and criminal apprehensions, the availability of witnesses, injuries to victims, and citizen satisfaction scheduled for publication in the fall of 1976.

35 A recent case that was widely publicized involved a store full of customers and clerks in a sporting goods outlet in New York City who were taken hostage by a gang of robbers when the store was surrounded by police. Luckily, all hostages escaped unhurt by using an out-of-the-way stairway exit.

SECTION III

SURVEY OF EWRR PROJECTS

A. Criteria for Project Selection

In an earlier section of the report the EWRR project was described as a police operation directed against robbery of commercial establishments. A review of operating projects confirms that operations conducted by project personnel are generally the normal operations of the police against armed robbery, augmented by the use of an early-warning alarm device installed and supervised by project personnel. The actions of the police following arrival at the scene of a robbery follow the normal practice independently of the project. The distinguishing features of the EWRR project are these:

- Early-Warning Capability - Projects must feature alarm equipment capable of alerting police while a robbery is in progress.
- Police Ownership - The alarm equipment must be owned by the police department to assure police control of operating characteristics and deployment.
- Portability - The alarm equipment must be movable so that targeted locations can be changed in response to changes in robbery patterns.
- Anti-Robbery - Projects must focus on commercial robbery (burglary and street robbery were additional targets of some projects).

Projects that were burglary-specific or that relied on commercial alarm services were generally excluded from the study. One project, in Phoenix, Arizona, that features 35-mm cameras activated during robbery, but not silent alarms, was examined as a possible source of insight into the value of cameras for evidence collection.

Preliminary review of sources (e.g., Grant Management Information System [GMIS], manufacturer claims, police department referrals and staff experience derived from the LEAA Equipment Systems Improvement Program) indicated that approximately 75 communities had had sufficient association with EWRR or related technology to warrant further study (see Appendix C).

B. Projects Identified

A telephone survey conducted in April 1975 of the more than 75 law enforcement agencies (or subordinate units) reported to have been involved in developing or using EWRR techniques revealed that 44 had ongoing projects, five had terminated their projects, nine had no projects in operation or planned, and 17 were conducting burglary projects using early-warning equipment. Exhibit III-1 is a list of the 44 ongoing projects.

In Exhibit III-1 the type of response force--the single design feature that apparently has the greatest impact on cost and, possibly, performance--is identified for each project. The dedicated response force (D) involves the use of officers dedicated to stake-out of EWRR-equipped establishments.

No.	AGENCY LOCATION	POPULATION (1973)	NUMBER OF ALARMS	RESPONSE FORCE	SPOKESMEN COMMENTS
1	Albany, Georgia	72,633	10	P	E,M,A
2	Albuquerque, New Mexico	243,751	2	P	
3	Atlanta, Georgia	497,024	20	D	
4	Bakersfield, California	69,515	120*	P	
5	Birmingham, Alabama	300,000	10	D	U
6	Boston, Massachusetts	641,071	40	D	
7	Columbus, Georgia	154,098	10	D	
8	Denver, Colorado	514,678	20	D	
9	East Point, Georgia	39,315	10	D	E,U
10	Fairbanks, Alaska	14,700	8	P	S
11	Ft. Lauderdale, Florida	139,590	24	P	
12	Grand Rapids, Michigan	197,649	2	P	
13	Hayward, California	93,058	4	P	
14	Henrico County, Virginia	154,367	40	D	E
15	Inglewood, California	90,014	20	D	
16	Jacksonville, Florida	528,865	20	D	E
17	Kansas City, Missouri	507,242	15	D	
18	Las Vegas, Nevada	125,787	7	P	E
19	Long Beach, California	358,633	TAC II	D	
20	Los Angeles, California	2,816,111	20	D	E,U
21	Lowell, Massachusetts	94,239	TAC II	D	
22	Macon, Georgia	122,423	20	D	E
23	Memphis, Tennessee	623,755	20	P	
24	Mineral Wells, Texas	18,411	4	P	
25	Montgomery County, Maryland	522,809	20	D	
26	New York City, New York	7,894,851	16	D	E,U
27	Odessa, Texas	78,380	20	D	A,E,U
28	Philadelphia, Pennsylvania	1,948,609	20	D	E
29	Pleasanton, California	18,328	4	P	
30	Port Angeles, Washington	16,367	1	P	
31	Portland, Oregon	381,877	100	D	E,A
32	Prince George's County, Maryland	660,567	20	D	
33	Richmond, California	79,043	2	P	E
34	Ridgecrest, California	7,629	1	P	
35	Saginaw, Michigan	91,849	18	D/P	
36	Salinas, California	58,896	4	P	
37	San Diego, California (city)	696,769	22	P	E
38	Santa Ana, California	156,601	12	P	A,U
39	Shafter, California	5,327	2	P	
40	Tallahassee, Florida	71,897	8	D	E,U
41	Tehachapi, California	4,211	14	P	
42	Torrance, California	134,507	110	P	
43	Tracy, California	14,724	6	P	
44	Washington, D. C.	756,510	60	D	E,U,A,M

LEGEND: *See Project Synopsis (Appendix B)

D = Dedicated Strike Force E = Equipment Problems A = Low Apprehension Rates

P = Patrol Response Force M = Excessive Manpower Costs U = User Utility Problems

EXHIBIT III-1 -- ACTIVE EWRR PROJECTS

The patrol response force (P) involves response by regular beat-patrol officers who are otherwise fully occupied with normal patrol duties.

Also identified in the exhibit is the general thrust of informal comments by project spokesmen about the kinds of problems experienced. Almost all problems were related to equipment inadequacy (E), excessive manpower costs (M), low apprehension rates (A), or user utility problems (U).

Exhibit III-2 lists additional robbery control projects found among the 75 agencies surveyed. The list of "terminated" EWRR projects identifies the ostensible reasons for termination. The list of "other" robbery control projects contains projects with some similarity to EWRR projects, but with enough differences to disqualify them as strictly EWRR.

C. Projects Reviewed

Of the 44 active projects, 21 were visited on-site. The basis for selection of the projects to be visited from the list of on-going projects was information gained during the initial telephone contact about the following characteristics of each project:

- Availability of evaluation material
- Familiarity with key EWRR issues
- Commitment of personnel resources to EWRR project
- Type of response force: dedicated or patrol
- Type of alarm and auxiliary equipment
- Size of project: small, medium, large
- Regional location
- Length of project experience: long-term vs. 1 year or less
- Type of community: urban or rural

The list of projects visited is given in Exhibit III-3.

D. Project Characteristics

Attempting to distinguish among EWRR projects by identifying features that vary among projects provides two fundamental insights: First, EWRR provides no new police service. It is simply a mechanism for delivering conventional police services more rapidly. After police officers are on-scene, they follow routine procedures for investigation and suspect handling. Secondly, there are virtually no fundamental differences among the projects themselves (see project summaries in Appendix B). In all cases, the object is the same: to put police on the scene in time to intervene directly in a robbery. Some emphasize shortening only the interval between the start of a robbery and the call to police, others bypass the police communications system to eliminate the time required for normal message processing and transmission. All projects, however, focus on reducing delay times encountered in conventional police response to robbery.

TERMINATED PROJECTS

NAME	PROJECT TYPE	REASON
Dallas, Texas	Patrol Response	Equipment Problems
Detroit, Michigan	Patrol Response	Equipment Problems Manpower Expense
Louisville, Kentucky	Patrol Response	No Apprehensions, Experimental Projects Only
New Orleans, Louisiana	Dedicated	Manpower Expense, Few Apprehensions
Tampa, Florida	Dedicated	Manpower Expense

OTHER ROBBERY CONTROL EQUIPMENT PROJECTS

NAME	TYPE
Anchorage, Alaska	Cameras
New York City, New York	Cameras, Commercial Alarm Co.
Phoenix, Arizona	Cameras
Wilmington, Delaware	Cameras, Commercial Alarm Co.

EXHIBIT III-2 -- OTHER EWRR & ROBBERY CONTROL PROJECTS

Atlanta, Georgia
Bakersfield, California
Columbus, Georgia
Denver Colorado
Hayward, California
Inglewood, California
Jacksonville, Florida
Kansas City, Missouri
Los Angeles, California
Memphis, Tennessee
Montgomery County, Maryland
New Orleans, Louisiana
New York City, New York (Alert)
New York City, New York (Merchants)
Phoenix, Arizona
Portland, Oregon
Prince George's County, Maryland
San Diego, California
Tampa, Florida*
Torrance, California
Washington, D.C.
Wilmington, Delaware

*The Tampa, Florida, STAVS project was already well known to the Phase I research team on the basis of previous contact during the Equipment System Improvement Program; consequently, a visit was not scheduled during the field survey.

EXHIBIT III-3 -- PROJECTS VISITED

Nonetheless, despite the underlying consistency of EWRR goals, there are differences in project equipment, tactics, response forces and other factors involved in implementing the early-warning concept as shown in Exhibit III-4. To a great extent, these differences represent stylistic variations. However, it also appears that differences in project performance may be attributable to the different ways the EWRR projects are designed.

A useful context for identifying features of EWRR projects and for comparing projects from city to city can be found in the police department policy-making and operational levels responsible for the projects.

The policy-making level consists of police management officials responsible for selecting EWRR as an alternative to other anti-robbery approaches and for establishing the goals and design of the project. The policy level is responsible for budgetary decisions and authorizing expenditures.

The operational level is the departmental element responsible for day-by-day conduct of routine project activity. Police officials at this level are concerned with decisions related to carrying out policy and are, therefore, responsible for determining how policy is implemented.

1. EWRR Project Design

Decisions made by the policy-level management reflect management concern for delivering community-wide police services. In the process, management specifies the mission of the EWRR project and its role in the police department as a whole. Additionally, they select the population to receive the added service, design the project to achieve its mission, and finally set performance standards to measure the success of the project.

a. Project Mission

Two aspects characterize the mission of EWRR projects: the first is whether they are exclusively focused on robbery, or include burglary or other crimes. Some alarm equipment is suitable for both applications, and 52 percent of the departments reviewed expanded the scope of their projects accordingly. The second mission characteristic is whether the stated goal of robbery reduction is to be achieved by deterrence, by increased apprehension, by increased conviction of robbers, and/or by increased case clearance.

b. Project Role in Police Departments

EWRR projects can either complement or augment other police services. Forty percent of the departments reviewed locate the project with the detective section in order to provide easy access to investigative information to aid in target store selection. Fourteen percent consider the project an augmentation of the patrol function and make it responsible to the patrol commander. In the remaining communities, EWRR is associated with a crime prevention section or research section that may be responsible for a coordinated program of robbery control.

A second aspect of the project role in police departments is the reporting channel available to the operational commander. Slightly over half of

PROJECT FOCUS	48% ROBBERY SPECIFIC 52% ROBBERY, BURGLARY AND OTHER
ALARM SYSTEM	45% VOICE TRANSMISSION 55% CODE TRANSMISSION
ALARM ACTIVATION	38% VICTIM ACTIVATED 10% BILL CLIP ACTIVATED 52% BOTH
RESPONSE FORCE	62% DEDICATED 38% PATROL
RESPONSE DEPLOYMENT	48% STAKE-OUT 38% PATROL 14% BOTH
RESPONSE TO ALARM (INTERVENTION ON SCENE)	60% OVERT 40% COVERT
VEHICLES*	29% PATROL CAR 43% UNMARKED CAR 24% CIVILIAN CAR 5% PATROL AND UNMARKED
COMMUNICATIONS CHANNEL	50% DEDICATED CHANNEL 50% NORMAL DISPATCH CHANNEL
CAMERAS	29% INCLUDED WITH ALARM
PUBLICITY	33% DELIBERATE PUBLICITY 67% COVERT
OPERATING HOURS	43% FULL TIME 57% HIGH CRIME HOURS ONLY

*Total greater than 100 percent due to rounding effects.

EXHIBIT III-4 -- SUMMARY OF PROJECT FEATURES

the departments reviewed regard EWRR as controllable via the ordinary chain-of-command and do not make special provisions for project monitoring; others establish a senior level reporting channel that can be used to deal with jurisdictional and administrative problems beyond the authority of the project manager.

c. Target Specification

The target population to be served may be limited to a category of stores (e.g., convenience store only) or may extend to all commercial enterprises vulnerable to robbery. By the same token, the geographical area for project activity may be fixed (partially to permit systematic evaluation) or flexible, to respond to shifts in robbery patterns as they are identified.

d. Gross Organizational Design

The EWRR project is designed to fit the requirements of the police department, the community and the target population specified. In particular, this involves deciding between regular patrol and dedicated response units, and selecting the equipment to be used by police. Equipment selection (Exhibit III-5) concerns choices among voice message and coded signal alarms requiring decoders, dedicated or conventional police radio channels, conventional patrol cars or unconventional (unmarked or civilianized), accessories needed (such as riot guns, portable radios, disguises), and any evidence collection equipment called for (e.g., still cameras, video-tape recorders). A final decision regarding project design concerns whether to employ publicity to demonstrate the police capability to make on-scene arrests, or to suppress it in the interest of preserving project covertness.

e. Evaluation Design

In the cities surveyed, nearly half reported having evaluation methodologies established as part of the project design; others relied on after-the-fact reviews coupled with operational assessments of month-by-month performance to determine the effectiveness of the project.

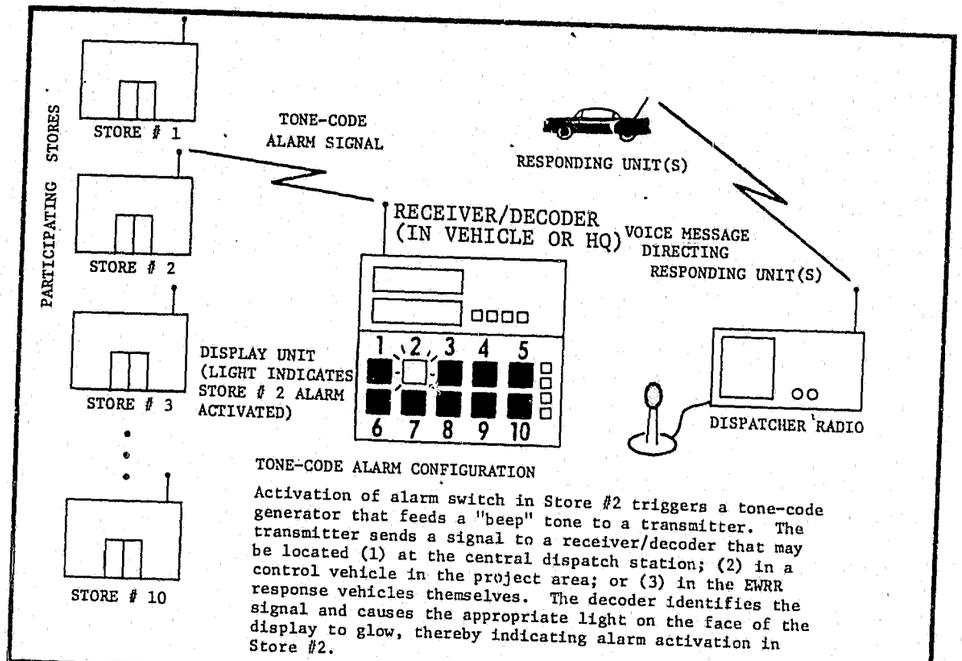
2. EWRR Operational Design

Decisions made by the operational commander or project manager reflect the manager's day-by-day conduct of EWRR project activities. Two major areas of concern emerge: setting up the alarm system (including training clerks to use it) and employing police resources to respond to alarm activations.

a. Preliminary Activity

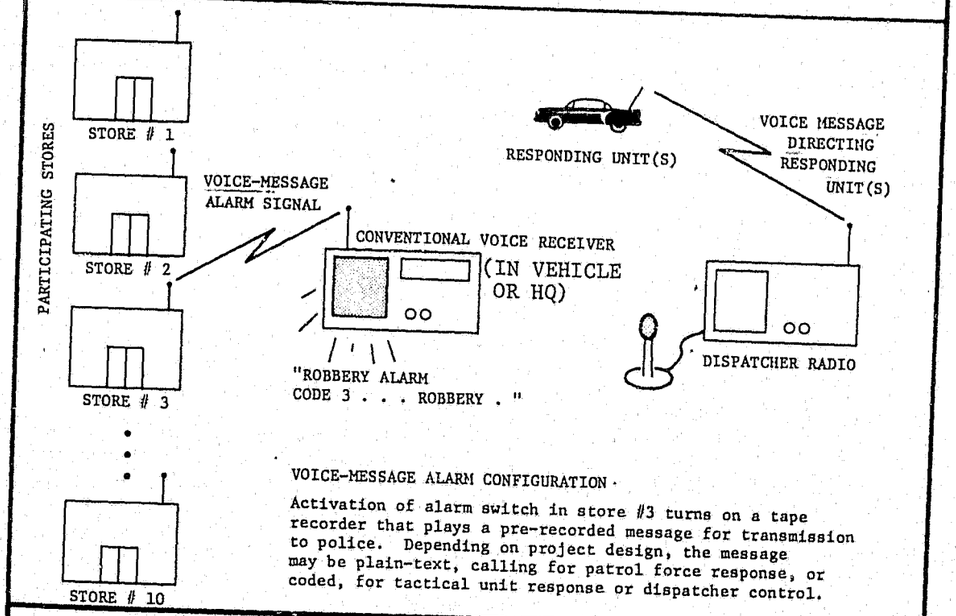
The EWRR project manager is usually responsible for selecting stores for alarm installation. Projects may be differentiated according to whether the selection is based on vulnerability assessment and statistical projection or on intelligence sources and modus operandi analysis.

Following store selection, store owners and cashiers enter the picture: they must participate in some way with the project, either actively as alarm activators, or passively, by not interfering with automatic alarm activation or by not disclosing presence of the alarm and compromising covertness. Projects may be distinguished according to whether training and liaison are



TONE-CODE ALARM CONFIGURATION

Activation of alarm switch in Store #2 triggers a tone-code generator that feeds a "beep" tone to a transmitter. The transmitter sends a signal to a receiver/decoder that may be located (1) at the central dispatch station; (2) in a control vehicle in the project area; or (3) in the EWRR response vehicles themselves. The decoder identifies the signal and causes the appropriate light on the face of the display to glow, thereby indicating alarm activation in Store #2.



VOICE-MESSAGE ALARM CONFIGURATION

Activation of alarm switch in store #3 turns on a tape recorder that plays a pre-recorded message for transmission to police. Depending on project design, the message may be plain-text, calling for patrol force response, or coded, for tactical unit response or dispatcher control.

EXHIBIT III-5

TONE-CODE AND VOICE-MESSAGE EWRR ALARM CONFIGURATIONS

comprehensive, formalized aspects of the project, or consist simply of orientation to the equipment and corrective instruction when misuse occurs.

The duration of alarm installation is a third operational characteristic. Approximately 50 percent of the projects move the equipment often in response to changing patterns of robbery, while the rest leave the alarms in place for long terms in anticipation that the alarmed locations will eventually by robbed. Three weeks is a typical threshold for discriminating short-term from long-term.

A final preliminary operational feature is the method of alarm activation. Most systems (in 52 percent of the projects reviewed) can be activated passively by bill-clips as well as actively by buttons and foot-treadles; accordingly the decision to rely primarily on active or passive methods of initiating alarms depends on the situation encountered by the operational EWRR project (e.g., cashier resistance to alarm initiation).

b. Field Activity

Differences among project response forces reflect the environments in which the response forces operate. They concern the ways in which police resources are made available for EWRR and the manner in which they conduct the response to robbery.

Operating hours differ among projects, with dedicated units usually on duty during the high crime hours of the week (typically 6:00 p.m. to 2:00 a.m. Tuesday to Saturday), while patrol response forces are active on an around-the-clock basis.

Deployment tactics also distinguish covert projects from one another: some departments follow conventional patrol routing strategies, using unmarked cars limited to the immediate project areas, while others attempt covert stakeout. A few others attempt to mix the patrols with the regular movement of traffic in a high-robbery area, using patrol cars disguised as civilian automobiles.

Response to an EWRR alarm involves overt or covert intervention in the on-going robbery, depending on operational considerations, although about 60 percent of the projects reviewed use intervention tactics that call for overt activity.

A final operational feature of projects is the kind of post-robbery follow-up. In most departments, none is defined; in some, however, the arresting officer may be used as principal interrogator of a suspect on the assumption that the officer has a psychological advantage (having caught the offender with the goods) that can be exploited to clear other cases involving the suspect. In Prince George's County, the EWRR project includes assignment of an Assistant State's Attorney to speed prosecution of suspects apprehended by EWRR project personnel.

E. Project Experience

In addition to details of project features and evaluation methodology, the survey sought to gather information regarding police department experience with EWRR. The following paragraphs sketch the history of a representative

project and outline selected operational experiences that were of interest to departments.

1. Representative Project History

The representative EWRR project originates in a Planning and Development Office that is responsible for recommending departmental innovations and writing grant applications to fund them. EWRR is selected as one of a set of police programs to strengthen the department by simultaneously permitting seasoned officers to concentrate on a crime-specific problem while adding to the regular force by hiring replacements. A combination of LEAA Block Grant and local funding totalling perhaps $150,000* (approximately $100,000 for a seven-man tactical unit, $30,000 for leasing civilian-style automobiles and purchasing accessories, and $20,000 for a 20-unit, tone-code alarm system) is programmed to field a minimum project for a one-year period.

Delays in grant processing postpone project initiation by three months. When the project is underway, two months are devoted to hiring and training replacements for the tactical unit and for procuring equipment. The third month is used to train tactical unit officers and to develop an operational strategy. During the fourth month, the project initiates field operations.

Initially, project operating hours are 4:00 p.m. to 12:00 p.m. Tuesday through Saturday, to cover the hours when commercial robbery occurs most frequently. During the first six to eight weeks the unit encounters a number of problems and adjusts to its environment:

- A combination of equipment malfunctions, installation errors and improper alarm activation leads to an unacceptably high false alarm rate (as many as 10 activations per day). The remedies involve consultation with manufacturers and more clerk training. Throughout, the unit finds it can achieve an average response time from alarm activation until arrival on scene of less than 60 seconds -- sometimes arriving in as little as 5 seconds.

- Occasional equipment failure in critical system components reduces the scope of unit activity -- limiting coverage to targets that can be kept under visual surveillance until the equipment is repaired.

- On-scene arrests are made occasionally -- perhaps six one month, two the next and none the following. Almost half the arrests are made as a result of alarm activation, the rest from direct observation of suspects by unit officers.

*The field survey revealed that costs varied widely from project to project. The figures used in this example are meant to illustrate the kinds of budget items commonly found and the dollar amounts that might be associated with them (based on estimates developed from manufacturers, catalogs, etc.). Real-world project costs appear to depend more on how departments choose to bill project operating expenses than on details of project configuration. (See C. EWRR Costs, below.)

Subsequently, the unit modifies its operation to cover a wider range of crimes and targets (e.g., burglary) and observes that the expected crime level does not materialize in the targeted stores. Apprehensions become less frequent despite the cooperation of storeowners and clerks. For the remainder of the project period, unit operation continues to meet its goals, but the apprehension rate and community-wide robbery reduction that result fall short of the project objectives specified in the grant application, although robbery in the stores participating in the project seems to fall off dramatically. Additional problems arise when unit morale suffers from the boredom of stakeouts: the young, aggressive, action-oriented officers selected for the unit are not well-matched for their assignments. Finally, friction develops between the unit and the regular force -- a traditional "supercop syndrome" that affects morale throughout the department. Vigorous efforts are required to coordinate activities between the unit and the regular force.

At the end of the project year, the unit has apprehended perhaps 20 offenders and is considering a reconfiguration as a general-purpose strike-force with robbery as only one of its missions. A final report, if there is one available, summarizes the unit's activities and reports total hours of system deployment, man-hours expended in field operation and results achieved in terms of stores covered and suspects apprehended.

2. EWRR Operational Experience

- Police Response Time

Virtually all surveyed agencies (e.g., Prince George's County, Atlanta) indicated that their EWRR systems did result in improved average response time for both dedicated and patrol response forces. Average response time was reduced to less than two minutes from the initiation of an alarm for patrol response and to less than one minute for dedicated response.

- On-Scene Apprehensions

Reporting agencies generally indicated success in on-scene apprehension of suspects. However, most indicated that the actual number of apprehensions was low. One reason (see next item) could be that the incidence of robbery was reduced by the known presence of the EWRR devices in the stores -- would-be robbers were frightened away. As the study progressed, it became clear that deterrence itself may stand as a significant community benefit resulting from the existence of an EWRR project.

- Robbery Deterrence

About one-quarter of the agencies surveyed volunteered the opinion that robbery had been deterred by operation of the project. In some instances, virtually no robberies were reported in establishments that had been alarmed (e.g., Washington, D.C., New York City Alert). There was not sufficient information available to establish whether this was the result of deliberate publicity, of failure of covert activity, or of employees' informing outsiders that the store was alarmed.

- Conviction Rate Increase

There was not clear evidence that the rate of conviction of suspects apprehended as a result of EWRR project activities was higher than normal. There was, however, the feeling by project personnel that the evidence for conviction was much improved. The evidentiary impact of apprehension within moments of the crime and/or at the scene coupled with the impact of being caught with the stolen goods is apparently significant. The contribution to the investigative process of pictures (photographs or TV recordings of the crime-in-progress) for those projects using camera devices (e.g., Wilmington and Phoenix) was also judged to be significant.

- Storeowner Acceptance

Most participating storeowners tend to be cooperative and enthusiastic about the installation of EWRR devices in their stores (e.g., New York City Merchants), although there were some exceptions. Even though apprehensions were low in number, the operating agencies felt that the positive response of storeowners was itself a benefit because it indicated an increase in awareness by the storeowner and increased motivation to help take protective measures.

- Violence During Patrol Response

The potential for violence during response to an EWRR alarm is considered to be higher than during response to other kinds of calls, and is felt by some to be serious enough to cancel out any real community benefit that might be derived from the undertaking of an EWRR project. A number of the projects were designed with the need in mind for minimizing this risk (e.g., Columbus, Georgia; Montgomery County, Maryland), starting with the premise that police arrival at the scene of a robbery while the robber is still present markedly increases the potential for violence and hostage-taking. Tampa reported that storeowners and employees were sometimes averse to having EWRR devices installed because of fear that a robber may see the alarm being activated or the police responding and resort to violence. Such violence can lead to legal liability as shown in the case of Kelly vs. Kroger Company* in which the store operator was held liable for injuries to a bystander resulting from gunfire following activation of an alarm.

- Crime Prediction Techniques

A common feature of EWRR projects is police ownership of EWRR alarm equipment. By owning the equipment and installing it only in the most likely robbery targets, the police are capable of increasing the likelihood of on-scene robbery intervention and consequent project effectiveness. It was found that prediction as a technique ranged from no prediction at all to the use of sophisticated, computer-aided crime analysis. There was some indication that prediction based on identifying the most recently robbed stores was ineffective. However, because the introduction of EWRR equipment in many cases seemed of itself to deter the robberies and thus change the nature of the situation on which the prediction analysis was based, there was little information available regarding prediction effectiveness.

*Kelly vs. Kroger Company, 10th Cir. 484 F. 2d 1362.

- Degree of Covertness

Some EWRR project designs were based on the desire to achieve covert operation. Where the project's goal is specifically to increase the rate of on-scene apprehension to the exclusion of other goals, robberies must be permitted to occur as they did prior to establishment of the project. Elimination of the deterrent effect, then, becomes the goal of the covert feature of these projects. However, some projects (e.g., Washington, D.C.) reported difficulty in installing equipment without being observed by the criminal community, or at least without the criminal community quickly becoming aware of the presence of the project and the identity of the alarmed store. There is evidence that robbery often ceases or moves to another location when the project moves in.

- Equipment Design

Most EWRR project spokesmen appeared largely unaware of the experience of other, similar projects. There appeared to be little standardization of equipment design requirements among EWRR projects. Some projects utilized unproven design of inexperienced manufacturers yielding poor equipment performance. In many cases, project designs were based upon the nature of the equipment available rather than project needs.

A substantial number of the projects experienced problems of one sort or another with equipment -- both in-store and in-car equipment. For example: (1) some projects found that installing alarm equipment in participating stores was tedious and time-consuming, a factor that seemed to compromise the covertness of the project; (2) some agencies observed that effective transmitter range imposed a limit on the size of stake-out areas; and (3) several agencies encountered problems with communications, including one department that described interference stemming from thunderstorms. In some of these cases, the repeated failure of the equipment tended to destroy confidence in and reduce the utility of the project.

Over ten different manufacturers have produced or are presently producing EWRR equipments. Some (e.g., Wood-Ivey) produce sophisticated sensors and equipment (e.g., TV cameras, videotape recorders) or use voice-message signals (e.g., VARDA); while others (e.g., Bell and Howell) provide a simple tone-code (i.e., "beep" tone) alarm transmitter, pressure switch and decoder. The project in Tampa, which once used the most sophisticated sensors, reverted to the simple bill-clip and foot switch because of the high rate of false activations by storeowners using the more sophisticated sensors.

- The Role of Commercial Security Organizations*

One project (Tampa) reported the need to reach agreements initially with commercial security interests in order to assuage the fear of undue

*A recent resolution adopted at the 82nd Annual Conference of the IACP "holds that the installation, maintenance, and servicing of security alarms on or in private establishments is a service to be provided by private enterprise, ... the police role is to monitor and respond to such alarms" only, except where an investigation warrants such police installation and maintenance. (The Police Chief, December, 1975, pp. 26, 28.) It is hoped that the findings of this Phase I investigation will contribute to the law enforcement community's examination of the appropriate extent of police use of police-owned alarms.

"government" competition. Other projects reported that when the police-owned equipment was removed and installed elsewhere as part of the normal project practice, storeowners had a tendency to contract with commercial security companies for supposedly similar protection. These indications of possible project interaction with commercial security interests suggest that the aggressive presence of these interests in a project area may influence the effectiveness of the project.

- The Role of the Store Employee

Some projects have reported that the value of the EWRR project has been subverted by the acts of dishonest employees who activate the alarm and report robberies to cover their own thefts. Some report that employee naiveté in discussing the presence of project equipment in stores with outsiders tends to breach any attempt to achieve covert operation and thereby to deter a robber rather than to aid in his apprehension. There seems to be a fairly general perception that the cooperation of the store employees is a significant factor in the results achieved by the project.

- Misuse of Project Systems

Several projects reported that EWRR alarms have been activated by store employees to call police when other, less serious crimes than robbery (e.g., shoplifting, fraud) have been observed. The police response that is geared to armed robbery is clearly more risk-filled than that actually needed for shoplifting or fraud and raises the potential for the occurrence of violence.

- Impact of Possible Federal Communications Commission Regulations

The Federal Communications Commission (FCC) regulates all police radio communications, including the number of radio channels available, the kinds of signals that can be transmitted over the channels (e.g., voice or digital) and, for unattended alarm transmitters, the message length (measured in seconds), frequency and number of repetitions. The regulations covering unattended alarm transmission in particular are currently under review by the FCC with the interest of making changes to reduce possible channel congestion. While such regulatory review does not constitute an immediate problem, the potential for impact on EWRR project equipment design, and the consequent potential impact on project operation, is implicit.

- The Legal Liability Aspects of EWRR Project Operation

Many law enforcement agencies have expressed concern about their liability in situations in which police-owned EWRR equipment is located in facilities not under police control, and injuries or loss result because of, or in spite of, the use of the equipment. The question asked is, "Can victims of robbery or violence bring suit against the agency because use of agency equipment (1) set off the chain of events that resulted in violence, or (2) failed to prevent violence or loss stemming from a robbery?" To ward off potential liabilities of this kind some agencies (e.g., Denver) employ a written contract with the store owner that describes the limits of liability for both parties.

- False Alarm Rate

Although the conditions created by any system with a high false alarm rate (FAR) are undesirable there is good evidence the EWRR systems achieve a lower FAR than commercial burglar alarms, e.g., 50 percent or lower versus more than 90 percent on the average for commercial burglar alarm installations. Some project spokesmen (e.g., in Washington, D.C.) indicate that there is not a severe problem with false alarms when dedicated response forces are used because the trained personnel are able to reduce false alarms to negligible proportions. Where patrol response forces are used, however, the personal interest factor seems to be mission and installations are not so well designed.

The FAR also seems to be related to the equipment used. Foot switches, for example, tend to result in more false alarms than do cash register bill-clips, and the more sophisticated sensors carried on the person result in still higher FAR rates.

As the observations above indicate, the experience of any one community with EWRR can be relevant to others interested in using the approach. The next section explores common assumptions underlying projects as a basis for determining a framework for assessing what is known about them.

SECTION IV

ASSUMPTIONS UNDERLYING EWRR PROJECTS

While most police officials interviewed during the field survey indicated that they were satisfied with their own EWRR projects (many said they planned to continue operations), their enthusiasm does not provide a basis for a definitive conclusion about the applicability of the concept in other jurisdictions. This is largely because none of the projects investigated was designed to provide general-purpose research findings, except insofar as they applied to the robbery situation in individual communities. The nature of law enforcement makes this inevitable: police operations are result-oriented and designed to reduce crime by using whatever means police have at their disposal. A given deployment strategy for a tactical unit that is too visible to permit covert operations, for example, is viewed by a police official as a problem requiring immediate solution. A research perspective, on the other hand, regards the same situation as a finding to be measured and reported, but not necessarily to be remedied on the spot.

The goal of research in EWRR is to provide a basis for a national policy regarding the concept and its implementation in communities across the country. In particular, information is needed on the following:

- When the EWRR approach is warranted
- What to expect from EWRR projects
- What cost/effectiveness ranges are reasonable

Resolving these questions requires abstracting the experience of individual projects to give it a general character. Projects need to be described and measured in common, comparable terms. In particular, this means determining generically what projects were intended to accomplish and establishing how well they performed.

A. Law Enforcement Operations: The Context for EWRR

Analysis of the concept reveals that EWRR does not alter the fundamental character of police response to robbery. Conventionally, victims of robbery report the crime--after it has taken place--via a telephone call to a police switchboard. There, the receiving operator relays the report to a dispatcher who, in turn, assigns a patrol officer or team to investigate. The elapsed time from the victim's call until the arrival of the officer is ordinarily considered in terms of minutes (in a few instances, as many as ten minutes). The patrol officer's initial investigation leads to a report that serves as the basis for a follow-up investigation by a robbery detective. The detective subsequently assembles evidence to establish both the fact of the crime and the probable cause for the arrest of a suspect. Thereafter, when the investigation is successful, the detective attempts to locate and apprehend the suspect, thereby clearing the crime from the police caseload, and to provide the evidence needed for prosecution and conviction. As in all police response to actual crime, the object is to lower the robbery rate by apprehending and convicting perpetrators.

EWRR alters this process in only two areas: (1) the alarm devices permit robbery victims to report crime while it is still in progress, directly to police in the field, and (2) police forces attempt to reach the scene of the robbery alarm while the suspect is still in the vicinity (see Exhibit IV-1). Once on-scene, the police carry out their normal functions: If a robbery is underway, the responding officers establish the fact of the crime and the identity of the perpetrator within seconds, and then make an arrest, thereby immediately clearing the case. Conviction would be based on testimony of the arresting officer as well as the victim. Viewed in this light EWRR emerges as simply a way to deliver a police service--robbery investigation--in a very rapid manner. The yardstick for measuring EWRR thus is based on conventional police operations and it can show how successful projects are in accelerating the delivery of service.

B. Project Assumptions: The Basis for Designing a Yardstick

Determining the value of an innovation such as EWRR requires measuring the impact of critical differences between normal operations and the new project. These differences represent the assumptions made by project planners about the improvements EWRR can make in departmental operations against robbery. They also serve as the basis for evaluating projects.

EWRR adds to police operations the element of silent-alarm-notification, on the assumption that early warning can lead to more timely police response to a robbery. Many of the projects reviewed explicitly gave as their rationale the need to arrive at the scene of a robbery earlier than normal procedures permit in the interest of arresting perpetrators on or near the scene. Thus, early warning can lead to more timely response--especially in conjunction with a dedicated response force--which can lead to increased apprehension for robbery. The effect of arresting suspects is to clear robbery cases and pave the way for robbery convictions. The overall objective is to reduce the incidence of robbery in commercial areas.

Implicit in this chain of assumptions are judgments about the feasibility of electronic systems, victim cooperation, and police operations in general. Thus, the assumption that the implementation of an EWRR project will lead to earlier warning of robbery is supported by collateral assumptions: Store-owners will permit installation of alarm devices; clerks will use the alarm switches (or at least will not interfere with their operation); hardware and electronic components will function reliably; stores that are likely candidates for robbery can be identified; police will recognize quickly that an alarm signal is an indication of a potential crime at a specific location.

By the same token, the assumption that implementing an EWRR project will lead to timelier response by police depends on the assumption that earlier warning, in fact, is achieved and that police take no longer than ordinarily to move to the location of the crime. It further assumes that police response by itself is sufficient (although some projects add the element of alarm-activated cameras to provide a photographic or video-tape record of the crime). More than half the projects surveyed (62%) enhance the police response by incorporating tactical stake-out units dedicated to robbery (and burglary, frequently, as well) reduction, on the assumption that the early

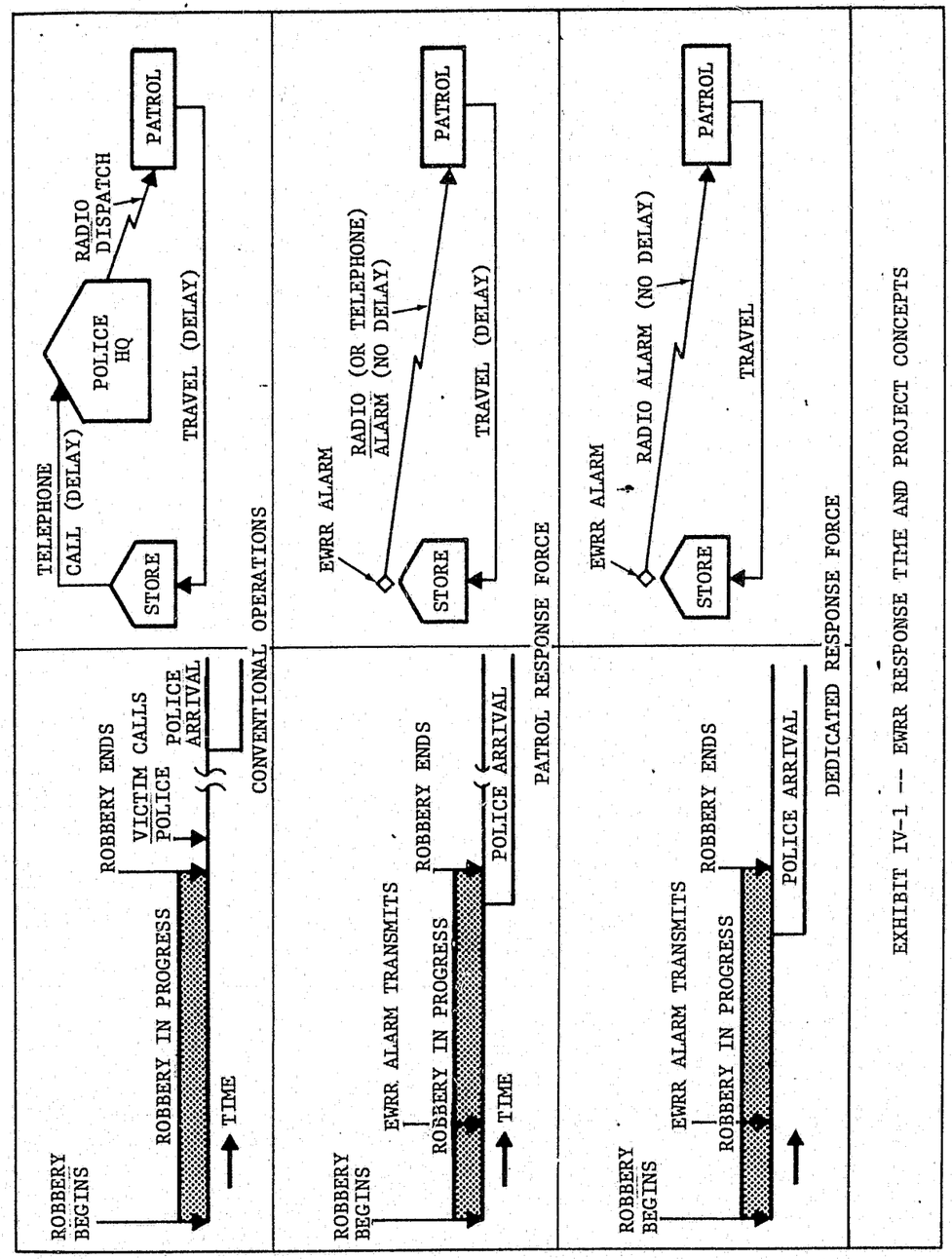


EXHIBIT IV-1 -- EWRR RESPONSE TIME AND PROJECT CONCEPTS

warning achieved by the alarm system can best be complemented by the very short response times of which such units are capable. Governing both early warning and timely response assumptions is the judgment that robbery execution times are short (30 to 60 seconds) and that intervention by police during the crime in progress or immediately thereafter is more productive in terms of case clearance than after-the-fact investigation.

The consequence of arriving on-scene in a more timely fashion gives rise to the next major assumption: an EWRR project will increase the number of robbery apprehensions. In part, the selection of apprehension as a prime project goal is governed by the timing of the arrival of police on-site. As Exhibit IV-2 indicates, four police responses are possible: arresting a suspect during the robbery, pursuing a suspect observed fleeing from the scene, broadcasting a description of the suspect for look-out arrest by other officers, and finally taking a report for subsequent investigation by a robbery detective. EWRR systems permit police to arrive on-scene before a robber begins flight; clearly the most appropriate response is apprehension. Lacking that, the arriving police can, in turn, pursue, broadcast a description or take a report, as appropriate. For this reason, subordinate assumptions are that EWRR will permit more suspect pursuits or more timely broadcasts of descriptions. There is no indication that earlier arrival improves the effectiveness of report-taking, hence most departments that use tactical response units assign that responsibility to regular patrol officers.

The assumption of increased apprehensions introduces the first possible outcome measure for EWRR projects; earlier warning and timelier arrival are activities that lead to apprehensions and are not, in themselves, outcomes.*

A second outcome directly tied to EWRR operations is conviction of robbery suspects. The assumption is that an EWRR project will lead to a greater number of robbery convictions. Supporting assumptions are that evidence of both the crime and the guilt of the suspect provided by on-site arrest are sufficiently strong to lead to prosecution and conviction of or confession by the suspect and sentencing. The assumption here is that many instances of diversion of suspects from prosecution result from inadequate case preparation or insufficient evidence. In some projects, on-site arrest evidence is augmented by cameras. In one project, Prince George's County, a special prosecutor is available for assignment to EWRR-arrested suspects.

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*A derivative outcome from EWRR stems directly from increased apprehensions: increased robbery clearances. The assumption is that EWRR will "solve" more robberies in the sense that further police investigation is unnecessary. Increased clearances are achieved in two ways: directly, by arrest of the perpetrator, and indirectly, by associating the arrested suspects with other robberies. Supporting this is the assumption that EWRR will clear more robberies directly than conventional investigation does (approximately 27% nation-wide according to UCR 1973). It further assumes that robbery perpetrators are responsible for a number of crimes; thus EWRR may result in the apprehension of 10 suspects a year stemming from five robberies, but those suspects may be involved in 25 additional robberies.

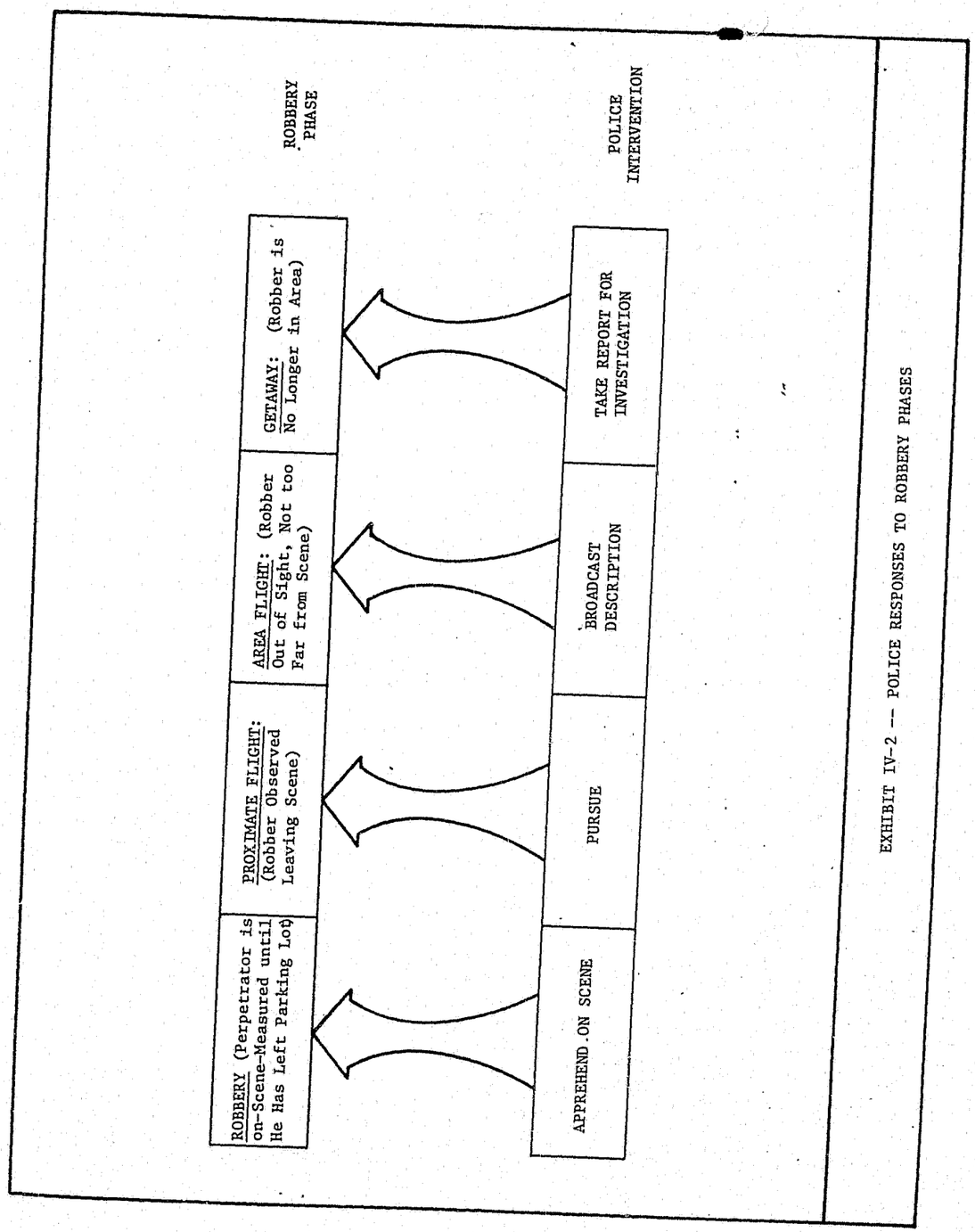

EXHIBIT IV-2 -- POLICE RESPONSES TO ROBBERY PHASES

The final critical assumption for EWRR concerns its overall impact on robbery: An EWRR project will reduce the number of robberies. The mechanism by which a reduction is achieved is not immediately obvious; establishing the cause of the absence of a phenomenon cannot be done with the confidence associated with establishing the cause of its occurrence. Nonetheless, the assumption that EWRR leads to a reduction in incidence rests on the fundamental deterrent effect of police operations in general. It may be assumed that one factor that discourages criminals from additional crimes is the fear of "getting caught" by police. "Getting caught," of course, implies more than apprehension: it involves the possible prosecution, conviction, and loss of freedom. Since EWRR increases the likelihood that police will "catch" robbers, the existence of an on-going project serves to deter, whether it is publicized or not. The reduced incidence assumption, therefore, rests on the judgment that robbers will learn of the enhanced police capability either by discovering the project or by observing its effect--on-site apprehensions of robbers--which indicates that police are taking some measure to improve their response to robbery. The relationship among the assumptions is shown in Exhibit IV-3.

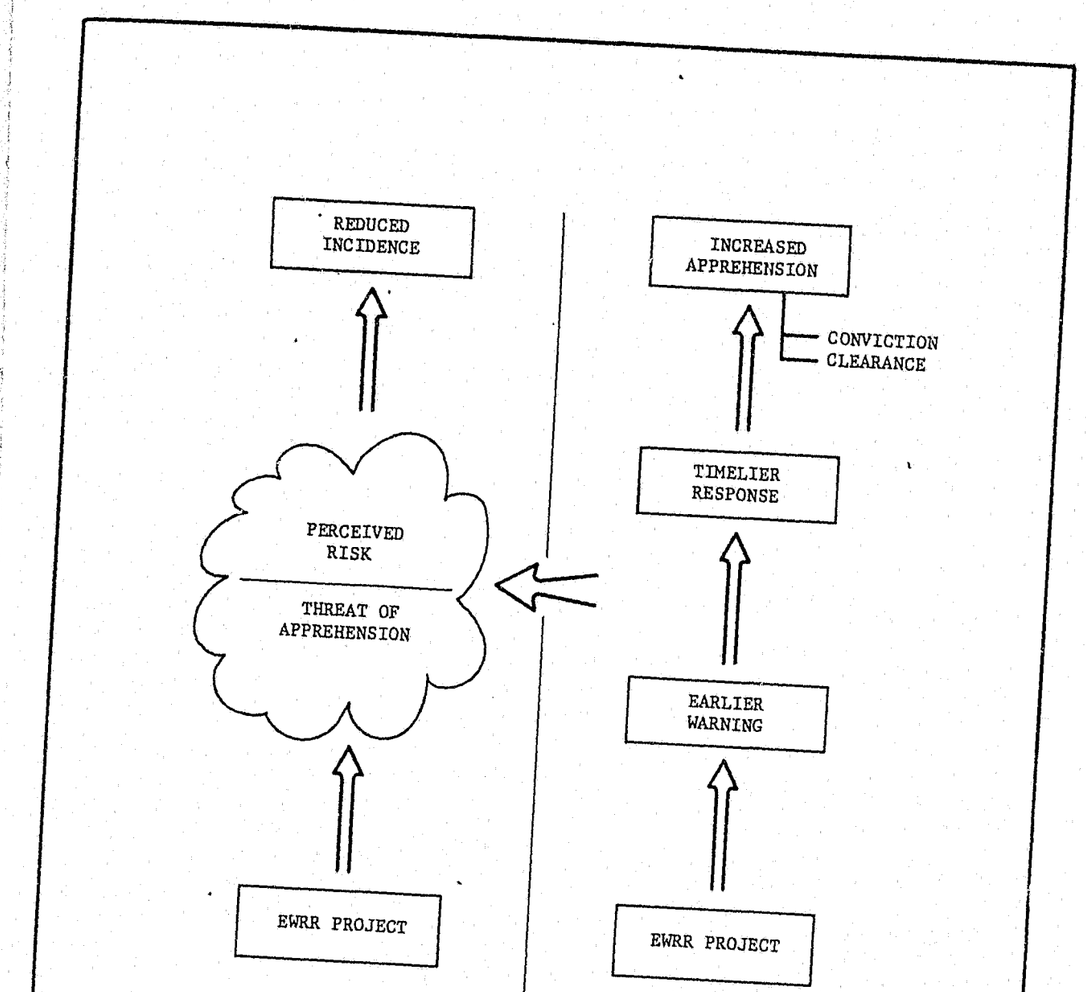

EXHIBIT IV-3 -- EWRR PROJECT OBJECTIVES

SECTION V

METHODS FOR CERTIFYING ASSUMPTIONS: THE ASSESSMENT FRAMEWORK

The five critical assumptions identified in the preceding section constitute the basis for determining how successfully EWRR projects operate. They can be regarded as the framework for assessing EWRR because comparisons can be made between EWRR and other methods for responding to robbery. The first two, Earlier Warning and Timelier Response, correspond to activity measures. Increased Apprehensions and Increased Convictions are the intermediate outcome measures. Reduced Incidence of Robbery is the ultimate impact sought from implementation of EWRR. The following paragraphs discuss the measures in greater detail and the data required to support general conclusions regarding the EWRR concept. The section concludes with a description of the screening process used in examining the data collected during the field survey.

A. Measures for Evaluating EWRR

Evaluating EWRR involves determining the degree of important change in normal operations that results from the introduction of a project. In effect, this means answering the question, "How much of an improvement (if any) does EWRR lead to?" In the case of the five categories of the framework, the process of evaluation involves comparing normal operations with EWRR performance by measuring both and noting the difference.

1. Earlier Warning

Earlier Warning means earlier notification to police officers who will respond to a call for service that a robbery is underway or has taken place at a certain location. Strictly speaking, "earliness" should be measured from the onset of the robbery and a measure made between the elapsed time from the start of a robbery until the police learn about it. It would appear unlikely that any reliable starting time for a robbery can be established. A more realistic measure would be the percentage change in the robbery reports received by police while the crime is still in progress.

2. Timelier Response

Timelier Response means police arrival on-scene early enough to change the character of police intervention from routine investigation to either suspect apprehension, pursuit or broadcast of a suspect description, depending on the circumstances. A precise measure of the time difference would compare the elapsed time between the departure of the robber and the arrival of police (again, reversed in order for some EWRR projects) for conventional operations and EWRR projects. An alternate measure would be qualitative in character, identifying instances where the nature of police intervention changes because the earliness of their arrival permits more effective action to be taken, especially where apprehensions are achieved at the site of the robbery. Another way to characterize this measure is to define it in terms of the percentage increase of police arrivals in time to witness the robbery in progress or the suspect fleeing the scene.

3. Increased Apprehensions

Increased Apprehensions means a higher level of suspect arrests than that achieved by normal operations. Presumably apprehensions can result from direct police intervention in robbery, pursuit of a fleeing suspect, or a lookout alarm that leads to the arrest of a suspect by a regular patrol officer. The measure for Increased Apprehensions, therefore, would compare the robbery-vs.-arrest rate for normal operations with that achieved by EWRR. It would measure the change in the number of robbery apprehensions at or near the scene, from that expected, in stores involved in the project.

4. Increased Convictions

Increased Convictions means an increase in the percentage of convictions of suspects arrested for robbery. The measure would be a comparison between EWRR-arrestee conviction rates and an expected value derived from normal conviction rates for arrested suspects.

5. Reduced Incidence

Reduced Incidence is the impact measure that most completely establishes project success or failure. The most appropriate measurement to take is of any change in robberies in stores participating in the project. The change should be expressed in terms of an expected value level of such robberies.

Exhibit V-1 depicts the five elements of the framework and their associated measurements.

B. Project Data Screening

To maintain the research orientation of this NEP investigation, three criteria were applied to the data collected during the survey in order to determine the value of the information available about EWRR:

First, data had to be of evaluation quality and preferably available in a comprehensive project evaluation. Lacking that, monthly reports, written summaries, and project documents were acceptable.

Second, data must permit some degree of control to be exercised in measuring the change introduced by EWRR. Essentially, this criterion meant that some baseline data to derive expected values were required in order to assess EWRR performance.

Third, data had to be framework-specific, using the same, or reasonably approximate, categories derived from the project analysis undertaken by this investigation.

The section that follows reports the results of the assessment.

EARLIER WARNING:	Percentage change in robbery reports received by police while robbery is in progress (expected value vs. experience).
TIMELIER ARRIVAL:	Percentage change in police arrivals in time to witness the robbery in progress or the suspect fleeing the scene (expected value vs. experience).
INCREASED APPREHENSIONS:	Percentage change in arrests for robbery at or near the scene (expected value vs. experience).
INCREASED CONVICTIONS:	Percentage change in conviction rate for robbery suspects arrested in EWRR-alarmed locations (expected value vs. experience).
REDUCED INCIDENCE:	Percentage change in robbery rate in EWRR-participating stores (expected value vs. experience).

EXHIBIT V-1 -- EWRR FRAMEWORK ELEMENTS AND MEASURES

SECTION VI

FINDINGS ABOUT EWRR PROJECTS

A. Project Documentation and Evaluation

The field survey did not find projects collecting much research data about their operations. Instead, the data generally reflected operational concerns, and were used primarily for monitoring and adjusting project performance, rather than for systematic evaluation.[1] Both the accuracy and comparability of the data collected varied according to project administrative practices. Accordingly, conclusions regarding the effectiveness of projects may be drawn with limited confidence.

While approximately half the projects surveyed provided some form of written evaluation (ranging from one-sentence summaries of project arrest histories to multi-section detailed reviews of alarm emplacements, manhours expended, arrests achieved, etc.), no project conclusively established that it was a success or that it had failed. Moreover, recalculation seems unpromising; a review of the data available in the more elaborate documentation indicates that further analysis cannot be done without gathering supplementary, baseline data.

The information lacking about project performance appears to be critical for authoritatively establishing both the fact and the degree of EWRR success or failure. The remainder of this section examines the information gaps in detail and identifies the data needed for more conclusive evaluation. It concludes with a review of factors lying outside the evaluation framework that have a bearing on project performance.

B. Project Assessment

Despite the deficiences noted in project evaluations, information was obtained -- usually during interviews -- regarding earlier warning, timelier response, and project-related apprehensions, convictions and reduced incidence in virtually all communities surveyed. What is unclear, however, was the measurable degree of change represented by EWRR, primarily because there was no basis established for reliable comparison. Even in communities that attempted to show before-and-after results, projections of expected value derived from past data were not made according to recognized statistical practice

[1] This is not to imply that projects did not keep adequate administrative records. In general, documents indicated that EWRR projects met most of their internal goals of procuring satisfactory silent-alarm equipment and integrating it with department operations (along with a tactical response force, where appropriate) within an acceptable time period. Targeting on commercial robbery was generally less successful than had been anticipated: robberies tended to fall off in alarmed stores after field operations began. Nonetheless, virtually all projects reported some success in arresting robbery suspects at the scene of the crime, as a result of either the proper functioning of the alarm system or observation by unit officers, or both.

(suggestions for resolution of this problem -- which is universal in program evaluations -- are given in the individual project evaluation design).

The remainder of this subsection summarizes the data available to test each critical EWRR assumption and what was and was not learned in terms of the elements of the assessment framework from the 21 projects surveyed.

FRAMEWORK ELEMENT: Earlier Warning

ASSUMPTION : An EWRR system will lead to earlier warning to police than conventional communications permit.

MEASURE : Comparison of numbers of instances of robbery-in-progress calls for service, in both expected value (baseline) and EWRR cases.

DATA AVAILABLE :
- Baseline: None available.
- EWRR: Four projects explicitly report alarm activation during robberies or within seconds after. By implication, alarm activation corresponds to immediate warning to police. (B-10, -16, -18, -19)*

CONCLUSION : EWRR systems do achieve earlier warning whenever they are activated during robbery.

What is not conclusively established:

1) In what percentage of instances alarms can reasonably be expected while robbery is in progress, in view of cashier reluctance, etc.

2) How many seconds (or minutes) earlier notification to the police is when an alarm is activated during robbery.**

3) How early is practical for a warning to be transmitted.**

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*Coding for projects cited; see Appendix B.

**These questions, while not central to further evaluation of EWRR, nonetheless are important for setting realistic performance goals, once the basic research questions are answered.

FRAMEWORK ELEMENT: Timelier Response

ASSUMPTION : An EWRR system will lead to timelier response by police at the scene of robberies than will conventional operations.

MEASURE : Comparison of instances of police arrival while robbery is in progress for both expected value (baseline) and EWRR cases.

DATA AVAILABLE :
- Baseline: None available.
- EWRR: Eleven projects report response times (from alarm activation until arrival) ranging from 0 to 95 seconds -- when suspects were arrested on scene. (B-1, -2, -4, -5, -7, -9, -11, -12, -16, -17, -18)

CONCLUSION : EWRR projects do, in fact, achieve timelier response; officers apprehend suspects on scene.

What is not conclusively established:

1) In what percentage of instances response can reasonably be expected while robbery is in progress.

2) How much timelier EWRR project response is than conventional operations.*

3) What response time goal (early warning and fast arrival) is acceptable to permit intervention in any given percentage of commercial robberies.*

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*These questions, while not central to further evaluation of EWRR, nonetheless are important for setting realistic performance goals, once the basic research questions are answered.

FRAMEWORK ELEMENT: Increased Apprehensions

ASSUMPTION : An EWRR project will apprehend more robbery suspects on-scene than will conventional operations.

MEASURE : Comparison of on-scene arrest rates in both expected value (baseline) and EWRR cases.

DATA AVAILABLE :

. Baseline: Various overall clearance rates for robbery, otherwise none available for commercial robbery.

. EWRR: Sixteen projects specify numbers of arrests due to EWRR, ranging from 1 to 15, over project periods ranging from 90 days to 3 years or more. (B-1, -4, -5, -6, -7, -8, -9, -10, -11, -12, -16, -17, -18, -19, -20, -21)

CONCLUSION : EWRR clearly permits police to apprehend some robbery suspects during robberies or close to their robbery targets. Since few departments record all valid alarms, it is difficult to estimate the percentage of valid calls for service transmitted by EWRR that lead to arrests. Reports from two communities indicate that the rate may be as high as 75 percent.

What is not conclusively established:

1) The degree of improvement represented by EWRR projects over conventional measures.

2) What rate of apprehension per installation per unit time can reasonably be expected.

FRAMEWORK ELEMENT: Increased Convictions

ASSUMPTION : An EWRR project will lead to a greater rate of conviction for robbery than is permitted by conventional operations.

MEASURE : Comparison of the number of convictions per arrest for both expected value (baseline) and EWRR cases.

DATA AVAILABLE :

. Baseline: None available.

. EWRR: Three projects report conviction rates of between 85 percent and 100 percent as a result of EWRR-related arrests. (B-2, -18, -19)

CONCLUSION : EWRR arrests appear to lead to high conviction rates; however, the evidence is too fragmentary to warrant more than an estimate of the percentage.

What is not conclusively established:

1) How EWRR conviction rates compare with conventional robbery conviction rates.

2) What factors in EWRR arrests and subsequent processing account for differences from the results achieved from the use of normal procedures.

FRAMEWORK ELEMENT: Reduced Incidence of Robbery

ASSUMPTION : An EWRR project will permit fewer robberies in the project area than will conventional police measures.

MEASURE : Comparison of robbery rates for both expected value (baseline) and EWRR cases.

DATA AVAILABLE :

. Baseline: Projects measure and report robbery figures in project area stores for varying periods prior to alarm deployment. None cites post-project statistics.

. EWRR: Four projects report substantial reductions in the robbery rate in project area stores ranging from approximately 65 percent to 80 percent.
(B-1, -2, -20, -21)

CONCLUSION : Some projects seem to observe reductions in robbery of some magnitude.

What is not conclusively established:

1) The magnitude of normal fluctuations in commercial robbery rates for project areas (to establish the contribution attributable to EWRR).

2) Project features that might influence any of the above.

C. EWRR Costs and Effectiveness

Isolating EWRR costs is as difficult as isolating the effects on robbery of projects themselves: annual budgets of the projects surveyed ranged from less than $50,000 to more than $500,000. Analysis of project budgets indicates that the variation is largely attributable to methods of bookkeeping: whether manpower, maintenance, and operating expenses are billed to the EWRR project or not. The EWRR alarm equipment is always billed to the project and frequently accounts for only a minor fraction of the total cost.

1. EWRR Implementation Costs

Answering the two questions: "What does EWRR cost to implement?" and "How do EWRR costs compare to other police anti-robbery operations in terms of productivity?" therefore, depends largely on how departments choose to use the basic EWRR equipment (e.g., full or part-time, dedicated or patrol response force) and the number and dispersion of stores to be covered. Basic EWRR equipment costs range from $700 to $4,000 per location covered. Voice-message alarm transmitters can be purchased singly and used with both patrol and dedicated response forces. Tone-code signal generators require a decoder and usually are integrated into systems that require the purchase of multiples of 10 or 20 alarms. Cost factors that may be associated with the tone-code alarms noted in Section III include monitoring the decoder and the need for relaying low-power alarm signals when the decoder is located beyond a given distance (in some cases, less than a mile) from one or more of the alarms. The alarm switches associated with either type of system range in cost from a few dollars for a bill-clip hard-wired into the alarm transmitter to more than $50 for miniaturized radio transmitters carried by store clerks.

Apart from the alarm equipment costs, which generally ranged between $15,000 and $75,000 in the projects surveyed, EWRR does not involve major, mandatory costs. Projects that budgeted for amounts substantially in excess of the cost of alarm equipment always reflected decisions to add additional manpower to the police department by hiring new recruits, thus replacing the veteran officers who were assigned to the EWRR response force. Each additional officer implies a standard investment for vehicles, communications equipment, accessory equipment and maintenance. Accordingly, the major variable element in the cost of implementing EWRR is the cost associated with additional personnel. Since the situation varies throughout the projects surveyed, no rule-of-thumb assessment of costs can be derived, although it seems appropriate to observe that detailed cost accounting should be an element of individual project evaluation.

2. Assessing EWRR Productivity

Establishing the productivity of EWRR would follow from isolating its costs and the costs of alternative means of accomplishing the goals of earlier warning and timelier response by police. Most often, EWRR is viewed as an alternative to stake-out patrols, in which officers would have remained stationary near to or inside potential robbery targets and they would have achieved early warning by direct observation. Their response would actually have preceded the crime. Stake-out productivity would be measured primarily on increased apprehension. For EWRR, on the other hand, deterrence measured in the form of reduced incidence could also be viewed as an indication of project success. For this reason, some EWRR projects are not entirely comcomparable with stake-outs in terms of productivity.

By the same token, another method of achieving timelier response, saturation patrol (an increase in the patrol force assigned to an area), can serve as an effective deterrent by its sheer presence. It is regarded as a truism that robberies are less likely to occur where the police are highly visible;[2] police can respond quickly to robberies in the patrol area because their vehicle routing scheme permits them to remain close to potential robbery targets a greater percentage of the time than can conventional patrol forces.

Despite these cautionary observations, there remains a common (but as yet undefined) ground for comparing EWRR costs with those of its alternatives: productivity of each versus the level of investment made by departments. This discussion cannot deal with the complex matter of cost evaluation of police service delivery systems, but can only allude to it, since basic questions of terminology and methodology remain unanswered.[3]

D. Other Factors Influencing Project Performance

Earlier references to EWRR project design features (Section III) indicated that some differences in project performance were attributable to differences in design. The field survey of projects revealed also that performance was affected by a variety of other factors commonly associated with the introduction of any innovation in police operations.

Since projects to develop new police crime-reduction measures and integrate them with day-to-day operations follow standard patterns throughout the nation -- especially where LEAA funding is involved -- a convenient framework for structuring the factors influencing project performance is available. The following identifies the project phases common to virtually all departments and the type of factors associated with each.

Needs Statement - the phase in which departments identify the need for robbery countermeasures and decide on the EWRR approach. The principal problem reported was incomplete definition of needs, which subsequently accounted for some reduction in operating efficiency.

Grant Processing - the period between first submission and final approval. Delays are reported at every level from municipal to federal.

Procurement - the period from bid solicitation until equipment is delivered and operating. Problems arise with vendors and the choice of equipment, partly as a result of police unfamiliarity with what is needed.

[2] Recent controversy regarding the Kansas City experience with patrol effectiveness suggests the question requires further investigation.

[3] An illuminating discussion of the issues is found in Opportunities for Improving Productivity in Police Services (Report of the Advisory Group on Productivity in Law Enforcement; Washington, D.C.: National Commission on Productivity, 1973), Chapters 1-3. See also, Philip S. Schaenman, et al., Measuring Police-Crime Control Productivity, Volume III, The Challenge of Productivity Diversity Improving Local Government Productivity Measurement and Evaluation, (NTIS PB 223117) (Washington, D.C.: The Urban Institute, 1972).

Field Operations - the period during which the project is fully operational -- tactical units are deployed, alarms are installed and procedures for incorporating EWRR operations in the department routine have been developed. Performance-influencing factors are associated with personnel, intra-department liaison, storeowners and clerks, the civilian community, equipment and project management.

Project Monitoring and Regulation - the phase or phases during which project managers adjust or change project designs to make them more responsive. Some departments find themselves constrained by commitments made at the inception.

Evaluation - the phase in which judgments are made regarding overall project performance. Many departments find that their evaluation designs are insufficient to support a conclusion. Many are unaware that this is so.

Exhibit VI-1 arrays the factors that seemed to influence project performance, according to the project phase during which they were encountered. No attempt has been made to identify every conceivable factor, only those reported during the survey.

PROJECT PHASE	FACTOR	IMPACT REPORTED	SOLUTION	COMMENT
Needs Statement	Incomplete needs definition regarding: • personnel • vehicles • accessories	Reduced flexibility, costlier program	1. Allocation of funds for reserve 2. Including a design for a problem-solving mechanism	Defining community needs in a way that supports EWRR as a workable solution is crucial, both for the decision-maker reviewing proposals and the evaluator determining how effectively the project operates.
Grant Processing	Delays from processing	Late project start that leads to partial fulfillment	More realistic goal statements that anticipate the possibility of delays	Statutory requirements that call for careful review of grant applications as well as the workloads of State Planning Agencies, Regional offices and LEAA are a fact of life that makes lengthy processing inevitable.
Procurement	Delays in vendor supply	Late project start	1. Revision of schedule 2. Phased project schedule	Off-the-shelf, proven equipment can be procured in a matter of weeks. By definition, developmental equipment is unproven - anticipating the time needed to make it routinely operational is virtually impossible. Several projects report that delays in procurement, while equipment was being developed, required grant period extensions of as much as a year.
	Inappropriate selection of equipment due to budgetary or administrative constraints	Reduced effectiveness	See comment	In some departments, procurement is a function of a city-wide service agency that may not fully understand police department requirements.
Field Operations	"Super-cop" Syndrome	Poor coordination with other department elements leading to morale problems and missed opportunities for successful apprehension	1. Incorporation of tactical unit into regular force 2. Frequent orientation of regular force regarding tactical unit role 3. Strict discipline in tactical unit to prevent "Super-cop" attitude 4. Dissemination of information developed by tactical unit to other department elements (i.e., "share the wealth and credit for performance")	This problem is encountered in virtually all organizations. Resolution usually calls for some tradeoff.
	Isolation from investigative, intelligence and crime analysis information	Inadequate target prediction, indicated by few valid alarms	1. Assignment of project to management level senior enough to mandate access 2. Assignment to detective unit 3. Aggressive development of contacts and information sources	Several departments report that access to good information -- especially intelligence material and pattern analysis -- was crucial.

EXHIBIT VI-1 -- FACTORS INFLUENCING PROJECT PERFORMANCE

PROJECT PHASE	FACTOR	IMPACT REPORTED	SOLUTION	COMMENTS
Field Operations (Continued)	Officer boredom on stakeout patrol	High personnel turnover rate, reduced unit efficiency	1. Assignment of officers experienced in stakeouts 2. Rotation of personnel in a variety of assignments 3. Intensive orientation in unit goals and performance	Many departments choose young, action-oriented officers for tactical duty, anticipating a high level of activity. It may be that such selection standards should be revised in the light of project experience.
	Clerk-initiated false alarms	Compromised covertness from frequent reappearances at the sites of alarms - indicated by lack of valid alarms	Vigorous follow-up, including clerk training, improved alarm switch installation and threats to remove alarms if false alarms continue	Many departments report the weakest link in the system -- and one that lies outside police control -- is the store clerk/cashier responsible for activating the alarm during robbery and for keeping the fact of the alarm's presence a secret. That factor, coupled with the extreme difficulty encountered by many departments in maintaining the desired degree of covertness, indicates that deterrence could be considered a legitimate alternative to the conventional project objective of increased apprehensions and conviction and could be used as a measure of project effectiveness.
	Clerk/storeowner disclosure of alarm installation	Compromised covertness indicated by lack of valid alarms in frequently robbed stores	1. Vigorous follow-up (as above) 2. Clerk screening 3. Secret installation and arming of alarms	
	Clerk failure to activate alarm in time to bring police intervention	Missed opportunities for apprehension	1. Clerk training 2. Reliance on passive alarm switches (primarily "last-bill" clips) instead of hold-up buttons	
	Detection of unit operation by target area population (including criminal element)	Compromised covertness indicated by reduced incidence of robbery in target area accompanied by corresponding decrease in apprehensions	1. Intensive application of undercover operations procedures -- civilianized cars, officers and patrol patterns, etc. 2. Changes in alarm response procedures to maintain covertness -- silent approach, discreet intervention on scene	
	Response time too long to achieve on-scene arrest	Missed opportunity to arrest	1. Vigorous application of deployment procedures 2. Less dispersion among targeted premises 3. Clerk training	Departments with very short response time report that suspects occasionally escape even when all other conditions are favorable. A 100% apprehension rate is probably an impossibility.
	Alarm system failure due to breakdown in central receiving equipment	EWRR component of project suspended	1. Procurement of back-up equipment 2. System redesign around equipment capable of monitoring via standard police radio	Several departments use voice-message alarms transmitting coded or plain text signals (including one project whose alarm broadcasts a simulated exchange between a dispatcher and a patrol car -- in the exchange is a number code indicating the activated alarm) over the police dispatch channel. Where coded, the purpose is to maintain operational covertness from conventional patrol and others; where plain

(CONTINUED ON NEXT PAGE)

EXHIBIT VI-1 -- FACTORS INFLUENCING PROJECT PERFORMANCE (CONTINUED)

PROJECT PHASE	FACTOR	IMPACT REPORTED	COUNTER	COMMENTS
Field Operations (Continued)				test, the purpose is to alert all police sources in the vicinity, including detectives, traffic officers, etc.
Project Monitoring and Regulation	Inability to change project design due to rigid construction and conditions of grants	Reduced responsiveness and effectiveness of project indicated by few valid alarms, co-scene apprehensions	1. Assignment of project to management level senior enough to cause change in project design or allocate additional resources 2. Provision for change in project proposal	This problem is a common one: departments put themselves in binds by proposing unrealistic objectives or by simultaneously making commitments and specifying constraints that cancel one another out. One solution appears to be development of a senior-level planning and research level function that can monitor project progress through the developmental stage until operations become routine. Memphis, for one, has reported success in this area.
Evaluation	Mis-statement of project goals	Failure to meet project goals	Reconsideration of goals	Conservative project goals are probably most realistic.
	Insufficient data collection	Inability to evaluate project	Careful evaluation design, including pre- and post-implementation data collection and analysis	See individual project evaluation design.

EXHIBIT VI-1 — FACTORS INFLUENCING PROJECT PERFORMANCE (CONCLUDED)

SECTION VII

STRATEGIES FOR PHASE II EVALUATION OF EWRR

A. The Need for Further Research

The field survey and assessment of what is known about EWRR projects indicates that four major questions remain to be answered:

- Is EWRR generally applicable to robbery problems across the country, or are local conditions so influential on project success that no conclusions can be drawn regarding its applicability?
- Is EWRR a good investment: is it a cost-effective tool to use against robbery?
- What design features are associated with project success?
- What level of performance can be expected from projects, especially in terms of the impact on robbery incidence?

The unavailability of answers to these questions means that decision-makers at every level of involvement with EWRR must operate in a vacuum when they are considering implementing a project in a community. The object of further research would be to answer these questions with sufficient accuracy to permit more informed decisions to be made regarding project implementation than is now possible. A second and perhaps even more compelling reason for further research is the level of investment currently associated with EWRR projects. Eight recent EWRR projects whose costs can be determined with some confidence ranged in annual budget from just over $100,000 to just under $630,000 with five of the eight between $100,000 and $200,000 per year. An estimated total of 50 EWRR-related projects across the country would indicate that a projected total of perhaps $8 million is spent annually (based on an extrapolation from grant application percentages, as much as half of the projected total is federal funds). Viewed in this light, establishing the success possible with the concept becomes an urgent matter: how much more robbery reduction using early-warning silent-alarm equipment can be achieved if project performance is improved as a result of systematic research?

Potential benefits from further research seem available in four areas:

Set-up costs: Guidance from Phase II evaluation could save police departments money by focusing on proven project features--permitting projects to avoid costly experimentation ("reinventing the wheel").

Set-up time: Phase II results could allow departments to field workable projects sooner. If, for instance, 10 new projects* funded at $150,000 each for a year

*Ten new projects per year is derived from the observation that roughly 50 projects have been established during the past five years.

were to use Phase II findings to reduce their "shake-down" times from three months to one month, a total benefit of $250,000 could be realized (i.e., [$150,000 per project per year] ÷ [12 months] x [10 projects] x [2 months]. This benefit could also be expressed as a lower cost per operational month; however, the saving would be the same.)

Project effectiveness: Identifying effective combinations of project features can lead to EWRR projects that are more productive in terms of basic goals of apprehension and deterrence.

Cost Baseline: Phase II should permit judgments to be made regarding appropriate levels of expenditure for EWRR projects. Savings could be realized both in projects that are too small to be effective and in projects that have planned for a higher a cost level than is warranted.

To illustrate: if furth research leads to an improvement of as little as 10 percent -- expressed as an increase of 10 percent in apprehensions and reduced incidence or a decrease of 10 percent in expenditures, while maintaining current performance levels, or a combination of the two -- then a Phase II evaluation costing, say, $500,000 would be justified by improvements occurring within the first year.

What is called for, then, is a research program that will collect and systematically analyze essential data from enough projects to warrant general confidence in the findings. The object is to provide reasonably reliable cost and performance guidelines for making decisions about EWRR projects.

B. Criticality of Information Required

The criticality of information required for each of the three decision-making levels involved in EWRR varies with the use each will make of it. Accordingly, a minimal goal for Phase II research is to satisfy information needs of each level for the essential decisions each of them must make. This observation suggests a functional criterion of criticality that can be used (1) to isolate critical needs, and (2) to avoid developing information that does not support an essential decision, or that may be too expensive to undertake.

The following paragraphs consider each of the four major EWRR questions listed on the previous page in the light of the information needs of the various users.

1. Applicability of the Concept

It is conceivable that successful EWRR projects -- however the term "success" is defined -- may owe their performance to unique local conditions (e.g., unusually qualified leadership, peculiar road configurations, etc.). Or it may be that a substantial portion of communities with serious robbery problems cannot employ the concept because local conditions preclude successful operation. For the national and state level official, this is the most critical information need that is identifiable. Simply put, these officials must know when EWRR should work and when it probably would not. The police chief or local official also needs to know about EWRR applicability, but only to the extent that the approach is suitable for his community.

It does not appear that information required by the EWRR project leader would enlarge the scope of the inquiry into the applicability of the concept.

Determining how generally applicable EWRR is will involve establishing the conditions under which the approach appears to work or not work and then concluding that, where the same conditions exist elsewhere, the performance of EWRR is likely to be similar. The phrasing of such a conclusion is deliberately cautious in order to avoid the trap of unfounded generalizing. It would be fallacious, for instance, to conclude, "EWRR is applicable in 80 percent of all cities with populations larger than 50,000," unless Phase II research were structured to establish how many such cities had EWRR-compatible conditions. On the other hand, a conclusion that states, "EWRR appears to be effective in locales where road and traffic conditions permit officers to answer robbery alarms activated while the crime is in progress in under 45 seconds," would be legitimate if evidence to support it were found in enough cities.

Establishing the general applicability of the EWRR approach would call for demonstrations that project performance levels are reasonably independent of local conditions. A two-step method would be required: (1) analysis of EWRR project operations under varying conditions to determine whether local conditions inhibit or contribute to performance; and (2) description of the general local conditions under which EWRR is judged to be successful.

2. EWRR Cost Effectiveness

Determining how much EWRR costs the police departments that use it is of vital interest to both state/national and local-level officials, who must justify the level of investment the approach involves. The national official must know the cost range for workable projects in order to assess applications for funds from local communities. The local official must know what costs to plan for in operating an effective EWRR project and how these costs compare with those associated with alternate approaches to robbery control. For the project manager, cost information would be of secondary importance -- his involvement would primarily concern cost reporting and control.

The principal difficulty with cost data made available during the field survey was its imprecision regarding EWRR-costs and the lack of cost-comparison information regarding other police operation. Thus the characteristic costs-per-robbery apprehension for detective units, intensive and saturation patrol, stake-outs and for EWRR remain to be established.

The method for establishing costs in EWRR projects would be straightforward, essentially involving only careful cost identification that could be achieved by review of departmental budget figures and by analysis of the portion of the budget represented by such department activity. It would require initial policy decisions as to what elements to include as EWRR costs and what to attribute to normal policing. Typical data elements would be total dollars budgeted for robbery investigation, number of robberies cleared, patrol manhours devoted to robbery calls, EWRR manhours, EWRR-related clearances, etc. Subsequent cost analysis would permit identification of the cost-per-outcome for both EWRR and alternate department operations against robbery.

3. Critical Project Design Features

Analysis of the field survey results identified two major questions about the design of EWRR projects of interest to all decision-making levels: "What policy and design decisions are most consequential, insofar as project outcome is concerned?" and "What combinations of project policy and design features are most productive?" Both questions rest on the assumption that variations in project performance are attributable to differences in design and policy, and that specific decisions are likely to result in expectable outcomes in a majority of cases.

Selecting critical project features will require further research to establish a complete list. It is known that some critical choices are project covertness, information available in support of alarm placement and use of a dedicated or patrol response force. It remains to be determined whether such features as equipment choice and field operation tactics are critically impactive.

Determining the influence of project design feature combinations would consist of comparing the performance levels and outcomes of each combination to establish the most successful. The method is similar to conventional statistical factor analysis, where the yields of various "treatments" or combinations of factors are examined under controlled conditions to determine both the significant types of factors and the more (or most) impactive choice for each type. In examining the variety of EWRR project design features, a realistic constraint lies in the likelihood (judged to be small) that sufficient variation will exist to satisfy the requirements of a pure factorial design. A second constraint is found in the sheer number of treatments possible. If only four critical factors were identified and they existed in only two forms each, 16 (i.e., 2^4) different project combinations would be required -- one-third of all existing projects. It appears, however, that some combinations do not exist (cf. Exhibit III-4), hence an accommodation between statistical rigor and operation-oriented judgment is required.

4. EWRR Performance Levels

Establishing what can be expected from EWRR is fundamental to assessing its potential value in any community and to monitoring a project's performance when it is fully operational. Accordingly, all three levels of officials are concerned. The state/national level must know the range of reduced incidence that successful EWRR projects can achieve in order to gauge the relative merits of alternative grant requests. The police chief or local official must know

the likely return on his EWRR investment in terms of reduced incidence so that he might determine an adequate "mix" of law enforcement strategies in his community. The project manager must know how successfully his project can perform in terms of earlier warning, timelier response, apprehensions, prosecutions/convictions and incidence trends in order to identify problems that can be solved by reallocation of resources.

a. Early Warning and Timely Response

The method for researching performance levels would consist essentially of careful measurement in a selected sample of project communities -- using data drawn from before and after EWRR implementation -- to identify the changes introduced by the concept. Measurement in this area should be precise -- especially in view of the difficulty of reliably establishing the degree of reduced incidence. Thus, Early Warning and Timely Response should be measured under a sufficient variety of operating conditions to warrant an acceptable level of confidence that performance levels would be achieved almost anywhere, given reasonable care in project design. Typical data elements would be instances that projects achieve -- or fail to achieve -- early warning of, and timely response to, robberies in progress.

b. Increased Apprehensions

Increased apprehensions should be viewed against the background of both pre-project performance (to establish the absolute numbers of increased arrests) and early warning/timely response opportunities to arrest. A related data element would be other robbery arrests made by EWRR project personnel that result from their presence in robbery-prone locations and not directly from alarm activation during robbery. The measurement period should be relatively long to allow for fluctuations in robbery incidence and for meaningful comparison with pre-project performance.

c. Increased Convictions

Measuring increases in convictions due to EWRR presents an especially difficult problem. The review process that can lead to a trial or other disposition of a case can be influenced by factors entirely beyond the control of the police. Instances of suspects "jumping" bail, for example, are common enough to suggest that other measures may be needed in order to establish the post-arrest success of EWRR projects. A further complication is the delay involved in judicial case handling -- which can mean as much as six to nine months between arrest and trial in non-Federal cases. As a consequence, data collection to support assessment of EWRR-related convictions must permit Phase II research to identify the causes of trial delays or non-trial dispositions of all robbery clearances that coincide with positive judicial review of robbery cases. Thus, where outside factors account for a significant percentage of non-prosecutions or other case dispositions, performance could be indicated by tabulating the number of robbery cases that survive the first judicial review.

d. Reduced Incidence

The outcome measure for EWRR, reduced incidence, also requires careful measurement and control to account for fluctuations in robbery rates that are

attributable to arbitrarily chosen time periods and shifting geographical boundaries. While further exploration of the implications of this observation is in order, it is sufficient to say in outlining a prospectus for Phase II, that establishing a reduction in incidence may call for time series analysis of data (i.e., robberies) collected from several neighboring jurisdictions where it appears that the robbery is an area-wide problem.

Exhibits VII-1 and VII-2 summarize the information needs of the three EWRR decision levels and the research program that can satisfy those needs.

C. Phase II Research Options

Satisfying the needs outlined in the preceding pages can be handled in three ways: (1) an intensive review of existing data in EWRR project cities, (2) generation of new data via an augmentation of existing projects, or (3) creation of and controlled experimentation with new EWRR projects. Each of these three strategies can be related to a cost figure and potential yield. Details are given in the following paragraphs. (Exhibit VII-3 shows the potential yields for each option.)

1. Option 1: Historical File Review

Searching and analyzing the records of existing EWRR projects would tend to cover the same ground as the Phase I Investigation, except that the review would be considerably more thorough and more extensive. Teams of two or three researchers would spend three to six weeks in each of a number of communities examining the files available from the EWRR project and related materials in the police department, prosecutor's office and, where appropriate, court records office. The object would be to establish, after-the-fact, the conditions under which each project operated, its cost and design features, and how each performed according to the criteria in the assessment framework.

The time required for searching files and analyzing the results in, say, 10 EWRR project communities would probably total between 12 and 15 months and would cost approximately $250,000.

Under ideal conditions, the requisite variety of projects would have comprehensive,consistent file information that would provide satisfactory answers to all of the major research questions.

2. Option 2: Planned Variation Data Collection

The second strategy would select a variety of perhaps 10 current, on-going projects and add to them a data collection and evaluation element to provide a consistent body of current information. Some in-depth file and record research would also be necessary to obtain baseline data for expected-value projections. A team of three researchers would be needed. Less initial time than for Option 1 would be needed in each community, but follow-up visits would be required for problem-solving and for coordinating selected modifications to certain projects in the interest of varying their designs and measuring the results. A period of between 18 and 21 months would be needed with costs somewhat higher than for the anamnestic file search: between $275,000 and $300,000 on the low end and $320,000 and $350,000 on the high end. Some portion of the project cost would be used in support of project data collection and design modification.

RESEARCH AREA	STATE/NATIONAL LEVEL	LOCAL OFFICIAL	PROJECT MANAGEMENT
EWRR Applicability	Range of community conditions under which EWRR is successful	Applicability of EWRR to local conditions	Same as local official
EWRR Cost/ Effectiveness	Cost ranges of various EWRR configurations	Costs to anticipate for EWRR vs. alternatives	Same as local official
EWRR Design Features	Combinations of features associated with EWRR success	Probable applicability of chosen project configuration to local community	Same as local official
EWRR Performance			
1. Reduced Incidence	Ranges of performance associated with costs, configurations	Performance to expect from chosen project	NA
2. Increased Arrest	"	NA	Arrest rate to expect from project
3. Earlier Warning	"	NA	Valid alarm rate to expect from projects
4. Timelier Response	"	NA	Timely response rate to expect from project
5. Increased Convictions/ Prosecutions	"	NA	Successful case disposition rate to expect from project

EXHIBIT VII-1 -- CRITICAL INFORMATION NEEDS OF EWRR DECISION MAKERS

RESEARCH AREA	DEGREE OF PRECISION REQUIRED	TYPICAL DATA ELEMENTS	ANALYTIC METHODS
EWRR Applicability	Moderate-to-low	. Similarities among communities where EWRR is successful . Specific conditions that inhibit performance	Judgmental assessment
EWRR Cost/ Effectiveness	Moderate-to-high	. Robbery Investigation/yr. . Robberies cleared/yr. . Patrol robbery call manhours/yr. . EWRR manhours/yr.	Cost accounting
EWRR Design Features	High	. Type of project feature . Operational time period/feature/yr. . Associated outcomes	Factor analysis
EWRR Performance 1. Reduced Incidence	High	. Numbers of Robberies in participating stores pre- and post-implementation	Analysis of variance, standard statistical comparison
2. Increased Arrest	High	. Numbers of apprehension opportunities/ city/year . Number of arrests/ city/year	"
3. Earlier Warning	High	. Numbers of valid alarm activations/ city/year	"
4. Timelier Response	High	. Numbers of actual on-scene arrivals/ city/year	"
5. Increased Convictions/ Prosecutions	High	. Numbers and types of robbery case disposition/city/year . Numbers of EWRR dispositions	"

EXHIBIT VII-2 -- PHASE II EWRR RESEARCH PROGRAM OUTLINE

RESEARCH AREA	OPTION 1 HISTORICAL FILE REVIEW	OPTION 2 PLANNED VARIATION	OPTION 3 EXPERIMENTATION
EWRR Applicability	Moderate to high - sufficient file data must be found in an acceptable variety of project operating conditions	High yield - sample size should show broad range of conditions in which EWRR is used	Moderate to low yield - project conditions in two cities studied might not encompass range found in wider selection
EWRR Cost/ Effectiveness	Moderate to high - cost data may not be traceable in some departments	High - data collection instrument would be used for cost identification	High yield - all costs associated with EWRR and other robbery programs could be planned and reported
EWRR Design Features	Moderate to low - sufficient file data must be found for an acceptable variety of project treatments	High - cities are to be selected on the basis of project treatment variety; alternate design features can be tried	Moderate to high yield - analysis of controlled variations could show impact of design patterns "purely." One drawback: project "treatments" would be in effect for relatively short periods (e.g., 3 months), making long-term impact difficult to measure.
EWRR Performance 1. Reduced Incidence	Moderate - Robbery rate before and after implementation may be retrievable from files	High - data collection instrument would concentrate on these performance areas	High yield - measurements could be made with greater precision
2. Increased Arrest	Moderate - arrest rate before and after implementation may be retrievable from files	"	"
3. Earlier Warning	Low - all instances of robbery warning involving EWRR may not be recorded	"	"
4. Timelier Response	Low - all instances of robbery response involving EWRR may not be recorded.	"	"
5. Increased Convictions/ Prosecutions	Moderate - case histories should be traceable for both EWRR and conventional operations	"	"

EXHIBIT VII-3 -- POTENTIAL PHASE II RESEARCH STRATEGY YIELDS

The yield from this strategy would be considerably more reliable and comprehensive than for Option 1. It offers a fairly broad base for comparison of project performance and allows researchers to test the effects of design variations at reasonable cost. It is highly dependent, however, on the cooperation of participating departments.

3. Option 3: Controlled Experimentation

The third major research strategy would be to create one or two EWRR projects in cities that are not now using them, with the object of carefully measuring the impact of variations in project design and operation. Three researchers would be required; but greatest expense would lie in establishing the projects. The time required would lie between 21 and 24 months for project set-up, operation and analysis. Total cost would be between $600,000 and $1,000,000.

The yield from this third strategy could be high, provided the cities selected were adequately representative of other candidate EWRR cities around the nation. Data collected would be precise, but it is not clear that the level of precision attainable is needed for decision-making.

D. Considerations Governing a Selection of Options

While any of the three research options can, under ideal conditions, provide answers to the critical questions regarding EWRR, a realistic appraisal of the situation obtaining in police departments already surveyed seems to rule out two of them.

Option 1, which is essentially a more elaborate version of Phase I, is dependent on the availability of comprehensive, consistent, and comparable records in projects that are sufficiently varied to demonstrate the relative effectiveness of different design features. There was no evidence gathered during the field survey to indicate that a detailed search of records would provide such a range of data. It appears, in fact, that departments virtually never collect research data, unless it coincides with operating report requirements. Accordingly, Option 1 seems likely to be unproductive.

By the same token, Option 3 is disadvantageous because of its limited size. Despite the accuracy of the findings possible with controlled experimentation, it appears risky to draw general conclusions from so small a sample of communities at so high a cost.

A second factor is cost: unless it can be demonstrated that a saving in excess of the $600,000 to $1,000,000 estimated for Option 3 can be achieved, it is too expensive for consideration for Phase II.

In contrast with Options 1 and 3, research Option 2 seems to take the reality of police operational conditions into account. It assumes that the existing variety of project design feature combinations and the willingness of departments to cooperate in return for assistance in project evaluation will provide a climate for fruitful research. Of the three, Option 2 appears to be the most feasible and the most productive.

E. Recommendations

On the basis of the evident need for further decision-making information about EWRR as an approach to robbery control, two recommendations are offered:

1. Phase II research should be undertaken to ascertain conclusively the applicability, cost-effectiveness, optimal designs, and performance of EWRR projects.

2. Research Option 2, a planned variation data collection and analysis, should be selected to provide a number of projects with data collection capability to enable measurement of project performance and evaluation of the effects of variations in project design features.

A detailed Statement of Work to carry out these recommendations lies outside the scope of this study; however, at a minimum it should specify activities in the following areas:

- Community nomination, screening, negotiation and selection
- Data collection design for evaluation
- Data collection and analysis by the Phase II contractor
- Feedback to EWRR projects
- Project variation (where warranted and where feasible)
- Final report, revision of individual project evaluation design.

SELECTED BIBLIOGRAPHY

No attempt has been made to provide an exhaustive listing of literature relevant to robbery, robbery control, or evaluation of public programs. Rather, the intent has been to identify work that is readily available to the broadest range of users. Readers wishing to pursue any of these subjects in depth may consult the bibliographies cited in some of the entries below. Another source is Wolfgang, Marvin E., et al. Criminology Index. 2 vols. New York: Elsevier Publishing Co., 1975.

Bottoms, Albert M. Police Tactics Against Robbery, Final Report (Pilot Grant NI 70-065-PG-2). Washington, D.C.: Law Enforcement Assistance Administration, August 1971.

A proposal for modified tactics, this report examines aspects of the robbery situation in the Washington, D.C., Police Department, Special Operations Division, with an eye to applying lessons learned in the Chicago Police Department exploration of operations research techniques. It contains statistical data and after-action reports as a context for innovative countermeasures that might be applied to robbery.

Budnick, Frank S. An Examination of the Impact of Intensive Police Patrol Activities (NI 71-114-PG). University of Rhode Island, undated.

This study of intensive patrol in the Washington, D.C., Metropolitan Police Department for a three-month period in 1970 is one of a number that should be reviewed in any investigation of countermeasures to robbery.

Bunn, Verne A. "Business Management for Crime Prevention, II. Robbery," in Combating Crime Against Small Business, edited by Richard S. Post. Springfield, Illinois: Charles C. Thomas, 1972, pp. 49-54.

Bunn outlines the general preventive measures a businessman should take in dealing with robbery.

Camp, George M. Nothing to Lose: A Study of Bank Robbery in America (Ph.D. Dissertation, Yale University, 1968). Ann Arbor, Michigan: University Microfilms, 1973.

This is an important study of a highly publicized form of commercial robbery. From the standpoint of EWRR investigation, it is most valuable in highlighting the differences between bank robbers and other types of robbers.

Carper, R. S., and Roth, S. H. A Review of the Tampa STAVS Operation: An Anti-Robbery Alarm System (MTR-6730). Washington, D.C.: The MITRE Corporation, July 1974.

An after-the-fact review of the STAVS program, this report is useful for its detailed presentation of the conduct of a convenience-store robbery, showing typical actions of participants along a time line.

Chleboun, T. P., and Duvall, K. M. An Evaluation of Small Business and Residential Alarm Systems. 2 vols. (J-LEAA-003072, Report M-1442) Mountain View, California: GTE Sylvania Incorporated, Security Systems Department, June 1972.

This report is a survey and assessment of alarm systems used in the reduction of burglary, robbery and related crimes. It is of peripheral interest insofar as robbery reduction is concerned; however, it does offer a methodology for comparative system evaluation.

Clift, Raymond E. A Guide to Modern Police Thinking. Third edition. Cincinnati: The W. H. Anderson Co., 1970.

A standard text, this book is a good introduction to police work in general. It contains a guide to further reading for each of its subject headings.

Conklin, John E. Robbery and the Criminal Justice System. Philadelphia: J. B. Lippincott Co., 1972.

This is a very useful examination of robbery and the community and criminal justice system response to it. It is notable for its succinct presentation of robbery-related issues and for its citation of important recent studies of robbery. It is perhaps the first book to consult for the reader seeking to learn what is known about robbery.

Einstadter, Werner J. Armed Robbery: A Career Study in Perspective (Ph.D. Dissertation, University of Califronia, 1967). Ann Arbor, Michigan: University Microfilms, 1973.

A selective review of the phenomenon of robbery that studied 25 Caucasian males "who were felt to be most representative of the systematic robber and consequently more knowledgeable about robbery and, what might be termed, the dynamics of the robbing process" (p. 38). This dissertation offers a more detailed breakout of robbery loss rates than do the general statistics.

Kelley, Clarence M. Uniform Crime Reports for the United States: --1973. Washington, D.C.: U.S. Department of Justice, Federal Bureau of Investigation, 1974.

The UCR is the standard reference for crime statistics in the United States.

Kelley, Clarence M. Uniform Crime Reports (1974 Preliminary Annual Release). Washington, D.C.: U.S. Department of Justice, Federal Bureau of Investigation, March 31. 1975.

This three-page press release previews findings of the UCR 1974 issued in late 1975.

Law Enforcement Assistance Administration. The Report of the LEAA Evaluation Policy Task Force. Washington, D.C.: U.S. Department of Justice, March 1974.

This is one of the basic documents that outline LEAA evaluation objectives. It presents preliminary details of the "Knowledge" National Evaluation Program.

Maltz, Michael D. Evaluation of Crime Control Programs. (Stock No. 2700-00163) Washington, D.C.: U.S. Government Printing Office, April 1972.

This study describes methodology for evaluating projects to control crime. It should be used together with David Stanley's report for the Brookings Institution, below. The footnotes offer valuable guidance for further reading.

Mannhein, Hermann. Comparative Criminology. Boston: Houghton Mifflin Co., 1965, reprinted 1967.

This is a survey of European and American criminological theory that identifies and attempts to set in perspective virtually the entire body of modern study of the subject. It is an indispensable text for any reader wishing to review alternate approaches to the problem of crime. The subjects of commercial robbery and countermeasures to it are not, however, dealt with directly.

National Advisory Commission on Criminal Justice Standards and Goals. Police. Washington, D.C.: 1973.

This report is one of the Standards and Goals series published by the National Advisory Commission. It is important reading for any review of contemporary police operations.

National Crime Prevention Institute, School of Police Administration, University of Louisville. False Alarm Study. (LEAA Grant #72-DF-99-0009; No date).

This report focuses on penalties and legal sanctions as devices for controlling false alarm rates in commercial establishments in the few communities that have taken such measures. The EWRR project designer should consult it to examine alternative approaches to reducing cashier-originated false alarms.

National Criminal Justice Information and Statistics Service, Law Enforcement Assistance Administration. Crime in Eight American Cities, Advance Report. Washington, D.C.: U.S. Department of Justice, 1974.

A victimization study, this report presents results of a sample survey taken in the summer and fall of 1972. It is a useful supplement to police-derived statistics that can assist researchers in estimating the magnitude of unreported crime.

National Criminal Justice Information and Statistics Service, Law Enforcement Assistance Administration. Crime in the Nation's Five Largest Cities: Advance Report. Washington, D. C.: U.S. Department of Justice, April 1974.

This is another victimization study conducted by sampling households and commercial establishments in selected cities. It attempts to establish the level of discrepancies from official records represented by unreported crime.

Nichols, John F. Final Report, Development of Electronic Robbery Stake-out Alarm System. (LEAA Grant 69-DF-006; unpublished, available through NCJRS.)

This report details the design, development and operation of the SEAR (Selective Enforcement Against Robbery) EWRR program in Detroit. It is a valuable case study for other jurisdictions to use in anticipating operational problems.

Normandeau, Andre. Trends and Patterns in Crimes of Robbery (Ph.D. Dissertation, University of Pennsylvania, 1968.) Ann Arbor, Michigan: University Microfilms, 1973.

This is a major contribution to recent research into robbery. Focusing on Philadelphia, the study is representative of the "typological" category of investigation. It is additionally valuable as a guide to the literature.

O'Neill, William P. "Security Camera in a Crime Prevention Program," Law and Order, April 1975, pp. 46-49.

Captain O'Neill summarizes the experience of his department (Wilmington, Delaware) with a Special Operations Unit that employs a silent alarm coupled with a motion-picture camera in an anti-robbery role.

Peak, Kenneth J. "Grantsmanship: A Necessary Addendum to the Police Administrator's Workload," The Police Chief, April 1975, pp. 52-53.

The article is a brief review of the steps needed to obtain grants.

Rae, Richard F. "Crime Statistics -- Science or Mythology," The Police Chief, January 1975, pp. 72-73.

Lieutenant Rae (Chicago Police Department) offers a brief review of the history and interpretation problems of UCR data.

Reckless, Walter C. American Criminology: New Directions. New York: Appleton-Century-Crofts, 1973.

This study of the perpetrator of crime and his behavior in the context of the criminal justice system as an operating process with inputs and outputs reflects "new directions or new pathways of study and research" (p. v). It is a more advanced text than the general surveys included in this listing, with frequent citation of testing methodology, research findings, and data collection instruments currently in use. It is intended for the reader interested in broadening his familiarity with current criminological literature. It does not deal extensively with robbery reduction.

Sagalyn, Arnold. The Crime of Robbery in the United States (NILE&CJ, ICR-71-1 Washington, D.C.: January 1971.)

A review of five years' previous research into robbery, this is a useful overview of earlier literature.

Sellin, Thorsten, and Wolfgang, Marvin E. The Measurement of Delinquency. New York: John Wiley & Sons., 1964.

This study presents details of the Sellin-Wolfgang index of the seriousness of various crimes. It is an essential work for any reader examining alternate approaches to defining the threat of crime to social order.

Stanley, David T. Evaluating Progress in Criminal Justice: A Report to the Law Enforcement Assistance Administration. (Grant NI 71-150-G) Washington, D.C.: The Brookings Institution, April 1972.

This study deals with the problem of performance evaluation in the LEAA context that offers valuable insights to designing project evaluations. It contains an excellent annotated bibliography prepared by Susan W. Mull.

Sutherland, Edwin H., and Cressey, Donald R. Criminology. 8th ed., revised. Philadelphia: J. B. Lippincott Co., 1970.

This standard text, a classic in the field, serves equally well as a basic introduction to criminology and as a comprehensive review of issues in society's response to crime. It contains a valuable guide to recent literature, although readers may wish to consult the fifth edition as well for a broader range of listings.

Weber, Thad L. Alarm Systems and Theft Prevention. Los Angeles: Security World Publishing Co., Inc., 1973.

This broad survey of burglary alarms is intended for the lay reader. One chapter concerns robbery hold-up alarms.

Wholey, Joseph S., et al. Federal Evaluation Policy -- Analyzing the Effects of Public Programs. Washington, D.C.: The Urban Institute, 1970.

This is one of the basic modern studies of evaluation in government social programs. It outlines the issues involved in program evaluation and offers a set of recommendations for program revision.

ADDITIONAL DOCUMENTS

Fosler, Scott, et al., Report of the Advisory Group on Productivity in Law Enforcement on Opportunities for Improving Productivity in Police Services. Washington, D.C.: National Commission on Productivity (NCP73013), 1973.

Kelley, Clarence M., Uniform Crime Reports for the United States 1974. Washington, D.C.: U. S. Department of Justice, Federal Bureau of Investigation, November 1975.

Lerner, William. County and City Data Book 1972 (U. S. Department of Commerce, Bureau of the Census) Washington, D.C.: Superintendent of Documents, U. S. Government Printing Office (Library of Congress Card No. 52-4576), March 1973.

Ward, Richard H., et al. Police Robbery Control Manual (Prescriptive Package) (LEAA Grant Number 73-TA-99-1006). Washington, D.C.: Superintendent of Documents, U.S. Government Printing Office (Stock Number 027-000-00316-8), April 1975.

APPENDIX B

EWRR PROJECT SYNOPSES

In the EWRR Project Synopses that follow, community population figures were obtained from the County and City Data Book, 1972, issued by the U. S. Bureau of the Census based on the 1970 Census. Other Community Characteristics data are from the 1974 Uniform Crime Reports issued by the Federal Bureau of Investigation.

Minor inconsistencies that may appear in dollar totals are due to rounding.

There was insufficient detail regarding New Orleans' use of EWRR equipment to permit preparation of a project synopsis.

Project code identification numbers as cited in Section VI appear following the community name.

EWRR PROJECT SYNOPSIS — COMMUNITY: Atlanta, Georgia B-1

AGENCY

Atlanta Department of Police
175 Decatur Street, S.E.
Atlanta, Georgia 30303

PROJECT IDENTIFICATION

Project Name: TAC (Tactical Anti-Crime Unit)

Federal Grant No.: Not available

Other Identification: None

COMMUNITY CHARACTERISTICS

Population:	497,024
Police Dept. Size:	1,894
Total Crime Index:	48,650
Total Robberies:	4,357

FUNDING HISTORY

Grant Application Date:	Not Available.
Grant Approval Date:	June 1, 1973
Grant Period:	1 year
Project Period:	December 1973 -
Project Start Date:	December 1973
EWRR Deployment Date:	April 1, 1974
Project Status (June 1975):	On-going

PROJECT BUDGET Not available

EWRR Equipment:

Personnel:

Vehicles:

Other Equipment:

Miscellaneous:

Total: $237,862 (Federal Share:)

PROJECT NARRATIVE

The Atlanta TAC project is an over-all project aimed at commercial robbery and commercial burglary; and, in addition to establishment of a tactical unit, includes a public education program, site-hardening, and saturation patrol.

The system was based on utilization of a Bell & Howell TAC II System in 20 alarmed locations in a given area for a specific period of time. The response force is the TAC unit consisting of the commander, a Lieutenant, three Sergeants, 24 patrolmen, and a statistician whose services were used in selecting target stores. The system uses the personnel to cover three watches around-the-clock. With one uniformed man per unmarked vehicle, at least three vehicles respond to an alarm with a show of force. Vehicles are equipped with shotguns, electronic siren/P.A. systems, portable magnetic blue lights, ballistic-type helmets with face shields and each man wears a bulletproof vest. Signs warning of the alarms are posted in target stores.

Sensor devices used are bill-clip and foot-pedal sensors for robbery, and pressure mat, pulsating laser beam, and magnetic door switch for burglary.

Problems encountered have been a high false alarm rate, and unfavorable publicity in local newspapers and from local interest groups because of the violence associated with some TAC unit activities.

COMMUNITY: Atlanta, Georgia

PROJECT NARRATIVE (CONTINUED)

The project reports response times of less than a minute, only one apprehension in ten months that is due solely to the alarms and a corresponding reduction in incidence in alarmed locations.

The preliminary evaluation suggests that the excessively high false alarm rate causes serious question about the alarm equipment. One suggested alternative is to remove the devices and use the money saved to put more police in the area.

The police report that should this experimental program prove to be successful, it may be refunded and possibly expanded on a city-wide basis.

SOURCES

Evaluation: A Project in Urban Systems Design: The Tactical Anti-Crime Unit, Atlanta Police Department, Atlanta, Georgia, prepared by Paul Chapman, Ed Dodd, Randy Truitt (Georgia Institute of Technology), May 29, 1975

Letter: To Sergeant C. J. Hildreth, Metropolitan Police Department, Washington, D.C., From H. B. Goldhagen, Sergeant/TAC Squad, dated February 6, 1975.

Attachment to Letter: 3-page description of project: Atlanta Police Department Tactical Anti-Crime Division (TAC), dated 1974, by H. B. Goldhagen.

EWRR PROJECT SYNOPSIS

COMMUNITY: Bakersfield, California B-2

AGENCY

Bakersfield Police Department
P. O. Box 86
Bakersfield, California 93301

PROJECT IDENTIFICATION

Project Name: Silent Audible Alarm

Federal Grant No.: Not applicable (see narrative)

Other Identification:

COMMUNITY CHARACTERISTICS

Population: 69,515

Police Dept. Size: 203

Total Crime Index: 10,198

Total Robberies: 326

FUNDING HISTORY

Grant Application Date: Not applicable

Grant Approval Date: Not applicable

Grant Period: Not applicable

PROJECT BUDGET Not Available

EWRR Equipment:

Personnel:

Vehicles:

Other Equipment:

Miscellaneous:

Total: (Federal Share: None)

Project Period: 1966-67 -

Project Start Date: 1966-67

EWRR Deployment Date: 1966-67

Project Status (June 1975): On-going

PROJECT NARRATIVE

The oldest -- and probably the original -- EWRR project is the Bakersfield, California Police Department's Silent Audible Alarm project. This in-house project was originally conceived by a retired Bakersfield policemen, using outdated motorcycle VHF radio transmitters, voice reel-to-reel tape recorders and cash register-mounted switches. This concept became the basis for the VARDA alarm units, which have been produced by a company founded by the retired officer.

Initially, the project used 120 radio alarms but with the unavailability of spare parts for the old radios the number in use has dropped to 26, broadcasting a prerecorded message on the Bakersfield P.D. voice channel.

Alarm units generally have been placed for two-month periods in "high risk" stores or those with a high-crime history or for shorter periods of time in stores expected to be "hit" on the basis of investigative efforts.

Regular patrol is used in overt response to alarms, which have been used against both robbery and burglary.

Bakersfield reports response times ranging from 30-90 seconds and reports success in attaining clearances and more successful convictions; but with limited source data, it is not clear whether these are burglary- or robbery-specific. The available documentation does not discuss problems encountered during the project.

COMMUNITY Bakersfield, California

PROJECT NARRATIVE (CONTINUED)

SOURCES

Letter: To Federal Communications Commission; From R. O. Price, Chief of Police, dated March 2, 1973

Memo: To R. O. Price, Chief of Police; From Lt. Miller, Administrative Division, dated December 13, 1972

EWRR PROJECT SYNOPSIS

COMMUNITY Columbus, Georgia B-3

AGENCY

Columbus Police Department
937 1st Avenue
Columbus, Georgia 31902

PROJECT IDENTIFICATION

Project Name: Project CARES (Columbus Armed Robbery Enforcement System)

Federal Grant No.: Not Available

Other Identification:

COMMUNITY CHARACTERISTICS

Population: 154,098

Police Dept. Size: 407

Total Crime Index: 5,333

Total Robberies: 257

FUNDING HISTORY Not Available

Grant Application Date:

Grant Approval Date:

Grant Period:

Project Period: July 30, 1974-

Project Start Date: July 30, 1974

EWRR Deployment Date: July 30, 1974 (see narrative)

Project Status (June 1975): On-going

PROJECT BUDGET Not Available

EWRR Equipment:

Personnel:

Vehicles:

Other Equipment:

Miscellaneous:

Total: (Federal Share:)

PROJECT NARRATIVE

The Columbus, Georgia Police Department acquired equipment to combat robbery and burglary. Prior to acquisition of their own equipment, the Columbus Police Department borrowed two Anti-Burglary and Robbery (ABAR) alarm units from the Jacksonville, Florida Police Department. Use of these units gave operational experience that influenced development of equipment specifications and identified problems to be solved in advance of the full implementation of project CARES (Columbus Armed Robbery Enforcement System).

Equipment procured consisted of 10 Wood-Ivey alarm units and 10 VARDA alarm units. The CARES unit is a dedicated patrol force of initially eight to ten men -- presently numbering three -- who are staked-out and ready to respond in leased civilianized vehicles to robbery only. The regular police patrol responds to burglary alarms.

An extensive variety of sensor devices is implemented -- pocket money clip, bill clip, foot sensor, body sensor and door sensor for robbery; and window, vibrator, mass, acoustic, and motion sensors for burglary. The recorded coded voice message is received by radio transmitter, rooftop flashing alarm beacon, and evidence-recording equipment.

Alarms are placed in high-crime gas stations, liquor stores, and convenience stores in high-crime areas during high-crime hours.

COMMUNITY: Columbus, Georgia

PROJECT NARRATIVE (CONTINUED)

As a project aimed at reducing robbery incidence through an increase in apprehensions and convictions, CARES uses covertness in all aspects of the project.

The problem of unmarked vehicles' being readily recognizable during the ABAR experiment led to leasing of civilianized vehicles when the CARES project was instituted.

Problems encountered during the CARES project have concerned: 1) difficulties with one of the two alarm systems; 2) intradepartmental coordination questions related to primary responsibility for answering EWRR alarms; 3) officer frustration with the relative inactivity of stakeouts; and 4) inter-jurisdictional coordination with neighboring law enforcement agencies.

Response time reportedly averaged 25-30 seconds with use of the ABAR. No evaluation of the CARES project was available.

SOURCES

Commercial Robbery in a Medium-Sized City: Columbus, Georgia, MITRE Technical Report, MTR-6508, by Lawrence G. Gunn, November 1, 1973.

Project CARES: Columbus Armed Robbery Enforcement System, The MITRE Corporation, M73-225, Lawrence G. Gunn, December 1973.

EWRR PROJECT SYNOPSIS

COMMUNITY: Denver, Colorado B-4

AGENCY

Denver Police Department
13th and Champa Streets
Denver, Colorado 80204

PROJECT IDENTIFICATION

Project Name: Special Crime Attack Team (SCAT)
Federal Grant No.: LEAA Grant No. 73-DF-080029E
LEAA Grant No. 75-IC002(10)-96
Other Identification:

COMMUNITY CHARACTERISTICS

Population:	514,678
Police Dept. Size:	1,668
Total Crime Index:	47,744
Total Robberies:	2,307

PROJECT BUDGET Not available

EWRR Equipment:	$13K
Personnel:	
Vehicles:	
Other Equipment:	
Miscellaneous:	
Total:	$1,018,168 (1st grant)* (Federal Share: 1,043,725 (2nd grant))

FUNDING HISTORY

Grant Application Date:	Not available.
Grant Approval Date:	Not available
Grant Period:	12/72-12/75
Project Period:	12/72 -
Project Start Date:	12/72
EWRR Deployment Date:	10/74 (see narrative)
Project Status (June 1975):	On-going

PROJECT NARRATIVE

The Denver Special Crime Attack Team (SCAT) project is one aspect of the larger LEAA Impact City Project aimed at all forms of crime and utilizes a variety of police services -- informants, investigation, stakeout, public education, etc. SCAT began with a staff of 32 patrol officers, detectives and evidence technicians commanded by a police lieutenant and was originally planned as a burglary-specific unit but in the summer of 1973, robbery was added as a target crime.

As initially conceived, the EWRR aspect of the SCAT project was based on purchase of a total TAC II system using 20 transmitters, 1 decoder, and a variety of activating switches with a dedicated response force. Findings that the dedicated team was less productive in its participation in the EWRR context than in other uses and the higher risk of violence for civilianized police led to a change to a regular patrol response. However, the patrol response continued the covert response that characterized the dedicated team.

Comparison between the two methods of response indicates a longer response time with regular patrol -- 10-120 seconds -- vs. 18 seconds average with dedicated patrol, but apprehensions were found to be higher with the regular patrol than with the dedicated.

Alarm system equipment was received and installed throughout 1974 making the EWRR portion of the project partially operational prior to the first deployment

Denver, Colorado

[illegible]

Available documentation indicates that 19?* funding was used to add 10 additional cars and to purchase more alarm equipment but exact numbers are not reported.

Alarms initially were placed in high crime precincts of the city in a variety of businesses for periods of up to 30 days, during the high-crime hours 12 noon to midnight Monday through Saturday. Later, however, they were placed in highly vulnerable businesses throughout the city.

The most recent quarterly report indicates City Council interest in city [illegible] up to 60 additional TAC II transmitters.

Installation of the systems is done covertly but merchants are urged to post signs resisting the presence of an alarm system.

Problems experienced by the Denver project in the initial stages were inadequate detection of alarms by equipment placed in vans, resulting in installation of a decoy and a patrolman inside a tall building, utilizing an internal roof antenna, false alarms due to equipment malfunctions; store clerk dishonesty and store clerk hesitation to activate alarms during robbery; adequate target selection, and monitor unit boredom caused by long hours of inactivity.

Denver reports success in achieving apprehensions but it is not clear whether these were due solely to the PWRR aspects of the project. Denver also reported increased confidence in alarmed stores.

[illegible] Grant Progress Report, City and County of Denver, Denver Police Department, dated [illegible], Lt. J. P. Brannan

[illegible] Fourth Quarter Report - October-December 1974, prepared by Brannan, Frank J. Egan.

PCAT First Quarter Report - January-March 1975, Brannan and Egan.

PCAT Annual Report - January-December 1974, Brannan and Egan.

Aggravated Robbery Problem Definition, by Denver Crime Analysis Team, undated.

"A Profile of Robbery" (pp.53-90) from High Impact Anti-Crime Program, Volume II, Problem Analysis, Denver Anti-Crime Council, C.D. Weller, Executive Director, [illegible]-1974.

[illegible] Special Investigations Operating Manual for TAC II Alarm System, Kell Kit System, Surveillance and Decoy, by Brannan, undated.

*Complete funding information does not appear in available documentation.

CONTINUED

1 OF 2

COMMUNITY: Denver, Colorado

PROJECT NARRATIVE (CONTINUED)

date. Available documentation indicates that 1974 funding was used to add 10 additional men and to purchase more alarm equipment but exact numbers are not reported.

Alarms initially were placed in high-crime precincts of the city in a variety of businesses for periods of up to 20 days, during the high-crime hours 12 noon to 12 midnight Monday through Saturday. Later, however, they were placed in highly vulnerable businesses throughout the city.

The most recent quarterly report indicates City Council interest in city funding of up to 60 additional TAC II transmitters.

Installation of the systems is done covertly but merchants are urged to post notices regarding the presence of an alarm system.

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Denver reports success in achieving apprehensions but it is not clear whether these were due solely to the EWRR aspects of the project. Denver also reported reduced incidence in alarmed stores.

SOURCES

Discretionary Grant Progress Report, City and County of Denver, Denver Police Department, dated 7/17/74, Lt. C. D. Brannan

SCAT Fourth Quarter Report - October-December 1974, prepared by Brannan, Frank J. Egan.

SCAT First Quarter Report - January-March 1975, Brannan and Egan.

SCAT Annual Report - January-December 1974, Brannan and Egan.

Aggravated Robbery Problem Definition, by Denver Crime Analysis Team, undated.

"A Profile of Robbery" (pp.53-90) from High Impact Anti-Crime Program, Volume II, Problem Analysis, Denver Anti-Crime Council, C.D. Weller, Executive Director, 1973-1974.

S.C.A.T. Special Investigations Operating Manual for TAC II Alarm System, Kell Kit System, Surveillance and Decoy, by Brannan, undated.

*Complete funding information does not appear in available documentation.

EWRR PROJECT SYNOPSIS

COMMUNITY: Hayward, California B-5

AGENCY

City of Hayward Police Department
22738 Mission Boulevard
Hayward, California 94541

PROJECT IDENTIFICATION

Project Name: None

Federal Grant No.: Not Available

Other Identification:

COMMUNITY CHARACTERISTICS

Population: 93,166

Police Dept. Size: 170

Total Crime Index: 6,424

Total Robberies: 146

FUNDING HISTORY Not Available

Grant Application Date:

Grant Approval Date:

Grant Period:

PROJECT BUDGET Not Available

EWRR Equipment:

Personnel:

Vehicles:

Other Equipment:

Miscellaneous:

Total: (Federal Share:)

Project Period: August 1973 -

Project Start Date: August 1973

EWRR Deployment Date: August 1973

Project Status (June 1975): On-going

PROJECT NARRATIVE

The Hayward, California Police Department project originated with the purchase of four VARDA voice alarms used to broadcast to all police patrol vehicles and is not restricted to commercial robbery. They are also used against residential robbery and residential and commercial burglary. Sensors used include step-on mat switch, money-clips, personal pocket transmitter, ultrasonic radar transmitter, and waffer switch (sets off alarm when object is lifted off).

Since the inception of the project the four alarms have been placed in 50 different locations -- based on high-frequency robbery and prior intelligence.

Hayward reports response times of less than one minute and arrests for both burglary and robbery, but documentation is not available.

Problems encountered have been limited range of the units, excessive installation time required, and a high number of false alarms.

COMMUNITY: Hayward, California

PROJECT NARRATIVE (CONTINUED)

SOURCES

Letters: To Jay Parness, MITRE Corporation; From Detective Bob Muir, Hayward Police Department, dated May 8, 1975.

To Curtis E. McClung, Chief of Police, Columbus, Georgia, Police Department; From Detective Jay Thomas, Hayward Police Department, dated January 11, 1974.

EWRR PROJECT SYNOPSIS

COMMUNITY: Inglewood, California B-6

AGENCY

Inglewood Police Department
One Manchester Boulevard
Inglewood, California 90301

PROJECT IDENTIFICATION

Project Name: Crime Specific-Robbery Program

Federal Grant No.:

Other Identification: Project No. 1918

COMMUNITY CHARACTERISTICS

Population: 90,014

Police Dept. Size: 231

Total Crime Index: 9,278

Total Robberies: 896

PROJECT BUDGET Not available

EWRR Equipment: $75K*

Personnel:

Vehicles:

Other Equipment:

Miscellaneous:

Total: (Federal Share:)

FUNDING HISTORY

Grant Application Date: Not available.

Grant Approval Date: Not available

Grant Period: May 1974-June 1975

Project Period: May 1974 -

Project Start Date: May 1974

EWRR Deployment Date: March 1975

Project Status (June 1975): On-going

PROJECT NARRATIVE

The Inglewood, California Police Department project -- Crime Specific-Robbery Program -- includes EWRR along with data selection and analysis, investigation, public-education, informants and stakeouts.

The first two months of the project period were devoted to personnel and equipment procurement and development of preliminary tactical plans.

The three-man dedicated team is used to respond to the 20 TAC II transmitters installed in locations for one- to three-day periods during the high-crime hours, 2 p.m. until 10 p.m. The alarms are received by the decoder located in a van, which transmits the message to response vehicles and headquarters.

Part of the project planning included a follow-up at each victimized business by investigators who recommend self-protection and preventive measures.

Documentation shows that during October and November of 1974, seven alarm units were received, installed and utilized on an experimental basis, but interviews with project personnel indicated that the full complement of 20 alarm transmitters became operational in March 1975.

Problems encountered were delays in funding and disbursing approval, delays in getting equipment, initial lack of a dedicated freqeuncy for digital equipment, and numerous false alarms.

COMMUNITY: Inglewood, California

PROJECT NARRATIVE (CONTINUED)

Inglewood reports apprehensions and reduced incidence during its limited project experience, but it is not clear whether apprehensions have been solely due to EWRR.

Because of the later-than-anticipated inception of the project, a planned evaluation design has not yet been implemented.

SOURCES

Crime Specific-Robbery Program Project Number 1918, Phase I Two-Month Report - May 1974 and June 1974 - Project 1918, Agent R. Guerrero, dated August 1974.

Crime Specific-Robbery Program Project Number 1918, Phase II Three-Month Report - July 1974-September 1974 - Project 1918, Guererro, dated October 1974.

Crime Specific-Robbery Program Project Number 1918, Phase II Second Quarterly Report - October 1974-December 1974 - Project 1918, Jay R. Stroh, dated January 1975.

*Available documentation does not contain funding information. Personnel interviewed reported this amount for equipment.

EWRR PROJECT SYNOPSIS

COMMUNITY: Jacksonville, Florida B-7

AGENCY

Jacksonville Sheriff's Office
P. O. Box 2070
Jacksonville, Florida 32202

PROJECT IDENTIFICATION

Project Name: Anti-Burglary and Robbery (ABAR)

Federal Grant No.: 71-23-20

Other Identification: 73-23-14

COMMUNITY CHARACTERISTICS

Population:	528,865
Police Dept. Size:	1,317
Total Crime Index:	40,986
Total Robberies:	1,960

FUNDING HISTORY

Grant Application Date:	1st - not known 2nd - 12/17/73
Grant Approval Date:	1st - 6/73 2nd - 4/74
Grant Period:	1st - 4/1/73 to 6/30/73 2nd - 1/15/74 to 6/30/75
Project Period:	10/74 -
Project Start Date:	10/74
EWRR Deployment Date:	1/75 (see narrative)
Project Status (June 1975):	On-going

PROJECT BUDGET

EWRR Equipment:	$55K - 1st grant appln.
Personnel:	60K - 2nd grant appln.
Vehicles:	11K - 2nd grant appln.
Other Equipment:	20K - 1st grant appln. 10K - 2nd grant appln.
Miscellaneous:	6K - 2nd grant appln.
Total:	$165K (Federal Share:)

PROJECT NARRATIVE

The Jacksonville Police Department's ABAR (Anti-Burglary and Robbery) project utilized 20 Wood-Ivey Systems Corporation alarm units with 20 bill-clip sensors, 6 mobile monitor units, 10 video-tape systems, and a central station monitoring unit, funded by the initial grant.

The realization that shortages in police personnel would inhibit effective implementation of the project resulted in a second grant request providing funding for 11 police officers, the leasing of six unmarked cars and other equipment.

The project was designed to alert police helicopter units and the staked-out, covert tactical unit while simultaneously providing an audio-visual recording of an offense in progress with the goal of increasing apprehensions and convictions through a decrease in response time and better evidence thereby ultimately reducing the incidence of crime.

The alarms were placed primarily in convenience stores and initially were operational from 4 p.m. to midnight but later changed to 6 p.m. to 2 a.m. to cover the high-crime period for 24-hour convenience stores.

Although the project aimed at total covertness, a robbery suspect-shooting soon after inception of the project led to unauthorized publicity about the stake-out units. The subsequent decline in robbery of convenience stores and

COMMUNITY: Jacksonville, Florida

PROJECT NARRATIVE (CONTINUED)

increase in robbery of other types of businesses was, the police believed, directly attributable to this publicity.

Implementation of the project was hampered by delays in the processing of grant applications. Delays in receiving the equipment were caused by the original vendor's going out of business, by the consequent re-awarding of the bid to Wood-Ivey and by a sudden unavailability of electronic components.

Further delays occurred in hiring and training new personnel to replace the experienced personnel forming the tactical unit.

After installation of the equipment in October 1974, deficiencies were noted and resulted in return of the equipment to the factory. In January 1975 the project became fully operational.

Other problems were: delays in the telephone company's installation of private telephone lines necessary for the control monitor; a high number of false alarms due to storeclerk error or misuse; the jeopardizing of project covertness by storeclerks; frustration in the tactical unit because of limited activity and difficult working hours; and the sophistication of the equipment precluding police personnel maintenance, resulting in considerable downtime during factory service.

In the period January-March 1975; the project manager reports 10 robbery arrests and 13 other arrests with one-half of these attributable to the alarm equipment and the proximity of the stakeout units.

Project planning included the identification of the kinds of data to be collected for evaluation purposes, but due to the recency of project implementation no evaluation has been done.

SOURCES

Application for Action Grant Allocations, #71-23-20, date unknown (Grant Application Grant Period: 4/1/73-6/30/73).

Subgrant Application for LEAA Funds, #73-23-14, dated 12/17/73.

Quarterly Progress Reports for periods: 4/1/73-6/30/73, 7/1/73-9/30/73, 10/1/73-12/31/73, 1/1/74-3/31/74, 4/1/74-7/31/74, by Lt. H.M. Nelson, Deputy Project Director.

Final Report dated 9/6/74 by Deputy Director J.E. Danson.

Quarterly Progress Reports dated 5/24/74, 11/26/74, 12/10/74, by Lt. J. D. McCormick, Project Director.

Quarterly Progress Reports dated 1/14/75, 4/15/75 by Sgt. J.L. Gordon, Project Mgr

Study Analysis-Burglaries and Robberies SABAR, by Research Team Project Director, Patrick D. Putnam (7 members), dated 6/1/73.

ABAR Operator's Manual, Wood-Ivey Systems Corporation, undated.

Consolidation of Police Services Case Study by Keopsell-Girard and Associates, Falls Church, Va., 1973

EWRR PROJECT SYNOPSIS

COMMUNITY: Kansas City, Missouri B-8

AGENCY

Kansas City Police Department
1125 Locust Street
Kansas City, Missouri 64106

PROJECT IDENTIFICATION

Project Name: None (Part of the TAC Unit activities)

Federal Grant No.: Not Applicable*

Other Identification:

COMMUNITY CHARACTERISTICS

Population:	507,242
Police Dept. Size:	1,659
Total Crime Index:	40,675
Total Robberies:	3,002

PROJECT BUDGET Not Available

EWRR Equipment: $24K

Personnel:

Vehicles:

Other Equipment:

Miscellaneous:

Total: Not Available (Federal Share: N/A)

FUNDING HISTORY

Grant Application Date:	Not Applicable (see narrative)
Grant Approval Date:	Not Applicable
Grant Period:	Not Applicable
Project Period:	1970-1973
Project Start Date:	Late 1970
EWRR Deployment Date:	Late 1971
Project Status (June 1975):	Terminated

PROJECT NARRATIVE

The Kansas City Police Department's project, funded by the Police Foundation, was a part of the Crime Prevention Unit's overall effort against all types of crime. Fifteen Bell & Howell TAC II units, five body-sensor alarms and two decoders used in monitor cars on the fringes of the target area were used against burglary and commercial and street robbery. The anti-robbery effort included use of saturation patrol and decoy operations with personnel maintaining a civilianized appearance and using leased, civilianized vehicles. Four to seven cars with two-man teams were the primary response force to alarms with back-up provided by the supervisor and regular patrol when necessary. Alarms remained in place for a period of time ranging from four hours to ten days.

Although the alarm project has terminated, the alarms continue to be used as needed. The personnel have been detailed to the three divisions of regular patrol.

Project covertness was maintained throughout except for the months of December in 1973 and 1974. The highly-publicized effort during those two months seemed to account for the reported 25 percent decrease in incidence as compared with December 1972. Kansas City also reports an increase in robbery arrests from 63 in December 1972 to 92 in December 1973, but data kept and evaluations done are not EWRR-specific.

COMMUNITY: Kansas City, Missouri

PROJECT NARRATIVE (CONTINUED)

SOURCES

Annual Report 1974, compiled by Officer John Meyer, KCPD.

Annual Report 1973, compiled by Administrative Analysis Division, Staff Research Unit, KCPD.

*Funded by Police Foundation

EWRR PROJECT SYNOPSIS

COMMUNITY: Los Angeles, California B-9

AGENCY

Los Angeles Police Department
Robbery-Homicide Division
Box 30158
Los Angeles, California 90030

PROJECT IDENTIFICATION

Project Name: None

Federal Grant No.: Not applicable (in-house funding)

Other Identification:

COMMUNITY CHARACTERISTICS

Population: 2,816,111

Police Dept. Size: 10,137

Total Crime Index: 215,556

Total Robberies: 13,614

FUNDING HISTORY

Grant Application Date: Not Applicable.

Grant Approval Date:

Grant Period:

Project Period: January 1969 -

Project Start Date: January 1969

EWRR Deployment Date: January 1969

Project Status (June 1975): On-going

PROJECT BUDGET Not available

EWRR Equipment:

Personnel:

Vehicles:

Other Equipment:

Miscellaneous:

Total: (Federal Share:)

PROJECT NARRATIVE

The Los Angeles Police Department's EWRR project began in January 1969 with the acquisition of 25 alarm units produced according to specifications designed by a member of the LAPD. As initially designed and used, the RATS (Remote Alarm Transmission System) had the dual capability of transmitting by either radio or telephone line and was used against other crimes in addition to commercial robbery -- e.g., burglary, malicious damage, arson.

Currently, only 10 RATS units are in use, supplemented by 10 recently-purchased VARDA units. Both types of units are now used with radio-transmitted, pre-recorded voice messages.

Although the project is on-going, the alarm units are used intermittently--depending on the availability of personnel.

The limited documentation that is available covers the earlier RATS project and reports an increase in response time efficiency. Some of the difficulties that were identified in this earlier project were: (1) technical deficiencies in the equipment were found; (2) field personnel were reluctant to accept the changes necessary to implement the project; (3) the necessity to provide operator training had not been anticipated; and (4) maintenance of the systems increased the workload of the repair facility, necessitating commitment of additional resources

COMMUNITY: Los Angeles, California

PROJECT NARRATIVE (CONTINUED)

SOURCES

Letters: To Chief of Police, LAPD, from Chief of Police, Columbus, Georgia, dated October 25, 1973.

To Chief of Police, Columbus, Georgia, from Chief of Police, LAPD, dated November 21, 1973.

Proposal: Remote Alarm Transmission System, undated.

EWRR PROJECT SYNOPSIS

COMMUNITY: Memphis, Tennessee

AGENCY

Memphis Police Department
128 Adams Avenue
Memphis, Tennessee 38103

PROJECT IDENTIFICATION

Project Name: Electronic Surveillance Program (ESP)

Federal Grant No.: Not Applicable

Other Identification:

COMMUNITY CHARACTERISTICS

Population: 623,755

Police Dept. Size: 1,608

Total Crime Index: 50,162

Total Robberies: 2,983

PROJECT BUDGET

EWRR Equipment: Not Available
$71K

Personnel:

Vehicles:

Other Equipment:

Miscellaneous:

Total: $170K (Federal Share: (Non-federal funding)

FUNDING HISTORY

Grant Application Date: Not Applicable

Grant Approval Date: Not Applicable

Grant Period: Not Applicable

Project Period: June 1974 -

Project Start Date: June 1974*

EWRR Deployment Date: June 1974*

Project Status (June 1975): On-going

PROJECT NARRATIVE

The Memphis Police Department Electronic Surveillance Program (ESP) was used against commercial and street robbery and burglary.

Initially, 20 ESP (SIMDAC) alarms and 20 Bell & Howell TAC II alarms were procured and tested -- the ESP transmitting a coded voice message; the TAC II, a digital coded message -- with a 12-man undercover unit staked out in unmarked cars in selected areas of the city Monday through Friday with limited hours of operation.

At the end of the test period, the ESP alarms were selected over the TAC II and the project was expanded to a full-time, city-wide project with regular patrol response.

Newspaper articles reveal that the test concept produced no apprehensions but reported reduced incidence in the alarmed areas. However, with the city-wide application of the project, there is evidence of nine arrests in four robberies during the first four months and a reported 25 to 30 arrests during the first half of March 1975.

Early in 1975 the Memphis Police Department applied to LEAA for funding as a demonstration city with the intent of expanding the ESP project to a

COMMUNITY. Memphis, Tennessee

PROJECT NARRATIVE (CONTINUED)

saturation level with the purchase of 200 additional alarm units and 230 additional officers and their equipment at a cost level of $2.1 million.

No evaluation was available.

SOURCES

Letter: To MITRE Corporation; From Lt. R. E. Ferguson, Memphis Police Department, dated April 15, 1975.

Newspaper articles - dated from August 1974 through June 1975.

*Includes test period. Project operational city-wide in November 1974.

EWRR PROJECT SYNOPSIS

COMMUNITY: Montgomery County, Maryland B-11

AGENCY

Montgomery County Police Department
Research & Planning Division
60 Courthouse Square
Rockville, Maryland 20850

PROJECT IDENTIFICATION

Project Name: Armed Robbery Mobile Alarm System (ARMAS)

Federal Grant No.: 72-DF-030011*

Other Identification:

COMMUNITY CHARACTERISTICS

Population: 522,809

Police Dept. Size: 885

Total Crime Index: 24,034

Total Robberies: 538

PROJECT BUDGET

EWRR Equipment: Not Available

Personnel:

Vehicles:

Other Equipment:

Miscellaneous:

Total: * $125K - 1st year
$214K - 2nd & 3rd year (Federal Share:)

FUNDING HISTORY*

Grant Application Date: Not Available

Grant Approval Date: March 1972

Grant Period: 1972-1974

Project Period: 1972-

Project Start Date: March 1972

EWRR Deployment Date: June 1974

Project Status (June 1975): On-going

PROJECT NARRATIVE

The ARMAS (Armed Robbery Mobile Alarm System) project of the Montgomery County Police Department is based on use of a 17-man tactical unit in an overall program involving fixed and mobile surveillance and patrol in addition to EWRR and is aimed primarily at commercial robbery but is also aimed at street robbery, forgery, extortion, shoplifting, etc.

The program began with procurement of a 20-transmitter Bell & Howell TAC II alarm system but was later expanded, with additional funding, to a 40-transmitter, 2-decoder system. A variety of switches -- including bill-clip, foot switch, and floor-mat switches -- has been used to transmit the alarm to a response team and to the headquarters' dispatcher in order to deter marked vehicles from approaching the scene. The covert approach is maintained on-scene by the response team's waiting for the robbers to exit.

Selection of stores to be alarmed is based on recent crime-history and county-wide projections and range from one-day installation to long-term installation.

Initial phases of the program included data-gathering, personnel training and storeowner training.

Problems encountered were delays in the bid process and in obtaining equipment, a high false alarm rate (130 over the first 10 months), and victim

COMMUNITY: Montgomery County, Maryland

PROJECT NARRATIVE (CONTINUED)

reluctance to trigger alarm during robbery.

Project personnel verbally reported response times ranging from 5 to 60 seconds and two apprehensions in two valid alarms over the first ten months of project operation. In addition, they reported a noticeable decrease in robberies in areas where alarms are installed.

Although records have been maintained regarding the tactical section activity and alarm activations, a formal program evaluation had not been completed.

*Information obtained by interview.

SOURCES

Monthly Report of Tactical Section Operations for the month of February 1975, by Cpl. J. Reed, dated March 6, 1975.

EWRR PROJECT SYNOPSIS

COMMUNITY: New York City, New York B-12

AGENCY

New York City Police Department
Chief of Detectives Office
13th Floor
1 Police Plaza
New York, New York 10038

PROJECT IDENTIFICATION

Project Name: Robbery Alert System (Alarm Equipment for Robbery Prevention)

Federal Grant No.: Not Available

Other Identification:

COMMUNITY CHARACTERISTICS

Population:	7,894,851
Police Dept. Size:	35,653
Total Crime Index:	519,825
Total Robberies:	77,940

PROJECT BUDGET

EWRR Equipment: Not available

Personnel:

Vehicles:

Other Equipment:

Miscellaneous:

Total: $203K (interview) (Federal Share: $98K (interview))

FUNDING HISTORY

Grant Application Date:	1970
Grant Approval Date:	1971
Grant Period:	Not available
Project Period:	May 1972 -
Project Start Date:	May 1972 (see narrative)
EWRR Deployment Date:	September 1973
Project Status (June 1975):	On-going

PROJECT NARRATIVE

The New York City Police Department's Robbery ALERT System, planned and operated by the Research and Planning Unit of the Department's Detective Bureau is a representative EWRR project.

Equipment purchased for implementation of this project included 16 remote digital robbery alarms (GTE Sylvania DIGILARM) with 48 sensors, two digicom 10 mobile communication terminals, and base station digital equipment (a mini-computer and associated controller).

Each alarm has three sensors: bill-clip, push-button, switch worn on the person, and a large-area pressure-sensitive switch attached to a counter or desk.

A lengthy period of time was spent testing and modifying the equipment (May 1972-September 1973). The original notification and response concept in which the alarm went to the base station and then to the vehicles was changed to a direct link from alarm to vehicle with notification to the base station as well.

Two Robbery Stake-Out patrol vehicles containing four officers in each are the response force.

COMMUNITY: New York City, New York

PROJECT NARRATIVE (CONTINUED)

The alarms were placed in ten different areas of the city in 6-8 high robbery rate stores per area and were generally left in place for a month.

Initially, in a project that aimed for apprehensions and convictions, the intent was to avoid publicizing the project but as word leaked out and a deterrent effect became noticeable, the project came to be more openly publicized.

Over the 173 days of operation that were the basis for the internal evaluation, the project reports response times between 15 and 90 seconds, nine apprehensions in six valid alarms, and a noticeable reduction in incidence in alarmed locations. The bill-clip sensor is reported to be the most effective sensor device.

Initially, problems experienced were unexpected time delays due to extensive travel time between test sites and lengthy set-up and test time required at each site. Also, the long period of time necessary to modify the equipment had not been anticipated. The 29 false alarms were attributed to clerk error, lack of clerk training, and power failure.

SOURCES

The New York Police Department 'ALERT' System Final Report, (author unknown) Project Coordinators: Inspector Gerard J. Kerins, Lieutenant Terence McCann; Project Director: Sergeant Joseph R. Volpato, September 1974.

EWRR PROJECT SYNOPSIS

AGENCY

New York City Police Department
Crime Prevention Section
137 Centre Street
New York, New York 10013

PROJECT IDENTIFICATION

Project Name: Merchants Security Program

Federal Grant No.: LEAA State Block Grant C69364

Other Identification:

COMMUNITY CHARACTERISTICS

Population:	7,894,851
Police Dept. Size:	35,653
Total Crime Index:	519,825 (1974)
Total Robberies:	77,940 (1974)

FUNDING HISTORY

Grant Application Date:	March 1972
Grant Approval Date:	July 1973
Grant Period:	7/1/73-8/31/74
Project Period:	July 1973 -
Project Start Date:	July 1973
EWRR Deployment Date:	July 1973
Project Status (June 1975):	On-going (see narrative)

PROJECT BUDGET

EWRR Equipment:	$312K (includes merchants' share)
Personnel:	$249K
Vehicles:	
Other Equipment:	$20K
Miscellaneous:	$56K
Total:	$637K (Federal Share: $329K)

PROJECT NARRATIVE

The New York City Police Department's Merchants Security Program, one segment in an overall Crime Prevention project, differs from the standard EWRR project in its size as well as in its operation and equipment. Silent hold-up alarms with one or more activator buttons (both manual and bill-clip type) and Super 8mm movie cameras were installed and maintained by a commercial alarm company with installation and one-half the maintenance costs paid by the NYPD and the other one-half paid by the individual merchants. Additionally, signs giving warning of the presence of security devices were posted on the participating premises. The alarm notification was transmitted by dedicated telephone line to the alarm company's central station operator who notified police by telephone (911).

Initially, equipment was installed in 548 locations in 12 high-crime precincts throughout the city. During the course of the project period, this number dropped to 523 (306-alarms only, 80-cameras only, 137-both alarms and cameras) largely due to the merchants' going out of business. Business areas selected were limited to a few blocks and selected stores were diverse as to type, size, and crime history.

The precinct-by-precinct installation took place from July 1973 to March 1974 under individual leasing agreements covering a 14-month time period. As each merchant's 14-month period terminated, he was given the option of retaining the equipment and assuming the entire monthly maintenance cost. At pilot project end, 60 percent of the participating merchants elected this option and continued in the project.

PROJECT NARRATIVE (CONTINUED)

In late 1974, plans were formulated to expand the pilot project to cover approximately 3000 additional merchants in the 60 remaining city precincts (Merchant Security Expansion Projects) -- a project costing $1.5 million in New York City funds. The expanded project differs from the pilot project in that the NYPD purchased the equipment rather than leasing it. Installation began in January 1974. (Available documentation does not indicate when installation was completed.)

Problems encountered were: (1) installation of alarms, cameras, and telephone lines took longer than anticipated because of limited supplies and personnel problems and delays in payment of bills by the city and some merchants; (2) cameras were too noisy and picture quality was poor; (3) victims were reluctant to activate silent alarms during robberies; (4) communication methods resulted in a generally lengthy response time; and (5) equipment malfunctions and store-clerk misuse caused an excessive number of false alarms.

It was not possible to verify a perceived decrease in robbery incidence on the basis of evidence offered in project evaluation documents.

SOURCES

Document Collection: Merchants Security Program History, Experience and Evaluation, New York City Police Department Crime Prevention Section, undated.

Includes: Evaluation Design, Marvin Berkowitz (Director, Applied Technology Unit, NYPD) June 20, 1974.

Evaluation, Berkowitz, April 1975.

Merchants Security Program-Evaluation, Guardsman Central Station Alarm Corp., undated.

AGENCY

Phoenix Police Department
620 West Washington
Phoenix, Arizona 85003

PROJECT IDENTIFICATION

Project Name: Concentrated Robbery Reduction Program (C.R.R.)

Federal Grant No.: 70-DF-072

Other Identification: FY76 - Portable Alarm Systems

COMMUNITY CHARACTERISTICS

Population:	581,600
Police Dept. Size:	1,596
Total Crime Index:	77,321
Total Robberies:	2,436

FUNDING HISTORY

Grant Application Date:	4/13/70 FY '76 - 1/13/75
Grant Approval Date:	5/26/70
Grant Period:	(1st year) 5/30/70-5/29/71 FY76 - 7/1/75-6/30/76
Project Period:	6/70 -
Project Start Date:	6/70
EWRR Deployment Date:	Not applicable
Project Status (June 1975):	On-going

PROJECT BUDGET

EWRR Equipment:	$31K (250 cameras)-1st year 31K (alarms)-FY 76
Personnel:	$156K - 1st year
Vehicles:	$25K - 1st year
Other Equipment:	$27K - 1st year
Miscellaneous:	$10K - 1st year 2K - FY 76
Total:	$249K-1st year 33K-FY 76
(Federal Share:	$150K 30K)

PROJECT NARRATIVE

The Phoenix Police Department's C.R.R. (Concentrated Robbery Reduction) Program is not a true EWRR project. As initially implemented, it used only cameras -- 150, with later additions bringing the total up to approximately 260. A recent grant request (January 1975), however, indicates plans to supplement the existing camera project with portable radio alarms in an anti-burglary, anti-robbery effort.

In addition to cameras, a variety of other equipment (e.g., pocket transmitters, receivers, tape recorders, radios, etc.) and the use of leased vehicles are reflected in the project costs for a nucleus of specially-trained officers (supplemented by detective personnel) using intensive patrol, surveillance, stake-out, and informants in an all-out effort to reduce robbery. Personnel costs reflect overtime pay for use of personnel during the high-crime hours of 5 p.m. to 1 a.m. Also included in the project budget is the cost for assignment of one deputy county attorney to prosecute all robbery cases.

A bill-clip switch activates the RICOH 35mm springwound camera. Notification to police is by conventional means, a telephone call by victim or store-owner following the robbery. Response is for the purpose of retrieving film and making identification of suspects known as quickly as possible.

Problems were encountered in the installation and operation of cameras and in the unanticipated high cost of vehicle use.

COMMUNITY Phoenix, Arizona

PROJECT NARRATIVE (CONTINUED)

Phoenix reports success in attaining good photographic evidence and in achieving apprehensions (15 in 5 months). They also report reduced incidence of commercial robbery in stores with cameras, but indicate a possible displacement to street robbery.

No evaluation has been done.

SOURCES

LEAA Grant Application dated April 13, 1970, No. 70-DF-072.

ASJPA (Arizona State Justice Planning Agency) Application for Action Sub Grant, dated January 13, 1975.

Letter: To: Phoenix Chief of Police, From: Columbus, Georgia, Chief of Police, dated October 25, 1973.

To: Columbus, Georgia, Chief of Police, From: Phoenix Chief of Police, dated November 2, 1973.

Article: "A Concentrated Robbery Reduction Program", FBI Law Enforcement Bulletin, dated December 1971, by Sgt. Patricia A. Lamson.

EWRR PROJECT SYNOPSIS

COMMUNITY: Portland, Oregon B-15

AGENCY

Portland Bureau of Police
222 S. W. Pine
Portland, Oregon 97204

PROJECT IDENTIFICATION

Project Name: Police Strike Force Subproject

Federal Grant No.: 74-NI-10-0002

Other Identification:

COMMUNITY CHARACTERISTICS

Population:	381,877
Police Dept. Size:	925
Total Crime Index:	41,814
Total Robberies:	1,916

FUNDING HISTORY

Grant Application Date:	Not available
Grant Approval Date:	July 1973
Grant Period:	July 1973-1976
Project Period:	August 1973 -
Project Start Date:	August 1973
EWRR Deployment Date:	December 1974 (see narrative)
Project Status (June 1975):	On-going

PROJECT BUDGET

EWRR Equipment:	$145K
Personnel:	2M
Vehicles:	83K
Other Equipment:	29K (estimated)
Miscellaneous:	233K
Total:	$2.5M (Federal Share: $3.7M = $5M Impact Cities total 3 yr

PROJECT NARRATIVE

Portland, as one of the cities selected for the Impact Cities Program, instituted a subproject -- the Police Strike Force Subproject. The basis of the subproject was the formation of a Specialized Surveillance Team (SST) consisting of 21 full-time and one half-time, specially trained officers used primarily against burglary and fencing but also directed against street crimes and commercial robbery. Patrol, surveillance, stake-out, and paid informants were part of the units operations as well as covert response to silent alarms.

An older 42-alarm system had been used sporadically from 1968 until October 1973 when a full-time alarm specialist improved the effectiveness of the units.

In December 1973, the new 100-alarm system began to be phased in. The five one-man undercover vehicles would be called on as needed as back-up to the primary response vehicle.

Alarm transmitters were installed on a daily basis for a two-week period in stores selected through a computer prediction methodology. In keeping with the objective of project covertness, regular patrol vehicles were used only when necessary.

Problems reported were funding cycle delays and delays in equipment delivery, and technical problems with equipment that contributed to false alarms.

COMMUNITY Portland, Oregon

PROJECT NARRATIVE (CONTINUED)

Portland reports success in apprehension but most of the data available is not EWRR-specific, and reported reduced robbery incidence in alarmed stores is unsupported by any evaluation data. The draft evaluation report that is available was completed too soon after implementation of EWRR equipment to be significant for EWRR-specific evaluation.

SOURCES

Evaluation Report No. 1 - The First Eighteen Months Subproject Description and Preliminary Outcome Assessment, (Draft) prepared by the State Planning Agency-Impact Evaluation Unit of the Oregon Law Enforcement Council, Robert D. Houser, Administrator, dated March 1975.

"Incident Prediction Model for Police Placement," The Police Chief, by James B. Richardson and Raymond K. Stout, April 1975.

EWRR PROJECT SYNOPSIS

COMMUNITY: Prince George's County, Maryland

AGENCY

Prince George's County
Police Department
3415 N. Forestedge Road
Forestville, Maryland 20028

PROJECT IDENTIFICATION

Project Name: Project 84

Federal Grant No.: 3133-COP-1

Other Identification: TARS (Tactical Alarm Response Section)

COMMUNITY CHARACTERISTICS

Population:	660,567
Police Dept. Size:	1,091
Total Crime Index:	36,429
Total Robberies:	1,818

FUNDING HISTORY

Grant Application Date: Sep. 24, 1973 (1st year)
Jan. 24, 1975 (2nd year)

Grant Approval Date: Oct. 1973 (1st year)
Apr. 1975 (2nd year)

Grant Period: Jan. 1974-Mar. 1975 (1st year)
Mar. 1975-Mar. 1976 (2nd year)

Project Period: Dec. 1974 - Dec. 1977

Project Start Date: Dec. 1974

EWRR Deployment Date: Dec. 1974

Project Status (June 1975): On-going

PROJECT BUDGET

EWRR Equipment:	$15K - 1st year 11K - 2nd year
Personnel:	251K - 1st year 395K - 2nd year
Vehicles:	64K - 1st year 65K - 2nd year
Other Equipment:	141K - 1st year 2K - 2nd year
Miscellaneous:	18K - 1st year 17K - 2nd year
Total:	$490K - 1st year 491K - 2nd year

(Federal Share: $346K, 442K)

PROJECT NARRATIVE

The Prince George's County TARS project is a broad program that utilizes a dedicated, covert detective division unit in 17 civilianized vehicles to respond to 20 Bell & Howell TAC II alarms installed in a high-crime area of the county. Originally intended to combat commercial robbery only, it now is aimed at street robbery as well using stakeout, surveillance, patrol and decoy operations.

As originally conceived, the project consisted of the officer in charge (a lieutenant); two teams of six officers, each commanded by a corporal; a public education and alarm installation segment; a civilian analyst; one clerical staff member; and assignment of an Assistant State's Attorney to expedite prosecutions. Difficulties with equipment installation and cashier orientation later brought about transfer of the public education to an outside unit.

Target stores are chosen on the basis of their vulnerability and alarm installation is intended to be permanent. However, secondary target areas have been selected if conditions indicate need for a change. Project hours were changed from 5 p.m.-1:30 a.m. initially to the current 9 a.m.-1:30 a.m., Tuesday through Saturday.

Covertness of the unit operation is fully maintained with the objective of reducing incidence of robbery through apprehension and conviction. Publicity

PROJECT NARRATIVE (CONTINUED)

is limited to the public education aspect of the project and is aimed at target-hardening to reduce incidence.

Problems encountered were delays in grant processing and in recruiting and training the officers hired to replace those assigned to the TARS project. Clerk reluctance to activate alarms during robberies has also been a problem. This factor coupled with inadequate prediction methodology may account for the project's not achieving its goal of a 10 percent reduction in robbery incidence during its first year of operation.

It reports success in achieving a response time of less than 10 seconds and in making apprehensions at nearly one-half of the robberies at alarmed stores when there is a valid alarm. A high false alarm rate was largely due to equipment problems, poor placement of sensor devices, and clerk error.

SOURCES

Grant Applications for first and second year, Grant Applications for Supplemental Awards, and Statements of Grant Award and Conditions

Monitoring Report to Governor's Commission on Law Enforcement and Administration of Justice, from Project Manager, dated May 15, 1975.

Monthly Status Reports, Tactical Alarm Response Section, dated Sept., Oct., Nov., Dec. 1974 and Jan., Feb., Mar., Apr., May, June, and July 1975

Quarterly Project Narrative Reports, for periods: July 1 to Sep. 30, 1974; Oct. 1 to Dec. 31, 1974; Jan. 1 to Mar. 31, 1975; Apr. 1 to Jun. 30, 1975; and Jul. 1 to Sep. 30, 1975

Concentrated Crime Reduction Programs Evaluation Design for Prince George's County, prepared for Maryland Governor's Commission, by PRC Public Management Services, Inc., dated January 1975.

Prince George's County Concentrated Crime Reduction Program Quarterly Report, prepared for Maryland Governor's Commission, by PRC Public Management Services, Inc., dated February 1975.

EWRR PROJECT SYNOPSIS

COMMUNITY: San Diego County, California

AGENCY

San Diego Police Department
Robbery Strike Force
801 West Market Street
San Diego, California 92101

PROJECT IDENTIFICATION

Project Name: Strike Force Robbery

Federal Grant No.: CCCJ 1465-1

Other Identification:

COMMUNITY CHARACTERISTICS

Population:	1,357,782
Police Dept. Size:	2,937+
Total Crime Index:	92,302
Total Robberies:	2,999

PROJECT BUDGET **

EWRR Equipment:	$41K (1st year)
Personnel:	$350K (1st year) $754K (2nd & 3rd year)
Vehicles:	$ 38K (1st year)
Other Equipment:	$115K (1st year)
Miscellaneous:	$ 85K (1st year)
Total:	$1,939K (Federal Share: $939K)

FUNDING HISTORY

Grant Application Date:	June 22, 1973
Grant Approval Date:	Not Available
Grant Period:	December 1, 1974- November 30, 1975
Project Period:	December 1974-
Project Start Date:	November 1977 September 1974*
EWRR Deployment Date:	September 1974*
Project Status (June 1975):	On-going

PROJECT NARRATIVE

The San Diego Police Department Strike Force Robbery program is aimed at street, commercial, and residential robbery and utilizes patrol, stakeout, surveillance, investigation, prevention, informants, and public education with police personnel participation from all 11 jurisdictions in the San Diego region. Equipment procured consisted of 22 VARDA alarm packages with bill-clip switches and 12 cameras.

Prior to implementation of the project on a county-wide basis, the alarms were used in two six-week test periods to evaluate differing approaches to use of the alarms. In the first test period, alarms were placed only in convenience stores and liquor stores and a dedicated response team was used around-the-clock, 7-days a week. In the second test period, alarms were placed in most-frequently robbed stores regardless of type, and a regular patrol response was used. Preliminary findings were that use of dedicated patrol resulted in reduced incidence and fewer apprehensions (0 arrests in one valid alarm), and little change in incidence and more apprehensions (6 arrests in 5 valid alarms) with the regular patrol response. Response times ranged from an average of 85 seconds with the dedicated to 97 seconds with the regular patrol.

Following the two test periods, the alarms were placed in stores most frequently robbed in the preceding three months and the project operated on a county-wide basis using local jurisdiction patrol forces. During the first five months of operation, 11 arrests were made in 14 valid alarms.

COMMUNITY San Diego County, California

PROJECT NARRATIVE (CONTINUED)

Problems identified were: (1) delays in CCJP and LEAA reviews of grant requests (especially sole source requests), (2) delays in the bid process, (3) delays in delivery of equipment by suppliers, (4) equipment malfunctions, (5) delays due to inadequate preparation and project definition, (6) user misuse of equipment, and (7) complications in data collection caused by the interjurisdictional nature of the police forces.

An attempt was made in the data collection and evaluation design to isolate the various elements of the overall program in order to evaluate the impact of each kind of police activity on each kind of crime, but due to the recency of inception of the program a final evaluation of the program has not yet been done.

+Computed total of 10 municipal P.D.'s and County Sheriff's Department.
*Includes test periods. Project started county-wide in December 1974.
**Budget figures from first-year grant application. Budget items as they appear here are not available for second and third year.

SOURCES

Application for Grant, Strike Force Robbery, CCCJ No. 1465-1, dated June 22, 1974.

Quarterly Progress Report, August 1974 - November 1974, by William K. Bond, Project Director, dated March 15, 1975.

Robbery Strike Force First Year Report (a Preliminary Evaluation), by Susan Himes Stuart, undated.

EWRR PROJECT SYNOPSIS

COMMUNITY Tampa, Florida B-18

AGENCY

Tampa Police Department
1710 Tampa Street
Tampa, Florida 33602

PROJECT IDENTIFICATION

Project Name: STAVS (Sensortized Transmitted Alarm Video System)
Federal Grant No.: 70-DF-170
Other Identification:

COMMUNITY CHARACTERISTICS

Population	277,736
Police Dept. Size:	806
Total Crime Index:	30,378
Total Robberies:	1,375

PROJECT BUDGET

EWRR Equipment:	$112K
Personnel:	Not Available
Vehicles	$35,000
Other Equipment:	Not Available
Miscellaneous:	Not Available
Total:	$253K (Federal Share: $150K)

FUNDING HISTORY

Grant Application Date:	April 23, 1970
Grant Approval Date:	June 12, 1970
Grant Period:	6/1/70-5/31/71 Extended to 5/31/72
Project Period:	March 1971
Project Start Date:	March 1971
EWRR Deployment Date:	April-May 1972 Mid Nov 72-Mid Jan 73
Project Status (June 1975):	Terminated

PROJECT NARRATIVE

The Tampa Police Department's STAVS (Sensortized Transmitted Alarm Vieo System) project utilized a 20-alarm transmitter Martin-Marietta system including a variety of sensors (bill-clip, body-worn, floor-mounted, motion, etc.), videotape recorder transmitting to a CCTV camera, and roof-mounted alarm beacon to guide responding helicopter units aimed at both robbery and burglary. Police reports indicate that the equipment has also been useful for parking lot surveillance and for crowd and traffic control.

The Selective Enforcement Unit (SEU) consisted of 10 plainclothes (civilianized) officers in 10 unmarked vehicles who provided a covert response. The SEU became operational as a stakeout unit in March 1971 until it was combined with STAVS upon receipt and installation of the alarms in April 1972.

The STAVS project operated during the high-crime hours of 7 p.m. through midnight on Tuesday through Saturday.

Problems encountered were: delays in the grant award and bid processes, delays in equipment delivery, unanticipated training required for installation of the sophisticated sensor devices, and victim reluctance to trigger alarms.

Project participants reported that the videotape recording had little impact since the alarms proved to be effective in making on-or-near-scene apprehensions and constituted best evidence for successful prosecution. From a manpower point of view, the project was considered to be very expensive.

COMMUNITY Tampa, Florida

PROJECT NARRATIVE (CONTINUED)

Tampa reports response times of less than a minute, a deterrent effect initially (due to publicity), and success in apprehensions (9 in 13 robberies), clearances, and convictions.

No evaluation has been done.

SOURCES

A Review of the Tampa STAVS Operation: An Anti-Robbery Alarm System, MITRE Technical Report. (MTR-6730), by R. C. Carper, S. H. Roth, July 1974, The MITRE Corporation, McLean, Virginia 22101

Letter: To NILE & C J, From Warner Eliot, MITRE Corporation, dated 2/6/73.

Review of STAVS Performance Under LEAA Grant # 70-DF-170, by the MITRE Corporation, dated 1/26/73.

Resume of STAVS Equipment & Operations, by Tampa Police Department, undated.

General Plan for Evaluation of Anti-Robbery/Anti-Burglary Systems, MITRE Working Paper 10219 by Morris J. Gordon, dated 2/23/73.

Discretionary Grant Progress Report, for period: 1 April 1972 to 31 May 1972, by J. G. Littleton, Chief of Police (Project Director).

PROPOSED: Tampa Police Department Sensortized Transmitted Alarm Video System, (Request for bid and system specifications), by W. R. Bland, Services Division, Tampa Police Department, undated.

PROJECT CARES: Columbus Armed Robbery Enforcement System, M 73-225 by Lawrence G. Gunn, December 1973.

EWRR PROJECT SYNOPSIS

COMMUNITY: Torrance, California B-19

AGENCY

Torrance Police Department
3131 Torrance Boulevard
Torrance, California 90503

PROJECT IDENTIFICATION

Project Name: Intruder Alarm Project

Federal Grant No.: A-1589-73

Other Identification: Project # 1790

COMMUNITY CHARACTERISTICS

Population:	134,507
Police Dept. Size:	269
Total Crime Index:	7,806
Total Robberies:	225

FUNDING HISTORY

Grant Application Date: July 1972 (1st year)
July 1974 (3rd year est.)

Grant Approval Date: February 1, 1974

Grant Period: 2/1/74-1/31/75
2/1/76-2/1/77 (3rd year)

Project Period: March 1974-
February 1, 1977

Project Start Date: March 1974

EWRR Deployment Date: June - November 1974
(See Narrative)

Project Status (June 1975): On-going

PROJECT BUDGET *

EWRR Equipment:	$52K - 1st year
Personnel:	$62K - 1st year $193K - 2nd & 3rd year
Vehicles:	
Other Equipment:	$1K - 1st year
Miscellaneous:	$7K - 1st year $9K - 2nd & 3rd year

Total: $327K** (Federal Share: $206K) ***

PROJECT NARRATIVE

The Torrance Police Department Intruder Alarm Project was planned as a combined anti-robbery, anti-burglary project using 125 VARDA alarm packages employing regular patrol response. Because of delays and subsequent increases in prices of the units, the project ultimately procured only 110 units. As is typical of other jurisdictions with larger numbers of alarm units, saturation of commercial areas was a primary goal; and project publicity and public education have been for the purpose of reducing incidence.

Target stores are selected on the basis of frequency of robbery and alarms remain in place for three-month periods with toe-pressure switches as the primary sensor device.

Because installation and modification of the large number of alarms took place over several months, the EWRR aspect of the project began in approximately June of 1974 with only 26 alarms installed. Records show that all alarms had been received and installed by November 1974.

Problems encountered were delays in the grant award process and in receiving sole source approval, delays in equipment delivery, user-generated false alarms, clerk reluctance to trigger alarm during robbery, storeowner hesitation to participate in the program, and conflicts with private alarm businesses at the start of the program.

COMMUNITY Torrance, California

PROJECT NARRATIVE (CONTINUED)

Torrance reports success in achieving early warning, and in apprehensions and convictions but it is not clear whether these are robbery- or burglary-specific. Due to the recency of implementation of the project, the planned evaluation has not yet been done.

*Amounts are from third-year grant application.
**Includes $29K augmentation in second year.
***Includes $26K augmentation in second year.

SOURCES

Application for Grant, July 1972 (No Grant Number indicated)

Application for Grant, Number A-1589 (3rd year), undated

90 Day Evaluation and Report - Project 1790, by Bruce J. Randall, Lieutenant, Project Director, 1 May 1974

Second Quarterly Report - Project 1790-1, Randall, 1 August 1974

Third Quarterly Report - Project 1790-1, Randall, 10 November 1974

Fourth Quarterly Report - Project 1790-1, by Paul M. Nowatka (Sergeant), Project Director, 10 February 1975

Fifth Quarterly Report - Project, 1790-1, Nowatka, 10 May 1975

Management Audit Report of Tactical Services Section, Torrance Police Department, by R. C. Wright, 1974

Procurement Bid - FY 1973-1974

Study of Small Business Armed Robberies in Torrance, California, by Aerospace Corporation, undated

Project-related correspondence, news releases, and public education brochures.

EWRR PROJECT SYNOPSIS

COMMUNITY: Washington, D. C. B-20

AGENCY

Washington Metropolitan Police Department
300 Indiana Avenue, N.W.
Washington, D.C. 20001

PROJECT IDENTIFICATION

Project Name: TACT II Holdup Alarm System

Federal Grant No.: Not available

Other Identification:

COMMUNITY CHARACTERISTICS

Population: 756,510

Police Dept. Size: 5,558

Total Crime Index: 54,644

Total Robberies: 7,941

FUNDING HISTORY

Grant Application Date: Not available.

Grant Approval Date: Not available

Grant Period: Not available

Project Period: December 1971-1975

Project Start Date: December 1971

EWRR Deployment Date: April 1972

Project Status (June 1975): Terminated

PROJECT BUDGET Not available

EWRR Equipment: 1973 - $23K

Personnel:

Vehicles:

Other Equipment:

Miscellaneous:

Total: (Federal Share: 1971-$45K (interview)

PROJECT NARRATIVE

The Washington, D.C. TACT II Holdup Alarm System began with one 20-transmitter TAC II alarm project moved daily to cover some 280 randomly-selected, pre-wired locations. Two dedicated squads, using marked and unmarked vehicles and scooters, were used to cover two overlapping time periods from 7 a.m. until 10 p.m.

In January 1975, the project was expanded with the addition of two more systems for a total of 60 transmitters. However, interview information indicates recent cancellation of the entire project with a subsequent turn-over of equipment to local requesting district personnel.

Problems reported were false triggering primarily due to equipment malfunctions, and a disappointing lack of apprehension with few valid alarms occurring in alarmed stores. For a project with increased apprehensions as its primary objective, the apparent reduction in incidence was unexpected and the cost of maintaining the dedicated units was regarded as too high to warrant continuation of the project.

Project success was regarded to be primarily the reduction of incidence in alarmed stores.

No formal evaluation of the project has been done.

COMMUNITY Washington, D.C.

PROJECT NARRATIVE (CONTINUED)

SOURCES

Memoranda - To: Chairman, Program Budget Working Committee; From: Task Team #5 undated (estimated, after September 1973)

To: Program Budget Working Committee; From: Chester J. Hildreth, Sergeant, Tactical Branch, dated May 10, 1973

To: Deputy Chief of Police SOD; From: Chester J. Hildreth, Sergeant, Tactical Branch, dated January 6, 1975

Evaluation of the Present Bell & Howell TAC II Holdup Alarm and Reasons for the Request for 3 Additional Systems, undated.

Letter - To: Chief of Police, Tacoma, Washington; From: Commander, Special Operations Division, dated April 1, 1974.

Annual Reports: Annual Report of Robbery Branch, Fiscal '72-'73 to Commander, Criminal Investigation Division, July 9, 1973.
Annual Report of Robbery Branch, Fiscal '73-'74 to Commander, Criminal Investigation Division, July 8, 1974.
Annual Report Metropolitan Police Department, Fiscal Year 1973.

EWRR PROJECT SYNOPSIS

COMMUNITY Wilmington, Delaware B-21

AGENCY

Wilmington Bureau of Police
1000 King Street
Wilmington, Delaware 19801

PROJECT IDENTIFICATION

Project Name: Crime Specific Improvement and Investigative Strike Force

Federal Grant No.: (FY 74) DF-75-73

Other Identification: Upgrade Crime Specific (Subgrantee #74-040) (Fiscal '75)

COMMUNITY CHARACTERISTICS

Population:	80,386
Police Dept. Size:	333
Total Crime Index:	7,069
Total Robberies:	360

FUNDING HISTORY

Grant Application Date:	Not available.
Grant Approval Date:	Not available
Grant Period:	FY 73 (7/72-6/73) FY 74 (7/73-6/74)
Project Period:	July 1972 -
Project Start Date:	July 1972 (estimated)
EWRR Deployment Date:	July 1972 (estimated)
Project Status (June 1975):	On-going

PROJECT BUDGET Not available

EWRR Equipment:

Personnel:

Vehicles:

Other Equipment:

Miscellaneous:

Total: $321K (FY73), 190K (FY74) (Federal Share: $175K FY75)

PROJECT NARRATIVE

The Wilmington Bureau of Police Crime Specific Improvement and Investigation Strike Force project is not a representative EWRR project. It is an overall program including a variety of police services with the objective of deterring commercial, street and residential robbery and burglary, primarily, but also fraud, larceny, vandalism, etc. Additionally, equipment includes both alarms and cameras with transmittal of a message via telephone lines to the switchboard operator at the police dispatch center who verbally informs the dispatcher. The dispatcher assigns primary and backup response cars from regular police patrol. The system is programmed to contact the Crime Prevention commander and the two-man maintenance team, all of whom respond to all valid alarms to obtain the film and reset the alarm equipment. If suspect apprehension on-site is not achieved, identifying information is broadcast to the dispatcher for relay to the patrol force.

The entirely overt project includes intensive foot- and vehicle-patrol, public education of businessmen individually and of citizens through civic organizations, and publicly-posted signs warning of the presence of alarms.

In an attempt to saturate business areas with alarms, police encourage businessmen to purchase private alarm systems with free installation and weekly maintenance done by the police maintenance team and costing the businessman only a telephone-jack fee of $6.00.

Eight cameras (Kodak Analyst model super-8 time-lapse) and thirty alarms using bill-clip sensors (Ademco brand and others) are currently placed, for a

COMMUNITY Wilmington, Delaware

PROJECT NARRATIVE (CONTINUED)

period of 4-5 months, in a variety of high-crime locations, e.g., dry cleaners, supermarkets, liquor stores, schools, etc., on a full-time basis. The alarms are used in an anti-burglary effort by remaining active during the hours that a business is closed.

High overtime expenses and additional kinds of equipment (e.g., a mobile van, polygraph, etc.) and the extensive public education and clerk training effort are reflected in the project funding.

The FY 74 funding expanded the project to include three additional police agencies: Delaware State Police, New Castle County Police, and Newark (Delaware) Police Department.

The Wilmington Police report that of the perpetrators of burglary, robbery and larceny, a high percentage (70 percent of those arrested) are drug offenders. They report an average response time of 1 1/2 minutes (measured from the time the dispatcher receives the message), success in convicting those apprehended as a result of photographic evidence (eight of eight in three years), and deterrence in alarmed locations.

They also report no significant problems encountered and success in gaining the cooperation of the telephone company, the private alarm business community, businessmen and the community as a whole. False alarms usually occur immediately after installation but are virtually nonexistent thereafter.

An evaluation of the total program has been performed by the Delaware Agency to Reduce Crime but a copy has not been made available.

SOURCES

Discretionary Grant Progress Report, LEAA Grant No. DF-75-73, dated 12/10/74, James T. Nolan, Project Director.

Subgrantee's Quarterly or Final Report to Delaware Agency to Reduce Crime, Subgrantee No. 74-040, dated 7/11/75, James T. Nolan, Project Director.

Annual Report, Wilmington Bureau of Police, July 1, 1972 to June 30, 1973, by the Planning and Research Unit, Capt. James T. Nolan, Commanding.

Annual Report, Wilmington Bureau of Police, July 1, 1973 to June 30, 1974 by the Planning, Research, and Budgeting Unit, Captain James T. Nolan, Commanding.

Article: "Security Cameras in a Crime Prevention Program," Law and Order Magazine, April 1975, pp. 46-49.

Wilmington Police Crime Prevention Brochure

APPENDIX C

LIST OF AGENCIES CONTACTED

1. ALBANY, GEORGIA
2. ALBUQUERQUE, NEW MEXICO
3. AMARILLO, TEXAS
4. ANCHORAGE, ALASKA
5. ANNE ARUNDEL COUNTY, MARYLAND
6. ATLANTA, GEORGIA
7. BAKERSFIELD, CALIFORNIA
8. BALDWIN PARK, CALIFORNIA
9. BAY COUNTY, FLORIDA
10. BIRMINGHAM, ALABAMA
11. BOSTON, MASSACHUSETTS
12. CHULA VISTA, CALIFORNIA
13. COLUMBUS, GEORGIA
14. CONCORD, CALIFORNIA
15. COOS BAY, OREGON
16. CORONA, CALIFORNIA
17. DADE COUNTY, FLORIDA
18. DALLAS, TEXAS
19. DENVER, COLORADO
20. DETROIT, MICHIGAN
21. EAST POINT, GEORGIA
22. ESCAMBIA COUNTY, FLORIDA
23. EUGENE, OREGON
24. FAIRBANKS, ALASKA
25. FAIRFIELD, CONNECTICUT
26. FONTANA, CALIFORNIA
27. FORT LAUDERDALE, FLORIDA
28. GARLAND, TEXAS
29. GRAND RAPIDS, MICHIGAN
30. HAYWARD, CALIFORNIA
31. HENRICO COUNTY, VIRGINIA
32. INDIANAPOLIS, INDIANA
33. INGLEWOOD, CALIFORNIA
34. JACKSON, MISSISSIPPI
35. JACKSONVILLE, FLORIDA
36. KANSAS CITY, MISSOURI
37. LAS VEGAS SHERIFF, NEVADA
38. LONG BEACH, CALIFORNIA
39. LOS ANGELES, CALIFORNIA
40. LOUISVILLE, KENTUCKY
41. LOWELL, MASSACHUSETTS
42. MACON, GEORGIA
43. MEDFORD, OREGON
44. MEMPHIS, TENNESSEE
45. MERCED, CALIFORNIA
46. MIAMI, FLORIDA
47. MINERAL WELLS, TEXAS
48. MONTGOMERY COUNTY, MARYLAND
49. NEW ORLEANS, LOUISIANA
50. NEW YORK CITY, NEW YORK
51. OAKLAND, CALIFORNIA
52. ODESSA, TEXAS
53. PANAMA CITY, FLORIDA
54. PARKER, ARIZONA
55. PENSACOLA, FLORIDA
56. PHILADELPHIA, PENNSYLVANIA
57. PHOENIX, ARIZONA
58. PLEASANTON, CALIFORNIA
59. PORT ANGELES, WASHINGTON
60. PORTLAND, OREGON
61. PRINCE GEORGE'S COUNTY, MARYLAND
62. RICHMOND, CALIFORNIA
63. RIDGECREST, CALIFORNIA
64. SAGINAW, MICHIGAN
65. SALEM, OREGON
66. SALINAS, CALIFORNIA
67. SAN DIEGO, CALIFORNIA
68. SAN JOSE, CALIFORNIA
69. SANTA ANA, CALIFORNIA
70. SANTA BARBARA, CALIFORNIA
71. SEATTLE, WASHINGTON
72. SHAFTER, CALIFORNIA
73. STOCKTON, CALIFORNIA
74. TALLAHASSEE, FLORIDA
75. TEHACHAPI, CALIFORNIA
76. TAMPA, FLORIDA
77. TEXARKANA, TEXAS
78. TORRANCE, CALIFORNIA
79. TRACY, CALIFORNIA
80. TULARE, CALIFORNIA
81. TULSA, OKLAHOMA
82. VICTORIA, TEXAS
83. WASHINGTON, D.C.
84. WILMINGTON, DELAWARE

END