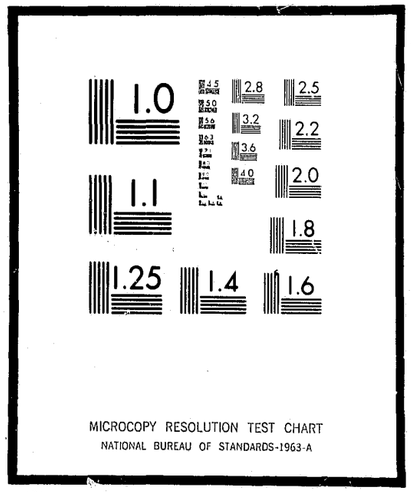

PHASE I NATIONAL EVALUATION OF SELECTED PATROL STRATEGIES

SPECIALIZED PATROL OPERATIONS UNDER THE NATIONAL EVALUATION PROGRAM

Product 3 --

Project Families, Synthesis Framework and Measurement

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Prepared under LEAA Grant No. 75-NI-99-0067

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This project was supported by Grant No. 75-NI-99-0067, awarded by the Law Enforcement Assistance Administration, U. S. Department of Justice, under the Omnibus Crime Control and Safe Streets Act of 1968, as amended. Points of view or opinions stated in this document are those of the authors and do not necessarily represent the official position or policies of the U. S. Department of Justice.

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PREFACE AND ACKNOWLEDGEMENTS

The LEAA Evaluation Policy Task Force, a joint effort of State Planning Agencies (SPA) and Law Enforcement Assistance Administration (LEAA) representatives, has recommended that information on police methodology be produced through nationally coordinated evaluations under the National Evaluation Program.

On January 10, 1975, the Institute for Human Resources Research (IHRR) under LEAA Grant 75 NI 99-0067, began a Phase I study of the topic area, Selected Patrol Strategies: Specialized Patrol Operations. The purpose of this Phase I study is to assess specialized patrol operations.

This is the third in a series of six reports being prepared by IHRR. The first report was an analysis and discussion of the issues surrounding specialized patrol operations. The second report presented an overview of actual project activity in the topic area. This report will present in detail the methods developed by IHRR for assessing the state of knowledge and the success and failure of specialized patrol operations.

We wish to acknowledge the assistance given us by the National Institute of Law Enforcement and Criminal Justice, LEAA Regional Offices, the State Planning Agencies, and the many local law enforcement officials and their staffs. All have given their assistance in locating and interpreting project information. Specifically, we wish to thank the following members of our Advisory Board:

- Sheriff Michael Canlis
- Mr. Joseph Lewis
- Dr. Elinor Ostrom
- Chief James C. Parsons
- Chief Rocky Pomerance
- Mr. John Stead
- Dr. Victor Strecher
- Mr. Eugene Zoglio

We also wish to thank the following members of the LEAA staff for their assistance throughout this project:

- Dr. Richard Barnes
- Mr. David Farmer
- Ms. Kay Monte

SUMMARY

In this third in a series of reports on specialized patrols, the Institute for Human Resources Research (IHRR) has:

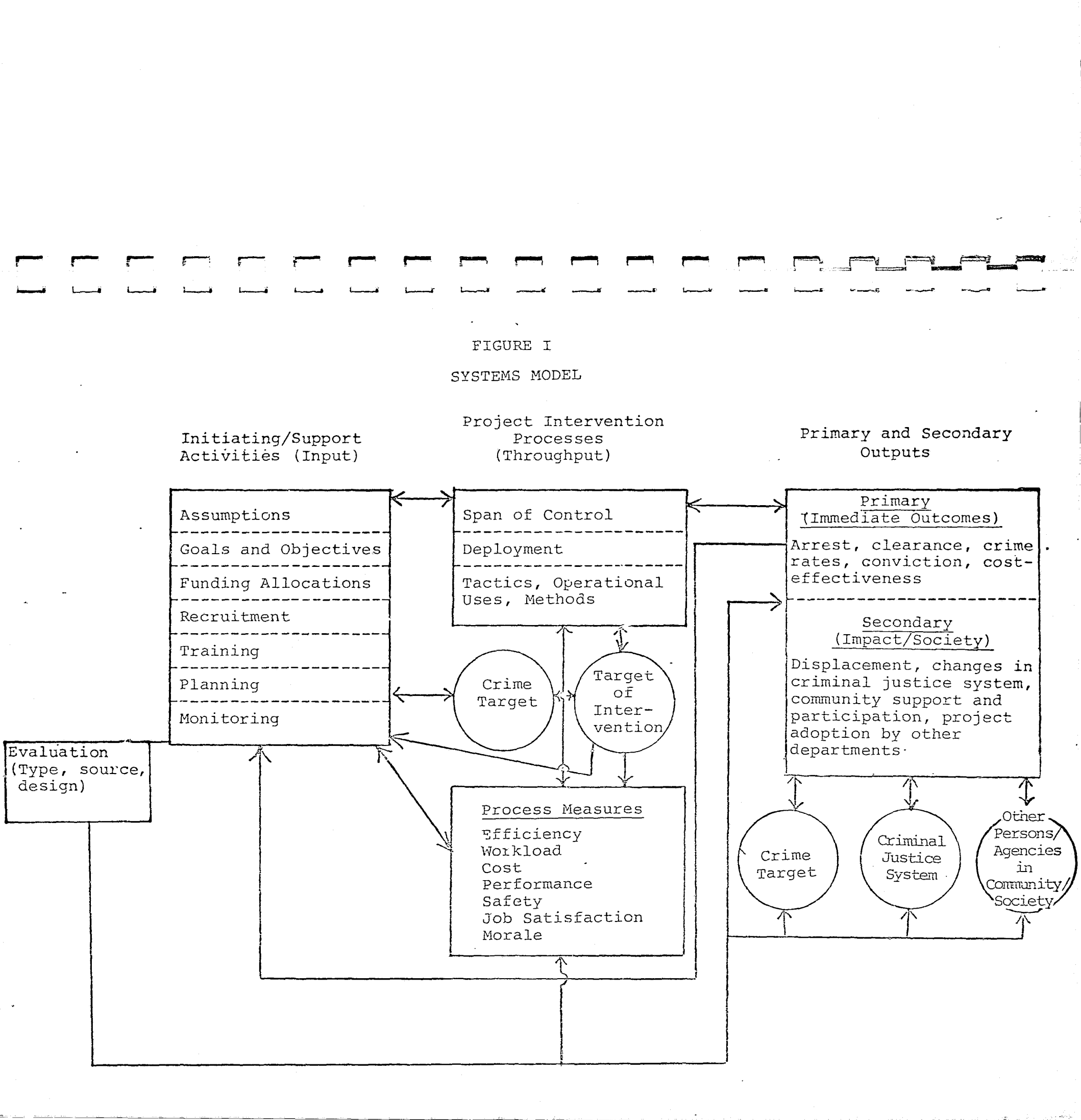
- Classified individual projects into families (Chapter II)
- Developed a framework which synthesizes the assumptions that underlie project families (Chapter III)
- Identified points, or variables that have been and should be measured in evaluations of specialized patrols (Chapters IV and V)
- Identified and described measures that could be used to more effectively evaluate specialized patrols (Chapter VI)

A. Project Families and Classification Criteria

Using the simple general systems model shown in Figure 1, IHRR analyzed detailed data on 21 specialized patrol projects described in its Product 2 Report. This same model was used in classifying these 21 projects into families in this third report. In classifying projects into families, we reviewed each project in relation to the input, throughput and output variables listed in Figure 1. Some input and throughput variables provided useful discriminative criteria for classifying projects into families. These criteria were the assumptions upon which projects were based and the tactics they used to attain their goals and objectives. Given these differences, we identified three distinct project types or families which are listed and defined below:

FIGURE I

SYSTEMS MODEL



. Low Visibility Patrols.--Patrols implemented on the assumption that less visible police presence, achieved through civilian dress and/or mechanical device tactics, will lead to increases in apprehension and, therefore, to reductions in target crimes.

. High Visibility Patrols.--Patrols implemented on the assumption that increasing visible police presence through a uniformed tactical patrol tactic will deter crime most effectively and also increase the likelihood of arrest.

. Combined High/Low Visibility Patrols.--Patrols implemented on the assumption that a multi-faceted approach relying on less visible, as well as visible, police presence achieved through the use of uniformed tactical units and civilian dress and/or mechanical device tactics, will effectively reduce crime and increase apprehension of target criminals.

The families did not differ in any systematic ways on such input variables as recruitment and selections criteria, training, planning, monitoring, and evaluations or such throughput variables as span of control, deployment practices, operational modes, methods, crime targets, or the targets (persons/agencies) of intervention. Further, one family was no more likely than another to receive a Federal grant and all tended to focus on the same types of goals and objectives.

In selecting levels of visibility as a criterion for classifying projects, we have stayed at the level of testable assumptions. Two are frequently noted:

- Low visibility (LV) leads to increased arrests which in turn should reduce crime
- High visibility (HV) deters crime and may lead to increased arrests

The HV assumption is most easily tested since it relies on only one tactic. The LV assumption is slightly more difficult to assess when both civilian dress and mechanical device tactics are used. And, the HV/LV assumption becomes even more difficult to test since it mixes visibility levels as well as tactics. However, the choice of family types offers at least two advantages: (1) it is easily understood by law enforcement personnel and (2) it is capable of being expanded to include tactics (e.g., canine patrols, bicycle patrols) not discussed in detail in the IHRR reports.

B. The Model

The model shown in Figure 1 was used as an "analytic framework" for determining variables or points that have been measured in specialized patrol studies and for determining those variables that should be but have not been measured, or at least not measured adequately. A summary discussion of the model is presented below, preliminary to our presentation of points that have been and should be measured.

1. Input. Assumptions represent the first level of input. They generally infer:

- A belief in the efficiency of a certain level of visibility which can be accomplished through the use of one to three tactics
- The goals and objectives of the project (in global terms)
- The crime target (e.g., burglary)

Thus, the assumptions identify a problem and a means of action for solving the problem: the result is a set of hypotheses capable of testing. The other variables shown under "input" in Figure 1 are seen as intervening variables largely under departmental control. Other intervening factors under departmental control, but not shown in Figure 1, are coordination between the patrol and other departmental units and police-community relationships. Intervening input variables not under departmental control include outside funding support (e.g., LEAA grants), community input into planning, citizen support, criminal behavior, citizen reporting of crimes, characteristics of target areas and societal changes.

2. Throughput. Major variables under throughput are the three tactics, three operational uses (suspect-, crime-, and location-oriented) and a host of methods (roving patrol, decoy, blending, stake-out, surveillance, security checks, public education). Process measures include such factors as performance, efficiency, safety and job satisfaction and morale. Span of control, deployment practices, cooperation with other units and personnel behavior are viewed as intervening throughput factors under departmental control. Intervening throughput factors outside departmental control include criminal organization and behavior, the behavior of victims and potential victims and community support and participation in the patrol's activities.

3. Output. The most typical primary output measures are based on various forms of crime statistics--arrest rates,

clearance rates, conviction rates and short-term reductions in crime. All are subject to problems of reliability and validity. Secondary output measures (impact on the community and society) should include measures of entrapment; displacement; civilian complaints, support and participation; effects on other parts of the criminal justice system; citizen injuries/deaths; etc. Intervening factors under departmental control that might affect primary and secondary outputs are the accuracy of the data base, behavior of the patrol, police-community relations, objectivity and cooperation of the department in an evaluation and the presence of nonpatrol personnel in target areas. Intervening output factors not under departmental control include societal changes which lead to increases or decreases in target crimes, community support, procedures of the courts, prosecutors and other criminal justice personnel, changes in the strategies/activities of criminals, media coverage, and the objectivity and capabilities of external evaluators.

C. Current Measurements

The brevity of our chapter on the current measurements of project families is one measure of the lack of evaluative data on specialized patrols. In general, the measures used are in need of refinement as are the typical study designs.

Our study shows that the typical crime statistics measures are most often used in one of the following designs:

- Comparisons of crime statistics measures before and after project implementation

- Comparisons of crime statistics measures between the specialized patrol and the rest of the department and/or their target areas

Crucial design deficiencies include:

- A lack of adequate control or comparison groups
- Inattention to the interventions of nonspecialized patrol personnel in the specialized patrol's target area
- Inadequate study of displacement
- Inattention to process measures

The points typically measured are those shown in Figure 1 as primary output measures (arrest, clearance, and conviction rates and reductions in crime). A few studies have addressed displacement, civilian attitudes, quality arrests and court convictions on the output side and performance, cost and morale on the throughput side. The points that have been measured are constant across project families and leave the assumptions upon which each family is based essentially untested. A few studies of citizen attitudes provide almost the only data available on any intervening factors listed in the previous section.

D. Potential Points of Measurement

Important points remain to be measured before there is sufficient information to help decision makers in any choices regarding implementation of a specialized patrol operation. One can infer that departments assume specialized patrols will be more cost-effective than traditional patrol for combatting certain forms of crime. What types of information are needed to verify this belief? We believe that, at a minimum, the following areas should receive evaluation support:

- Performance and efficiency
- Cost-effectiveness
- Effectiveness of specialized patrols in combatting specific crimes
- Attitudes/participation of the community (including other parts of the criminal justice system)

A crucial factor to include in the study--one which must be part of the department's planning and of the study design--is the personnel selection process. The tendency of departments to select their best personnel for specialized patrol calls for a careful matching of comparison groups and of working time and situations.

Thus, on the input side, we would stress formulation of testable hypotheses and a design that can take personnel selections into account. Further evaluations should also test project objectives. On the throughput side, the most important measurement points are the tactics and methods (by type of crime) and the process measures (performance, efficiency, cost-effectiveness, job satisfaction, and morale). For the output side, we stress the need for improving the quality characteristics of crime statistics (arrest, clearance, conviction, and crime rates) in order to measure more effectively primary outputs. Secondary outputs such as displacement and other effects on the society are also important measurement points.

E. Measures of Process and Output

In Chapter VI we present many types of measures that have been and might be used to evaluate specialized patrol

projects. The different measures are rated by IHRR as being "preferred," "acceptable," "unacceptable" and "impracticable."

Table 1 lists the "preferred" and "accepted" types of measures judged by IHRR as being appropriate for testing the assumptions and objectives common to the three specialized patrol projects.

It can be noted in Table 1 that a given visibility level, tactic or method can be tested by the number of objectives (totally or partially) met through the project interventions. Objectives attainment, however, is not the best test of "success" or "failure" for several reasons. For example, given limited resources, a stated objective may be unattainable (e.g., a 60 percent increase in convictions). Or, objectives may be too narrowly defined (e.g., a project could attain an 8 percent increase in arrests when the objective was only a 5 percent increase). In still another case, a project may fail to reduce crime (its stated objective) but its target area may experience only a small increase in crime while adjacent areas show a large increase (with no evidence of displacement). Comparatively speaking, the last project might be considered successful; by the criterion of objectives attainment, it could only be classified as a failure.

IHRR suggests that the amount of change effected by a project be considered as a more meaningful test of project assumptions, tactics and methods. Preferably, this amount

TABLE 1

ASSUMPTIONS AND MEASUREMENT FRAMEWORK

CHAIN OF ASSUMPTIONS	OBJECTIVES	PRIMARY OUTPUT MEASURES	SECONDARY OUTPUT MEASURES	ROW
VISIBILITY LEVEL	ACHIEVE OBJECTIVES	NUMBER OF OBJECTIVES MET; NUMBER OF OBJECTIVES PARTIALLY MET; AMOUNT OF CHANGE	NUMBER OF OBJECTIVES MET; NUMBER OF OBJECTIVES PARTIALLY MET	1
TACTIC	ACHIEVE OBJECTIVES	NUMBER OF OBJECTIVES MET; NUMBER OF OBJECTIVES PARTIALLY MET; AMOUNT OF CHANGE	NUMBER OF OBJECTIVES MET; NUMBER OF OBJECTIVES PARTIALLY MET; ATTITUDE SURVEY	2
METHODS	ACHIEVE OBJECTIVES	NUMBER OF OBJECTIVES MET; NUMBER OF OBJECTIVES PARTIALLY MET; AMOUNT OF CHANGE	NUMBER OF OBJECTIVES MET; NUMBER OF OBJECTIVES PARTIALLY MET; ATTITUDE SURVEY	3
APPREHENSIONS CONVICTIONS CLEARANCES	INCREASE ARRESTS INCREASE CONVICTIONS INCREASE CLEARANCES	ARREST RATES, QUALITY ARRESTS, CONVICTION RATES, CLEARANCE RATES, COST-EFFECTIVENESS	ENTRAPMENT (NO. VIRGIN ARRESTS), DISPLACEMENT, CASES SURVIVING 1st JUDICIAL SCREENING, COURT CONVICTIONS	4
DETERRENCE	REDUCE CRIME	CRIME RATES, VICTIMIZATION SURVEYS, COST-EFFECTIVENESS	VICTIMIZATION SURVEYS, DISPLACEMENT	5
CITIZEN FEAR	MINIMIZE CITIZEN FEAR	N/A	ATTITUDE SURVEY	6
PUBLIC SAFETY	INCREASE PUBLIC SAFETY	N/A	NO. CITIZEN DEATHS/INJURIES DUE TO: 1) PATROL 2) CRIMINAL ACTIVITY; NO. FIREARM DISCHARGES; CITIZEN SURVEY	7
PUBLIC RESPECT	INCREASE PUBLIC RESPECT	N/A	NO. CIVILIAN COMPLAINTS, COMPLIMENTS, REQUESTS FOR PATROL SERVICES; INCREASE IN CITIZEN REPORTING OF CRIMES, ATTITUDE SURVEY	8
CITIZEN SUPPORT & PARTICIPATION	INCREASE CITIZEN SUPPORT & PARTICIPATION	N/A	MEASURES OF POLITICAL SUPPORT, ATTITUDE SURVEY, NO. OF CITIZEN PARTICIPANTS IN TARGET HARDENING PROGRAM	9

of change measure would be used on a well-matched comparison group as well as the specialized patrol.

Most of the measures of primary outputs (immediate outcomes) shown in Table 1 are those commonly used to assess the effectiveness of specialized patrols. The exceptions are victimization surveys and cost-effectiveness studies; both would add much to our knowledge on specialized patrols. Further, victimization surveys could provide a "check" on the typically unreliable crime rate measures. Arrest measures could be improved also, especially by considering the quality of arrests. A secondary output measure--the number of cases surviving the first judicial screening--provides one measure of the quality of arrest. Other secondary output measures--entrapment and displacement--could serve as a "check" on the "validity" of arrest performance, thereby improving the quality characteristics of arrest measures.

Attitude surveys, based on a carefully selected sample of civilians, would be useful measures for testing all the objectives related to citizens, such as reducing citizens' fear of victimization and increasing public safety, respect, support and participation. Attitude surveys might include questions about project tactics and methods as well. Police departments could use their own records to measure such factors as citizen injuries or deaths, civilian complaints and compliments, citizen reporting of crimes, citizen participation in target hardening and other programs, and citizen requests for patrol serivces. These measures could provide

a better perspective of how well specialized patrols are meeting some of their objectives intended to benefit the citizenry.

In addition to the measures presented for testing project assumptions and objectives, Chapter VI describes a number of "process measures" which could assist police departments in management control and monitoring. These process (throughput) measures are designed to test what are inferred by IHRR as being a set of "implicit beliefs" held by departments: that specialized patrols will increase performance and efficiency, be cost-effective, create a comparatively safe working environment, and enhance job satisfaction and morale. We know from the IHRR literature review that these advantages do not necessarily accrue with specialization; the study of these process measures is, therefore, an important consideration.

A large number of performance measures are available, many of which can be used also in assessing project outputs. These include arrests, quality arrests, reported crimes, crimes cleared, etc., by type of crime, if desired. A list of workload measures also appears among the performance measures. Examples of workload measures are the number of field interrogations conducted, number of targets "hardened," number of stolen autos recovered and percent of vehicles stopped and checked that result in arrests.

Two principal numerators for efficiency ratios are proposed: patrol man-hours and total costs of specialized

patrol activity. These can be employed in various ways. For example, one can consider cost per crime reported, cost per arrest, cost per arrest prosecuted, and so on. Or, each of these activities can be considered in terms of man-hours (e.g., per arrest).

Cost-effectiveness measures include the activities discussed above (e.g., number of arrests, crimes reported, cases surviving first judicial screening); these appear as denominators; total costs serve as numerators. Each total cost/activity ratio can be utilized for all crimes, specific crimes, target crimes and so on.

An assessment of the safety-level of a tactic or method could be conducted quite simply, using police records. Measures of safety could include the number of deaths and the number of line-of-duty injuries.

Attitude surveys are one means of determining the effects which specialization has on the job satisfaction and morale of the specialized patrol and other police department units. Departments could utilize a record review also to determine the level of job satisfaction and morale among specialized personnel. The record measures could be attrition rates, requests for transfer to other units, absenteeism and minor rule infractions.

In Chapter VI IHRR also discusses intervening variables (factors) that are and are not under departmental control. It is suggested that many input variables under department control (e.g., training, monitoring) be studied through

planned variations on an experimental basis. Community surveys are perceived as a means of studying other intervening variables such as police-community relations and the behavior of specialized patrols. Variables such as court procedures, citizen reporting of crimes, characteristics and strategies of criminals and cooperation among members of the specialized patrol and other units of the department would require rather direct study and specific measures. Other intervening variables could be controlled by statistical techniques (e.g., the effects of nonspecialized patrols in target areas assigned to specialized patrols, the relationship between crime and societal changes). Geographic Equality Measures could be used to determine how equally resources (police staff, equipment) are distributed among or between neighborhoods.

IHRR recognizes a need for more refined measures to assess more adequately specialized patrols. However, since few are currently available, we urge law enforcement personnel to utilize multiple measures. The use of several independent measures is currently the best means available for increasing our ability to interpret study findings.

Finally, we stress the importance of good study design and urge departments to choose from among those available that design which can provide an adequate test of the questions they seek to answer.

I. INTRODUCTION

This is the third in a series of reports being prepared by the Institute for Human Resources Research (IHRR) for the National Evaluation Program of the National Institute of Law Enforcement and Criminal Justice, Law Enforcement Assistance Administration (LEAA).

In previous reports, IHRR has:

- Reviewed published and unpublished literature on specialized patrols and drawn together relevant information on the most common forms of specialized patrol tactics 1
- Surveyed police departments across the nation to supplement available literature and prepared case-descriptive studies of 21 individual specialized patrols projects 2

From our previous studies, it is obvious that police patrol, long known to be an indispensable service in the accomplishment of police purposes,[3] is turning more and more to specialization.[4] Yet, to date, we know very little about specialized patrols in terms of the assumptions upon which they are based, the links between these assumptions and some eventual primary outputs (immediate outcomes) and secondary outputs (impact), how the most common forms should be logically integrated into typologies and so on.

Our tasks in this report are to:

- Classify individual specialized patrol projects by "families" or project types
- Develop a framework which represents the synthesis of assumptions that underlie each project type and which can be used also:

- To describe the chain of assumptions linking project expenditures to project activity or intervention, and the project intervention to primary outputs and secondary outputs
- To show at what points and by what means the assumptions are testable
- To describe intervening factors which affect a project that are and are not under project control

In summary, we will attempt to depict project types within a process that denotes:

chains of assumptions ⟶ expenditure of funds ⟶ project interventions ⟶ primary outputs ⟶ secondary outputs

and to indicate in this process what has been and should be measured, including intervening factors that may affect the project.

Our framework follows a simple, modified systems analysis approach for the following types or families of specialized patrol projects:

- Low Visibility Patrols
- High Visibility Patrols
- Combined High/Low Visibility Patrols

Each of these project types relies on one or more of the following tactics which were one focus of our previous reports: civilian dress, uniformed tactical and use of mechanical devices.

In the pages that follow, IHRR will describe:

- Project families and classification criteria (Chapter II)
- The analysis model (Chapter III)

- Current measurement of project families (Chapter IV)
- Potential points of measurement (Chapter V)
- Measures of process and outputs (Chapter VI)

NOTES AND REFERENCES

1. Institute for Human Resources Research. "Phase I National Evaluation of Selected Patrol Strategies: Specialized Patrol Operations Under the National Evaluation Program: Product 1, Literature Search." Prepared under LEAA Grant No. 75-NI-99-0067. Bethesda, Maryland, 1975.

2. Institute for Human Resources Research. "Phase I National Evaluation of Selected Patrol Strategies: Specialized Patrol Operations Under the National Evaluation Program: Product 2, The Universe and Selected Project Descriptions." Prepared under LEAA Grant No. 75-NI-99-0067. Bethesda, Maryland, 1975.

3. Wilson, O. W., and McLaren, Roy C. Police Administration. New York: McGraw Hill, 1967.

4. Institute for Human Resources Research. "Product 1."

II. PROJECT FAMILIES AND CLASSIFICATION CRITERIA

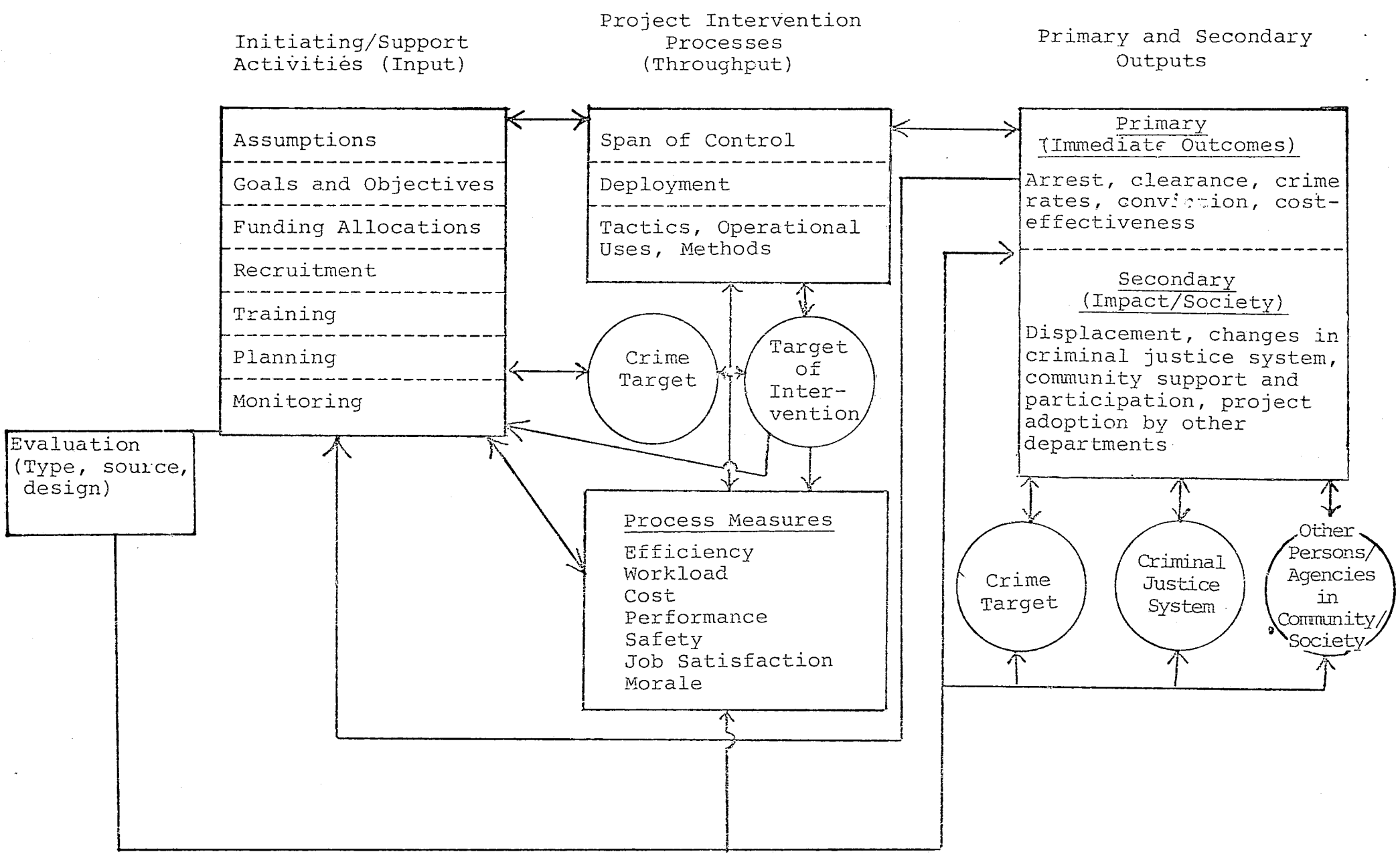
A. Relationship of Product 2 to This Report

In its Product 2 report,[1] IHRR described 21 specialized patrol projects. Each project was reviewed in a systematic framework in which IHRR described and analyzed its initiating and support (input) processes, its project intervention activities (throughput), and its primary and secondary outputs. Within this simplified general systems approach, we looked also at each project's "crime target" (i.e., the impact crime or crime targeted for intervention) and the "target of intervention" (i.e., persons or agencies protected and/or affected by the patrol). Thus, the same types of data (where available to IHRR) were scrutinized for each project. Figure II-1 summarizes the types of data covered in our model.

In order to classify specialized patrol projects into different types of families, we focused mainly on organizational (input and throughput) processes to determine distinguishing but relevant features for the families. Primary and secondary outputs were not used to determine families since the variable results and/or lack of measured results did not prove to be feasible discriminative criteria. For example, on the input side we studied such factors as the assumptions underlying the project, its goals and objectives, funding allocations and sources, recruitment and selections

FIGURE II-1

SYSTEMS MODEL



criteria, training, planning and organizational structure. On the throughput side, we reviewed the span of control, deployment practices, tactics, operational modes and methods, crime targets, and targets of intervention.

Each project, of course, possessed its own unique qualities, qualities that are necessarily lost in any classification scheme. But, we found much that was similar among the projects; only a few characteristics seemed important distinguishing criteria for classifying projects into groupings.

Product 2 established the background for discussing this report. The balance of this chapter discusses the development of project families in detail.

B. Project Families

Within the domain of specialized patrol, we identify three families:

- Low Visibility Patrols
- High Visibility Patrols
- Combined High/Low Visibility Patrols

Table II-1 summarizes the similarities and distinguishing characteristics of these three families. (The numer of each family type in our sample appears in parentheses in Table II-1.) We shall discuss these similarities and differences in the following sections.

C. Family Similarities

The following factors did not distinguish any of the projects classified by visibility level (i.e., these factors,

TABLE II-1

PROJECT FAMILIES: SIMILARITIES AND DIFFERENCES

CRITERION	LOW VISIBILITY PATROLS (n = 8)	HIGH VISIBILITY PATROLS (n = 5)	HIGH/LOW VISIBILITY PATROLS (n = 8)
BASIC ASSUMPTIONS	INVISIBLE POLICE OMNIPRESENCE WILL LEAD TO APPREHENSION AND THUS REDUCE CRIME MOST EFFECTIVELY	VISIBLE POLICE PRESENCE WILL DETER CRIME & MAY LEAD TO INCREASED APPREHENSION	VISIBLE POLICE PRESENCE AND INVISIBLE OMNIPRESENCE WILL MORE EFFECTIVELY DETER CRIME AND INCREASE APPREHENSION
OBJECTIVES	REDUCE CRIME: INCREASE ARRESTS, CLEARANCE, CONVICTION RATES	SAME	SAME
SELECTIONS	"BEST" MAN FROM PD (SOME SUPPLEMENTAL USE OF VOLUNTEERS, OVERTIME REGULARS)	SAME	SAME
TRAINING	SOME SPECIALIZED TRAINING RELEVANT TO TASKS	SAME	SAME
PLANNING	LARGELY BASED ON CRIME ANALYSIS	SAME	SAME
ORGANIZATION	PLACED IN SPECIAL O.P., FIELD O.P. OR PATROL DIVISION	SAME	SAME
MONITORING	MAINLY BY UNIT	SAME	SAME
SPAN OF CONTROL	MAINLY 1 - 10 OR LESS	SAME	SAME
DEPLOYMENT	LARGELY BASED ON CRIME ANALYSIS	SAME	SAME
TACTIC	CIVILIAN DRESS &/OR MECHANICAL DEVICES	UNIFORMED TACTICAL	UNIFORMED TACTICAL WITH CIVILIAN DRESS &/OR MECHANICAL DEVICES
OPERATIONAL MODES	CRIME & LOCATION ORIENTED (FEW SUSPECT ORIENTED)	SAME	SAME
METHODS	BASICALLY PATROL, STAKEOUT, SURVEILLANCE, DECOY, TARGET HARDENING	SAME EXCEPT DECOY	ALL
CRIME TARGET	ROBBERY, BURGLARY, OTHER MAJOR CRIMES	SAME	SAME
TARGET OF INTERVENTION	BUSINESS & CITIZENS	SAME	SAME

as described, were common to all families, and deviations from these patterns were proportionately similar across families).

- Recruitment and Selections Criteria--The majority (60 percent or more) chose the best men for the Department and about one-fourth of each family type used volunteers and/or overtime regulars at least in supplementary capacities.

- Training--The majority offered at least some specialized training relevant to the patrol family (data are lacking on two High Visibility Patrol projects).

- Planning--From 60 to 100 percent of all family types rely heavily on crime analysis in planning; High Visibility Patrols did show a slightly higher tendency to rely more on other sources (e.g., investigative information) than other family types.

- Monitoring--For the majority of each family type, monitoring was largely a function of the specialized patrol unit. (Data on monitoring of High Visibility Patrols are less complete than for others.)

- Internal Data Comparisons--At least one-half of all family types performed internal comparisons and/or evaluations of specialized patrol activities.

- External Evaluations--About one-half or more of all project types have been evaluated by outside personnel (though often in cooperation with the Department, State Planning Agency, or a related agency).

- Experimentally Initiated--Data on combined High/Low Visibility Patrols are not complete; however, from available data on the other families, it appears that each family has a fairly equal proportion of experimental projects (50-60 percent).

- Span of Control--The majority of all family types operated with one Sergeant to ten or less men (usually eight officers).

- Deployment--From 75 to 100 percent of each family type relied largely on crime analysis to deploy personnel.

- Operational Modes[2]--The majority of all family types (75 to 100 percent) relied on crime and location-oriented operational modes. High Visibility Patrols were more prone to rely on a suspect orientation than other family types: 40 percent of the HV Patrols utilized a suspect orientation as compared to 12-25 percent of the other patrol types. However, the data strongly suggest that all family types relied on a suspect-oriented mode, at least on occasion, and that mention is simply not made of the use of this operational mode.

- Methods--All family types, of course, utilize patrol methods (e.g., roving patrol, saturation patrol). Surveillance and stakeout were methods common to all families as well. Decoy methods obviously were not part of the High Visibility Patrols' activities. Nor was air patrol which was part of the methods of a few Low and High/Low Visibility Patrols.

- Crime Targets--Each family type was represented by some projects (25-63 percent) that were concerned with combating all or most types of serious crimes (e.g., homicide, assault, rape, burglary, robbery, larceny). All other types were represented by some projects mainly focused on burglary or robbery. A higher proportion of Low and High Visibility Patrols did tend to focus more on robbery than burglary while the opposite was true for the High/Low Patrols.

- Targets of Intervention--All family types were concerned with protecting commercial as well as noncommercial establishments and, consequently, businessmen as well as other citizens.

Our data on how specialized patrols fit into the organization of their Departments, how they are funded, and the amount of yearly appropriations are not complete. However, such data as those existing show that the specialized patrols tend to be within the Special Operations Division or Patrol Division, regardless of family type, and that one type is no more likely than another to be the recipient of a Federal

grant ranging from about $250,000 to around one million dollars. (One High Visibility Patrol did receive a $7 million grant.)

Finally, despite the setting of many specific sub-objectives by some patrol projects, all tended to focus on the same major objectives: crime reduction, increased arrests and, to some extent, increased conviction and/or clearance rates.

D. Family Differences

As Table II-1 shows, the major factors distinguishing projects were the assumptions upon which they were based and the tactics they used to attain their goals and objectives. Given these differences, we can define our families as follows:

- Low Visibility Patrols--Low Visibility Patrols are implemented on the assumption that less visible police presence, achieved through civilian dress and/or mechanical device tactics,[3] will lead to increased apprehension and, therefore, to reductions in target crimes.

- High Visibility Patrols--High Visibility Patrols are implemented on the assumption that increasing visible police presence through a uniformed tactical patrol[4] tactic, will deter crime most effectively and also be likely to increase the chances of apprehension.

- Combined High/Low Visibility Patrols--High/Low Visibility Patrols are implemented on the assumption that a multifaceted approach, relying on less visible, as well as visible, police presence achieved through the use of uniformed tactical units and civilian dress and/or mechanical device tactics, will effectively reduce crime and increase apprehension of target criminals.

E. Reasons for Typological Choices

It should be noted that the choice of families described in this report was not the only possible one, despite similarities across projects. Table II-2 shows other possible typological bases, the reasons why they might be considered in future studies and the reasons why we chose not to use these classifications.

In choosing levels of visibility to distinguish projects, we have stayed at the level of testable assumptions[5] (hypotheses). Two were frequently noted:

- Low visibility leads to increased arrests which in turn should reduce crime
- High visibility deters crime (and may lead to increased arrests)

In the first assumption, of course, it will be important to measure which tactic, or variations of tactics (civilian dress or use of mechanical devices), is more likely to lead to the accomplishment of the objectives inferred in the assumption. The high visibility assumption is more clear cut, more easily tested. The combined high/low level of visibility admittedly will be difficult to assess, in terms of teasing out differences by tactic combinations, because of the small sample size (n = 8) upon which our data rest. However, in all cases, we can delineate important points which have been or should be measured and intervening factors that might affect the process or primary and secondary outputs of any selected project type. The framework for accomplishing this task is the subject of our next chapter.

TABLE II-2

OTHER POSSIBLE TYPOLOGIES

TYPOLOGICAL BASIS	IMPORTANCE	REASONS FOR NON-SELECTION
Tactics	Each needs to be tested for effectiveness	Sample too small for some combinations
Selections Criteria	Tests need to be made of projects that select "best" men vs those that use overtime regulars, volunteers or seemingly random selection	Sample too small to make conclusions about use of this criterion as classification basis
"Success" vs "Failure"	Real need to know what succeeds, what fails	Data base inadequate for sound conclusions; also, projects may succeed in some ways, fail in others so that weights may need to be devised for judging projects on these dimensions

Before turning to the discussion of our framework, one final point should be made regarding the feasibility of our choice of family types: that is, it offers the advantages of being (1) easily understood by law enforcement personnel and (2) capable of expansion to include tactics not discussed in detail in our reports, such as canine units, horse and bicycle patrols.

NOTES AND REFERENCES

1. Institute for Human Resources Research. "Phase I National Evaluation of Selected Patrol Strategies: Specialized Patrol Operations Under the National Evaluation Program: Product 2, The Universe and Selected Project Descriptions." Prepared under LEAA Grant No. 75-NI-99-0067. Bethesda, Maryland, 1975.

2. It should be noted that the paucity of data on the three operational modes did not permit a real study of these modes. They simply appear to be adopted without thought or planning and are seldom discussed in project information; in fact, their use sometimes must be inferred from available data. Few projects describe themselves as "suspect oriented," though we suspect that many are, at least occasionally.

3. The basic definition of a civilian dress unit is implied in its name: its members wear civilian clothes rather than police uniforms. The units rely on stakeouts, surveillance, etc. The definition of mechanical devices tactics is also implied in its name, that is, it refers to units who rely on sophisticated technological equipment, such as electronic surveillance systems and night vision scopes in the deterrence of crime and apprehension of criminals.

4. A uniformed tactical patrol complements the work of a traditional preventive patrol unit and most often deploys uniformed personnel in vehicles. Like the civilian dress units, the uniformed tactical units rely on many methods and may rely on one or more of three basic operational modes: suspect oriented, crime oriented, and location oriented. And, these units may rely on mechanical devices (e.g., remote alarm systems, night vision devices) to assist in meeting their objectives; in such cases, they are classified as High/Low Patrols.

5. Added assumptions common to all project families are that each family type will decrease public fear and increase public support and respect, as noted in Chapter IV. Also, a few projects add to the general assumptions cited in this chapter, some rather specific assumptions. For example, the SWAT unit in Houston, Texas, assumes that this uniformed tactical unit can handle assigned barricade or hostage cases better than the uniformed regular patrol because of the specialized training provided the SWAT unit.

III. THE MODEL

In its Product 2 Report,[1] IHRR devised a simple model for the purpose of analyzing information on 21 selected specialized patrol projects. This model appeared in Figure II-1.

This same model is utilized in this study to classify the 21 projects by family types and to identify points or variables that have been or should be measured in evaluations of specialized patrols.

A. General Description

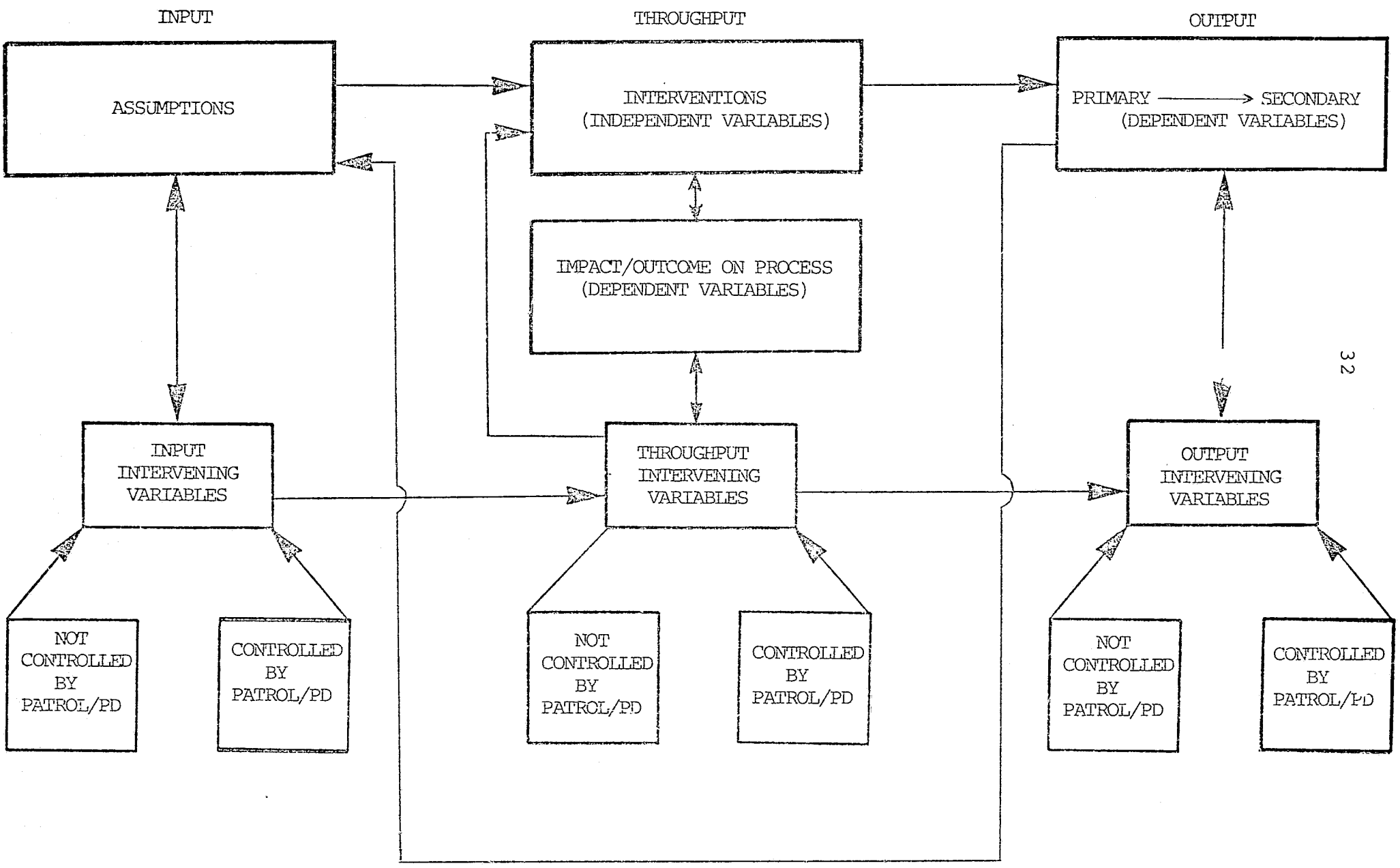
Our model is composed of three principal components:

- Input or Initiating and Support Activities--Those initiating and/or ancillary activities or resources deemed useful or necessary to actual project interventions
- Throughput or Project Intervention Processes--Those activities that comprise project interventions (i.e., tactics, operational uses and methods) and the consequences of these activities on the project (e.g., "process measures" such as productivity and morale)
- Output--Those events resulting from project interventions that comprise primary outputs (e.g., arrests, convictions) or secondary outputs (e.g., displacement, arousal of negative public opinion)

At any point in the model, there are many intervening variables (factors) that may impact on the interventions (independent variables), the internal processes of the specialized unit or department or on the patrol's outputs (dependent variables).[2] The major elements of the model and the major types of variables are depicted graphically in Figure III-1. The only input

FIGURE III-1

MAJOR ELEMENTS IN THE MODEL



explicitly shown is "assumptions"; other inputs (e.g., objectives, funds, recruitment, training, planning, monitoring) are omitted. The purpose of this presentation is to depict the three major links in the model:

assumptions ⟶ interventions ⟶ primary and secondary outputs

The model recognizes that each defined part may be related to other parts of the model. Further, two or more parts of the model may interact in complex and sometimes immeasurable ways. As Figure III-2 shows, we view specialized patrol as part of a system that is difficult to measure neatly by simply showing a direct relationship between input and throughput and, subsequently, between throughput and output. Each of the three major aspects of the model may be comprised of many interrelated parts.

Using this model, we have reviewed and analyzed separately the initiating and support activities (input) of specialized patrols, the project interventions (throughput) and the primary and secondary outputs of the specialized patrols' interventions. The model has also permitted us to describe and analyze interactions between the different elements of the model, such as the effects of stakeout (throughput) on arrest rates (primary outputs). It has also permitted us to identify important points for measurement.

The task of assessing specialized patrols is not an easy one. Specialized patrols are only part of larger societal systems, such as those shown in Figure III-3, and in all probability, both affect and are affected by these other societal systems.

FIGURE III-2

THEORETICAL INTERRELATIONSHIPS OF SYSTEMS VARIABLES

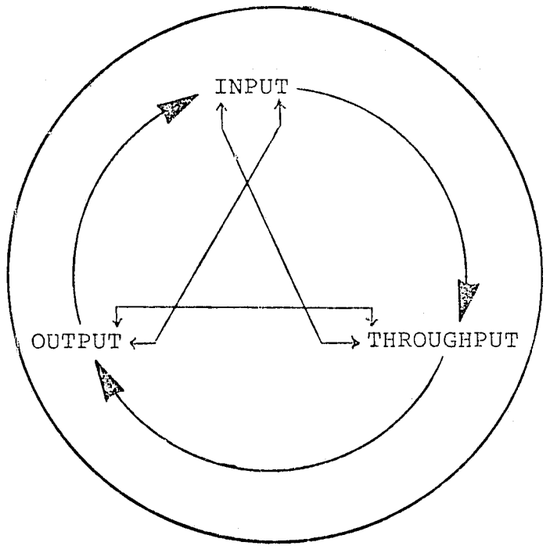
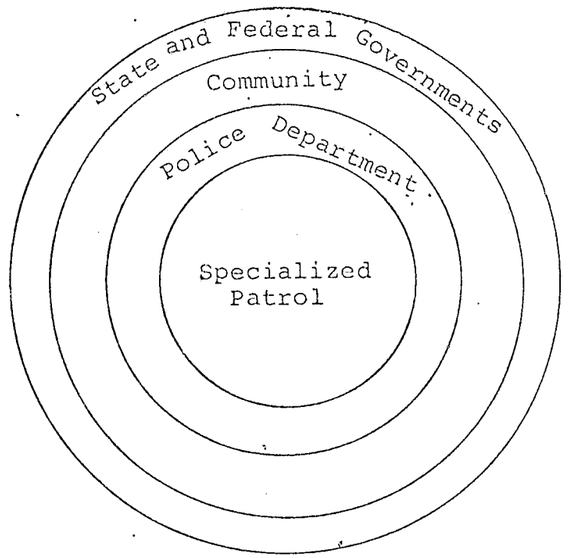


FIGURE III-3

SPECIALIZED PATROL WITHIN OTHER SOCIETAL SYSTEMS



The number of variables that could affect the primary and secondary outputs of specialized patrols is seemingly infinite, even within a simplified model. Attempting to assess each and every variable that might affect the various outputs obviously would be beyond the resource capability of most police departments and certainly beyond the methodological capabilities of present-day research.

Given these limitations, IHRR has chosen for study and review only those variables which, in our judgment, appear to bear most directly upon the assumptions underlying project types, the project interventions and the outputs of specialized patrols.

The different parts of the model, as well as intervening variables that might affect input, throughput, or output, are discussed in the following sections.

B. Model Components

1. Input.

a. Assumptions. The first and major level of interest in the initiating/support process is the assumption or assumptions upon which the project rests. In our study of individual projects, we found that the assumptions generally infer:

- A belief in the efficacy of a certain level of visibility which can be accomplished through one to three tactics
- The goals and objectives of the project (though not always at a defined level of specificity such as a 5 percent reduction in burglary)

- The target crime (largely burglary, robbery and other Part 1 offenses)

Thus, these assumptions identify a problem and a belief that certain means of action will be effective in meeting the problem. Essentially, they form a number of hypotheses capable of measurement and testing.

b. Intervening factors under control of the patrol or department. Several initiating or support activities under control of the project or police department theoretically could exert a great influence on the project's effectiveness. At this stage in history, these are best classified as "intervening variables" rather than "independent variables" since no planned variations of any of these processes appear to be part of any experimental study of specialized patrols. These are listed below:

- Funding levels for specialized patrol
- Recruitment and selections criteria
- Training
- Planning
- Place of patrol in police organization
- Coordination between patrol and department
- Monitoring
- Internal data base
- Internal evaluation (methods)
- External evaluation (methods) in cooperation with the department
- Police relations with community and other parts of the criminal justice system

C. Intervening Factors Not Under Control of Patrol Or Department

The patrol activity during its initiation is likely to be effected by many external forces which may or may not prove supportive of its efforts. Major intervening variables in this case are:

- Outside funding support (e.g., LEAA)
- Community input into planning/support system (including parts of the criminal justice system)
- Criminal society/behavior
- Citizen reporting of crimes
- Characteristics of target areas (e.g., socio-economic status of population
- Societal changes

1. Throughput

a. Interventions (independent variables). The various types of intervention are a focal point of the throughput. These are comprised of tactics, operational modes and methods.

i. Tactics

- Civilian dress patrol
- Uniformed tactical patrol
- Patrols that rely on mechanical devices

ii. Operational modes

- Suspect oriented
- Crime oriented
- Location oriented

iii. Methods

- Roving patrol
- Decoy
- Blending
- Stakeout
- Surveillance (including electronic devices)
- Security checks
- Public education

b. Process measures (dependent variables). Departments might well be interested in reviewing and assessing the effects which specialization has on the department and/or the specialized patrol. The process measures that appear most useful are:

- Performance
- Efficiency
- Safety
- Job satisfaction
- Morale

c. Intervening factors under patrol or department control. Four processes which operate simultaneously with project interventions and may exert a great influence in patrol operations and process measures are:

- Span of control
- Deployment practices
- Cooperation between different department units and patrol in intervention
- Behavior of patrol (e.g., aggressiveness)

These, of course, are highly related to such input activities as planning and monitoring but are placed within the throughput aspect of the framework because of their more direct relationship to interventions.

d. Intervening factors not under control of patrol or department. As specialized patrols work directly in the community, many factors outside their control may be operating in ways that affect patrol activities and/or what we have termed as process measures. We list those thought to be of greatest importance:

- Criminal organization/behavior
- Behavior of victims or potential victims
- Community support/participation (including other parts of the criminal justice system)

2. Output (Dependent Variables). The most typical way of measuring the effectiveness of specialized patrols is that of viewing some form of reported crime statistic(s) over a relatively short period of time and, perhaps, comparing these figures with those of a period prior to the implementation of the patrol interventions and/or with figures from other departmental units. Such data are almost the only types of information available on the effect which the patrol has on the target crime. We have termed these measures as primary outputs. A few studies have addressed the more secondary outputs of project interventions. These secondary outputs are those most likely to have an impact on the community and/or broader society. Variables reviewed under both primary

and secondary outputs are listed below. The intervening variables cited at the conclusion of this section are generally related to primary as well as secondary outputs.

a. Primary outputs. The following primary outputs are those typically cited in evaluation studies and descriptive materials:

- Arrest rates
- Quality arrest (i.e., an arrest leading to conviction)
- Clearance rates
- Conviction rates
- Reductions in target crimes
- Cost-effectiveness

b. Secondary outputs. In our study of specialized patrols, we looked particularly for the following types of information as indicators of the project's secondary effects on their community and the broader society:

- Displacement of crime
- Entrapment
- Effects on courts, prosecutors, prisons and other parts of the criminal justice system
- Civilian complaints
- Civilian support of the patrol
- Signs of decreased citizen fear (e.g., greater use of public facilities after intervention)
- Citizen injuries/deaths as a result of intervention
- Citizen participation in patrol activities

- Changes in criminal activities/organization resulting from the intervention
- Adoption of the project by other departments

c. Intervening factors within patrol or department control. Factors affecting the project's primary and secondary outputs, other than interventions, include the following:

- Accuracy of data base (crime statistics)
- Behavior of patrol and/or department (apart from tactic or method)
- Patrol/department's cooperation and/or relations with community (including other parts of the criminal justice system)
- Objectivity and cooperation of patrol/department in an evaluation of the patrol
- Presence of nonpatrol department personnel in target area (a factor that may confound evaluation results)
- Efforts to disseminate project information

d. Intervening factors not under patrol or department control. The primary and secondary outputs of the specialized patrols might well be affected by factors outside the control of the patrol or department. These include:

- Societal changes which lead to increases or decreases in target crimes
- Community attitudes supportive or nonsupportive of the patrol or department
- Procedures of courts, prosecutors, and other agents of the criminal justice system
- Changes in strategies/activities of criminals
- Media coverage
- Objectivity and capabilities of external evaluators

In the following chapter, we will discuss those variables which have been measured for many projects subsumed under our project families. In Chapter V, we will indicate those variables which should be, but usually are not, measured. Finally, in Chapter VI, we will discuss the types of measures that might be used to evaluate more effectively the activities of specialized patrols.

NOTES AND REFERENCES

1. Institute for Human Resources Research. "Phase I National Evaluation of Selected Patrol Stragegies: Specialized Patrol Operations Under the National Evaluation Program: Product 2, The Universe and Selected Project Descriptions." Prepared under LEAA Grant No. 75-NI-99-0067. Bethesda, Maryland, 1975.

2. Independent, dependent, and intervening variables shown in Figure III-1 are defined as follows:
Independent variables--that is, those activities of specialized patrol which are allowed to vary while other factors are held constant. In nonexperimental projects where these variables are undefined, we define independent variables in this report simply as the levels of visibility and their accompanying tactics (i.e., civilian dress, uniformed tactical and mechanical). The operational uses of these tactics (i.e., location oriented, crime oriented and suspect oriented) and the methods (e.g., decoy, blending, stakeout) are also important independent variables; however, these have so seldom been evaluated that they must be subsumed as part of the broader independent variables and identified as potential and important points of measurement. However, since the operational uses and the different strategies are generally common to all levels of visibility, they may confound project outputs (dependent variables) only slightly, though future research should certainly test this assumption.

Dependent variables--that is, those factors that are expected to change as a result of the intervention (independent variables). Dependent variables under consideration include such factors as crime rates, arrest rates, clearance rates, quality arrests, productivity measures, morale and job satisfaction, community attitudes toward the project, the project's influence on the criminal justice system, etc. Some dependent variables, such as crime, arrest, and clearance rates are perceived as primary outputs that could affect both the process (i.e., the police department and specialized patrols) and the community. Others, such as morale and job satisfaction, are perceived as process variables that may have an immediate or long-term effect on the patrol or department. Community attitudes and the patrol's influence on the criminal justice system and society at large are viewed as secondary outputs which can be immediate or long-term in effect.

CONTINUED

1 OF 3

Intervening variables--that is, processes that intervene between the independent and dependent variables. The number of possible intervening variables in this case is unknown; however, we will list those thought to be of greatest significance later in this report.

IV. 'CURRENT MEASUREMENT OF PROJECT FAMILIES

The brevity of this chapter is one measure of the lack of evaluative data on specialized patrol projects. We noted, following our literature review:[1]

- There is an insufficient number of published evaluations of specialized patrol projects. Thus, there is a lack of information on successful or unsuccessful methods to assist police departments in decisionmaking.

- The quality of available evaluations is often unacceptable to the research community

After our study of 21 specialized patrol projects,[2] we had no reason to drastically change either of the above conclusions. However, there is evidence of a recent increase in emphasis on evaluation.

Our basic conclusions, based on our prior study are:

- Projects do differ according to the assumptions upon which they are based

- No evaluation has been conducted which adequately tests these assumptions

- Evaluations are based on inadequate designs and questionable measurements

- Important intervening factors have been left unstudied and uncontrolled

A. Evaluation Problems

Major flaws in typical evaluations lie in inadequate study designs and incomplete measures of effectiveness.

In our selected sample of projects, typical measures of effectiveness were those we termed as primary output measures; that is, arrest, clearance, and conviction figures and short-term reductions in target crimes.

We noted in our Product 1 Report[3] that all the above measures are beset with problems. Arrest rates may be unreliable for several reasons: they are subject to police manipulations, they tell nothing about the quality of an arrest (i.e., if it will withstand conviction) and they sometimes fail to indicate the value of particular crimes (e.g., to separate petit offenses from more serious offenses). Similarly, the clearance rate may be confounded by the way in which an officer records the charges; it is related to the number of crimes rather than the number of offenders; and it is influenced by parts of the criminal justice system outside the police department (e.g., by ways in which prosecutors take confessions in the plea bargaining process). Conviction rates, too, tend to be largely outside the control of the police department and often never become totally known to the department. The remaining measure, crime rates, is likely to be unstable and unreliable. These rates reflect only reported crime, not actual crime, and many factors may affect the level of reporting at any given time.

Despite these deficiencies, these measures are the most accessible to police departments and are likely to remain a part of future evaluations. We have discussed some means of improving these measures[4] and will review these in Chapter VI of this report.

The measures just described were most often used in one of the following ways in our sample of 21 projects

- Comparisons of crime statistics measures "before" and "after" project implementation
- Comparisons of crime statistics measures between the specialized patrol and the "rest" of the department (and/or their target areas)

The two basic types of comparisons often appeared within the same evaluation. There are some serious flaws and/or ommissions in all the uses of these designs

- No adequate "control group" has been used. Given the tendency of departments to select the "best" men to serve on specialized patrol, this lack of an adequate comparison or control group has left untested the efficacy of interventions (and, therefore, the assumptions)
- No study reviewed compared the performance of specialized patrol personnel "before" and "after" their assignment to the specialized patrol so that interventions have not been tested via this means either
- No study reviewed has controlled for interventions of other department units operating simultaneously in an area with specialized patrol projects. Thus, in some cases, it is difficult to know the extent to which an output is attributable to the specialized patrol and the extent to which it has been due to other departmental interventions
- The phenomenon of displacement -- addressed by a few studies -- has not received enough evaluation attention. What appears as an effective output on the part of a specialized patrol may seem much less effective if it is known that the target crime has simply been displaced to another area.
- Process measures have largely been ignored so that little information has been generated on efficiency, cost-effectiveness and other factors which could assist police departments in decision making

We could add considerably to the above list; it does, however, represent what we believe to be the most important problems in the evaluations we have reviewed on specialized patrols.

B. Points of Measurement

In this section we will indicate those points which have been measured in a number of evaluations of each of the three types of specialized patrol projects. The reader should bear in mind the criticisms discussed in the preceeding section, especially the conclusion that no evaluation has adequately tested any type of intervention. What we depict, following our framework, is the "typical" types of measurement.

1. High Visibility (HV) Patrols. In Figure IV-1 we show the assumptions, interventions, and outputs common to HV Patrols. Factors measured only occasionally are indicated by an asterisk.

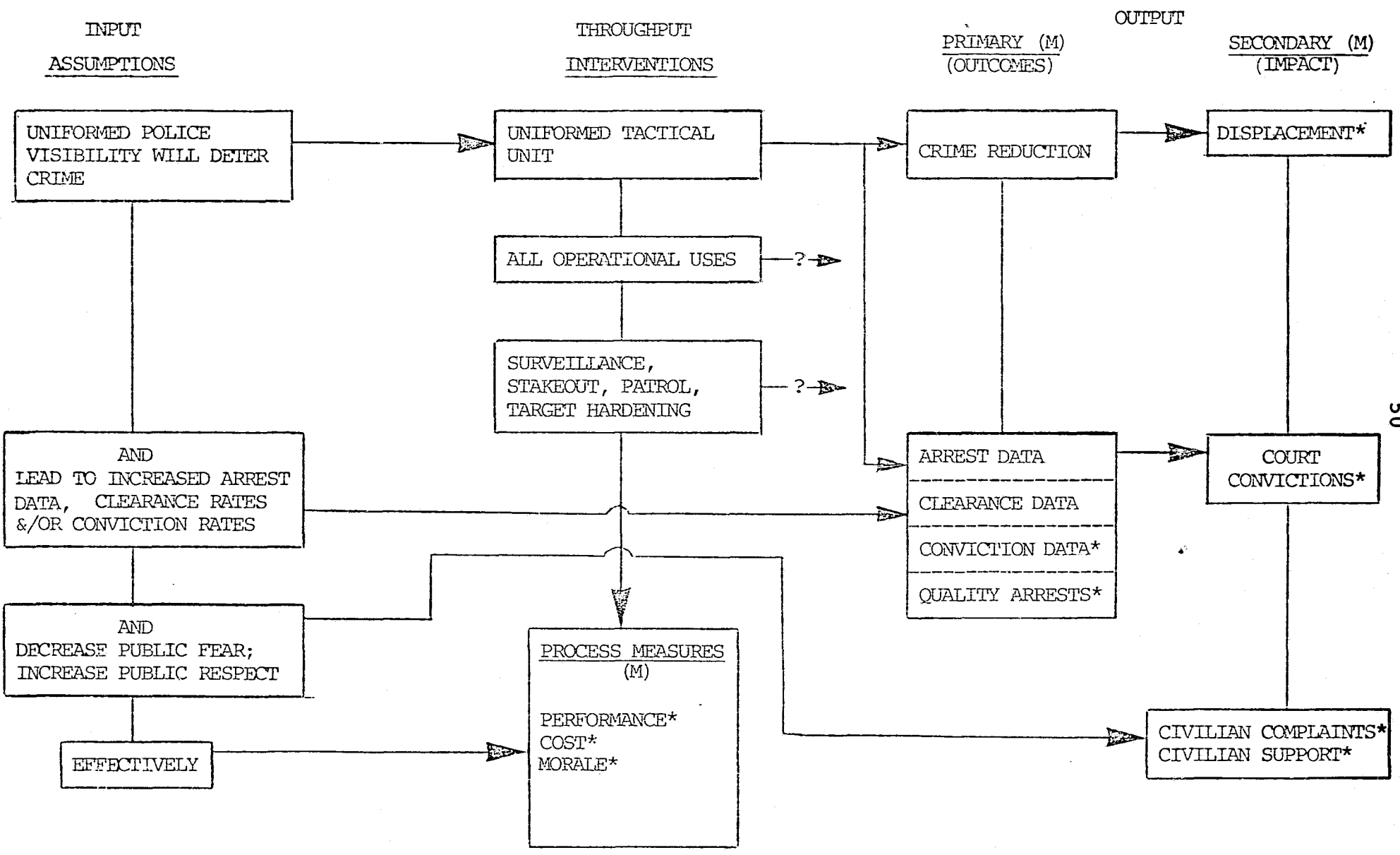
From a review of Figure IV-1 the reader will note few points that have actually been measured.

2. Low Visibility (LV) Patrols. Figure IV-2 shows similar data for LV Patrols. The measured points actually do not differ from those shown for HV projects, despite the differences in assumptions underlying the two project types.

3. Combined High/Low Visibility (H/LV) Patrols. Figure IV-3 shows the H/LV Patrol data. Again, the same points appear in the measurement indicators; only the assumptions differ.

FIGURE IV-1

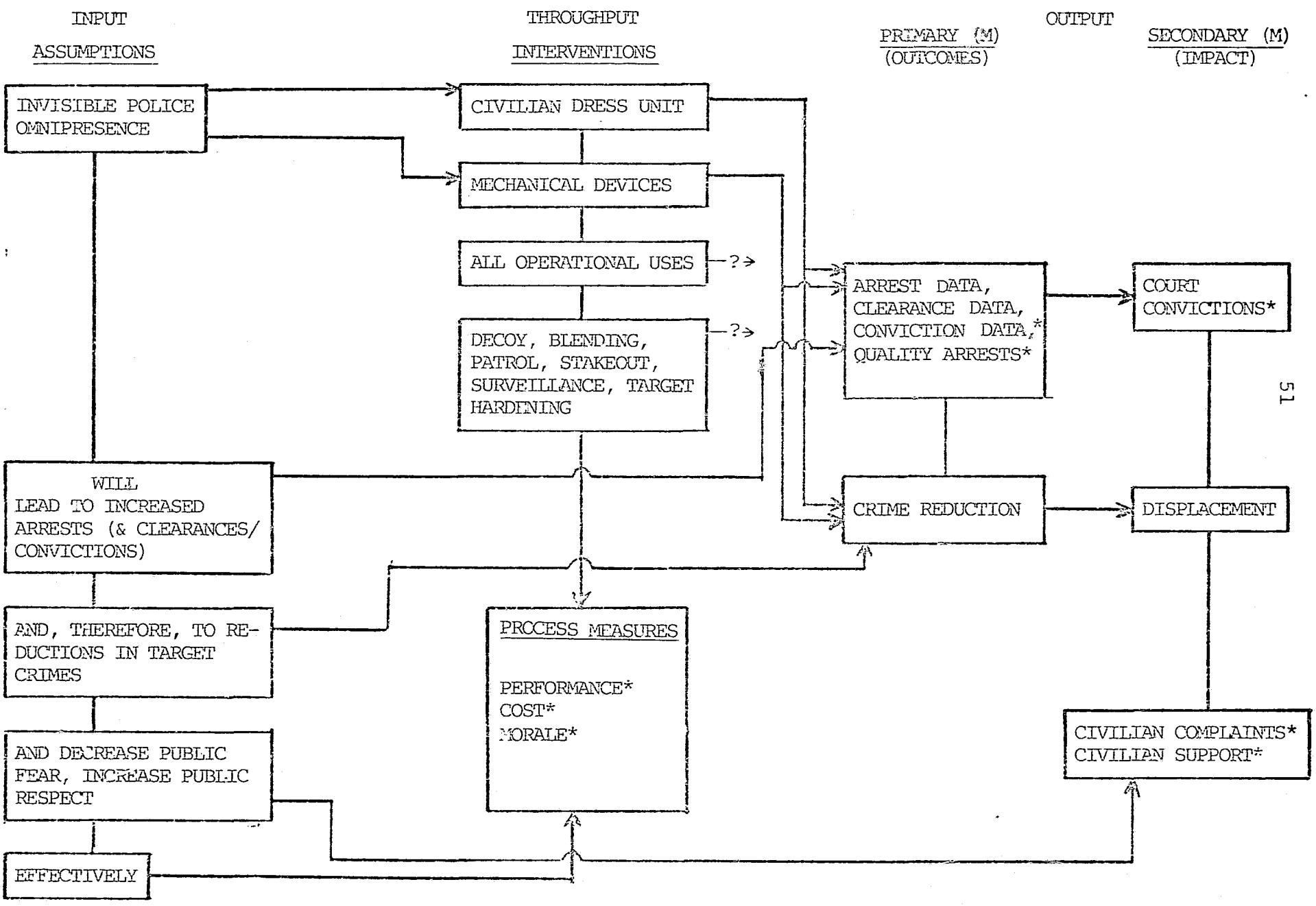
HIGH VISIBILITY PATROLS: POINTS MEASURED (M)



* Indicates a point measured only infrequently.

FIGURE IV-2

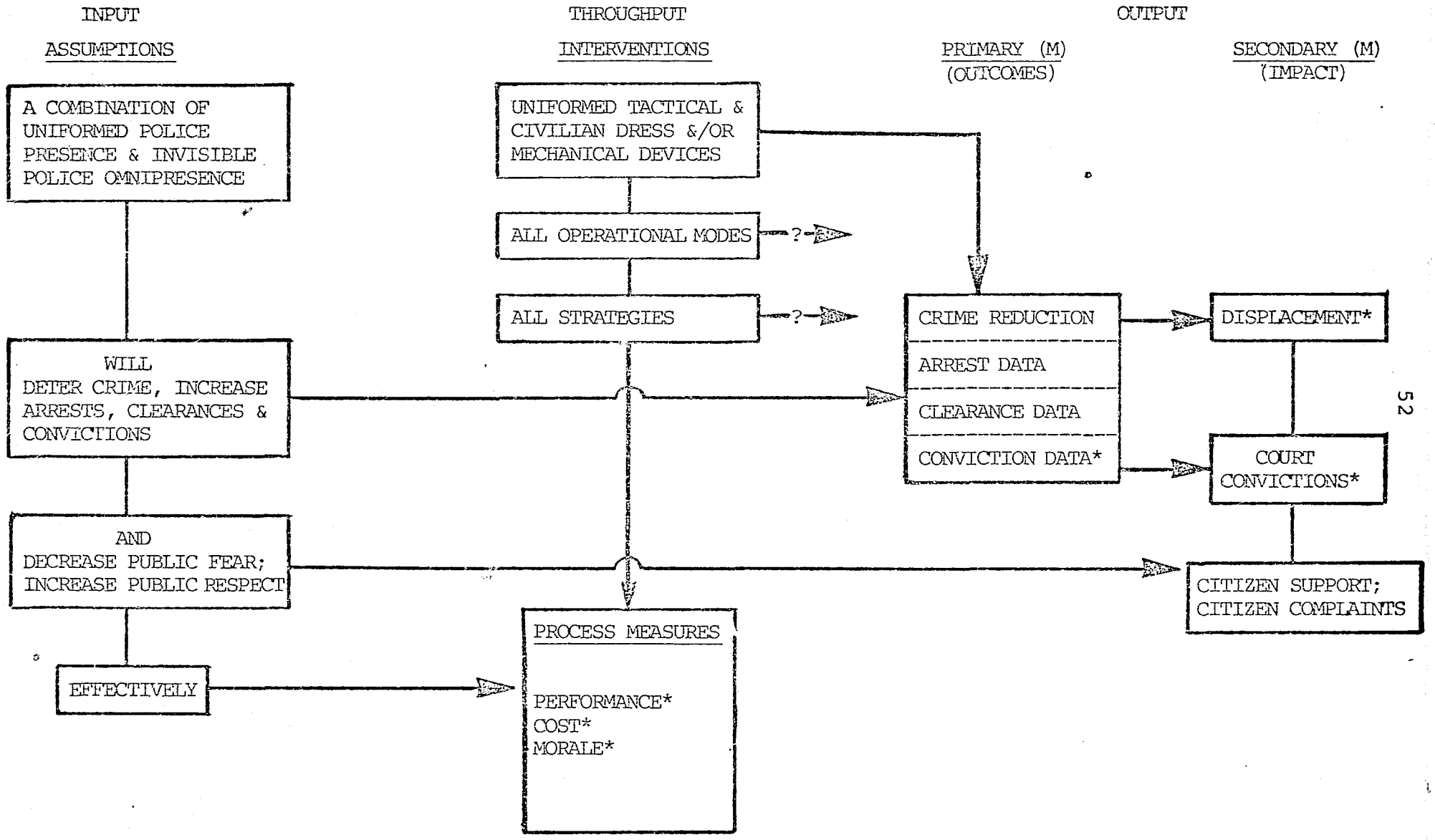
LOW VISIBILITY PATROLS: POINTS MEASURED (M)



*Indicates point measured only infrequently

FIGURE IV-3

HIGH/LOW VISIBILITY PATROLS: MEASURED POINTS (M)



*Indicates a point measured only infrequently.

4. Conclusions. Due to the inadequate evaluation designs and measures, the real effectiveness of specialized patrols remains undetermined. Yet, with few exceptions, we found police departments and personnel within the specialized units enthusiastic about specialized patrols. Better-designed studies using more adequate measures, therefore, would be useful in order to effect a better understanding of specialized patrols. These subjects will be the topics of our next chapters as well as our subsequent reports.

Further, as we will demonstrate in our Product 4 Report, diverse measures are used to study the same types of activities. Thus, non-comparability of measures is a crucial problem in assessing project performance and effectiveness.

NOTES AND REFERENCES

1. Institute for Human Resources Research. "Phase I National Evaluation of Selected Patrol Strategies: Specialized Patrol Operations Under the National Evaluation Program: Product 1, Literature Search." Prepared under LEAA Grant No. 75-NI-99-0067. Bethesda, Maryland, 1975.

2. Institute for Human Resources Research. "Phase I National Evaluation of Selected Patrol Strategies: Specialized Patrol Operations Under the National Evaluation Program: Product 2, The Universe and Selected Project Descriptions." Prepared under LEAA Grant No. 75-NI-99-0067. Bethesda, Maryland, 1975.

3. Institute for Human Resources Research. "Product 1," Chapter V

4. Ibid.

V. POTENTIAL POINTS OF MEASUREMENT

We noted in the preceding chapter that not all variables relevent to evaluating the effectiveness of specialized patrols have been measured on specific units, that measurements which typically are used are of questionable validity and that these deficiencies are related to inadequate data bases and study designs. The subject area, of course, is a difficult one, one in which the complexities of the task exceed the sophistication of present-day research methods.

We believe, however, that it is possible to obtain more valid data on specialized patrols than has been done to date. This would require better study designs, a subject we will pursue in subsequent reports; and additional measurements, a subject we will discuss in this and the following chapter.

A. The Focus of Measurement

An ideal evaluation would obviously be one that could measure and/or control for every possible variable that might affect project outputs. Not only is this strategy impractical because of time and funding constraints imposed on most departments, it is also beyond the scope of present research technology. A crucial question, therefore, is: What kinds of information would be most useful to decisionmakers who may wish to implement, change, or monitor specialized patrol tactics?

IHRR does not have the total answer to this question. However, we believe than an evaluation should be capable of

answering one basic question vital to decision makers: Is a specialized patrol more cost-effective than a traditional patrol for combatting a certain type of crime? To answer this question, one needs to look particularly at the following areas:

- Performance and efficiency of specialized patrols
- Cost-effectiveness of specialized patrols
- Effectiveness of specialized patrols in combatting specific crimes
- Attitudes/participation of the community (including other parts of the criminal justice system)

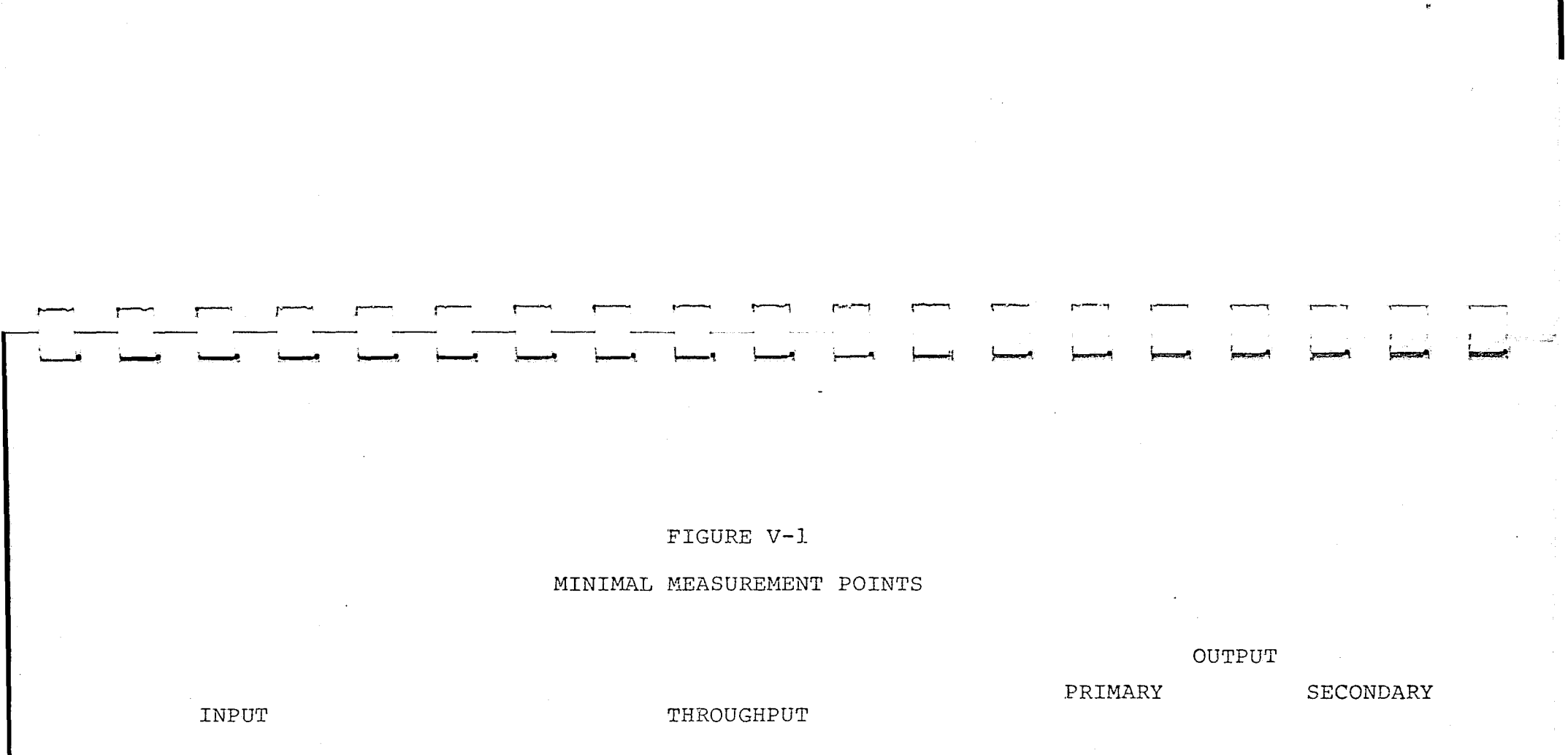
Each of these areas is related to the other, of course, but each requires a special measurement focus.

The most crucial points, or variables, that should be measured are shown in Figure V-1 within our general systems model. One begins, of course, with the hypotheses (or assumptions) and ends by seeing how output measures relate to the hypotheses.

The first variable to be considered, and one whose importance we cannot stress enough, is the personnel selection process. The tendency for departments to select the "best" qualified and most productive men to serve on specialized patrol projects is certainly understandable. Specialized patrols are expensive -- and usually intensive -- operations. Departments using the "best" men tend to be satisfied with the performance of their specialized patrols. Those relying on volunteers and/or regular

FIGURE V-1

MINIMAL MEASUREMENT POINTS



patrolmen on an overtime basis seem less enthusiastic about the performance of their specialized patrols. The area of selection, in and of itself, is an important one for decision-making. We would add that it is an imperative consideration for testing hypotheses about project effectiveness. What we seem to have, to date, is not a test of project assumptions and tactics but inadequate tests of the effects of personnel qualifications. That is, the causal link between project assumptions and project outputs may lie largely with the personnel who carry out the interventions rather than the interventions, per se. The performance of best men may remain fairly constant regardless of the tactic or method employed in a situation conducive to crime deterrence, arrest, conviction, etc.

The problem of measuring personnel selections lies largely in the study design and choice of comparison groups, as noted in the following chapter. Looking again at Figure V-1, it can be seen that the next crucial measurement point is the type of tactic or tactics used as well as the method or methods employed by a particular tactical unit. How each tactic and method affects the internal process of the specialized patrol unit gives rise to another crucial set of variables--performance, efficiency, cost-effectiveness, job satisfaction, and morale. It would be useful to know also the effects which the specialized patrol has on the job satisfaction and morale of other units within the department.

It is imperative, of course, to measure the primary outputs of the specialized patrol. Since most projects frame their objectives in terms of crime reduction and increased arrests, conviction and/or clearance figures, each of these becomes an important variable for measurement. Ideally, each of these would be related to type of tactic, type of method, and type of crime targeted in order to determine the effectiveness of each type of project intervention. Currently, few evaluations have attempted to test the effectiveness of each tactic or method with regard to a specific crime. Few have attempted to enhance the quality of such typical measurements as crime rates, arrest rates, clearance rates, etc.--problems we will discuss further in the next chapter.

The effectiveness measures just mentioned are incomplete without relating them to the secondary outputs, as defined by our model. For example, crime rates may actually decline and show a significant statistical relationship to project interventions. Crime rates outside target areas, on the other hand, may rise significantly suggesting a displacement phenomenon. Displacement, of course, is exceedingly difficult to prove. One can never be sure that crime would not have increased in non-target areas in the absence of project intervention. Information on crime rates outside target areas is useful, nonetheless. The apparent absence of displacement will obviously increase a department's confidence in its interventions while suggestions

of the presence of displacement can aid in planning for more effective means of intervention.

The workings of other parts of the criminal justice system is another crucial point of measurement. Project intervention can be enhanced or greatly hampered by a District Attorney, prosecutors, judges, etc. Important variables that can be measured at this point in our schema are:

- Number of persons arrested for target crimes released without prosecution
- Number of persons charged with and/or indicted for target crimes who are released on bond or personal recognizance pending trial
- Number of persons released following the first judicial screening
- Number of persons charged with target crimes who are allowed to plead guilty to crimes carrying lighter sentences
- Number of persons convicted of target crimes or pleading guilty to crimes carrying lighter sentences who receive suspended sentences or are given probation
- Length of sentence for each type of crime targeted for project intervention
- Amount of time (incarceration) the average person charged with a target crime is removed from the population at risk (those persons living in the community who have the opportunity to commit target crimes)

We will not discuss these measures further since they would require considerations in this and other tasks that go beyond the time and cost contraints of this Phase 1 effort. More specifically, they would require careful study of ways in which police departments, courts, prosecutors and others might

work together to provide the data required for such considerations.

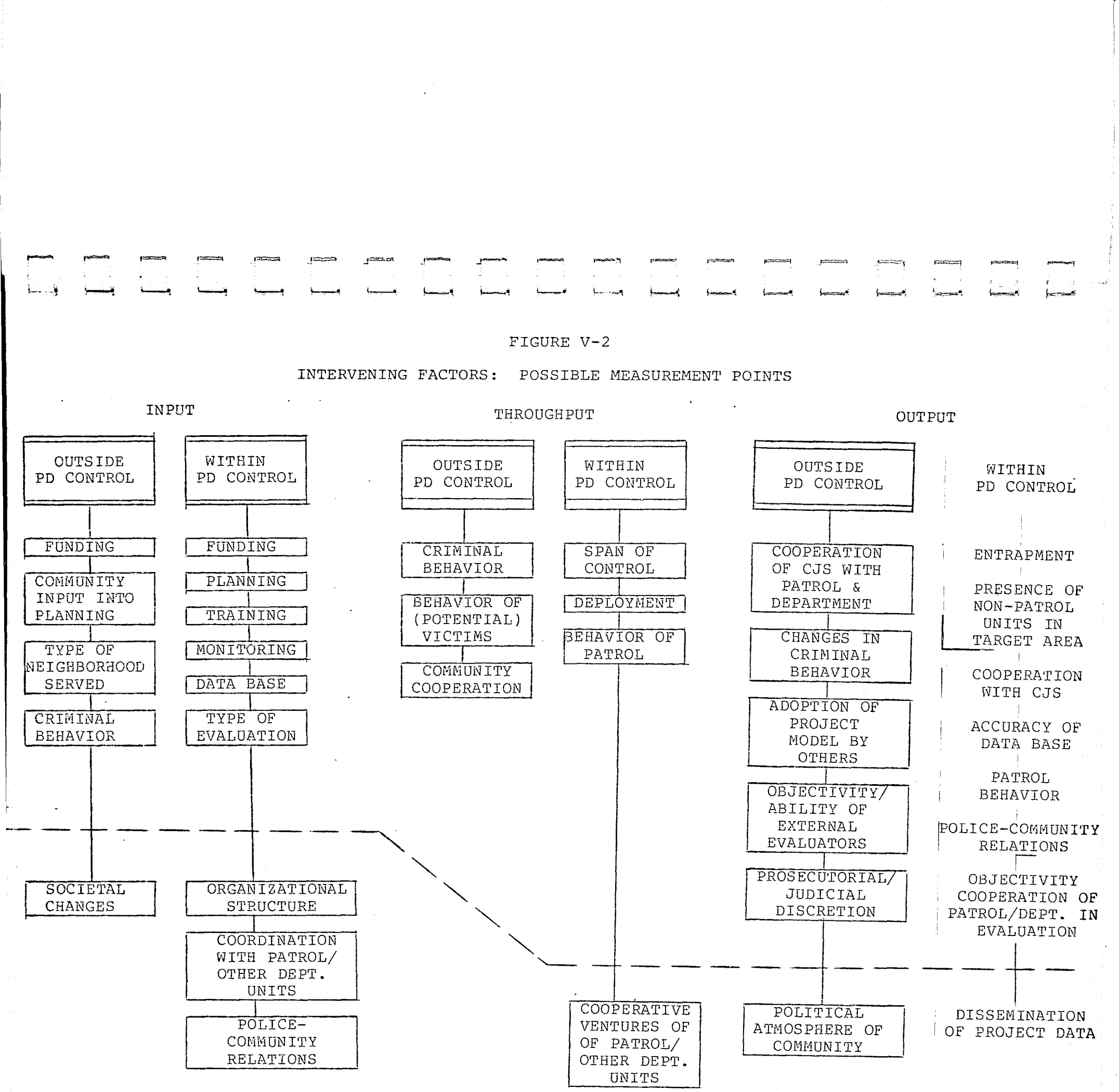
Finally, evaluators need some measurement of community attitudes and involvement. Has the project actually decreased public fear and increased public respect and support (as most assume it will)?

To summarize, we see the crucial measurement points as part of an interrelated evaluation process which begins with a set of hypotheses (assumptions) that tests relationships between the types of personnel, the tactic(s) they employ, each method they use and the type of crime(s) upon which they focus their interventions, a set of process measures, and a set of measures designed to test project effectiveness (primary and secondary outputs).

A more complete evaluation would attempt to hold constant, or at least study the effects of various intervening factors that might impact on project effectiveness and provide alternative explanations for evaluation findings. Figure V-2 shows those intervening variables which we feel are most worthy of consideration along the top part of the page. Other intervening factors that might be considered are listed on the bottom part of the figure. These variables were discussed in Chapter III; methods of measuring them appear in the next chapter.

FIGURE V-2

INTERVENING FACTORS: POSSIBLE MEASUREMENT POINTS



One final word: some means should be found for establishing standard types of measurements. Even if projects measure crucial variables, comparisons across project types become difficult to interpret when many types of measures are used to study the same activity.

VI. MEASURES OF PROCESS AND OUTPUT

This chapter presents types of measures that have been and might be used to evaluate specialized patrol projects. Each type of measure has been rated in one of four ways; that is, as

- (P) = Preferred. A relatively reliable measure considered to be practical and relevant
- (A) = Acceptable. A measure of acceptable quality but one that may be too costly (e.g., victimization survey) and/or of lesser relevance than a "preferred" measure
- (U) = Unacceptable. A measure of questionable quality and/or in need of refinement and further testing or a technique not well matched to the study of specialized patrols
- (I) = Impractical. A measure not recommended because it may require too much data to be cost-effective in terms of results obtained or be too difficult to use in terms of data access

These ratings will appear throughout this chapter. For example, when we discuss apprehension rates the use of (P) in the text indicates that this measure is one which, in our judgment, is "preferred" or recommended as a measure of the effectiveness of specialized patrol operations.

In rating the various measures, we focus on those which could be of use in both experimental and non-experimental situations and those best and least suited to the testing of what are generally explicit assumptions common to project families. We realize that the choice--and even the relevancy

--of certain measures discussed in this report will depend upon many factors, such as:

- The type of information desired
- The amount of funds available for a study
- The types of data available
- The choice of study design

These considerations are more properly the concern of subsequent tasks; our major purpose here is to relate measures to the chain of assumptions common to specialized patrol families.

However, in addition to the need for testing the assumptions which have been delineated in this report, a department has a need for data collection and analysis for purposes of management control and monitoring. This is an area which we cannot fully address within the confines of the tasks outlined for this Phase 1 evaluation. We will touch upon this subject, however, as we discuss later what we term as a set of "implicit beliefs" which we have inferred as being part of a department's rationale for establishing a specialized patrol unit.

In Section A of this chapter we will address the subject of measures appropriate for testing the more formalized, explicit assumptions which have been a focal topic of this report. Section B is devoted to measures appropriate for testing the inferred "implicit beliefs," though they, too, could be profitably used in any formal evaluation of specialized patrols.

Intervening factors that might affect specialized patrols are discussed in Section C.

A. Measurement and Assumptions

1. The Relationship of Assumptions to Measurement. Whether departments are considering informal, internal comparisons of data or more formal evaluations for assessing specialized patrols, the relationship between assumptions and measurement is a prime consideration. For answers to be meaningful, assumptions should be posed as operationally testable statements (hypotheses) and measures, in turn, should be chosen because they are capable of testing these assumptions or statements.

We noted previously that the assumptions upon which the existence of three specialized patrol families rest tend to infer:

- A hypothesis or set of hypotheses
- Goals and objectives
- Target crimes (the problem)

Yet, frequently, these assumptions will need to be stated in operational terms. Reviewing the project's objectives can assist in this process. For example, it is not uncommon to find stated objectives in the form of such statements as, "Achieve a 5 percent reduction in robbery in one year." Having pinpointed the problem (target crime) and the project's objectives, it becomes a simple matter to reconstruct assumptions/objectives into one or more operationally testable hypotheses.

In this report, the chain of assumptions can be globally stated in the following formula. Let:

X = indicate the visibility level

Y = tactic

Z = method

O = objectives ($\hat{O}$ are estimated objectives)

Thus, $\hat{O} = f(X,Y,Z)$

This relationship indicates that the set of objectives are functionally related to the assumption chain composed of the visibility level, the tactic and the method.

The "objectives" aspect of the hypotheses is common to all families, changing only in-rank order so as to fit the particular assumption underlying a family. The common objectives (not shown in rank order by family) are:

- To increase apprehensions, clearance and/or conviction rates for target crimes
- To deter criminal activity
- To reduce citizen fear
- To maintain public safety
- To maintain public respect
- To increase public support/participation

All these objectives are capable of measurement and all relate to what we have defined as primary and secondary outputs.

The assumptions do not cover one basic but crucial inference: That a specialized patrol will be more effective in certain situations than traditional patrol. This basic inference is of special significance to the design of national and local

evaluations (Products 5 and 6). The problem in testing this inference is one of proper design, however, and does not really affect our choice of preferred and acceptable measures. Measures considered as "preferred" and "acceptable" are appropriate for any devised comparisons of specialized versus traditional patrols.

2. Measurements for Tests of Assumptions and Related Objectives. Table VI-1 summarizes the assumptions and related objectives common to each project family and "preferred" and "acceptable" measures that might be used to test the objectives and assumptions. The measures for testing hypotheses (assumptions) remain constant across all project families. To adapt the framework to fit each family, one needs only to interchange the visibility levels, tactics and, occasionally, a method, and the rank order of the objectives regarding apprehension, clearance and conviction rates and deterrence. These differences in assumptions/objectives by project family are shown in Table VI-2 and can be used to fit more specific data into Table VI-1.

We will discuss, in turn, each assumption/objective shown in Table VI-1.

a. Visibility level. As shown in Row 1 of Table VI-1, it is possible to assess the effectiveness of any of the three visibility levels specified in Table VI-2 by simply gathering data on the number of project objectives met or partially met through project interventions. This assessment would relate to any of the objectives shown in Table VI-1 (and to any unique objectives not listed in Table VI-1)

TABLE VI-1

ASSUMPTIONS AND MEASUREMENT FRAMEWORK

CHAIN OF ASSUMPTIONS	OBJECTIVES	PRIMARY OUTPUT MEASURES	SECONDARY OUTPUT MEASURES	ROW
VISIBILITY LEVEL	ACHIEVE OBJECTIVES	NUMBER OF OBJECTIVES MET; NUMBER OF OBJECTIVES PARTIALLY MET; AMOUNT OF CHANGE	NUMBER OF OBJECTIVES MET; NUMBER OF OBJECTIVES PARTIALLY MET	1
TACTIC	ACHIEVE OBJECTIVES	NUMBER OF OBJECTIVES MET; NUMBER OF OBJECTIVES PARTIALLY MET; AMOUNT OF CHANGE	NUMBER OF OBJECTIVES MET; NUMBER OF OBJECTIVES PARTIALLY MET; ATTITUDE SURVEY	2
METHODS	ACHIEVE OBJECTIVES	NUMBER OF OBJECTIVES MET; NUMBER OF OBJECTIVES PARTIALLY MET; AMOUNT OF CHANGE	NUMBER OF OBJECTIVES MET; NUMBER OF OBJECTIVES PARTIALLY MET; ATTITUDE SURVEY	3
APPREHENSIONS CONVICTIONS CLEARANCES	INCREASE ARRESTS INCREASE CONVICTIONS INCREASE CLEARANCES	ARREST RATES, QUALITY ARRESTS, CONVICTION RATES, CLEARANCE RATES, COST-EFFECTIVENESS	ENTRAPMENT (NO. VIRGIN ARRESTS), DISPLACEMENT, CASES SURVIVING 1st JUDICIAL SCREENING, COURT CONVICTIONS	4
DETERRENCE	REDUCE CRIME	CRIME RATES, VICTIMIZATION SURVEYS, COST-EFFECTIVENESS	VICTIMIZATION SURVEYS, DISPLACEMENT	5
CITIZEN FEAR	MINIMIZE CITIZEN FEAR	N/A	ATTITUDE SURVEY	6
PUBLIC SAFETY	INCREASE PUBLIC SAFETY	N/A	NO. CITIZEN DEATHS/INJURIES DUE TO: 1) PATROL 2) CRIMINAL ACTIVITY; NO. FIREARM DISCHARGES; CITIZEN SURVEY	7
PUBLIC RESPECT	INCREASE PUBLIC RESPECT	N/A	NO. CIVILIAN COMPLAINTS, COMPLIMENTS, REQUESTS FOR PATROL SERVICES; INCREASE IN CITIZEN REPORTING OF CRIMES, ATTITUDE SURVEY	8
CITIZEN SUPPORT & PARTICIPATION	INCREASE CITIZEN SUPPORT & PARTICIPATION	N/A	MEASURES OF POLITICAL SUPPORT, ATTITUDE SURVEY, NO. OF CITIZEN PARTICIPANTS IN TARGET HARDENING PROGRAM	9

TABLE VI-2

PROJECT FAMILIES: CHAINS OF ASSUMPTIONS

LOW VISIBILITY	HIGH VISIBILITY	HIGH/LOW VISIBILITY
1. LOW VISIBILITY WILL BE EFFECTIVE IN CERTAIN CRIME SITUATIONS 2. LOW VISIBILITY CAN BE EFFECTIVE WITH CIVILIAN DRESS/MECHANICAL DEVICES TACTICS 3. CIVILIAN DRESS/MECHANICAL DEVICES WILL INCREASE APPREHENSION IN THESE CRIME SITUATIONS. (MEASURED BY ARREST, CLEARANCE AND/OR CONVICTION RATES) AND SHOULD DETER CRIME (MEASURED BY CRIME RATES)	1. HIGH VISIBILITY WILL BE EFFECTIVE IN CERTAIN CRIME SITUATIONS 2. HIGH VISIBILITY CAN BE EFFECTIVE WITH UNIFORMED TACTICAL TACTICS 3. UNIFORMED TACTICAL TACTICS WILL DETER CRIME (MEASURED BY CRIME RATES) AND MAY INCREASE APPREHENSION (MEASURED BY ARREST, CLEARANCE AND/OR CONVICTION RATES)	1. A COMBINATION OF HIGH/LOW VISIBILITY WILL BE EFFECTIVE IN CERTAIN CRIME SITUATIONS 2. HIGH/LOW VISIBILITY CAN BE EFFECTIVE WITH UNIFORMED TACTICAL AND CIVILIAN DRESS AND/OR MECHANICAL DEVICES TACTICS 3. UNIFORMED TACTICAL AND CIVILIAN DRESS AND/OR MECHANICAL DEVICES TACTICS WILL DETER CRIME AND INCREASE APPREHENSIONS (MEASURED BY CRIME, ARREST, CLEARANCE AND/OR CONVICTION RATES)

and could be based on any of the measures listed as appropriate for testing any primary and secondary outputs.

A word of caution should be introduced regarding the criterion of assessing the effectiveness of a given visibility level by the "measure" of objectives attainment. In the IHRR survey, we noted that some departments seem to set unrealistic objectives, such as a "60 percent increase in convictions." The objective appears unrealistic in terms of the resources allotted to most specialized patrols. In addition, its attainment is partially dependent upon factors outside a department's control (e.g., ways in which prosecutors handle the plea bargaining process). To consider a project a "failure" because it failed to meet such an unrealistic objective may well be a disservice to a project.

Several other examples can be cited which cause one to ponder about the validity of using objectives attainment as a criterion for "success" or "failure." Is a project a "failure" if it effects an 5 percent reduction in crime when its stated objective was 8 percent? The answer in this case is obviously "No." But what of the case where a project's objective was simply "to reduce target crimes" and these crimes increase in the project's target area but increase far less than in non-target areas (without any indication of displacement)? Is this project a "success" or a failure"?

The last question is a difficult one. Perhaps it would be more useful to look at a set of objectives and determine which of these are best met by a particular tactic or method.

Thus, it is our belief that objectives that include a numerical goal are insensitive to the various properties of specialized patrol operations. The goal part should not be used, allowing success to be inferred in the many situations of general increasing or decreasing crime (preferably as compared to the amount of change effected by a well-selected comparison group). The objectives listed in Table VI-1 do imply change--increases in arrests, decreases in target crimes, increases in citizen participation and so on. Ideally the change effected would be tested statistically to determine whether it differed significantly from any selected baseline figures and/or from the change effected by a comparison group. But, even in the absence of statistical tests, the actual amount of change effected by the specialized patrol (and any comparison group) on any of the output measures shown in Table VI-1 could be useful information to departmental personnel for the purpose of planning, management control and monitoring.

b. Tactics and methods. As shown in Rows 1 and 2 of Table VI-1, the criteria of total or partial objectives attainment are also appropriate for assessing any tactic or method. The problems inherent in using objectives attainment as a measure for assessing the effectiveness of a tactic or method are the same as those discussed previously in the section on visibility levels: thus, the amount of change measure is appropriate for assessing tactics and methods also.

We would add here only the value of refining the data gathered on output measures when assessing tactics and/or methods. That is, measures should be devised which would permit departments to assess the contribution which each tactic or method makes to the attainment of any given objective. For example, one might use a ratio of arrests/man-hours to determine the efficiency of different methods (e.g., surveillance, stake-out, roving patrol) in apprehending robbers.

Information on the secondary outputs of each tactic or method could be obtained from attitude surveys. That is, a randomly selected sample of citizens (including businessmen and personnel from other parts of the criminal justice system) could be asked to respond to questions dealing with the effects of any particular tactic or method on citizen fear.

c. Apprehension, convictions and clearances. As shown in Row 4, Table VI-1, it is commonly assumed that specialized patrols will achieve three objectives: an increase in arrests, convictions and clearances. The achievement of these objectives is most often measured by using arrest rates, conviction rates and clearance rates--measures beset with a number of problems discussed previously in Chapter VI. Certain means are available for improving the quality characteristics of these rates and these are included in the presentation that follows. It is apparent from reviewing the secondary output (impact) measures shown in Row 4,

Table VI-1, that certain "checks" are required to determine whether increases in arrests are a reliable measure of project effectiveness or whether they might be attributable to entrapment, displacement or arrests that do not withstand judicial screening. Such "checks" will be discussed below also.

i. Apprehension and convictions. It is generally known that the number of arrests alone is an inadequate measure of proejct effectiveness.[1] A more effective measure is a quality of arrest indicator (P). This measure is related to any measure of convictions.

(a) Quality arrest measures. A quality of arrest indicator is needed to insure that no incentives exist which can lead to questionable or unnecessary arrests.[2] The best proof of the validity and quality of an arrest seems to be whether or not the arrestee was eventually found guilty of a crime. As a practical effectiveness measure, the National Commission on Productivity[3] suggests that the measurement criterion be the number of arrests surviving the first judicial screening (P). Other measures are possible, but perhaps more difficult for departments in terms of data collection:

- Final number of convictions (I)
- Number of court discharges (I)

These measures lead, of course, to some study of other parts of the criminal justice system (e.g., courts), an endeavor that is probably impractical for most departments.

(b) Value of arrests (U). Table VI-3, taken from Block and Specht,[4] shows how one might score arrest activity by considering the value as well as the quantity and quality of arrests.

In such an approach, the responsibility for determining the arrest activity and its relative value would ultimately be a matter for local governments and agencies.[5] For example, one department might wish to refine the definition of felony arrests by separating arrests for crimes against persons from crimes against property. Another department, faced with a serious traffic accident problem, might wish to increase the score for moving traffic citations.

There are many problems inherent in weighting. Note that the weightings in Table VI-3 can be the same for misdemeanors as arrests involving an error of judgment leading to the injury or death of an offender. Further, the weights on some activities show a wide score range.

(c) Type of arrest (P). Although IHRR is skeptical of weighting procedures, we would urge departments and/or external evaluators to measure arrest activity by type of apprehension in order to better evaluate the effectiveness of specialized patrols or a project intervention. We believe there is an advantage to studying outputs by type of arrest so that one can examine differences by type of tactic and/or method in order to determine which type of intervention is most effective in combatting a certain type of crime. It would

TABLE VI-3

SAMPLE ARREST INDEX*

Activity	Point Score	Comment
Parking violation	1	Do not count if dismissed.
Moving violation	2	Do not count if dismissed.
Misdemeanor arrest (no prosecution)	4	
Felony arrest (no prosecution)	8	
Misdemeanor arrest resulting in a prosecution (no conviction)	8	
Felony arrest (no conviction)	16	
Misdemeanor arrest (conviction)	12	
Felony arrest (conviction)	24	
Arrest without probable cause	-4 to -24	Minus score depends on seriousness of the officer's error and frequency of previous error (do not count any positive points for the arrest).
Arrest involving the necessary use of physical force	+4	In addition to other points earned for the arrest. Do not count if the arrest was without probable cause.
Arrest involving an error in judgment causing injury or death to offender	-4 to -24	Minus score depends on seriousness of officer's error and frequency of previous errors.
Arrest involving injury or death of bystander	-24 to -72	Minus score depends on seriousness of officer's error and frequency of previous errors.
Arrest of an individual for several previous offenses	--	Total points for all offenses up to a maximum score of 36, including points for prosecution or conviction. Also count points related to the use of force or avoidance of force in connection with the arrest.

*From Block and Specht

be useful also to refine the breakdowns into subtypes (e.g., purse snatching vs bank robberies) in order to better understand the effectiveness of a given tactic or method.

(d) Checks on arrest and/or conviction rates. At least three phenomena could account for increases or decreases in arrests and/or conviction rates: entrapment, displacement and corruption.

(1) Entrapment. Entrapment, especially with low visibility patrols, might be a factor accounting for a high arrest rate. Calculating the number of virgin arrests (A) (i.e., persons arrested for the first time) and studying the relationship between these figures and actual conviction rates (or the number of cases surviving the first judicial screening) should provide some indication of whether or not specialized patrol personnel are, consciously or unconsciously, enticing persons to commit crimes. This secondary output measure might assist also in creating a better understanding of the project's impact on the community it serves.

(2) Displacement. It could be possible that decreases in arrest rates (particularly if they are correlated with decreases in crime rates) occur simply because specialized patrol interventions have encouraged criminals to leave the area and conduct their activities elsewhere. This would, of course, affect arrest rates in target areas and, probably, the number of civilian complaints in target and affected adjoining areas. Thus, measurement of crime

rates in adjoining areas (A) could help untangle relationships between project objectives and secondary output effects as these relate to arrest rates.

(3) Corruption. Another possible explanation for decreased arrest rates might lie in corruption (e.g., taking of bribes). That is, specialized patrol officers may be induced not to make arrests. Measuring corruption would indeed be difficult. A simple but probably "unacceptable" measure would be to recalculate arrest rates after partialing out the performance of officers found guilty of corruption.

ii. Clearance rates. As Eastman and Eastman note, clearance rates are commonly associated with the investigative functions of a police department.[6] However, they are sometimes used as a measure of effectiveness for specialized patrol operations[7] and appear in our list of project objectives. As noted previously, there are serious problems associated with the use of this measure.

To obtain a more reliable measure of clearance rates, we propose a method suggested by Hatry:[8] that clearance rates be based on the percentage of the known offenders in the population who are apprehended (rather than on the number of crimes)(A). That is, rather than consider a crime "cleared" when one of four persons wanted for robbery is apprehended, one would consider only the percentage actually apprehended in relation to those still "at large."

iii. Crime deterrence. Another common assumption is that specialized patrols will deter crime (Row 5,

Table VI-1). The most common test of this assumption and the objective of reducing crime uses an unreliable measure--crime rates.

iv. Crime rates. If crime rates are to be an effective measure of project outputs, we recommend that LEAA fund studies to improve crime reporting at all levels of society and to develop a model for identifying sample bias in crime reporting.

If they are to be used without refinement(A), we suggest:

- Measurement of crime in nontarget areas (P)(displacement); trend analysis can be an important measurement tool for determining crime dispersion 9
- Measurement of crime rates over long periods of time (P)

v. Victimization surveys (A). Victimization surveys appear to be the best means available for measuring the extent to which reported crime represents all crime. Two problems exist: they are costly and the results are easily misinterpreted by statistically unsophisticated persons. It would probably be wise for police departments to contract with universities or research firms to conduct these studies.

Victimization surveys may be conducted in four ways:

- Household surveys in which one person is interviewed in person and responds for the entire household
- Household surveys in which each member responds for himself via personal contact interviews
- Telephone surveys in which one member responds for the entire household
- Telephone surveys in which each household member responds for himself

The National Advisory Commission on Criminal Justice Standards and Goals[10] recommends personal contact interviews in which each household member responds for himself. Webb and Hatry[11] have found, however, that reliable conclusions can be drawn from relatively inexpensive telephone victimization surveys when valid but low-cost sampling techniques are used.

vi. CAPER (U). CAPER is a technique designed to analyze crimes reported to the police.[12] It provides frequency measures of crime as to location, type, target groups, and other detailed information. This information is gathered by officers through citizen complaints, investigation reports, and observations by the officer. CAPER is essentially crime statistics grouped by relevant variables; it suffers all the problems of other crime statistics, but reportedly offers the advantages of providing more detailed information and permitting a more sensitive evaluation of projects. Its reported merits have not been well tested.

vii. Crime Seriousness Index (U). An alternative method of measuring crime is the Crime Seriousness Index (CSI) developed by Sellin and Wolfgang.[13] The CSI permits a weighting of different types of crime. The weights were derived through questioning judges and police about different cases and permitting them to assign a weight to each type of crime. For instance, a weight of 26 was assigned to each murder victim, whereas the weight of 1 was assigned to a stolen property case involving a property value of less than 10 dollars. The

results obtained from all interviewees were then used to obtain average weights. The classification was based on harm done to victims rather than legal definitions. The method, however, has not proven totally effective and needs refinement. For example, a study using the CSI in St. Louis found that after totaling figures, seriousness of traffic accidents was greater than that of crime.[14] One would expect crime to be more serious.

e. Effects on the citizenry. We have noted that departments generally assume that specialized patrols will:

- Reduce citizen fear
- Maintain public safety
- Engender public respect, support and participation

In a number of cases, departments specify one or more of these assumptions as an objective and may implement interventions such as public education programs and target hardening activities to help achieve these objectives. Others seem to assume that daily patrol activities alone will achieve these objectives.

The attainment of these objectives has seldom been measured although such secondary outputs could be measured with relative ease. The different objectives related to the citizenry, and measures for assessing them, are discussed below. Each measure should be related to any project intervention (e.g., target hardening) actually designed to achieve the stated objective.

i. Measures of citizen fear (P). As shown in Table VI-1, Row 6, the best way to measure whether or not citizens feel more or less secure after the implementation of a specialized

patrol activity is simply to ask them. A simple questionnaire, distributed after low-cost, but valid, sampling could provide a gauge of citizen fear regarding a specific criminal activity or set of activities, or the survey might utilize interviews.

ii. Measures of public safety (P). A number of different measures could be used to test this objective, as noted in Table VI-1, Row 7. Police records on the number of deaths or injuries to citizens caused by (1) specialized patrol interventions and (2) criminals could provide an assessment of the department's objective of maintaining public safety. One could also use as measures the number of incidents where firearms are discharged and the percentage of in-progress calls where firearms are discharged. Preferably, such calculations would be based on time series measures (i.e., measures obtained in several specified time intervals). Supplementary data on citizen's perceptions of safety could be gathered via a survey.

iii. Measures of citizen respect (P). As shown in Table VI-1, Row 8, multiple measures are available for studying citizen respect for the specialized patrol. From its own records, departments could calculate (preferably on a time series basis):

- The number of civilian complaints against specialized patrol
- The number of citizen compliments of specialized patrols (e.g., laudatory letters)
- The number of citizen requests for the services of specialized patrols
- The number of citizens reporting crimes over time

These data, too, could be supplemented by a survey designed to tap citizen respect for the specialized patrol.

Ideally, all these measures would seek to discover reasons for citizen discontent (e.g., overaggressiveness of officers) as well as reasons for citizen respect for the specialized patrol.

iv. Measures of citizen support and participation (A).

An attitude survey might also seek to measure citizen support for the specialized patrol and the extent to which citizens participate in activities related to the mission of the specialized patrol.

In addition, departments might consider counts of other types of support and participation:

- The percentage of the voting populace that supports specialized patrol activities through tax levys and other political issues placed before the voting public
- Participation in target-hardening programs

The latter would need to control for family income in cases where target hardening procedures are costly.

B. The Measurement of "Implicit Beliefs": Process Measures.

Embedded within the chain of assumptions stated for each project family was the term "efficiency." That is, departments seemed to assume that a given visibility level and tactic would efficiently meet a number of objectives.

However, in no instance was this assumption of "efficiency" defined. IHRR has assumed that this "efficiency" represents a set of unstated, "implicit beliefs" which encompass the "process

measures" represented in the throughput part of our model. According to our inferences, departments seem to believe that a specialized patrol will be more effective and efficient than traditional patrols in combatting certain types of crime. It seems reasonable to assume that departmental personnel hold certain other "implicit beliefs" when they establish specialized patrol units, since these units require considerable changes within a police department in terms of organizational structure as well as resource allocations. The special units are costly in terms of manpower, training, equipment, and other needs. Given these facts, IHRR has assumed that departments hold a set of "implicit beliefs" which lead them to believe that specialized patrols will:

- Increase performance
- Increase efficiency
- Be cost-effective
- Create a comparatively safe working environment
- Enhance job satisfaction and morale

As noted in our Product 1 Report,[15] there is no guarantee that such advantages will automatically occur with specialization; under certain conditions, in fact, specialization may be quite inefficient, create conflict within the specialized unit and/or other departmental units, and so on. Thus, the measurement of these variables is important. It is probable, in fact, that many police departments will seek measures that will help them in policy and planning decisions regarding the process of specialization per se. That is, they will seek answers as to how specialization

affects their own organization. The process measures discussed in the following sections could provide answers to many of the practical questions relevant to police officials. And, as noted previously, the process measures would be a worthwhile addition to any evaluation of project effectiveness.

Fortunately, the data required for some process measures could be used also in measuring outputs. For example, arrest rates can be used as a measure of performance as well as a measure of the patrol's effectiveness in combatting criminal activity in the community.

The accuracy and/or meaningfulness of many of the process measures discussed in the following sections will depend, of course, upon the accuracy of the police records, the reliability of questionnaire data, the choice of comparison groups, and other considerations.

In the following sections, we will consider measures of:

- Performance
- Efficiency
- Cost-effectiveness
- Safety
- Job satisfaction
- Morale

1. Performance Measures. In measuring performance, it would be most useful to consider:

   - Comparing specialized patrol personnel's performance "before" and "after" their assignment to the specialized unit and/or with a "matched" group of traditional patrolmen; in either case, comparisons should include performance only in "matched" situations (e.g., where

probability of arrest is constant with a specified number of man-hours).

- Comparing performance of groups by type of crime or subcategories of crimes (e.g., for purse snatching vs commercial robberies).

- Comparing performance by type of strategy (e.g., stakeout) and type of crime.

Given an adequate basis for comparison and assessment, one might use the following as criteria for measuring performance:

Victimization (A)

- Number of crimes committed
  - Felony
  - Misdemeanor
  - Specific types of crime (e.g., purse snatching)
  - Target crime associated

Reported Crimes (P)

- Number of crimes reported
  - Felony
  - Misdemeanor
  - Specific types of crime
  - Target crime associated

Arrests (P)

- Number of arrests
  - Felony
  - Misdemeanor
  - Specific types of crime
  - Target crime associated

Quality of Arrests

- Number of arrests prosecuted (A)
  - Felony
  - Misdemeanor
  - Specific types of crime
  - Target crime associated

- Number of arrests surviving the first judicial screening (P)
  - Felony
  - Misdemeanor
  - Specific types of crime
  - Target crime associated
- Number of arrests resulting in conviction for original or lesser charge (A)
  - Felony
  - Misdemeanor
  - Specific types of crime
  - Target crime associated

In-Progress Arrests (A)

- Number of "in-progress" arrests
  - Felony
  - Misdemeanor
  - Specific types of crime
  - Target crime associated

Crimes Cleared (P)

- Percent of reported crimes cleared
  - Felony
  - Misdemeanor
  - Specific types of crime
  - Target crime associated
- Percent of crimes reported cleared by arrest (A)
  - Felony
  - Misdemeanor
  - Specific types of crime
  - Target crime associated
- Percent of crimes committed cleared (investigation) (A)
  - Felony
  - Misdemeanor
  - Specific types of crime
  - Target crime associated

Workload Measures

- Number of field interrogations conducted (A)
- Number of moving traffic citations issued (P)

- Number of parking traffic citations issued (P)
- Number of vehicles stopped and checked (A)
- Number of businesses inspected (A)
- Number of residences inspected (A)
- Number of targets "hardened" (percent) (A)
- Value of stolen property recovered (percent) (A)
- Number of stolen autos recovered (percent) (A)
- Number of stolen autos recovered undamaged (percent) (A)
- Percent of field interrogations resulting in arrests (number) (A)
- Percent of field interrogations resulting in felony arrests (number) (P)
- Percent of field interrogations resulting in target crime associated arrests (number) (A)
- Number of vehicles stopped and checked resulting in arrests (number) (A)
- Percent of vehicles stopped and checked resulting in felony arrests (number) (A)
- Percent of vehicles stopped and checked resulting in target crime associated arrests (number) (P)

2. Efficiency Measures. These measures are intended to relate the amount of service output produced to the amount of input used to produce it. Inputs are commonly expressed in terms of resources or effort (e.g., funds, manpower).

Two principal resource input measures are proposed:

- Patrol man-hours (P)
- Total costs of specialized patrol activity (P)

Patrol man-hours is the major factor input into the specialized patrol activity. Because specialized patrol is commonly heavily labor-intensive, this expresses the bulk of the inputs. However, it excludes other factor inputs (e.g., cars, special equipment, etc.).

Total costs is a superior expression of resource inputs as it includes the monetary value of all factor inputs, including costs of personnel, cars, special equipment, etc. Use of this measure can present problems in comparing effectiveness among different jurisdictions due to differences in salary levels and methods of computing total costs. However, this comparability problem can be handled by adjusting salary levels using an indexing procedure and specifying what costs are to be included in "total costs."*

As was discussed previously under performance measures, there are numerous ways to employ efficiency measures. However, it would be most useful to consider the following (crime, arrest

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*A simple indexing procedure would be to adjust each jurisdiction's salary costs by the following formula:

Define:

AS_n = Average patrolman's salary for the nation

AS_1 = Average patrolman's salary for this locale

$\frac{AS_1}{AS_n}$ = Index number of S_1

TS_1 = Total salary for this local

The jurisdiction's adjusted salary costs are then:

$$\frac{TS_1}{\frac{AS_1}{AS_n}}$$

and clearance rates may be used for all crimes, felonies only, misdemeanors only, specific types of crime only, specific types of crime such as purse snatching, or target crime only):

Victimization	Cost per crime committed (A) Patrol man-hours per crime committed (A)
Reported Crimes	Cost per crime reported (A) Patrol man-hours per crime committed (A)
Arrests	Cost per arrest (P) Patrol man-hours per arrest (P)
Quality Arrests	Cost per arrest prosecuted (A) Patrol man-hours per arrest prosecuted (A) Cost per arrest surviving first judicial screening (P) Patrol man-hours per arrest surviving first judicial screening (P) Cost per arrest resulting in conviction for original or lesser charge (A) Patrol man-hours per arrest resulting in conviction for original or lesser charge (A)
Crime Cleared	Cost per reported crime cleared (P) Patrol man-hours per reported crime cleared (P) Cost per reported crime cleared by arrest (A) Patrol man-hours per reported crime cleared by arrest (A)

3. Cost-Effectiveness Measures. These measures are intended to relate the effectiveness produced to the amount of dollars used to produce it. All inputs are expressed in terms of a single measure--dollar costs. Ideally, effectiveness should also be expressed in terms of a single measure constituting a composite value of the total effectiveness achieved for the costs. However, this is rarely possible to achieve in practice because there are multiple effectiveness measures used in evaluating police patrol activities and they are incommensurable (i.e., nonadditive). For example, one cannot add arrests, convictions, clearances, etc. to obtain a composite effectiveness measure; nor is it clear how

these can be weighted and added (although this could be attempted). For this reason, multiple cost-effectiveness measures must be used where costs are related to several effectiveness measures in turn.

One could argue that distortions are introduced when total costs of a specialized patrol activity are related to only one of several effectiveness measures; actually, only those costs attributable to patrol activities effecting that measure should be included. Practically speaking, however, one cannot segregate costs attributable to effects on crime committed, arrests, quality arrests, clearances, etc. Therefore, we favor using total costs of the specialized patrol activity.

It would be most useful to consider the following cost-effectiveness measures (crime, arrest and clearance rates may be used for all crimes, felonies only, misdemeanors only, specific types of crime, or target crimes only):

$$\frac{\text{total cost}}{\text{number of crimes committed (victimization)}} \quad \text{(A)}$$

$$\frac{\text{total costs}}{\text{number of crimes reported}} \quad \text{(A)}$$

$$\frac{\text{total costs}}{\text{number of arrests}} \quad \text{(P)}$$

$$\frac{\text{total costs}}{\text{number of arrests prosecuted}} \quad \text{(A)}$$

$$\frac{\text{total costs}}{\text{number of arrests surviving first judicial screening}} \quad \text{(P)}$$

$$\frac{\text{total costs}}{\text{number of arrests resulting in conviction for original or lesser charge}} \quad \text{(A)}$$

$$\frac{\text{total costs}}{\text{number of crimes cleared}} \quad \text{(A)}$$

$$\frac{\text{total costs}}{\text{number of crimes cleared by arrest}} \qquad \text{(A)}$$

The above measures may appear to exclude consideration of the other activities by specialized patrol units, including workload measures pertaining to traffic operations and crime prevention. However, a close inspection of the workload measures will demonstrate that essentially all the performance and workload measures contribute to this set of cost-effectiveness measures.

4. Safety (A). The following data could be used to measure whether or not the specialized patrol operates at an acceptable level of safety for its personnel:

- Number of deaths among personnel attributable to specialized patrol activities
- Number of line-of-duty injuries

Comparisons of these measures by man-hour for specialized and traditional patrolmen would be useful.

5. Job Satisfaction and Morale. A review of the literature indicates that specialization can affect job satisfaction and morale. The effects may be positive or negative--depending upon a number of conditions--and may extend to units other than the specialized patrol. Satisfaction with work and good morale may well enhance communication, coordination and cohesiveness and, in general, contribute to performance and efficiency. Dissatisfaction and poor morale may contribute to quite opposite results.

The measurement of job satisfaction and morale--within specialized as well as other departmental units--could provide much useful

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data for departments, especially if they were willing to probe for reasons for content or discontent.

a. Job satisfaction. Satisfaction or dissatisfaction within specialized patrol and/or other units might be measured in two ways: through a review of police department records and an attitude survey.

i. Record review (A). Several indications of job satisfaction could be obtained through simple calculations of data retained in police files. These types of data include:

- Attrition rates
- Requests for transfer to other unit
- Absenteeism (e.g., sick leave)
- Minor rule infractions

ii. Attitude survey (A). A carefully designed questionnaire could provide an understanding of the reasons for satisfaction or dissatisfaction within the specialized unit. For example, it might tap attitudes toward factors known to contribute to job satisfaction (and morale) such as feelings of cohesiveness, improved training, and enhanced flow of communications up and down the channels of control. Another questionnaire could be devised for other parts of the department to determine if the specialization has positively or negatively affected job satisfaction in other units and, if so, why.

b. Morale (A). The same type of measures described for job satisfaction could also be used to assess morale within the specialized unit and other departmental units. Added to these might be interaction measures to determine cohesiveness within

the specialized unit and coordination within the specialized patrol and/or between the patrol and other units. Such interaction measures could test the assumption that specialization can positively or negatively affect cohesiveness and/or coordination.[16]

Having obtained measures of job satisfaction and morale, one might examine the relationship between these process "scores" and measurements of performance, efficiency and cost-effectiveness or their relationship to the output measures described in previous sections. Given an adequate study design, correlational techniques could be applied in order to determine relationships between job satisfaction and/or morale and other process measures as well as chosen output measures.

C. Intervening Variables.

Table VI-4 summarizes the intervening variables which IHRR believes are the most important factors that could affect a specialized patrol project. The table lists those under departmental control as well as those not under the department's control.

Several of these factors could best be studied through planned variations in the project. That is, a particular procedure could be tried on an experimental basis and outputs measured before, during, and after this planned variation. Factors that could be included in these planned variations are:

- Funding levels
- Planning procedures (both within the department and community)
- Recruitment/selection procedures

TABLE VI-4

INTERVENING FACTORS AFFECTING SPECIALIZED PATROLS

Under Department Control	Not Under Department Control
Funding Level (in part)	Funding Level (in part)
Planning . Goal Setting . Crime Analysis . Organization of Patrol . Deployment Practices . Manpower Allocations	Community Input into Planning
	Societal Changes . Unemployment . Criminal Organization Changes
Recruitment/Selections Criteria	Procedures of Courts, Prosecutors, etc.
Training	Relations of Police to Other Parts of Criminal Justice System
Coordination	Citizen Reporting of Crimes
Monitoring	Community Attitudes Toward Patrol, PD
Span of Control	SES, Size & Other Characteristics of Target Areas/Persons
Police-Community Relations Efforts	Characteristics of Criminals
Police Relations with Other Parts of Criminal Justice System	Strategies Used by "Target" Criminals
Presence of Non-Patrol in Target Area	Media Coverage
"Behavior" of Patrol	
Cooperation with Patrol Team	
Cooperation Between Patrol & Other PD Units	
Evaluation	

- Training
- Monitoring
- Span of control
- Evaluation methods

Other factors might be assessed through community surveys:

- Police-community relations (including other parts of the criminal justice system)
- Behavior of specialized patrol personnel

Still others might be studied directly:

- Procedures of courts, prosecutors, etc.
- Citizen reporting of crimes
- Characteristics and strategies of criminals
- Cooperation among members of the specialized patrol and between the patrol and other units of the department (e.g., through interaction measures)

The remaining intervening variables might be controlled or assessed through statistical techniques (e.g., presence of non-specialized patrol in target areas, the relationship between crimes rates and societal changes, and favorable or unfavorable coverage of the patrol by the media).

Two measures, not mentioned previously, might assist also in assessing allocations for specialized patrols: hazard formulas and Geographic Equality Measures.

1. Hazard Formulas (U). One measure used for evaluating the effectiveness of alternative police allocations is a linear hazard formula.[17] The formula contains a combination of all variables that reflect a need for police services. The list can change from city to city and includes items

such as the number of dispatches, reported crimes, street miles, arrests, and licensed premises in an area. The formula for a hazard score in area is:

$$\sum_j x_{ij} w$$

where x_{ij} is the fraction of the j^{th} variable and w_j is a weighting factor with $\sum_j w_j = 1$

The number of patrol personnel in an area should be proportional to the hazard scores for that area.

The major problem of this method is that it can produce inappropriate allocations of patrol personnel because estimates of many of the variables will be highly probabilistic and often highly interdependent.

2. Geographic Equality Measures (A). Frequently the question arises: How equally are resources such as police staff and equipment distributed among or between neighborhoods? Effectiveness measures designed to answer this question have been tested by Bloch.[18] The measures include:

- Total number of police per reported robbery and reported crime
- Number of police per population and square mile
- Number of supervisory police personnel to total police
- Historical and current robbery rates
- Burglary and index crime rates per resident
- Violent crimes and violent crime rates
- Robbery, burglary, and total index crime rates and percentage changes
- Clearance rates for robbery, burglary, and total index rates

. Total calls for service

. Number of calls per patrol unit

It can be noted that all of the measures relate to the police department and its internal operations; citizen perceptions are not considered.

The Urban Institute[19] used these equality measures to study differences between two districts in Washington, D.C. The data proved difficult to obtain for a complete analysis of equality of services. The method obviously needs further testing and perhaps refinement, as do many measures discussed in this report.

D. Concluding Statement.

The validity of any study rests, in part, on the quality of the measures used to test hypotheses. Similarly, quality measures are important to any informal data collection and analysis designed to assist departments in management control and monitoring. IHRR has presented a number of measures appropriate for assessing specialized patrol; however, we recognize a need for the development of more refined measures that will assist police departments, State Planning Agencies, the Law Enforcement Assistance Administration, and others in assessments of such complex areas as those surrounding specialized patrol operations.

Until better measures are designed, we would urge interested parties to use multiple measures in evaluating specialized patrols. The use of multiple, independent measures provides one means of improving the quality of evaluations. As Campbell[18] has noted, the imperfect validity of all measures can be overcome by the use of multiple, independent measures. Since all measures are

imperfect, the uncertainty of interpretation is greatly reduced when a statement has been confirmed by two or more independent measures.

However, measures alone do not comprise an adequate evaluation. In accord with Campbell and Stanley,[19] we stress the importance of study design and urge law enforcement personnel to choose one from among the available designs which can provide an adequate test of the questions they seek to answer.

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