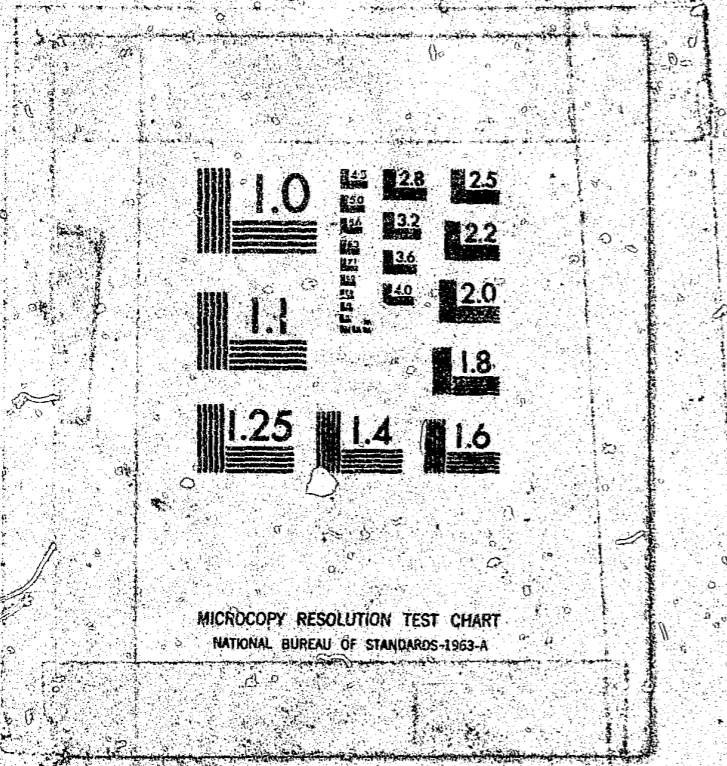


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ACQUISITIONS

A FOUR SITE ASSESSMENT OF THE

INTEGRATED CRIMINAL APPREHENSION PROGRAM

FINAL REPORT

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NOTES
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PREFACE

The Integrated Criminal Apprehension Program (ICAP), sponsored by the Law Enforcement Assistance Administration (LEAA), represented a comprehensive effort to introduce state-of-the-art planning, patrol and investigative procedures in over 50 police agencies across the country. It was a dynamic program which over the years changed and expanded from its initial emphasis on improving patrol operations to include a broader range of operational and administrative functions. The major program components of ICAP included:

- the operation of a crime analysis unit;
- the management of patrol operations;
- the management of criminal investigations; and
- the development of a police-oriented serious habitual offender program.

Participating police departments designed and implemented their own local ICAP project by choosing among the many objectives and activities encompassed within the major ICAP components listed above. While the objectives and activities of some ICAP program components were common to almost all local projects (e.g., crime analysis), other components were not (e.g., management of criminal investigations). Considerable diversity existed across local ICAP sites in the emphasis given to various project activities and in the scheduling of their implementation.

The purpose of the national assessment was to conduct a process and outcome assessment of the ICAP model as it developed in four of the 52 departments that participated in the program. The evaluation was conducted over a four year period and contained two phases. During the first phase a process-oriented implementation assessment was conducted. The process evaluation explored: the extent to which various ICAP activities were implemented; the level of resources committed to these activities; and the extent to which these activities were incorporated into the routines of the departments. The second phase outcome assessment focused upon the extent to which various program components, especially crime analysis, were able to support the criminal identification and apprehension goals of the program. This assessment included a detailed analysis of ICAP involvement in over 3,100 felony cases and the tracking of arrest rates over a seven year period in two departments.

This volume focuses upon the outcome assessment of ICAP in four cities: Memphis, Tennessee; Norfolk, Virginia; Springfield, Missouri; and Stockton, California. It is one of a series of reports and briefings that were prepared during this evaluation. Other major reports in this series, listed below, are available from the University City Science Center.

General Design and Guide for Evaluation of the Integrated Criminal Apprehension Program (April 1979)

Refinement of a Quarterly Information System for the Integrated Criminal Apprehension Program. Volume 1, Overview and Recommendations; Volume 2, Case Studies (May 1980)

A Case Study of the Implementation of the Integrated Criminal Apprehension Program in Springfield, Missouri (March 1981)

A Case Study of the Implementation of the Integrated Criminal Apprehension Program in Memphis, Tennessee (January 1981)

A Case Study of the Implementation of the Integrated Criminal Apprehension Program in Norfolk, Virginia (March 1981)

A Case Study of the Implementation of the Integrated Criminal Apprehension Program in Stockton, California (March 1981)

OVERVIEW OF THE REPORT

This volume presents a summary account of the national assessment of ICAP. Because of the program's broad scope and the extensive amount of data which was collected, it was not possible to report in detail on the complete range of activities supported by each project or the methodologies and procedures used in conducting the evaluation. The purpose of this report is to identify the most salient findings and observations regarding the ICAP program. Throughout this report references will be made to the reports listed above. These reports provide more detail on the program and the evaluation. The primary thrust of this report concerns the outcome of the projects in four sites. While we do not believe that these four projects were unique manifestations of ICAP, it must be cautioned that they may not be representative of the ICAP development in the other 48 funded programs.

The report is divided into three parts. Section I presents a summary of the ICAP program. Chapter 1 discusses the objectives of the program, a rationale for the selection of the various ICAP activities and an overview of the grant funding process. Chapter 2 discusses the ICAP monitoring strategy of which this national assessment was a part. Particular attention is paid to factors which shaped the research. Section II deals with the ICAP process. Chapters 3 and 4 describe, respectively, the local ICAP projects and those factors which affected their implementation and integration into the departments. These chapters summarize much of the information from the national evaluation process assessment of ICAP. Section III of this report discusses the ICAP outcome in the four evaluation departments. Chapter 5 details the assessment methodology. Chapter 6 establishes a context or baseline from which to consider the ICAP project outcome. The chapter focuses upon crime characteristics which constrain apprehension efforts. Chapter 7 contains a detailed analysis of the arrest process to determine both ICAP and non-ICAP contributions to the achievement of ICAP crime control objectives. Chapter 8 presents a detailed analysis of the kinds of case and suspect information that are associated with arrest. The final chapter discusses several issues which affected the ability of the departments to achieve the impact goals of the program and proposes some future research topics to delve further into the issues of police effectiveness and efficiency. Finally, Appendix B contains a limited time series analysis of crime and arrest data in two of the four departments where this data existed.

ACKNOWLEDGEMENTS

The ICAP assessment in Memphis, TN; Norfolk, VA; Springfield, VA and Stockton CA involved a lengthy and indepth review of police operations. The process involved detailed and recurrent interviews with a variety of personnel in each of the police departments we studied. Throughout this entire process the police personnel we encountered were extremely patient and helpful.

The authors wish to thank the many members of the Memphis Police Department who cooperated in this evaluation, especially the Director of Police, E. Winslow Chapman, and the Deputy Director of Operations, John D. Holt, who thoroughly supported the evaluation and set the tone for open inquiry that is so essential for this type of study. On our numerous visits to Memphis they not only committed the department to our investigation but also shared their thoughts on the course of ICAP. A special thanks is accorded Inspector Earl Clark, the ICAP project director. Inspector Clark provided access to records and personnel throughout the department. More importantly, he spent many hours discussing the ICAP model, problems of implementation and the craft of policing. Captain Tom Lacastro as ICAP project director, and the crime analysis staff also provided considerable support to the evaluation team.

Our research would not have been possible without the support and encouragement of officials and officers from the Norfolk Police Department. We wish to thank Chief Charles Grant for opening the department to our inquiry. Of particular assistance were the ICAP project directors, Captain George Nichols, Captain Sam Griffen and Lieutenant Ben Rogerson. Frank Carey, project manager during the early phases of the program, was also of great assistance. These senior project staff were all most helpful in candidly discussing ICAP events and progress. In addition, they saw to it that our requests for information were answered and that we were given access to departmental records as well as the many personnel involved in day-to-day operation of the department. We are especially indebted to Detective William Sexton who provided invaluable assistance in locating investigative case jackets. Finally, Corporal Dan Everton and all of the crime analysts, as well as Sergeant Pat Murden and Margaret Jordan, both of Central Records, very patiently responded to our numerous requests for assistance.

The high level of assistance offered by Springfield police personnel was also tremendously helpful and a necessary component of this assessment. The support of the recently retired Chief of Police in Springfield, Gordon Loveland, and his successor, Troy Majors, facilitated access to all areas of

police operations. In addition, the command staff was ready to assist the assessment team with their time and energy. A special thanks is accorded to Lieutenant Ira Copeland, the ICAP project director. His helpfulness and willingness to assist the evaluators has been appreciated constantly during the course of the evaluation. His observations and experiences have provided a valuable perspective on the implementation of ICAP. Appreciation is also extended to the Springfield Crime Analysis Unit directed by Joe Robles.

Many members of the Stockton Police Department cooperated in this assessment. The willingness and openness with which they participated was gratifying. Based on his interest in ICAP as a mechanism for improving police department operations, Chief Julio A. Cecchetti provided the necessary support to permit extensive inquiry into all departmental operations involved with the ICAP project. His willingness to consider new ways of providing more effective and efficient police service to the community has created a departmental climate conducive to the implementation of innovations like ICAP in police work. Deputy Chief of Operations, Jack F. Calkins, and other members of Stockton's command staff assisted in facilitating access to those individuals with information needed for this assessment. A special note of thanks is accorded to David Yamada, the ICAP Project Manager, who handled the many requests for data and other support. His experiences and observations during the course of the study provided a valuable perspective on the implementation of ICAP within a police department. Thanks is also extended to Officer Mark Herder and other ICAP project members.

Staff members of both the National Institute of Justice (NIJ) and the Law Enforcement Assistance Administration (LEAA) served on the advisory board for this project. Their cooperation and support was invaluable. Frank Vaccarella of NIJ served as project monitor and guided the assessment administratively and conceptually. Robert Heck, the ICAP program monitor in LEAA, opened his grant files to us and provided valuable program information.

Finally, several members of the Science Center staff were invaluable in completing the assessment. Neal Berger was instrumental in conducting the assessment in Springfield. Margo Edmunds provided both data collection and analysis support. Carol Dill, our secretary, supported the project unflinchingly as we moved through many drafts and revisions.

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CHAPTER 1

INTRODUCTION

A growing demand for public services combined with a trend toward fiscal austerity has forced many public agencies to recognize the need for planning and implementing programs which can result in greater productivity from available resources. Like other public agencies, police departments have been affected by this trend. Local police agencies have experimented with a number of programs including community oriented policing, investigative case screening, improved allocation methods and crime analysis in order to better utilize available resources. In addition to these local efforts, the Law Enforcement Assistance Administration (LEAA) and the National Institute of Justice (NIJ) sponsored the development, implementation and transfer of these techniques for improving police service delivery. The purpose of this chapter is to describe the federal ICAP initiative and to explain the manner in which grant funds were used to encourage implementation at the local level.

The Integrated Criminal Apprehension Program (ICAP) sponsored by LEAA represented a comprehensive effort to introduce several state-of-the-art planning, patrol and investigative programs to a wide range of police agencies across the country. ICAP drew upon research sponsored by the National Institute of Law Enforcement and Criminal Justice (NILECJ) and operational programs sponsored by the Office of Criminal Justice Programs (OCJP), as well as the efforts of individual police departments, to develop improved systems of service delivery. The ICAP program developed over a period of several years. When it was initially conceived, ICAP was aimed largely at improving patrol operations. Although this emphasis remained at the heart of ICAP, the program expanded to include the investigative process, warrant service and serious habitual offender components. It must be emphasized that ICAP was not a static program, but one that changed over the course of its existence.

The objectives of the program¹ were to increase:

- the amount of solvability and apprehension information gathered by the police from preliminary investigations,
- directed patrol activities based upon crime analysis and strategic planning, and
- apprehensions of less serious offenders as well as career criminals.

¹LEAA Guide for Discretionary Grant Programs, September 27, 1976, Section 2, Law Enforcement.

DEVELOPMENT OF ICAP, 1975-1980

The development of ICAP, as well as the transfer of the program to operational settings, was managed by LEAA's Office of Criminal Justice Programs. Prior to the beginning of the PEP-ICAP program² in 1976, the OCJP had focused most of its attention in the law enforcement area upon providing short-term on-site technical assistance to police agencies. This technical assistance addressed the specific requests of local police agencies and was largely a reactive response by the OCJP to foster change and innovation in local law enforcement agencies. PEP-ICAP represented a major shift in the OCJP operational philosophy towards a mix of both reactive and proactive technical assistance efforts.

PEP was first announced in the Discretionary Funding Guide in July 1975. The program began in 1976 when 16 departments were awarded discretionary grants averaging \$210,000. The initial focus of PEP, as described in the 1975 Discretionary Funding Guide, was to enhance the anti-crime efforts of police departments, especially patrol. To be eligible for participation in PEP, departments were required to establish both a crime analysis and a crime prevention unit. The recommended strength of these units was to be 3% and 1% respectively of a department's sworn complement. In addition, grant applicants were required to closely coordinate the activity of these units with patrol operations.

Several themes emerged as PEP-funded departments began program operations. First, there was a growing emphasis upon strategies for the allocation of patrol personnel since departments were encouraged to use crime analysis and calls for service in planning deployment. Second, departments were urged to develop more rigorous preliminary investigations, use solvability factors to facilitate investigations and concentrate upon serious habitual offenders. Overall, the PEP objectives were aimed at enhancing the role of the patrol officer and generally expanding patrol's role in tactical planning and community relations. Although the outlines of the program were formulated by the OCJP, the participating departments were largely left to their own resources in developing specific PEP activities.

During 1976 several events occurred that eventually led to the development of more specific PEP-ICAP objectives and program activities. The OCJP set aside approximately \$10,000 per department from its technical assistance funds for ICAP program development. The Westinghouse National Issues Center (WNIC) was retained with this money to further develop PEP-ICAP, conduct on-site assessment, provide technical assistance, plan conferences and prepare program materials.

²ICAP originally began as the Patrol Emphasis Program (PEP). As elements were added to PEP, it became known as ICAP.

In the months following the specification of technical assistance needs and problems, the OCJP with the aid of WNIC began to more fully develop the PEP-ICAP concept. The Discretionary Fund Guidelines for ICAP, published in September 1976, were more detailed than the PEP guidelines they replaced. The 1976 ICAP guidelines continued to emphasize the development of crime analysis and crime prevention units to support patrol operations. In addition, there was a growing emphasis upon improving preliminary investigations, developing case solvability factors and apprehending career criminals.

During 1977 the level of on-site technical assistance was minimal. Instead, the OCJP embarked upon a major effort to develop manuals detailing the various ICAP components and to provide program guidance in a series of nationwide ICAP conferences. This effort resulted in the preparation and distribution of several volumes by WNIC describing the ICAP approach to crime analysis, patrol operations, and records and reporting systems. Until the publication of these manuals, participating departments had only the bare outline of what an ICAP program might look like. In addition to the crime analysis, patrol and records manuals, the OCJP sponsored three crime analysis conferences in June of 1977. A fourth conference for program managers held in August enabled the OCJP to more efficiently orient both new and old ICAP departments to the emerging ICAP program and to allow these departments to share their experiences. Toward the close of 1977, WNIC made a round of site assessment visits to review the status of each ICAP project, provide limited technical assistance and design a technical assistance effort for 1978. A monthly newsletter was initiated in late 1977 to provide program participants with information about ICAP happenings.

The growth of ICAP continued. Fourteen new departments entered the program during FY 1978. The technical assistance budget grew to approximately \$410,000, and individual grants for FY 1978 amounted to nearly \$9 million, more than double the amount for the previous fiscal year. By the end of 1978 there were 42 operating ICAP sites. To handle the growth in the program, ICAP staff in the OCJP was increased from one person to four. The additional staff were better able to handle the tasks of administering the ICAP technical assistance program and grant processing. However, their ability to be responsible for all ICAP program development and monitoring remained limited because of the large number of participating departments and because of their need to administer other OCJP police programs.

As in earlier years, the primary responsibility for developing ICAP materials and providing technical assistance remained with WNIC in 1978. The policy of developing greater program specification through the preparation of manuals continued. In addition, a more concerted effort was made to transfer ICAP to each grantee through cluster conferences. The number of cluster meetings increased from four in 1977 to seven in 1978. The manuals produced in 1978 included an ICAP implementation guide, a book of patrol readings that focused upon resource allocation, a training manual, and a guide for developing a communications system that described methods for prioritizing calls for

service. Toward the end of 1978, participating departments were introduced to a quarterly reporting system that would allow the OCJP to systematically monitor the development of the ICAP program in each site. Data collection for this system began during the last quarter of 1978. Although the quarterly reporting system had the potential for being used as a rigorous monitoring device, the failure of LEAA to provide personnel or contract resources to collate and analyze the reports negated the potential of this data collection effort.³

As ICAP began its fourth year of operation in 1979, considerable progress had been made in developing the program, specifying its various components through a series of manuals, providing technical assistance at conferences and developing a monitoring system for the OCJP. In spite of this activity, some gaps existed in providing participating departments with the level of program specification and technical assistance needed to fully develop the ICAP concepts. Although the manuals provided considerable detail for the crime analysis and patrol components of ICAP, the investigative and career criminal components received less attention.

The high point for ICAP was in 1979. The last group of six new departments was brought into the program in July of that year. At approximately the same time, the technical assistance contract which had provided considerable programmatic support by preparing resource documents, organizing cluster conferences, providing on-site technical reviews and abstracting materials from the newly instituted quarterly reporting system came to an end. By the close of 1979, four federal program monitors were burdened with the entire responsibility for managing approximately 40 active ICAP grantees across the country. Efforts to provide program guidance continued. Cluster meetings on a more limited regional basis were held, and a group of senior ICAP project directors formed a resource committee to provide and coordinate technical assistance among the sites. The most serious degradation of the federal government's responsibility to guide the program occurred in the project review and monitoring process. The technical assistance contractor had provided an annual on-site review of each project. This was last provided in the first quarter of calendar year 1979. Furthermore, although a quarterly monitoring system had been established in the last quarter of 1978, LEAA did not provide the resources to systematically review and use the quarterly data for project monitoring purposes.

In 1980 a small amount of technical assistance money was again made available to ICAP. These funds were used primarily to prepare a bi-monthly newsletter. During the same year the Carter Administration recommended, and Congress concurred on, the dissolution of the Law Enforcement Assistance

³Dennis Moore, Thomas Beall, William Gay, Refinement of Quarterly Information System for the Integrated Criminal Apprehension Program, Volume 1, Overview and Recommendations (University City Science Center, May 1980).

Administration. By the last quarter of 1980, one federal program monitor was responsible for the phase-out of the program and the participating grantees. Although new funding ceased after September 1980, already committed FY 80 monies continued to sustain the program in as many as ten departments through the third quarter of calendar year 1982.

ICAP DECISION METHOD AND PROGRAM MODEL

To understand ICAP it is necessary to recognize the two interrelated themes of the National Program. ICAP was 1) a method for making decisions and 2) a series of program activities. Rather than merely concentrating upon a series of innovative program activities, such as case screening, directed patrol and call prioritization, ICAP attempted to instill in the participating departments an ability to use and analyze information in order to make decisions. This was an important contribution to the way LEAA conceptualized the program development and technology transfer process. ICAP had the potential for exposing departments not only to innovative managerial and operational systems, but also to methods of data collection, analysis and decision-making that could be used to sustain future innovative efforts that require analysis and planning skills.

The ICAP Decision Method

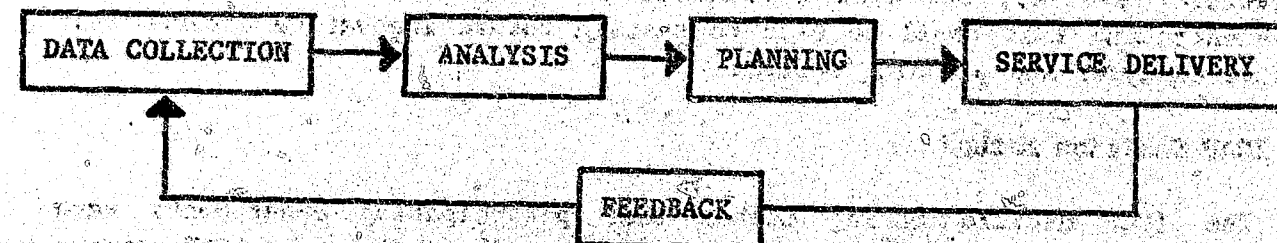
The ICAP decision-making method that participating departments were exposed to was not a part of PEP and was not introduced into the ICAP program until late 1977 and early 1978. The method was described in the Program Implementation Guide (1978). Until that time, ICAP was a program of semi-related activities that had been developed by individual departments or generated through NIJ sponsored research and demonstration programs. The ICAP decision method was conceived to help police administrators develop a structured and integrated approach to police service delivery. This methodology was to be used by departments to assess their operating procedures, study the need for the implementation of selected ICAP program components, plan new programs and monitor their implementation and operation.

The ICAP decision method was based upon the premise that the effective management of police resources requires the systematic and regular collection and assessment of information. This information, when analyzed, can provide police administrators with an improved tool to not only manage specific programs but also integrate the various support and operational services necessary for the efficient and effective use of police resources. The ICAP decision method was an empirical-rational model for making decisions and monitoring the impact of those decisions.

There are four basic steps (data collection, analysis, planning and service delivery) in the ICAP decision method plus a feedback loop. These are displayed in Exhibit I and are described in more detail in the following section. Before discussing these steps, it should be noted that the first two steps in the process (data collection and analysis) have been emphasized and accorded more specification than the other steps. Various ICAP documents describe how these decision processes can be used to manage police resources. Furthermore, although the method presents a rational model for developing programs it must be cautioned that police agencies are socio-political organizations as well as technical systems and that adoption of the methods met resistance as rational decisions mixed with time-honored traditions.

EXHIBIT I

ICAP DECISION METHODOLOGY



Data Collection: Within the ICAP decision method, data was considered the basic tool that police managers needed to carry out their resource allocation and service delivery responsibilities. Unlike other police management information systems, ICAP focused upon operational information rather than administrative data. Hence, the data collection component of ICAP focused almost exclusively upon the collection and organization of data generated by patrol and investigative units. The ICAP Records and Reporting manual as well as the Communications and Crime Analysis Manual develop detailed methods for collecting and collating basic operational data. It was expected that this data would be used to make two separate but interrelated types of decisions. First, the activity data, when aggregated, could be used to review and perhaps change the strategic and tactical deployment of personnel. Second, crime data when culled from the various reports, could be used to aid in the identification, apprehension and conviction of criminals.

Analysis: Analysis, as specified in the ICAP model, utilized information derived from the data collection phase to identify significant facts and derive conclusions. ICAP encouraged departments to undertake two types of analysis - crime and operations analysis.

Crime analysis was a set of systematic, analytical processes designed to provide police managers with timely and pertinent information about crime patterns and trends. The emphasis on crime analysis was based on the point of view that when incidents are not analyzed and classified, patrol managers frequently perceive that all events are isolated, and do not perceive temporal or geographic patterns of crime.

In addition, ICAP encouraged departments to develop suspect oriented strategies by recommending the development of field interview reports and career criminal files. **Operations analysis** involved the continuous collection and analysis of information related to police service delivery. Operations analysis provided police managers with information relative to the: call for service and crime workload; manpower available to meet workload demands; distribution of patrol personnel; and assignment of departmental resources.

Planning: ICAP planning was a decision-making process for police managers. It was based upon the principle that police departments operate from a sense of organizational purpose. This organizational purpose, when translated into goals and objectives, established a framework within which police managers make decisions. ICAP also emphasized the involvement of a greater range of police managers in using information to plan activities, set priorities and ultimately make decisions.

Police managers under ICAP were to use the data and reports prepared by support personnel in the crime and operations analysis units to establish operating priorities and bring the use of resources into line with the goals and objectives of the department. ICAP planning involved two types of decisions - strategic and tactical. In general, strategic plans were to be made by command level personnel (captain and above), were policy oriented and established the parameters within which line supervisors (lieutenants and sergeants) used patrol and investigative resources to deliver basic services. Strategic decisions in ICAP usually included the allocation of sworn personnel, prioritization of service calls, and use of solvability factors and investigative case management systems. Tactical planning was to be done by line personnel (lieutenants and sergeants) and was generally concerned with the deployment of manpower resources (personnel) by location and activity in response to short-term service delivery needs. ICAP emphasized that tactical planning should rely heavily upon information developed by the crime and intelligence analysis functions. A primary ICAP tactical planning objective was to more carefully direct the use of patrol personnel to solve a community's major crime problems.

Service Delivery: The service delivery component of the ICAP decision method recognized that the police performed a wide variety of activities ranging from crime related services to more general social services that did not require the presence of a uniformed officer. The intent of ICAP was to focus more of a department's resources upon crime related services. In addition, ICAP also attempted to integrate the activities of various units in a department to maximize crime fighting capabilities. A good example of this was the program's emphasis upon eliminating the automatic follow-up by investigators of all preliminary crime reports prepared by patrol officers. Finally, ICAP focused on the prioritization of service demands. There is an implicit recognition that service demands generally outstrip resources and that police managers must make a conscious effort to prioritize what the department will do and when it will do it. ICAP addressed prioritization issues in its program elements that deal with calls for service and the assignment of investigative cases. Implicit in the ICAP planning component was a recognition that directed patrol activities should replace some of the time currently devoted to random preventive patrol. The program elements in the ICAP model discussed in the next section were designed to enhance the service delivery capabilities of the participating departments.

ICAP Program Model (Components)

The program components of the ICAP model were designed to offer police managers a range of managerial and operational procedures they could adopt to improve departmental efficiency and effectiveness. The components addressed field operations and support services and fall into four categories:

- Analysis;
- Patrol Management;
- Investigations Management; and
- Serious Habitual Offender Apprehension.

It should be noted that there was some overlap between the elements of the decision method and the program model. The analysis functions were identical in both the method and the model.

Analysis: The analysis function of ICAP underwent considerable change and development as the program matured. Although it was always a primary component in the program, it became more specific with each revision of the ICAP program manuals. The initial PEP guidelines required departments to establish a crime analysis unit. This was continued under ICAP and accounts for the substantial grant resources that have been used to develop the crime analysis capabilities of participating departments. All participating departments established crime analysis units, and most made these units the focus for all ICAP planning and operational activities. The Program Implementation

Guide (February 1978) described three analysis functions - crime, operational and intelligence. The ICAP analysis functions are described in the preceding section on the ICAP decision method.

Patrol Management: ICAP represented a comprehensive effort to increase the productivity of patrol by focusing the resources of patrol upon crime prevention, deterrence and apprehension. ICAP's emphasis on the management of patrol operations was justified by the fact that patrol has the largest portion of department resources and employees and provides the greatest number of services to the public. ICAP's patrol management emphasis was designed to more productively allocate, deploy and direct the crime-specific tactics of patrol.

The implementation of ICAP's patrol management component was based on the philosophy that:

- Departments must systematically match deployment to workload conditions and manage service calls to increase the portion of patrol resources directed to perform crime specific prevention, deterrence, and apprehension tactics;
- Patrol is both the principal supplier and chief user of analysis information, and this information can be used by patrol commanders to determine the time, location and the portion of patrol resources that can be tactically directed to local crime problems; and
- Patrol must address overlapping crime, service, traffic and community relations issues, and that to effectively handle these competing demands, patrol supervisors must prepare task plans and specify the tactics that will be used to address specific problems identified by the analysis components of ICAP.

Investigative Management: The investigative component of ICAP was based upon materials prepared by the National Institute of Law Enforcement and Criminal Justice. A detailed description of this program is found in the *Managing Criminal Investigations Manual* (Cawley, Miron, Aravjo, Wasserman, Mannello, Hoffman, 1977) that was prepared for the Institute's Executive Training Program in Advanced Criminal Justice Practices. The Manual outlined several steps necessary to develop an improved system of investigative management. These steps were generally designed to identify those cases that have the greatest potential for solution and to focus department resources on priority cases. Although each of the MCI program components was incorporated into the ICAP model, only two have been emphasized in the implementation of ICAP.

These were (1) greater participation by patrol officers in the investigative process and (2) the early closure of cases based upon solvability factor analysis that have little or no possibility for a solution. Because of this focus, a major undertaking of ICAP had been to upgrade the quality of initial investigations so that patrol officers could make a recommendation as to whether or not a case warranted detective follow-up. This emphasis in ICAP frequently led participating departments to redesign their offense report forms to incorporate solvability factors. ICAP regarded case screening as part of a larger effort to manage the investigative process. For the most part, screening consisted of a review of the patrol officer's preliminary investigation and the priority assigned to a case. As such, it is a quality control and review mechanism. Although ICAP recommended that case screening be performed by an investigations manager, some departments assigned the screening function to patrol. In the latter case investigators played only a review role in the screening process.

Serious Habitual Offender: Although the focus of ICAP was upon police operations, the program itself was part of a larger OCJP effort to apprehend and convict career criminals. The Career Criminal Program (CCP) funded by LEAA was managed by local prosecutors. (Program Guide: ICAP and CCP, 1977). In many ICAP cities the local prosecutor had a CCP grant. The function of the serious habitual offender component of ICAP was to focus the department's attention upon career criminals and to coordinate police-prosecutor initiatives in this area. ICAP identified two law enforcement functions that can support the prosecutor's career criminal program. These were the development of a special investigative function (unit) and an improved system to manage and serve warrants. The special investigative function was designed to aid departments in the early identification, investigation and case processing of crimes involving serious offenders. The key to this process was the development of a serious offender information system so that if these persons were arrested, patrol and investigative personnel would carefully prepare their cases and bring them rapidly to the attention of the prosecutor. The warrant service portion of ICAP was designed to reduce the large warrant backlog that many departments face. ICAP suggested that by improving warrant management, departments should be able to arrest serious offenders more rapidly and reduce court delays.

GRANT FUNDING PRIORITY AND LEVELS

The primary mechanism used by LEAA to support ICAP activities was the provision of grants to participating law enforcement agencies. These grants and the accompanying money were the most powerful stimuli to the implementation of ICAP activities. At a minimum, the grants allowed the departments to dedicate a project director as a change agent to directly oversee implementation of recommended ICAP activities. Because the grant funding enabled the

participants to focus upon ICAP and commit substantial departmental resources to the projects, this budget review is presented to augment the description of ICAP gained through analyses of the program objectives and activities.

ICAP was a big program in terms of the number of participants, the length of the grants and amount of money available to individual participants. The program represented one of the largest single commitments of funds by LEAA to a categorical grant program. Participants were eligible for three phases of funding. The original FEP grants were generally funded for a 12 to 15 month period. However, as ICAP matured, later grants were more likely to cover 18 months and it was not uncommon for the grantor to extend the grant period. As a consequence, the four evaluation sites were funded for between four and five years. During the three phases federal monies generally accounted for 90% of the total grant, with state and local matches accounting for the remainder. This 90-10 match formula did not change as a grantee moved through the funding phases. The local match was usually of an in-kind nature. For example, the department would specify that a crime analyst would be contributed to the project by the department. The ICAP budgets in some of the sites pledged greater than 10% match. Finally, it should be noted that some personnel supported by the project budget performed non-ICAP functions. The number of grant phases as well as their duration was based upon the principle that ICAP was an ambitious program requiring substantial changes in a department's management philosophy and operational style. Hence, the projects were funded for an extended period of time and at a relatively high level.

To understand the scope of the program the total budgets for the four intensive evaluation departments were reviewed. The proposed budgets are aggregated for four grant periods and displayed in Exhibit 2. The grants for these four departments averaged \$1.2 million and ranged from a low of \$822,000 in Springfield to \$1.7 million in Memphis. Grant awards to the national evaluation sites were approximately 50% greater than the grants made to non-evaluation departments. The larger commitment to the national evaluation sites was particularly heavy in Memphis and Stockton where the grants were more than double and 80% greater than the average ICAP grant. The grants to Norfolk and Springfield more closely approximated the average grants to non-evaluation sites. The increased resources committed to the evaluation sites grew out of a desire by OCJP to ensure that these departments had adequate resources to make the best possible implementation, to provide extra resources to support the national evaluation and to make a heavy commitment of money to the Memphis and Stockton projects to support development of computer systems. The monthly expenditures varied considerably among the four sites. Norfolk and Springfield spent nearly \$13,000 per month while the monthly spend in Memphis and Stockton was in the \$23,000 to \$27,000 range. Finally, the amount of money committed per officer was much greater in the smaller departments (Springfield and Stockton) than in the larger departments (Memphis and Norfolk).

EXHIBIT 2

ICAP AWARDS TO THE FOUR EVALUATION DEPARTMENTS

	Memphis	Norfolk	Springfield	Stockton
Total Award	\$1,703,600	\$963,000	\$821,500	\$1,301,000
Monthly Spend	\$ 27,100	\$ 12,000	\$ 12,600	\$ 23,200
Amount per officer	\$ 1,400	\$ 1,600	\$ 4,700	\$ 5,400

In general, there was no relation between departmental size and the size of the ICAP grants. This can be seen in Exhibit 3. A budget analysis of 28 Phase 2 ICAP grants indicated they clustered around the \$300,000 level. The amount spent per officer varied considerably in the four evaluation sites ranging from approximately \$1500 in the larger departments of Memphis and Norfolk, to approximately \$15,000 in Springfield and Stockton (Exhibit 2). The lack of relationship between department size and grant amount suggests the ICAP funding strategy was based upon providing sufficient funds for a department to support a project director and staff to engage in project planning as well as for operations and crime analysis. In addition, each budget contained funds for travel, equipment and contractual services. Funding levels also appear to have been based upon the availability of ICAP funds, LEAA staff judgments about the success and merit of each project, political considerations and local proposals.

EXHIBIT 3

AVERAGE GRANTS IN 28 ICAP DEPARTMENTS

Department Size	Number of Departments	Population	Sworn Personnel	Average Grant
Small	10	45,000-132,000	69-182	\$284,978
Medium	10	91,000-214,000	202-407	\$321,968
Large	8	281,000-666,000	604-1600	\$304,675

A detailed listing of the major budget items is displayed in Exhibit 4. There is considerable consistency among the budget allocations in Norfolk, Springfield and Stockton. The largest commitment of resources in these sites was to personnel. It accounted for approximately 50% of the ICAP monies. In Memphis 31% of the budget was committed to personnel. Personnel monies were used to hire additional civilian personnel or to support sworn personnel already on the department. In the latter case these officers usually transferred to the ICAP office or the crime analysis unit. The largest single item in the personnel budget was for crime analysts. This is not surprising given that crime analysis was the central feature of ICAP. The second major personnel expenditure was used to pay officers overtime wages to attend ICAP training during their off-duty hours. In addition to providing training opportunities, this expenditure was also looked upon as an inducement for officers to buy into the ICAP project. The amount of overtime pay ranged from \$255,000 in Memphis to only \$42,500 in Stockton. The wide range in the amount of overtime pay used by the departments represented two different implementation philosophies. Both recognized the value of training. Some departments used ICAP funds primarily to support training during off duty hours, while others chose to train their personnel during on-duty time periods. This latter option was cheaper in terms of grant dollars although it did temporarily increase the workload of those officers who filled in for officers attending the training. An unfortunate aspect of paying for overtime training was that training budgets were used for personnel costs rather than for the development of training materials that could be incorporated into future training efforts.

The second major grant expenditure for the four intensive evaluation sites was in the area of equipment. Norfolk, Springfield and Stockton committed approximately 16% of their budgets to equipment. In Memphis, on the other hand, equipment accounted for 57% of its ICAP funds. There was a dynamic and fairly direct relationship between the personnel and equipment budgets in the four evaluation sites as well as other ICAP grantees. In departments like Memphis, where the equipment budget was high the personnel budget was low. The opposite phenomenon occurred when the personnel budgets were high. The vast majority of the equipment money was used to acquire computer hardware. In some cases the money was used to upgrade existing systems (Norfolk) while in other instances the money was used to acquire the hardware needed to automate offense reports, arrest records and other crime analysis data bases. Memphis used the bulk of its equipment budget to purchase a computer aided dispatch system. Smaller amounts of money were used to acquire cars and radios in the four sites. On occasion, the departments used the grants to acquire hidden cameras and alarms that could be used to augment tactical apprehension capabilities.

The third largest item in the ICAP budgets involved travel. Among the four sites travel budgets averaged approximately \$87,000 and ranged from nearly \$69,000 in Stockton to \$106,000 in Norfolk. Travel funds consumed

EXHIBIT 4

DETAILED ICAP PROJECT BUDGETS

Budget Category	Memphis	Norfolk	Springfield	Stockton
Personnel	31%	48%	54%	50%
Salary and Fringe	302,700	397,300	328,100	608,000
Overtime	255,800	64,300	115,700	42,500
Equipment	57%	14%	14%	19%
Computer	928,700	79,100	26,300	192,600
Radio/Car		38,000	90,600	8,000
Other	41,100	16,300		46,600
Travel	5%	11%	11%	5%
	85,500	106,100	89,500	68,700
Contractual	1%	22%	13%	9%
Local Evaluator	15,200	85,200	60,700	40,000
Training/TA		129,000		77,600
Career Criminal	-	-	6%	-
			47,504	
Operating Expenses	4%	5%	8%	17%
Furnishings, Supplies				
Photocopy, construction	72,600	49,500	51,100	221,600
Total	\$1,703,600	\$963,000	\$821,500	\$1,301,000

approximately 5% of the ICAP budgets in Memphis and Stockton, the more heavily funded sites, and 11% of the budgets in Norfolk and Springfield. The inclusion of travel funds in the ICAP budgets was deemed a principal means by which to transfer the various program components to the participating departments. Next to the distribution of resource documents the travel funds provided opportunities for the participants to examine ICAP components.

The travel funds supported two types of activities: cluster meetings at the regional and national level where participants were introduced to the

various components of ICAP. The cluster meetings provide the program manager an opportunity to present the ICAP philosophy, expose the participating sites to exemplary implementation of ICAP and to review project progress. These meetings enabled federal ICAP managers to instill a unifying theme and direction for the program. This was important given the limited size of the federal staff and the limited opportunity for this staff to conduct on-site technical reviews and assistance.

The travel budgets also supported site visits to other police departments to review innovative police activities. Most of this travel was to other ICAP sites. This enabled working level personnel, primarily crime analysts, to visit other crime analysis units and to attend training sessions. This activity supported the development of basic skills and procedures needed to implement specific ICAP activities. The use of travel funds also allowed command personnel, responsible for approving ICAP initiatives, to see the program in action. These command visits helped to involve important police decisionmakers in the projects. Finally, project directors used ICAP travel as an incentive and bonus. Because of the local nature of police operations, personnel seldom have an opportunity to travel. ICAP travel funds provided both management and line personnel an opportunity to travel to other police agencies.

Contractual expenditures among the four sites varied considerably. Memphis committed only 1% (\$15,000) of its budget to contractual services while Norfolk budgeted 22% or \$214,000. Contractual services typically represented the acquisition of personnel services to supplement the evaluation, training and technical assistance needs of the department. A substantial portion of this money was budgeted for process and impact evaluation studies. Springfield and Norfolk maintained local evaluators throughout their programs. It should be noted that the Springfield evaluator also fulfilled a technical assistance role. When the national evaluation commenced, Memphis discontinued all local evaluation efforts while Stockton used its contractual budget for technical assistance. Finally, Springfield let a sub-grant (\$47,500) to the county prosecutor's office to develop a career criminal program, hire an assistant prosecutor to handle career criminal cases (\$32,000) and develop a PROMIS automated information system (\$12,000). When this sub-grant expired, the prosecutor dropped the career criminal initiative.

Operating expenses in the four sites comprised from 4% to 17% of the budgets. Norfolk committed \$52,500 to operating expenses budgeted over \$221,000. These expenses included furnishing, telephone, office supply and photocopying expenses. Depending upon the department this might also include administrative expenses.

CONCLUSION

What was ICAP? The answer depends, to a certain extent, upon what information is used to review the program. In terms of goals and objectives, it can be regarded primarily as a program designed to improve the crime control and apprehension activities of the police. The ICAP goals have been used as a primary criteria for selecting the outcome measures for the national evaluation. In terms of programs, ICAP proposed a wide range of activities that a department might engage in to improve both its effectiveness and efficiency. These activities touched field services as well as support services. The program urged departments to focus upon crime analysis and patrol operations. Less attention was given to investigations management and career criminal activities. In regard to expenditures most of the ICAP monies were used for personnel and equipment. Personnel expenditures were committed to the development of a crime analysis capability, while the equipment budgets supported the acquisition of computer hardware. Very little ICAP funding was used for patrol, investigative, or career criminal program development purposes. Finally, developing an unambiguous picture of ICAP is difficult because of the program's flexibility. Each of the participating departments had considerable discretion in shaping its local project.

CHAPTER 2

ASSESSMENT OVERVIEW

The purpose of the national evaluation was to conduct a process and outcome assessment of the ICAP model as it developed in four of the 52 departments that participated in the program. As with any evaluation strategy the final design was determined by a number of factors including the breadth and complexity of the national ICAP program, its evolving nature, the many manifestations of the program among the participating departments and the scope and timing of the evaluation.

The complexity of ICAP was one major consideration in the design of the evaluation. Unlike most federally sponsored programs, ICAP did not have a single focus. Instead, ICAP identified a broad set of program objectives and program components that had the potential for substantially changing major police operational and support services. The scope of this program cannot be overemphasized for it addressed the most critical elements of the law enforcement function. Among the four major components of ICAP, there were as many as 16 subprogram activities that a department might become engaged in. Some of these subactivities, like patrol beat and schedule design or criminal investigations management, were major undertakings in and of themselves. Because of the program's complexity the national assessment had to be capable of reviewing several critical police enforcement tasks.

A second major factor affecting the evaluation design was the LEAA implementation strategy. The ICAP Implementation Guide distinguished between the ICAP Program and ICAP Projects. (Grassie, Crowe, February 1978, p. 4-1) This was an important distinction for both ICAP managers and evaluators. The ICAP program was a body of literature and knowledge that comprised OCJP's conception of ICAP. It was the model that OCJP would like each participating police department to adopt during the course of its ICAP funding. The ICAP project, on the other hand, was what each department did with its grant funding. Given the breadth of the national program, participating departments had considerable discretion in implementing various ICAP components. As long as a department established a crime analysis function and made some progress in the other program components areas, federal monitors were content to approve on-going funding for the project. As a consequence, although there was only one ICAP program, there were 52 different ICAP projects. Participants controlled the extent and the time period within which they implemented various patrol, investigative and serious habitual offender activities. In addition to the "standard" ICAP activities as outlined in program literature, the departments had discretion in using ICAP funds to implement activities of local interest that were not specified in the ICAP guidelines. Exhibit 5 contains an activity matrix which classifies ICAP activities as either program specific, project emphasized or site specific. The category to which

each activity has been assigned is based upon the general degree of emphasis that the activity received in ICAP guidelines, publications and conferences. While there were very few project activities that could not, in some fashion, be related to the ICAP model, there was a continuum of activities which ranged from those implemented in nearly all of the participating departments to some which were implemented in only one or two sites. The tripartite classification used in Exhibit 5 is provided to indicate the mix of program to site specific ICAP activities. The classification of an activity into one of the three categories is based on the following general criteria:

- **Program Specific** - These are core activities which have received major treatment in ICAP program manuals such as the **Program Implementation Guide**. Information on these activities was requested on the National ICAP Quarterly Reporting System form. Crime analysis and patrol operations received the most extensive program specification. Most activities assigned to this category are common to almost all ICAP sites.

- **Project Emphasized** - These activities received less attention in formal ICAP program material, but were espoused by national ICAP administrators. These activities were recommended to local ICAP projects and information about them was disseminated to project managers at ICAP meetings. Activities such as crime prevention, serious juvenile offender and improved warrant services were examples of these project emphasized activities.

- **Site Specific** - Although supported by ICAP funds, these activities received little or no mention in ICAP program documents. In addition, they were not major topics of discussion at ICAP meetings. They were usually unique to the particular site in which they were implemented. Officer performance appraisal, field training officers and report transcription units for investigators represent examples of site specific types of activity.

A third factor affecting the design was the evolving nature of ICAP and the point in the program's history when individual projects received funding. As we have indicated in Chapter 1, ICAP began as a patrol program. Over time, however, components like investigations management and career criminal were added to the program while others like crime prevention and warrant service were deemphasized or dropped. Thus, older participants became accustomed to updating their projects to conform to the changing nature of the program

EXHIBIT 5

ICAP PROGRAM AND PROJECT ACTIVITY GRID

Activity Area	Program Specific	Project Emphasized	Site Specific
Crime Analysis	Strategic Planning Tactical Planning - Collect Information - Maintain Files - Issue Reports	Automated System	
Patrol Management	Service Call Management Patrol Allocation Directed Patrol	Follow-ups Referred to Patrol Community Service Aides Crime Prevention	Field Training Officers Revised Performance Review Computer Aided Dispatch
Investigations Management	Expanded Patrol Role Early Case Closure Organization and Allocation Manage/Monitor Cases Police/Prosecutor Feedback	Investigative Training	Rape Investigation Study Word Processing Unit
Serious Habitual Offender (SHO)	Liaison with Prosecutor SHO Criteria Developed SHO File, Notebook SHO Identification at Booking	Serious Juvenile Offender Improved Warrant Service	Prosecutor Program Funding

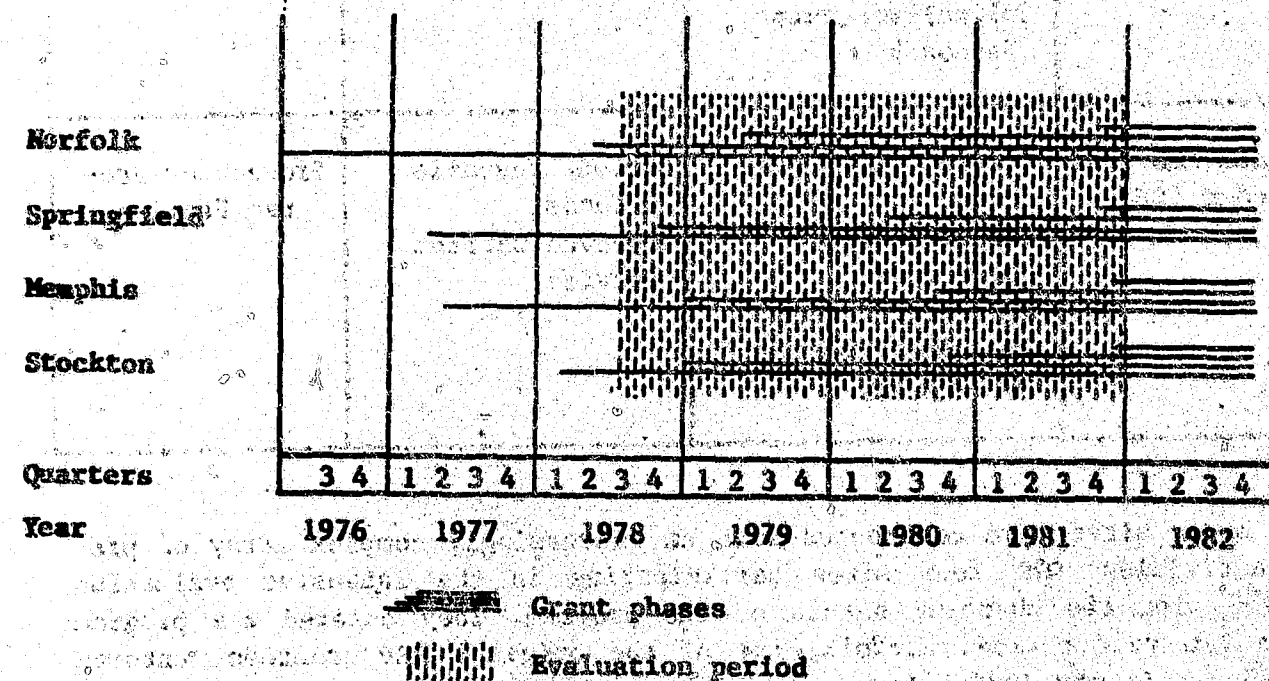
while newer sites were confronted with an increasingly complex array of program activities. The four sites participating in the intensive evaluation grappled with the changing nature of the program. They entered the program over a two year period. Norfolk, one of the original PEP grantees, entered the program in mid 1976 before many of the program guidelines were prepared.

Springfield and Memphis entered the program in mid 1977, while Stockton's first grant was awarded in early 1978. The length of grant funding ranged from approximately four years in Springfield to five years in Norfolk. The evaluation design had to accommodate the differing start-up times well as the varying length of the grant period.

A fourth factor influencing the design was the timing and duration of the national evaluation itself. The national evaluation of ICAP was originally planned as a four year effort by the National Institute of Justice and the Law Enforcement Assistance Administration. The four year evaluation period was determined by the length of the ICAP intervention, and the desire to conduct both a process and impact evaluation. During the first two years of the study a detailed process evaluation of ICAP projects in four sites was planned. The desire to conduct an impact evaluation demanded that elements of ICAP be implemented and routinized before the effectiveness of the program could be reviewed. Program planners in LEAA and NIJ assumed that sufficient progress would have been made during the first two phases of an ICAP project (slightly over three years) to support an impact assessment. Consequently, the latter two years of the evaluation involved an assessment of the program's impact. Exhibit 6 displays the chronological relationship between the

EXHIBIT 6

PROJECT PHASES AND EVALUATION PERIOD



ICAP projects in the four sites and the time period covered by the evaluation. Although the evaluation began in 1978, work in the individual sites did not commence until the late Spring of 1979. In other words, the departments had been participating in ICAP from approximately one year in Stockton to nearly three years in Norfolk before the evaluation began. Only a very limited amount of pre-program data was available. The last months of the projects in 1982 were largely inconsequential for program development. During this period, small supplemental grants were used to partially support on-going operations.

ASSESSMENT APPROACH

A variety of methods was used to conduct the assessment.¹ An initial project survey indicated that a formative assessment of ICAP as practiced (or implemented) in the field was necessary in order to determine, in actuality, what parts of the ICAP program model or theory were, or were not, being translated into the reality of everyday police operations. Consequently, the first phase of the assessment was primarily a process-oriented implementation assessment aimed at specifying the extent to which key ICAP program components had been functionally implemented. The extent to which this implementation was facilitated or inhibited by departmental factors and the extent to which ICAP project activities were incorporated into the planning and decisionmaking processes within the department were also assessed. The first phase findings are contained in four descriptive case studies.

The process assessment focused upon the key components of the program - crime analysis, patrol operations, investigations management and the serious habitual offender. In addressing the implementation of these components, the evaluation explored:

- the extent to which various activities were implemented,
- the level of resources committed to these activities,
- the way training was used to support implementation, and
- the extent to which the ICAP activity was integrated into the routine of the department.

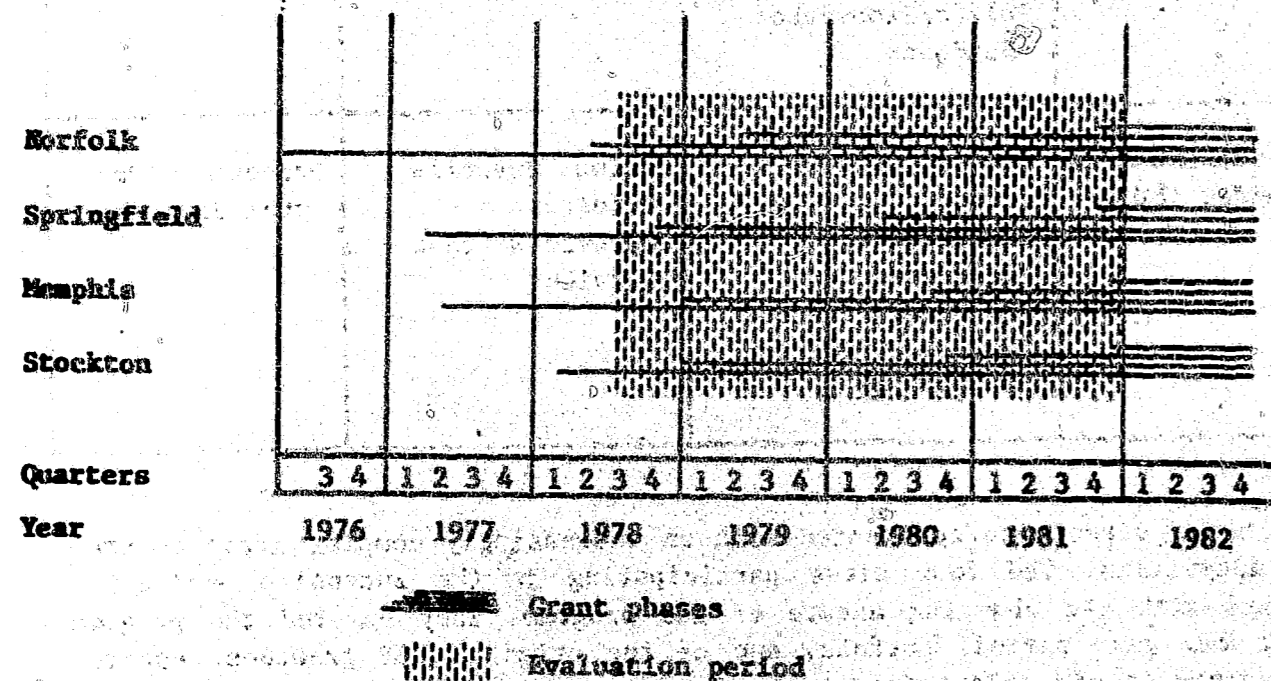
¹A more detailed discussion of this assessment process and an overview of the ICAP program's development, its model and method may be found in Chapter I of the General Design and Guide for Evaluation of ICAP (1979).

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The process assessment served several purposes. First, it presented information about a complex program in a holistic fashion and in the context of the police operating environment. Second, it allowed the evaluators to assess the extent to which ICAP was implemented in each of the sites. This was imperative given the scope of the national program and the fact that sites could tailor the program to local needs. This facilitated an understanding of the relationship between the national program goals and the projects that were actually implemented to meet these goals. A more accurate picture of the projects separate from the rhetoric of the national program was possible. Third, the process evaluation clearly delineated the linkages, or lack of them, between ICAP goals and objectives and the activities implemented by the departments. This permitted identification of the extent to which the main activities did or did not contribute to the program's goals. This was particularly critical in determining what measures would be used to assess the outcome of the project in each of the sites. Finally, the process assessment provided a framework for understanding and interpreting the outcome results and served as a cross check on the results of the outcome assessment. For example, by comparing the project outcomes to what was known about general police operations in each department, and the extent of ICAP implementation, it was possible to identify, with reasonable assurance, those factors which influenced project effectiveness.

The outcome assessment described in this report focuses upon the extent to which the various program components, especially crime analysis, were able to support the criminal identification and apprehension goals of the program. This assessment included an interrupted time series analysis of crime and arrest data over a six year period in two departments where data was available. The time series data were used to detect any changes in crime and arrest rates which occurred in conjunction with the program. It permitted a limited pre-post program impact analysis. To detect the way that routine police operations as well as specific ICAP innovations affected the apprehension process, a detailed analysis of 3,152 offenses was conducted. The cases were chosen during the latter stages of each department's project when ICAP implementation was most extensive.

THE FEDERAL EVALUATION STRATEGY

The national ICAP assessment was one part of a much larger federal evaluation strategy. Because of the large federal investment in ICAP the original evaluation design specified a tripartite assessment of the program. This assessment involved local project evaluations, monitoring by the LEAA staff and an intensive national evaluation of several departments. The approach was designed to support a detailed assessment of the program in four departments and a less detailed review of the program in another 25 departments. The expectation was that by linking the detailed assessment of the four sites

with the more cursory feedback from 25 additional sites the evaluators would be able to make statements about the program's total impact with a high degree of confidence.

The multi-faceted ICAP evaluation strategy was the direct result of LEAA's efforts to incorporate evaluation components into its programs. The evaluation effort included both local and national level activities. At the local level, individual grantees were instructed to include an evaluation component as part of their grant application. Most of the ICAP participants used this money to hire an "outside" evaluator to conduct project assessments. In some cases persons contracted to do this work performed process and impact assessments, while in other instances they served primarily as operations analysts and program development specialists. In fact, during the later stages of ICAP, federal program monitors urged the departments to use the evaluation funds for technical assistance and management consulting services. The scope and duration of these local efforts varied considerably. An office of program evaluation was established within LEAA to review the local evaluations and abstract information from them that would support the ICAP developmental effort. To our knowledge this office did not produce any type of "meta" evaluation summary based upon the many local evaluation reports submitted to it. The failure by LEAA to produce a summary document can be attributed to several factors including: the great variability in context and quality of the local evaluation reports, tension between the ICAP program and evaluation staff at LEAA that made a constructive working relationship impossible and changing priorities in LEAA that diverted the attention of the LEAA evaluation staff away from its ICAP assessment function.²

A second part of the LEAA evaluation system for ICAP involved the development of a quarterly grantees reporting system. The system required each grantee to submit reports to LEAA every three months describing project progress and problems. The quarterly report required the departments to respond with quantitative information about specific ICAP recommended activities. Thus, there were reporting requirements regarding crime analysis, patrol operations and investigative initiatives. The ICAP quarterly reporting system represented a substantial improvement over previous efforts by LEAA to monitor granters. In spite of this improvement in the quarterly reporting form, the failure by LEAA to collate and analyze the data received from the sites negated the potential of the system. Initial planning had called for LEAA either on its own or through its technical assistance contractor to use the reports to monitor project implementation. Automated and systematic review of the quarterly reports was never accomplished. Failure to implement the system had implications for LEAA, the local project and the national level evaluation. LEAA was deprived of the benefits of a fairly objective monitoring

²During the last year of its existence the LEAA evaluation office spent most of its time preparing a project monitoring system in response to the Biden Amendment attached to LEAA enabling legislation.

system based upon measurable accomplishments. Local project directors soon developed a feeling that they were supplying LEAA with paper work that was not being used. And, as is described in the next section, efforts by the national evaluator to monitor ICAP progress in approximately 25 departments was stymied.

The third part of the ICAP evaluative effort, the subject of this report, involved the intensive evaluation of four projects and the analysis of quarterly report data from an additional 25 departments. The expectation was that by viewing the experiences in the four intensive sites in conjunction with the 25 it would be possible for the national evaluator to make some statements about the progress of ICAP nationally. During the first phase of the ICAP evaluation, six quarters of data from the reports were automated and analyzed. Several problems with the reporting system and the data made interpretation impossible. First, some of the questions were ambiguous with regard to the type of information requested. Second, sites lacked a clear understanding of some of the terms used in the Quarterly Report (i.e., clearances, calls for service, preliminary investigations and directed patrol). Third, some project activities were not being assessed by the Quarterly Report (i.e., serious habitual offender). In addition to the above definitional problems and the failure to include questions about the entire program, analysis of the data was made impossible by the failure of the departments to report specific elements during each reporting period and anomalies in the data. In spite of these problems it is our assessment that the development of a quarterly reporting system for a multi-site program, if properly developed and supported, could be an important tool for both federal grant monitors and independent evaluators.³

The evaluation contained in the report is based upon an in-depth assessment of the program in four sites. In this respect it falls short of LEAA's original goal to comparatively and quantitatively monitor every ICAP project and subject 25 sites to a review by the national evaluator. The evaluation does, however, provide an in-depth assessment of ICAP in four sites. One cannot claim with any rigor that departments are representative of all ICAP projects. However, it is our subjective opinion that the four evaluation sites were not atypical of the much larger ICAP population.

The evaluation method involved a repeated case study approach. The approach was modified somewhat to fit the peculiarities of the individual projects. Modifications were more varied during the process phase of the evaluation than during the impact assessment which focused upon crime and arrest data.

³For a more detailed discussion of the ICAP quarterly reporting system see Dennis Moore, Thomas Beall and William Gay, *Refinement of Quarterly Information System for the Integrated Criminal Apprehension Program, Volume 1, Overview and Recommendations* (Washington, D.C.: University City Science Center, May 1980).

THE EVALUATION DEPARTMENTS

Selection of the four departments for the national evaluation involved input from LEAA, the National Institute of Justice and the Science Center evaluation team. Because only four sites would be selected from approximately 42 participants there was no way that a selection process could be developed to ensure representation. LEAA was primarily interested in identifying sites that had demonstrated a willingness and ability to grapple with the rather far reaching ICAP agenda. The federal ICAP monitor identified 12 departments that might offer the basis for a positive assessment of the program's potential. In addition, LEAA selected a range of potential sites on the basis of population size, geographic location and length of time in the program. During a meeting of ICAP project directors, the Science Center evaluation team and the NIJ evaluation monitor interviewed the 12 sites. Project development, interest in the evaluation, and ability of the project to support an evaluation test of the ICAP model were topics of discussion. Based upon these discussions NIJ and the evaluation team selected six potential sites. One of these was subsequently dropped from the list.

Before finalizing the selection of departments the evaluation team visited five sites for a two to three day period. During the visits the ICAP staff, command personnel and police officers were interviewed. In addition, grant applications, local ICAP evaluations and other ICAP related documents were reviewed. The purpose of the visits was to confirm the existence of a bonafide ICAP project and elicit the extent to which key police decision-makers supported the continued implementation of ICAP and the requirements of the national evaluations. During the visits, certain general issues were identified by the site assessment teams. Although each of the departments was generally following the ICAP model, each project had some unique aspects not shared by other ICAP projects. While the ICAP emphasis in these departments was upon the patrol components, there was considerable diversity in the manner and extent to which each department addressed the criminal investigations and career criminal components of ICAP. To some extent, this was due to the developmental history of the program. Projects which evolved from a PEP grant tended to focus more exclusively upon patrol activities than those ICAP projects without previous PEP experience. For all the departments, a common trend which emerged was the development of ICAP as a phased program. Each of the departments had set out to establish a strong crime analysis function and to use this as a basis for developing other parts of the ICAP system. In regard to the "evaluability" of the sites visited, attention was paid to the department's willingness to participate in the National Evaluation and indications that sufficient elements of the ICAP system would be implemented to justify the National Evaluation.

Based upon the site visits and discussion with LEAA and NIJ staff, four departments were selected as case study departments for the evaluation. The four sites were chosen to encompass differences in population, geographic

location, length of experience with ICAP and demonstrated success in implementing ICAP components. Exhibit 7 displays some background characteristics of the four case study sites. The data reflect considerable variability among the sites in regard to population, sworn staff levels and crime rates.

EXHIBIT 7

CASE STUDY DEPARTMENT CHARACTERISTICS

Department	Sworn Off.	Sworn Off./ 1,000 Pop.	PART I Crime/ 1,000 Pop.	ICAP Award	ICAP Dates
Memphis, TN	1,196	1.8	81	\$1,703,600	July 1977- Sept. 1982
Norfolk, VA	593	2.2	78	\$ 963,000	July 1976- Sept. 1982
Springfield, MO	174	1.3	100	\$ 821,500	April 1977- Sept. 1982
Stockton, CA	242	1.6	112	\$1,301,000	Feb. 1978- Sept. 1982

The developers of ICAP originally conceived that the program would be most beneficial and suited to cities in the 100,000 to 200,000 population range. The feeling was that departments in cities of this size would provide a full range of police services, be sufficiently large to have complicated management problems, yet not be so large and complex as to stifle a department-wide change effort like ICAP. From the point of view of the federal ICAP managers, the Springfield and Stockton departments represented the ideal size.

Memphis, Tennessee was the largest of the four evaluation departments and one of the largest ICAP cities. Its size was one of the determining factors in its selection as an evaluation site. Memphis represented a larger department with a more complex operating system that included a decentralized patrol force operating from four precincts. The choice of Memphis as an evaluation site was predicated on the desire to assess the feasibility of implementing ICAP in a larger department.

Norfolk, Virginia represented one of the oldest ICAP departments. Unlike the other three departments, Norfolk began operating as a PEP site in 1976 when LEAA had only very vague guidelines concerning the program. The PEP guidelines focused primarily upon patrol management. By the time Memphis, Springfield and Stockton entered the program, detailed guidelines on crime analysis and patrol operations had been developed, and departments were urged to implement aspects of the managing criminal investigations program.

Stockton, California was the last of the four departments to enter ICAP. It was the only evaluation site that experienced considerable population growth during the 1970's. Its population increased nearly 23% during the latter half of the decade, while the number of sworn officers increased 12%. Population in the other cities remained relatively steady since 1970. The population of Memphis and Norfolk declined (-3% and -2% respectively), while Springfield's population increased (4%). Among the four cities, Stockton had the highest Part I crime rate.

Springfield, Missouri was the smallest case study department. It not only had the smallest population but also the lowest ratio of sworn officers per 1,000 population. Its crime rate of 100 Part I crimes per 1,000 population was the second highest, next to Stockton, among the four evaluation departments. In total number of crimes it was the smallest.

ICAP PROJECT ORGANIZATION AND STAFF

The ICAP organizational location and staffing patterns varied across the four departments. These patterns were related to the extent to which ICAP was integrated into the department's overall mission. In each of the departments the ICAP project director generally fulfilled two roles - one as the project director and one as the commander of a staff or line function within the police department. The non-ICAP responsibilities had the potential for both supporting and hindering the ICAP mission. In the two larger departments, Memphis and Norfolk, the project directors were at the second line supervising level.⁴ While these ICAP directors were accorded considerable respect within their respective agencies and were recognized as command material, they were not members of the command staff. This was particularly critical given the larger size of the Memphis and Norfolk police departments. The Springfield project director was not directly involved in operations but he had responsibility for overall departmental planning and research. In terms of participation by command personnel Stockton had, perhaps, the best

⁴Captain in Memphis and Lieutenant in Norfolk. During the last phase of ICAP the director's position in each site was upgraded to Inspector and Captain respectively.

circumstances for active implementation of ICAP. The ICAP project director was the deputy chief of field operations. Both the deputy chief and the civilian manager of the operations support unit in Stockton, who was responsible for the day-to-day management of ICAP, were members of the chief's command staff. Furthermore, unlike ICAP in the other sites, the Stockton ICAP director had responsibility for planning and managing both patrol and investigative services. Hence, once a decision was made to operationalize the service delivery components of ICAP, those recommending actions were also the same persons responsible for implementing the activities. In the other three sites the project directors did not have the ability to directly implement ICAP activities. It was necessary for the ICAP project director in these sites to work closely with and gather support from key operational commanders. If the operational commanders were interested in change and the ICAP activities, then implementation was facilitated. If, on the other hand, the commanders were not supportive, which was often the case, change was difficult, and sometimes impossible.

The staffing and responsibilities of the ICAP officer varied across the four departments. The general tendency was to combine the ICAP function with some on-going activity of the department. Because of the diversity in organization, arrangement or duties, each of the ICAP project organization is described below.

Memphis - Memphis was the largest ICAP department of the four sites and, not unexpectedly, had the largest ICAP project staff. The unit was commanded by a captain, a second line supervisor in the department. The project director reported directly to the chief of police but was not a member of the command staff. The ICAP office was a specialized unit comprised of 23 personnel with records management and various analysis responsibilities. Half the unit was composed of civilian data entry clerks who entered dictated offense reports into the department's automated crime data base for distribution to other units and to support crime analysis. The remaining staff was composed of sworn and civilian personnel (8 officers, 1 civilian) who maintained the automated offense report data base and conducted crime analysis using various automated and hard copy information systems.

Norfolk - The ICAP project officer was in the special operations unit of the department. This unit was commanded by a lieutenant and had responsibility for ICAP and a variety of tasks including the Harbor patrol, warrant service and parking ticket management. Depending upon the organizational structure of the department the special operation unit was either in the field operations or investigative division. Personnel assigned to the ICAP project included a grant manager, training specialist, program analyst and a computer programmer. The crime analysis unit was located in the patrol division of the department and was comprised of two investigators, three patrol officers and one civilian analyst.

Springfield - ICAP was part of the planning and research office of the department. The unit was commanded by a lieutenant who did planning for the department, maintained liaison with the city council, prepared the departmental budget and directed crime analysis activities. The unit was composed of a civilian planner who supervised two civilian analysts.

Stockton - ICAP in Stockton was located in the planning unit of the operations bureau of the department. Because of this, ICAP was more fully integrated with operations in Stockton than in the other three assessment departments. Unlike the other sites the ICAP officer had a mandate and a staff to plan and conduct tactical operations. A total of approximately eight persons staffed the unit. Three personnel were assigned to crime analysis; two officers were responsible for planning and implementing tactical operations; and several clerical staff supported crime analysis activities.

CHAPTER 3

FOUR LOCAL ICAP PROJECTS: AN OVERVIEW

The purpose of this chapter is to provide a general overview of the four ICAP projects as they developed over the three phases of their operation. Most of the information and observations in this chapter are abstracted from the process evaluation phase of the study.¹ It should be noted that, with the exception of Springfield, all sites still had some federal funds to support ICAP project operations after both the process and outcome phases of the assessment were concluded. With the exception of Norfolk, there were few substantive changes in project operations during the outcome study period. Changes which did occur are included in this presentation. Since each case study was rather extensive, it is not possible to discuss all of the findings and analyses in this chapter. Instead, the chapter highlights those aspects of project implementation and operations which comprise an essential description of the project in each site. Critical factors which may have some bearing upon the results of the outcome assessment are identified. The four major program components of ICAP - crime analysis, patrol operations, criminal investigations and serious habitual offender - serve as the framework for this review.

CRIME ANALYSIS

The operation of a Crime Analysis Unit (CAU) was the key component of ICAP. It was the common theme that linked all of the ICAP activities together, and it was the one standard feature of the program that each participating police department attempted to implement. In the ICAP program literature, the function of the CAU had two foci. One was to develop and provide information which could support such strategic decisions as implementing telephone report units, developing call prioritization schemes, redesigning temporal and geographic deployment patterns, adjusting the mix of one- and two-officer units and developing investigative case management systems. The second major focus was the development of tactical information that patrol, special operations and investigative supervisors could use to direct their operations. This information was tactical in that it could facilitate decisions concerning specific crime problems; reports generated by the CAU could aid patrol managers in designing directed patrol tactics or investigators in clearing cases based upon modus operandi, stolen property and offender characteristics. The major functional activities for a crime analysis unit were the collection and analysis of criminal activity data, the

¹More detailed implementation and process assessments are contained in individual case study reports (Case Study Evaluations of the Implementation of ICAP in Memphis, Tennessee; Norfolk, Virginia; Springfield, Missouri; and Stockton, California).

dissemination of reports based upon these analyses and the receipt of feedback from the users of these reports and other (verbal) information. These activities were used as a framework for the assessment of the crime analysis units and their activities.

Staffing and Operation

Crime analysis represented the most consistently implemented ICAP activity.² Each of the assessment departments used either grant or departmental funds to establish and/or support an operational crime analysis unit. Although both Memphis and Norfolk had crime information groups prior to ICAP, these earlier groups were primarily involved in summarizing crime data for administrative rather than operational purposes. In three of the four departments, the ICAP crime analysis units operated during the day watch on week days only. Hence, special arrangements had to be made to facilitate the exchange of information between analysts and operations personnel on the evening and night watches. Only Memphis operated its crime analysis unit during both the day and evening watches on week days.

Exhibit 8 displays some staff and operational characteristics of the crime analysis units in the four departments. The units varied considerably in size. Although the Memphis unit was the largest in absolute number of personnel, it had the smallest number of analysts per 100 sworn officers. It is difficult to make judgments regarding the optimum site for a crime analysis unit because so much depends upon the range of assigned responsibilities. If the unit is expected to do detailed geographic crime pattern analysis and suspect profiles, the work can be quite labor intensive. In general, the quality and usefulness of crime analysis products were related to the amount of effort devoted to their development. The amount of automation will also determine unit size. Although automation facilitates the retrieval of information, it should be cautioned that the data entry and file maintenance process remains personnel intensive. In addition, automation is sometimes used only for retrieval, with analysis remaining primarily a manual function. For example, Memphis spent considerable resources automating its offense report data base. While this system facilitated the search for particular offense reports, items of stolen property, suspect descriptors, and crime trends within geographic areas and time periods, it was no substitute for the analysis of crime patterns and suspect linkages. Memphis performed little analysis. And analysis can only be done by crime analysts, albeit with the support of computer systems. The extent of automation among the departments was limited. Norfolk had an automated offense report prior to ICAP but due to data access problems used a manual crime analysis system. Neither Springfield nor Stockton developed automated offense reporting systems.

²For a general discussion of crime analysis activity see George A. Buck, et al., *Police Crime Analysis Unit Handbook*, (Washington, D.C.: National Institute of Law Enforcement and Criminal Justice, 1973.)

EXHIBIT 8

CRIME ANALYSIS STAFF

Characteristic	Memphis	Norfolk	Springfield	Stockton
Sworn	7	4	—	1
Civilian	1	1	3	2
Total Analysts	8	5	3	3
Analysts per 100 Officers	.66	.86	1.62	1.27
Manual/Automated	Automated	Manual	Manual	Manual
Locus of Unit	Decentralized	Centralized/ Decentralized	Centralized	Centralized

The four sites used a mix of sworn and non-sworn personnel. Review of work conducted by the units and interviews with personnel throughout the department suggest that the work can be performed by either sworn or civilian personnel. While sworn officers had an initial advantage of understanding street operations, over time civilian analysts acquired the necessary knowledge. Other skills needed to operate a crime analysis are not generally developed in routine patrol or investigative activity. Analysts must be capable of reviewing, organizing and drawing useful conclusions from large amounts of offense and suspect information. This usually requires substantial analytical skills that are not typically developed in routine patrol and investigative jobs. The experience in the four sites suggests that care should be taken to select crime analysts who have both analytical skills and an ability to relate to police operational personnel. Furthermore, if automated systems are contemplated or available, it is absolutely essential to have a skilled person in the unit who is able to not only develop programs but also design automated systems and knowledgeable guide hardware and software procurements. Memphis was particularly fortunate in having a sworn officer who was extremely knowledgeable about systems design and programming. This knowledge greatly facilitated automation. However, if this skill is not available in-house the employment of an experienced systems analyst/programmer is essential.

In larger agencies the question of where to locate the analysis unit is significant. The four sites studied used centralized or decentralized formats. The "centralized" descriptor for Springfield and Stockton is somewhat misleading. Both of these departments were small enough so that all units operated from a single facility. Hence, analysts were in close proximity and were accessible to both patrol and investigative personnel. The two larger agencies operated from multiple facilities. Memphis had a central headquarters and four precinct stations. Patrol and most investigators were assigned to precincts. Although the Memphis crime analysis computer was centralized and some analysts remained at headquarters, one analyst was assigned to each of the four precincts. Precinct analysts were connected to the central crime analysis computer and other automated criminal history files via display terminals and printers. The Memphis system offered the advantages of centralized crime data processing and decentralized support for patrol officers and investigators. Throughout the grant Norfolk grappled with the advantages and disadvantages of centralized/decentralized crime analysis operations. Crime analysis was originally implemented in one of the patrol precincts prior to ICAP. During ICAP, crime analysis operated in both a decentralized and later a centralized mode. While centralization gave the ICAP commander better control over crime analysis, it severely limited the access of patrol officers and investigators to the unit.

To a certain extent the size, location and mix of personnel assigned to a crime analysis unit affect the unit's linkage to operational personnel. Crime analysis is a support function. As such it is dependent upon other units in the department to make use of its services. Regardless of how well a unit performed, unless operational personnel were willing to develop activities around crime analysis products, the unit had limited utility. Of the four sites only Stockton took concrete steps to establish a strong link between analysis products and operations. The development of a patrol strike force (tactical unit) and the assignment of this unit to work in conjunction with crime analysts assured that crime analysis products would be used. In Norfolk, selected CAU products had a "reply memo" attached. For a time, recipients of these memoranda were required to respond in a specified time concerning any actions taken. The requirement was subsequently discontinued, in part because responses were often ambiguous with respect to whether specific action had been taken on the basis of the CAU product and whether any arrests resulted from the CAU-provided information. Only Stockton regularly developed a directed patrol or patrol tactical capability to respond to CAU reports. In other departments the actual use of crime analysis recommendations and reports was left to the discretion of patrol and investigative supervisors.

Information Development and Links to Operations

The departments developed several mechanisms to collect crime information. The central undertaking involved a thorough review and revision of the

basic offense report. Much of the ICAP rationale for improved apprehensions was predicated upon upgrading the initial investigation conducted by patrol. In this scheme the offense report was regarded as an important tool. When properly developed and conscientiously used in the investigative process by patrol, the ICAP model presumed it could: (1) guide and structure the initial investigation; (2) facilitate early case closure and eliminate the need for an automatic followup of cases with minimum solvability information by detectives; and (3) provide crime analysts with a wealth of information to help in the identification of suspects and crime patterns. To accomplish these ends the four departments revised their offense reports to collect additional information. This was done by minimizing the narrative section of the report and increasing the number of specific closed-ended questions. These closed-ended "check-a-box" type questions were designed to increase information available to investigators and facilitate automation of the offense report data.

To gauge the extent to which the redesigned offense reports increased the amount of information collected during the initial investigation, 200 old and new offense reports were compared in each of the four departments. The sample was composed of one hundred robbery and 100 burglary reports. These crimes were selected because they would allow an assessment of the extent to which the two forms led to the collection of both suspect and property information. Furthermore, ICAP encouraged departments to focus upon robbery and burglary. Content analysis was used to measure the extent to which the following categories of information were collected: method of operation, stolen property, suspect descriptors, witnesses and suspect vehicle. In three of the four departments (Memphis, Springfield, and Stockton) there was a significant increase in the amount of information collected. In the fourth department, Norfolk, there was little change in the amount of information collected. Some care must be exercised in interpreting these findings. Our subjective impression was that some of the new MO and suspect descriptor information being collected was of limited investigative value. For example, the new forced choice check-off type forms insured that officers identified methods of entry (eg., forced window) and color of hair (eg., red), but this information was only rarely of value to investigators. The analyses in Chapters 6, 7 and 8 of this report would appear to corroborate this impression.

The revised offense reports supported each department's efforts to increase analysis of crime patterns and led to extensive automation of the crime reports in Memphis. (Hence, Memphis was able to rapidly search offense reports for specific MO, suspect and property information.) In addition, all of the crime analysis units were able to identify geographic and temporal crime trends from offense data that could be used by field units to develop tactical operations. Three of the four departments (Norfolk, Springfield and Stockton) implemented field interviews to collect information about "suspicious" persons. The reports were maintained in manual card files and

were accessed in several different ways (e.g., names of interviewer and interviewee, interviewee vehicle, location of interview, etc.). They were used primarily in developing suspect lists.

Less effort was expended in revising and analyzing information gained from arrest reports. Only Springfield and Stockton revised these reports. Greater ICAP focus upon the revision of arrest reports, their automation and their use in the crime analysis component may have been a worthwhile endeavor. While offense reports provide substantial information about crimes, they usually contain less information about suspects. Arrest reports, on the other hand, contain specific suspect information that may provide a basis for future targeting of suspects and for matching the general MO and suspect descriptors found on offense reports of unsolved cases with specific suspect information. Research focusing upon the extent to which offenders repeatedly engage in crime³ suggest that methods to gather, collate and analyze information about offenders is an important undertaking.

The CAUs developed several mechanisms to disseminate information to field personnel. The units were able to respond to operational needs in both a proactive and reactive mode. In the proactive mode crime analysts reviewed offense reports to identify crime patterns, supplied officers with suspect information from field interview reports and disseminated information about selected wanted persons. Memphis, Norfolk and Springfield prepared daily and weekly crime summaries to improve patrol officer awareness of crime in their beats. These summaries contained little or no analysis; however, they could be used by patrol commanders and officers to identify general crime trends. CAUs in all four sites also prepared more specific and detailed crime analysis reports. The majority of the proactive reports were based upon the analysis of geographic trends, but some included method of operation or suspect data. Crime trends were usually identified via pin maps and reports containing incident, MO and suspect information. Some reports occasionally predicted future occurrences.

Feedback concerning the extent to which patrol used these reports to develop directed patrol operations and the success of these operations varied among the sites. Only Norfolk and Stockton established systems to collect feedback from operating units at (least for some reports). Operations personnel typically did not provide feedback to crime analysis and in some

³Marvin E. Wolfgang, Robert M. Figlio and Thorsten Sellin, *Delinquency in a Birth Cohort* (University of Chicago Press, 1972); Kristin M. Williams, *The Scope and Prediction of Recidivism* (Institute for Law and Social Research, July 1979); John Petersilia, Peter W. Greenwood and Marvin Lavin, *Criminal Careers of Habitual Felons* (National Institute of Law Enforcement and Criminal Justice, July 1978).

instances implemented only minimal and superficial tactical responses based upon CAU reports. The best tactical response to special crime bulletins occurred in Stockton where a special "strike" team was assembled to respond to CAU bulletins on a flexible 24 hour basis. At the other sites, patrol supervisors and officers with call for service responsibility generally had discretion whether to use or ignore crime analysis reports. In these instances, the nature and extent of tactical response was highly variable and idiosyncratic.

Analysis of the feedback concerning proactive crime analysis products in the two departments that collected this information provides some insight into the CAU-operations linkage. Stockton's CAU made a concerted effort to ensure the timeliness and credibility of its products through the strategy of selectively issuing and disseminating its reports. The CAU did not provide daily crime reports nor recaps as was done in Memphis. The espoused philosophy was not to "turn off" officers by overwhelming them with too much information that lacked integration or interpretation. Given limited personnel and a manual system, this was an efficient approach. With the exception of special warrant bulletins, CAU products in Stockton were not disseminated to patrol at large, but rather to specific supervisory personnel responsible for a particular unit or area. Final dissemination and use of CAU information was placed in their hands.

Perhaps the most direct involvement of the ICAP project effort in patrol operations was the initiation of a "strike force" in Stockton. This group provided the ICAP project with operational capabilities for extended surveillances, special patrol and apprehension activities. Depending on scheduling and beat responsibilities, six to ten officers were available for strike force assignments. When evening service calls were exceptionally high, the unit might not operate. The strike force coordinator worked in conjunction with the CAU in developing strike team Missions. Upon identification of a crime series by the CAU, the coordinator would gather intelligence from investigative personnel, informants and other sources. This information would then be analyzed to determine suspects, strategies and tactics. A plan would be developed, and the strike force deployed. Personnel permitting, this Strike Team had the capability of conducting around the clock operations. Missions included decoy operations, saturation of high crime areas, surveillance of known criminals, searches for felons with outstanding warrants and tactical support of investigative and sting operations.

Stockton had considerable success with its strike force. During a 20 month study period the strike force conducted 48 missions. Twenty-three of these missions were targeted at identified suspects, usually with outstanding warrants; 22 were based on CAU reported crime series; two were search warrants and one was a special request. Twenty-eight of these missions resulted in 49 related arrests. One decoy mission, which was conducted jointly with patrol in response to strong arm robberies of elderly males in a

high crime area, resulted in an additional 33 arrests for either grand theft or strong arm robbery. No significant differences were noted between the type of mission and its probability of producing arrests. Because strike force missions often involved surveillance in high crime areas and rapid saturation responses to felonies in progress, there were usually 30 to 40 additional, nonmission-related strike force arrests per month.

Norfolk had less success with its efforts to stimulate the use of crime analysis products by operational personnel. During a six month study period the CAU issued 67 bulletins - nearly three bulletins per week. The bulletins focused primarily upon the crimes targeted by the department for emphasis; commercial robbery and burglary accounted for 48% of the bulletins while residential robbery and burglary accounted for 24%. The remaining bulletins addressed larceny, vandalism, sex crimes and auto theft. The bulletins summarized information available regarding crimes, crime patterns and suspect characteristics. All of the bulletins identified the time frame and location of offenses in the pattern. Crime analysts made a future crime prediction in approximately 40% of bulletins and recommended possible deployment strategies and tactics to address the problem. When available suspect information was included on the bulletins it usually included suspect descriptions and MO gathered from the offense reports in the crime pattern. Only infrequently was a specific suspect named or vehicle description available. In approximately one third of the bulletins crime analysis included lists of possible suspects who had been field interviewed, a list of known offenders residing in the affected area or a suspect composite. In general, the bulletins were carefully prepared and documented a problem that patrol could address. Crime analysts had substantial problems in gathering feedback concerning how patrol responded to the bulletins and any arrests that may have come as a result of bulletin-stimulated patrol activity. During the six month study period, the analysis unit received reply memos to 17 of the 67 bulletins issued. In most of these 17 cases patrol personnel indicated that they had increased their level of patrol in the identified area. In a few instances field interviews, security surveys or additional victim/witness interviews were reportedly conducted. The memos indicated that arrests were made in five cases and that in four areas there was a reduction or elimination of the crime problem. Some allowances must be made in interpreting feedback data from the reply memos since memos existed for only 17 of the 67 crime bulletins and no corroborating information concerning reported activities was available. At a minimum, arrests were made in conjunction with seven percent of the total bulletins prepared.

The reactive crime analysis mode refers to the crime analysis response to requests for information from operational personnel. The requests were diverse and included offense reports, property searches, criminal histories, beat crime profiles, vehicle registration checks and license verifications. In general, patrol requests were concerned with geographic crime trends while investigators more often sought suspect information. All departments

maintained some records concerning information requests. Records from these departments indicate that investigators made more frequent inquiries than patrol officers did in all sites except Norfolk. In Norfolk, investigators made more requests than patrol officers during a period when an investigator was assigned as a crime analyst. When this individual left the CAU, patrol made more requests. This mix of inquiries, however, varied among the three departments and over time.

Analysis of the type of requests from operations personnel in Memphis sheds some information on the dissemination process. Most of the requests (73%) were met by accessing the automated Criminal Justice Information System (CJIS) file that contained criminal histories, vehicle registration, drivers' licenses and wants and warrant data. This is a state-county system for which the CAU had a terminal. The second most used file was the city of Memphis Light, Gas and Water Utility Address file. Twenty-three percent of the requests were answered by using this file. It was used to identify persons residing at a specific address. It should be noted that in most departments files comparable to CJIS and Light, Gas and Water files, if they exist, are operated by record and identification units rather than crime analysis. As expected, the number of CAU information requests in Memphis was substantially higher than the number of requests made to ICAP units in other cities. Finally, only 4% of the information requests were answered by accessing the offense report data base. Several conclusions can be drawn concerning the demand for crime analysis services in Memphis. First, the greatest utility of the offense report data base for analysis purposes was the identification of crime trends and patterns. With this type of analysis one is more concerned with the occurrence of many incidents over time rather than discrete bits of information that might be found on an individual offense report. Second, since the department did not emphasize placing additional clearances upon suspects once they were apprehended for a particular crime, detectives did not vigorously use the offense report data base for these purposes. Third, during the investigative process, officers were most interested in information about particular suspects. This information was more likely to be found in criminal history, driver's license and address files rather than in offense reports that usually contained very limited suspect data unless an arrest had been made.

Although the assessment sites generally institutionalized a crime analysis capability, certain aspects of their operation may have limited their effectiveness. Perhaps the most critical problem concerned the unreliability of the link between crime analysis and operations. This was due, in part, to the limited utility and occasionally poor quality of some analysis products. However, the lack of commitment and ability of patrol commanders and first-line supervisors to adopt proactive patrol planning was a major shortcoming. More importantly, the lack of support from upper command to institute and maintain a formal feedback loop between the CAU's and operational users of CAU reports created a situation where there was no assigned and/or shared responsibility for improving the usefulness of the CAU to the

department. It should be noted that this analysis represents the worst case. Over the duration of their projects, each site experienced periods in which attempts were made to forge these links. With the exception of Stockton's CAU which had long term direct input into special patrol operations, no CAU was able to noticeably influence daily patrol operations on a regular basis. In CAU relationships with investigators, more individualized responses occurred. Across sites, some investigators would regularly use the resource capabilities of the CAU while others would ignore it. In Memphis, the CAU served as an information clearinghouse for investigators. While this provided a useful service to investigators, its focus as the CAU's primary function may have rededuced its analytical capabilities. Because of this individualized response, personnel changes which occurred in the CAU often changed the frequency and nature of investigator contacts with the CAU.

In addition to the limited interface of the CAUs with line units, there were some technical and personnel issues which influenced CAU capability. Departments which planned to automate all or part of their CAU files encountered varying degrees of difficulty and delay in implementing their proposed systems. The nature of the problems varied and included troubles with both hardware and software. Some of the factors contributing to this situation were: limited expertise within the department in computer system procurement, lack of programming skills within the police agency and the unresponsiveness of municipal data processing departments to police needs.

Staffing of the CAUs was also problematical. In addition to the usual issue of turnover, other personnel factors may have influenced CAU functioning. The analysis function required creativity on the part of crime analysts. It required a mix of data management, quantitative, intuitive and interpretive skills that are not necessarily developed in police work. However, the absence of sworn officers in the CAU may significantly reduce its credibility with, and use by, sworn personnel. A combination of sworn and civilian analysts would appear to be a good mix. The extent to which the assessment sites were able to assemble a mix of skills in the crime analysis unit influenced the quality of CAU reports (i.e., more analysis of crime patterns and less reporting of simple statistics of occurrence) and utilization of the reports by departmental personnel. Despite these difficulties, the CAUs in all four sites were institutionalized by the departments at the close of the ICAP grants.

PATROL MANAGEMENT

Those activities which comprise ICAP's Patrol Management (PM) component have, as an underlying focus, the effective structuring and use of patrol manpower to reduce crime and increase apprehensions. In general, the PM component was designed to expand the role of patrol beyond its traditional reactive task of responding to citizen calls for service (cfs) into a more

proactive approach involving the use of planned tactical activities based on an analysis of crime incidence and existing departmental operations. Such planned tactical activities are often referred to as directed patrol.

In order to accomplish this goal, ICAP promulgated other related activities which would support the effective tactical use of patrol. These other activities comprised the three major areas of the Patrol Management component of the ICAP model.⁴ These areas were:

- Allocation of Patrol Personnel (both geographic, and temporal)
- Management of Service Call Workload
- Patrol Development Program

ICAP's emphasis on the efficient allocation of patrol personnel was based on the premise that when officers are allocated and deployed according to workload demands, the time available for directed patrol activities would be maximized. ICAP suggested that departments conduct a workload analysis study to assess the congruence between service demands and manpower deployment. On the basis of such a study, beats could be realigned and/or officers reassigned (temporally and geographically) to equalize the service call workload among officers and ensure that patrol personnel are available to provide service when and where it is most needed.⁵

In order to provide the time for directed patrols, ICAP promoted the management of service call workload through the development of alternative approaches to the immediate dispatch of a mobile patrol unit. ICAP urged departments to develop communications/dispatch procedures that permitted the taking of offense reports via telephone, prioritizing and stacking service calls and using civilian rather than sworn officers to handle selected service calls. Patrol development activities were espoused by ICAP to prepare and support officers in these planned changes to patrol's traditional role.

⁴For a description of patrol management concepts that were incorporated into ICAP see: William Gay, et al., *Improving Patrol Productivity: Volume I, Routine Patrol*, (Washington, D.C.: National Institute of Law Enforcement and Criminal Justice, 1977), James Tien et al., *The Wilmington Split-Force Experiment*, (Washington, D.C.: National Institute of Law Enforcement and Criminal Justice, 1978).

⁵For an evaluation of patrol management activities that were incorporated into ICAP see J. Thomas McEwen, *Managing Patrol Operations Field Test, Final Evaluation Report*, (Alexandria, VA: Resource Management Associates, Inc., 1982).

Training and equipment were provided by ICAP to facilitate the implementation of patrol's expanded role within the department. Activities in all three areas were to complement each other and permit the implementation of a directed patrol program and/or other new patrol tasks.

The four evaluation sites proposed and implemented some activities from all three major areas of the patrol management component. Not surprisingly, there was considerable variation in the choice and emphasis of activities, the method and schedule for their implementation, and the extent to which they were ultimately adopted by the department. However, some common trends did emerge across the four evaluation sites.

With regard to the temporal and geographic allocation of patrol personnel, only Norfolk and Springfield formally proposed and conducted activities which involved the reorganization and deployment of staff. Both sites conducted workload analyses and the subsequent reports were used in reorganizing the supervision and structure of patrol operations. In Springfield, this ICAP supported reallocation included the transformation of an equal patrol shift staffing to one based on workload factors; geographic realignment of police patrol zones and beats; and the decrease in the ratio of patrol to line supervisors (pre-ICAP, 1:13; post-ICAP, 1:7). In conducting this reallocation the department made extensive use of a mini-computer to develop officer schedules.⁶

In Norfolk, a sector command system of patrol management was instituted which emphasized the geographic unity of command by giving lieutenants 24 hour responsibility for a given sector of the city and broad discretion in developing allocation and tactical plans for their respective sectors. This decentralization of decision-making was further emphasized by departmental encouragement that sergeants plan and initiate directed patrol activities with their officers. The department experimented with a fixed shift allocation plan. Less progress was made in developing an efficient deployment scheme. Patrol personnel were primarily assigned on an equal shift basis, irrespective of service call demands and approximately 60% of the patrol units were randomly staffed by two officer units.

Memphis and Stockton made no formal ICAP proposals in regard to allocation or deployment. In Stockton, annual workload analyses were already part of the department's normal scope of operations. However, ICAP projects in both sites pursued related activities. The ICAP project in Memphis supported a workload analysis and proposed a reallocation plan for one of the department's four precincts. The department also made a strong commitment to

⁶For a description of the system see Nelson Heller, *What Law Enforcement Can Gain from Computer Designed Work Schedules*. (Washington, D.C.: U.S. Department of Justice, 1974).

deploying a larger number of one-officer units. During the ICAP period the deployment of one-officer units increased from 20% to 70% of all units. Deployment of two-officer units was confined to beats and times of day which were considered "dangerous". Stockton's ICAP personnel participated in a field test of an automated allocation model and two deployment studies: one of the Traffic Division's hours of operation and the other on the call for service workload of the patrol division. Manpower redeployment also occurred in Stockton as part of the ICAP effort to institute directed patrol activities.

The continued implementation and maintenance of these allocation activities was mixed. Norfolk discontinued its sector command and fixed shift plans. Springfield, Stockton and Memphis also experienced varying degrees of modification in their original plans. Factors such as changes in command and ICAP staff, budget limitations, political elections, labor-management relations, patrol officer shortages and pockets of departmental resistance were identified as contributing to these modifications in all four sites. However, the development of efficient redeployment plans in these sites was less prone to major revisions or termination.

Within the area of managing service call workload, all four sites proposed and implemented activities directed towards the operation of a Telephone Report Unit (TRU). Although Stockton was the only site to formally propose and implement a TRU for the purpose of handling certain calls for service and crime reports, Springfield, Norfolk and Memphis also proposed, formalized or improved their capabilities to handle some calls for service over the phone. Both Norfolk and Memphis had informal procedures for handling some calls over the phone prior to ICAP. In Norfolk, the ICAP project helped to formalize these procedures. In Memphis, a TRU was implemented towards the end of the project. Springfield initiated a TRU during phase II of its project although such a unit was never formally proposed. Across all sites, this telephone report capability, whether formal or informal, demonstrated capability of handling between 13 and 35% of all calls for service.

A second focus of ICAP activity relevant to managing calls for service concerned the development of policies and procedures for the prioritization and stacking of calls. These procedures were intended to ensure that the most important calls were handled first and to create time for officers to engage in directed patrol. Staff from the Norfolk, Springfield and Stockton ICAP projects were actively involved in the development and dissemination of new or revised communication policies and procedures within their departments. The Memphis ICAP directly supported the installation of a computer-aided dispatch system (CAD) which had prioritization and stacking capabilities. The CAD systems installed in Stockton and Norfolk also operated under the ICAP supported communication guidelines.

Other project activities in the area of call for service management included a Patrol Aide Program initiated by Norfolk for the dual purpose of relieving officers of certain routine duties (e.g., assisting motorists) and pre-screening potential patrol officer recruits. Norfolk dropped this program at the conclusion of the ICAP grant. Stockton's ICAP project provided support for a False Alarm Reduction Program which sent warning and/or temporary service termination notices to owners of chronically faulty alarm systems. While these special programs were of some service to the departments, it was the development or improvement of telephone report taking capabilities in three of the four departments that represented ICAP's most notable contribution to departmental operations in the patrol management area of calls for service management.

ICAP project activities in the area of patrol development were primarily directed towards the preparation of departmental personnel for ICAP initiated changes. Training was used extensively in all four sites to provide officers with an introduction and orientation to ICAP. Crime analysis, report writing and criminal investigation were other common topics of instruction. As part of patrol development activities, three of the four sites collected and compiled a wide variety of information on each beat in the city. This information was used as a topic of training and a reference resource for new officers. Other curricula offered at particular sites included classes on officer patrol, the generalist officer concept and briefings on recent judicial rulings. ICAP also supported the attendance of sworn personnel at specialized training programs and professional academies outside the police department.

The ICAP project in three of the four sites instituted management seminars with command and/or first-time supervisors to help define the nature and scope of patrol's changing role within the department. These seminars were an important mechanism for informing and involving the department's command structure in proposed ICAP changes. On the whole, ICAP patrol development activities across the four sites exposed officers to a broader conceptualization and knowledge of police work. Three of the four sites conducted survey evaluations of the training program. Results from all three sites indicated that it was well received by the officers. In all sites, some aspects of this training became part of the regular police academy program.

All sites implemented some activities in each of the three patrol management areas just discussed. Three sites - Springfield, Stockton and Norfolk - also formally proposed and implemented some form of directed patrol activity. The Memphis ICAP project was involved in the planning of a directed patrol program for one precinct on a trial basis; however, a combination of political and fiscal circumstances plus a command decision led to a cancellation of this plan's actual implementation. In Norfolk, tactical patrol units operated prior to the ICAP project. With the advent of ICAP, the utilization of crime analysis was emphasized in the planning of these operations. The extent to which this occurred varied considerably over the duration of the project. The lack of any consistently applied formal policies linking CAU

support to tactical operations resulted in individual decisions on the part of each supervisor as to the extent and manner in which CAU information was used in choosing and planning tactical activities.

Both Springfield and Stockton adopted a mixed approach to special patrol operations. Each site identified a group of officers from one shift (evening overlap watch in Stockton; midnight to morning watch in Springfield) to serve as a special operations squad. These officers were relieved of calls for service to engage in a variety of proactive patrol activities (surveillance, warrant service, security checks, etc.) based on input from crime analysis and other intelligence sources.* In both sites, when no operations were planned, or when calls for service were extremely heavy, normal patrol operations would be conducted. In addition to these special squads, general patrol directives would be given to other patrol watches in regard to a problem identified by crime analysis. Regular patrol was then expected to plan and implement its own directed activity in response to this information. Regular patrol involvement in special operations was sporadic. The absence of any monitoring capability and the paucity of information on such activities suggest that directed patrol was not consistently implemented. There are documented periods in each project's history when efforts were made to increase involvement by routine patrol officers; however, such attempts were not sustained over six months or more. The special operations squad in Stockton, on the other hand, operated with regularity. In general, directed patrol in one form or another was implemented in three of the four sites. For the most part, however, it was the activities of special squads who were freed from having to respond to calls for service rather than routine patrol officers who implemented directed patrol plans.

INVESTIGATIONS MANAGEMENT

In many respects it is the investigative process that has determined the organizational structure and workflow of modern police agencies. Police departments are organized to rapidly process citizen reports of crime and to mobilize both patrol officers and investigators to respond to these reports. The type and level of response generally is dependent upon the seriousness of the crime and the amount of evidence available to support an investigation. The communications unit is generally the first part of the organization to handle citizen crime reports. It is also in the communications unit, via telephone reporting, where management of the investigative process begins. Departments are finding that a large number of minor offense reports can be

*Norfolk had similar proactive squads; however the squads tended to focus primarily on vice activity and seldom, if ever, utilized crime analysis products which did not focus on such crime problems.

effectively handled over the phone without dispatching a patrol officer or a detective. The second step in the investigative process is the dispatch of a patrol unit to the scene of the crime. Previous studies indicate, and this evaluation supports the fact, that patrol plays a very important role in the investigative process. Patrol officers conduct the preliminary investigation and make most arrests. As a consequence, ICAP encouraged departments to accord patrol more responsibility for investigations. Finally, reported crime cases are passed on to detectives for either follow-up investigation or, if an arrest has been made by patrol, final case preparation.

ICAP addressed many activities that a department must undertake to manage the investigation of reported crime. But these ICAP efforts were not solely confined to a department's detective bureau. For example, the program urged departments to institute a system of telephone reporting as an alternative to dispatch and to have patrol officers conduct complete preliminary reports and recommend the early case closure of cases which had minimal probability of a solution. These activities were designed to eliminate duplication of effort by detectives and to improve investigative efficiency.

The Investigations Management (IM) component of ICAP did not address the entire investigative effort of a department, however. It focused only upon the continuing investigation of reported crime. These cases were generally brought to the attention of the department by citizens, forwarded to patrol for preliminary investigation, and finally assigned to detectives. Hence, the contributions made by vice, intelligence, and narcotics units were not a part of ICAP.

The ICAP investigative component was modeled after the Managing Criminal Investigations (MCI) program developed by the National Institute of Law Enforcement and Criminal Justice.⁷ The six investigative components of ICAP were taken from the National Institute's program. The MCI materials were distributed to the ICAP departments and the project directors were urged to use the Institute's model as a planning guide. The components are: the expansion of the patrol role in the initial investigation; case screening; the organization and allocation of investigative resources; the management and monitoring of continuing investigations; and the enhancement of police/prosecutor relationships.

Recent research has suggested that the quality and quantity of evidence gathered by the officer who first responds to the scene of a crime is important to the solution of many cases. These findings have resulted in a reassessment of the role of patrol in the investigative process. ICAP activities indicative of patrol's expanded role in investigations included: conduct of a

⁷Donald Cawley, et al., *Managing Criminal Investigations Manual* (Washington, D.C.: National Institute of Justice, 1977).

complete preliminary investigation; authority to make early case closure recommendations; and the assignment of follow-up investigative responsibility.

The investigative prescriptions for ICAP, especially in regard to the organization and allocation of resources, were tentative and suggestive. In general, the MCI program expressed a preference for decentralizing some investigative functions, especially in larger organizations. In regard to the number of personnel that might optimally be assigned to investigations, the MCI manual made no specific recommendations, but did suggest that a number of factors affect personnel levels. Some of these factors were patrol's responsibility for preliminary investigations, policies and procedures for case screening and suspension of investigations.

The Managing Criminal Investigations program advocated by ICAP was quite specific about how continuing investigations should be managed and monitored. The MCI manual urged a careful review of all cases at frequent intervals by investigative supervisors. This system was based upon a paper flow process which required that investigators document case progress and that supervisors track cases periodically. Among the documents needed to implement this system were case assignment logs for individual investigators and summary charts showing the number of active cases assigned to each investigator. These would be maintained by supervisors. Individual investigators would be required to maintain a daily activity log and prepare reports on the status of individual investigations. In addition, supervisors would prepare summary reports of clearances by arrests and the number of cases accepted or rejected by the prosecutor.

Police/prosecutor relations can affect the processing of cases. Hence, ICAP envisioned the relationship to be one which is formalized, institutionalized and systematic. The very nature and distinctive missions of the police on the one hand and the prosecutor on the other offer a potentially wide and diversified range of contacts. However, for an effective and productive police/prosecutor relationship to evolve, ICAP recommended that certain factors be present. These factors were: the existence of a working partnership on matters of mutual law enforcement interest; the identification of the prosecutor's information needs and their incorporation into the police investigative process; the existence of a formal liaison with the prosecutor; and, the existence of a case disposition feedback encompassing the reasons for dismissal and rejection of cases by the prosecutor. The relationship could also be enhanced by a variety of other activities including major case/offender screening, prosecutive involvement in case preparation and case management, or availability of prosecutive personnel to support police training efforts.

Before assessing the IM program activities, it must be emphasized that the activities were more directly designed to improve the efficiency of the

investigative process rather than its effectiveness. IM was largely an administrative response to managing the large number of crime reports a department must process. In other words, it was primarily concerned with improving the flow of investigations to closure and eliminating the duplication of effort which occurs when detectives follow-up on all patrol reports. Streamlining the investigation of reported crime may provide the time needed for detectives to undertake proactive investigative tactics (Sting, vice, etc.) designed to increase apprehensions. However, the ICAP literature did not discuss the link between the administrative efficiency aspects of IM and more aggressive, proactive investigative tactics designed to improve effectiveness.

In the four assessment sites the implementation of the ICAP investigative components was confined primarily to expansion of the patrol role in investigations and early case closure. Little attention was paid to organization, monitoring, and improving police/prosecutor feedback. This occurred for several reasons. First, the federal program director emphasized the front-end, patrol aspects of IM. Second, the investigative component was not a part of the initial grant application guidelines prepared by LEAA. Emphasis was not placed upon investigations until some departments were completing their first phase grants. Third, because of the scope of ICAP, it was nearly impossible for ICAP managers to implement all of the program components simultaneously. Instead, the participants tended to implement crime analysis and, to a lesser extent, the patrol component of the program before turning their attention to investigations. Fourth, implementation of IM met stiff resistance at the upper command levels of the participating departments. Norfolk, Springfield and Stockton had to postpone IM planning and implementation activities because of investigator objections to early case closure, case management and monitoring activities. In each of these departments, planned IM activities were postponed from the second to the third grant period. Changes in key personnel resisting change eventually facilitated implementation in these sites. For example, a newly appointed detective commander developed and implemented a model system for monitoring investigator productivity in Norfolk after earlier commanders had made no progress in this area.

In contrast, Memphis implemented IM program activities quite quickly. Unlike the other assessment departments, Memphis' decision to implement MCI grew out of internal departmental needs rather than a conscious effort to implement ICAP. Furthermore, the detective commander spearheaded the innovations. This was in direct contrast to the slow pace of IM innovation in the other three departments where many investigative commanders resisted efforts by ICAP personnel to implement IM components.

Each of the departments expanded the investigative role of patrol officers. Offense reports were revised to guide officers in conducting more thorough and systematic initial investigations. This benefitted crime

analysis and investigators by providing more complete information. The patrol officers were accorded more authority to preserve the crime scene, interview victims, witnesses and suspects, and, whenever possible, apprehend and arrest suspects. Crime scene searches were usually handled by evidence technicians. Detectives were dispatched to the scene for only the most serious violent crimes of homicide, rape and robbery. In most instances, the detective was primarily involved in post-arrest case processing and the taking of formal victim, witness and suspect statements. Only Norfolk continued to routinely dispatch a detective to many crime scenes, especially those involving a felony offense.

Patrol's responsibility for follow-up investigations varied among the departments.⁸ In Memphis, Norfolk and Stockton some misdemeanors were forwarded directly to the prosecutor without a follow-up by the detective bureau. In regard to felonies, only Springfield and to a very limited extent, Norfolk (shoplift) allowed patrol to conduct follow-ups. The assignment of follow-up investigative authority to patrol may have had the most potential of any IM activity for improving arrest rates. It represented a significant application of new resources to a portion of the police workload. In Springfield, where the program was studied intensively for a three month period, the clearance rate for residential burglaries nearly doubled from 4.5% to 8.2%. During this period, patrol accounted for 53% of all residential burglary follow-ups that resulted in a clearance. In spite of these findings, the department did not continue this activity after its experimental phase.

Memphis and Norfolk accorded patrol responsibility for recommending early case closure of some Part I crimes at the conclusion of the initial investigation. In Memphis, detectives were no longer assigned these cases, thus eliminating duplication of patrol's effort by investigations. In Norfolk, the patrol recommendation was reviewed by a detective supervisor, who would usually suspend the investigative inquiry. During a six month study period in each site approximately 50% of all cases in Memphis and 39% of all burglaries and larcenies in Norfolk were closed by patrol. In Springfield and Stockton, early case closure decisions were made exclusively by detectives. The level of early case closure by detectives in Springfield (54%) and Stockton (37%) were similar to the level of patrol closures in Memphis and Norfolk. In all of the sites the early case closures were comprised almost exclusively of property crimes, primarily larceny.

⁸Developing an operational definition of a follow-up investigation is complicated. In general, all work done by the patrol officer during the tour of duty in which the crime occurred is considered a preliminary investigation. Thus a preliminary may include the taking of an offense report as well as the identification and arrest of suspects. A follow-up usually occurs on a shift following the initial complaint. Where an arrest has not been made, the follow-up may involve a review of the preliminary investigation and the collection and analysis of additional information.

Although the available data suggest that early case closure recommendations by patrol and detectives can substantially reduce detective caseload, this must be interpreted with considerable caution. In Memphis, for example, detective supervisors routinely screened larcenies and did not assign all cases prior to ICAP. In Norfolk prior to ICAP, although all cases were assigned for a detective follow-up, the level of the follow-up was left to the discretion of the detective. In many instances this amounted to only a very cursory review of the offense report rather than additional investigative effort. Furthermore, although early case closure systems reduced individual caseloads, none of the sites used the "time saved" to implement new activities. Memphis reassigned personnel to create a quality control case processing procedure (offense and arrest report review). However, no new investigative activities were undertaken. The other sites simply allowed any time saved through early case closure to be used by individual detectives to continue traditional investigative procedures.

Only Memphis completely reorganized its investigative services. This is not surprising given this component of ICAP stressed the decentralization of investigators in large multi-precinct police organizations. The Memphis reorganization involved three major changes. First, the homicide, robbery and sex crime squads were consolidated into a single violent crime squad centralized at police headquarters. Second, the burglary and larceny squads were consolidated and decentralized to work in the department's four precincts. This provided for more stable geographic assignment of investigators and for a better coordination between patrol and investigations. In addition, detectives were assigned to work more evening and weekend tours. Finally, a quality control center was established to review all offense reports, early case closure decisions by patrol and to monitor the timely submission of cases to the prosecutor. The Springfield and Stockton departments did not implement any organizational changes in investigations; Norfolk began some limited investigative reorganization during its later program phases.

None of the departments addressed the allocation of resources to investigations. The amount of variability among the departments suggests that studies of investigative force levels are needed. The amount of variation in investigative resources is displayed in Exhibit 9. Springfield had the smallest investigative force while Norfolk had the largest, in regard to total sworn resources committed to investigations and the per capita number of investigative personnel.

Efforts to implement new case management and monitoring procedures in the departments were limited during ICAP. This was in part due to investigator attitudes regarding performance measurement. Many detectives assert that because of the complexity of the investigative process, it is impossible to evaluate the performance of investigators. Other police personnel argue just as strongly that investigative productivity is low and that most investigators avoid efforts to measure their productivity because it is low.

EXHIBIT 9

INVESTIGATIVE RESOURCES

Department	Investigators as a % of total sworn	Investigators per 1,000 population
Springfield	12%	1.6
Stockton	20%	3.4
Memphis	20%	3.5
Norfolk	22%	4.6

Three of the departments (Memphis, Norfolk and Stockton) maintain investigative logs of cases worked and arrests. These logs also indicate the status of individual cases, as well as the investigators assigned to the case/arrest. Although investigators in Springfield maintain a log of their cases, the supervisor does not maintain a log for the entire squad. These logs are more useful for locating case assignments and the disposition of cases when inquiries are made by other departmental units and the public, than they are in managing and monitoring the investigative process. These types of logs pre-dated ICAP in both Memphis and Norfolk; however, ICAP significantly strengthened Norfolk's reporting systems during the last grant phase. Memphis, Norfolk and Stockton also maintained logs that summarize the number of cases assigned to each investigator and the outcome of the investigation.

A major shortcoming in three of the departments was the failure to collect and monitor information on the extent to which investigators accomplish their primary missions. There was a general failure to distinguish between the processing of cases for which patrol officers arrested a suspect and instances in which detectives, through their own efforts, followed-up on a case and developed sufficient information to identify a suspect and/or obtain an arrest warrant. Although each department could tabulate the number of arrests that were handled by detectives, only Stockton and Norfolk collected sufficient data to monitor investigative effectiveness in this way. Norfolk eventually developed a very good system to monitor the productivity of both individual detectives and detective squads.

The ICAP departments paid scant attention to police/prosecutor relationships in their grant applications with the exception of general plans to develop initiatives to support the prosecutor's Serious Habitual Offender program. Each of the departments had a regular and generally informal working relationship with the prosecutor prior to ICAP. In all of the departments, regular contact between the police and prosecutor occurred on particular cases. All of the departments had a standardized format for submitting case information to the prosecutor. Several of the agencies made special liaison efforts. In Norfolk and Springfield, officers were assigned to work directly with the prosecutor to facilitate coordination. In the case of Norfolk, this squad of six detectives was able to perform some investigative work for the prosecutor. While the Springfield assignment was new, the Norfolk liaison squad predated ICAP. In Stockton, a district attorney visited the department daily to review cases, and a police officer was designated as liaison to the prosecutor's office.

Feedback from the prosecutor's office to the police regarding the status, progress and final disposition of cases varied among the departments. As part of ICAP, Memphis established an automated system to track preliminary court hearings as a means to close cases rejected by the courts and to monitor the timely submission of active case reports to the prosecutor. Norfolk and Springfield received systematic feedback on all final case dispositions from the prosecutor, while Memphis and Stockton received disposition information only on career criminals.

SERIOUS HABITUAL OFFENDER

The Serious Habitual Offender Apprehension and Prosecution Component (SHO) served to focus police and prosecutorial efforts on the identification, apprehension, conviction and incarceration of the serious habitual offender. Emphasis was placed on systematically structuring and integrating police/prosecutor efforts to accomplish these goals. ICAP suggested that departments develop a special investigative function or unit (SIU) to facilitate the early identification and apprehension of the serious habitual offender by the police. In some departments, the special investigative function was assigned to a formally established unit whose personnel were dedicated full-time to the serious habitual offender effort. In other departments, the special investigative function was performed by sworn officers with other duties. Regardless of how a department chose to implement this component structurally, implementation encompassed the following:

- pre-arrest and post-arrest identification and selection of serious habitual offenders based on the department's formally established screening criteria and the dissemination of information about SHO's to patrol, investigators and prosecutors;

- forwarding of screened cases to the prosecutor (for further screening) and the provision of feedback regarding case status and case disposition to the department; and
- development of techniques for the service of outstanding warrants to known offenders.

In addition to a police program directed towards habitual offenders, ICAP recommended that the District Attorney's office establish a career criminal program.

Across the four assessment sites, two general approaches for the operation of an SHO component emerged. Memphis, Norfolk and Stockton established ICAP-recommended police operations to complement SHO programs initiated and funded by grants to the prosecutor's office. Memphis and Norfolk had SHO programs operating within the prosecutor's office before the PEP/ICAP program was established. Memphis and Stockton used ICAP to establish cooperative activities with the prosecutor's office. Among some of the activities initiated were the establishment of special police/prosecutor liaison channels, SHO departmental screening procedures and career criminal files.

Springfield, on the other hand, operated an SHO program which differed in approach from the three other sites. An award of an ICAP grant to the police department resulted in the creation of the SHO program. The department established a working relationship with the county prosecutor's office by using the ICAP funds to hire an assistant prosecutor who would be assigned solely to SHO cases. The department then proposed and implemented ICAP-recommended operational activities to support the SHO program in much the same manner as the three other sites. Springfield's experience was unique in that it was the police department's initiative which brought the SHO program to the prosecutor. However, the approach was not successful; at the end of the one year grant period, the prosecutor dropped the program.

Many of the activities suggested by the ICAP Serious Habitual Offender component were implemented at some level by all four sites. The scope of these activities, however, was shaped to a large extent by the local prosecutor's office which made the final determination as to what constituted the procedures and criteria for identifying and prosecuting SHO's. Consequently, ICAP's SHO component played, at best, a supporting role to the prosecutor's program.

Operationally, the SHO component attempted to bring two separate institutions - the prosecutor's office and the police department - closer together. On a day-to-day basis, cooperative interaction could have developed around the shared goal of incarcerating habitual felons. However, formal relations were maintained at pre-ICAP levels. In the four evaluation sites, police

input into the prosecutive process was not particularly enhanced or expanded in regard to SHO's.

All four sites established SHO liaison procedures with the prosecutor's office. An officer from each of the departments was designated as a contact for the SHO program. In Memphis this officer was based in the crime analysis unit. Members of detective units were liaison personnel in the other sites. A second SHO activity was the development of common police/prosecutor SHO criteria needed to classify offenders. Except for Springfield, the departments implemented criteria as set forth in state statutes and the prosecutor's office. Two sets of criteria existed in Springfield, one used by the department for screening purposes and another used by the prosecutor. The latter was stricter and mandated by state statute.

Another recommended ICAP activity was the development of a career criminal file identifying local offenders eligible for SHO prosecution. All four sites had such a file. However, in Norfolk the file was created and operated only by the prosecutor's office. In Memphis, the file initiated in the prosecutor's office but was updated and maintained by the police department. As an outgrowth of their SHO files, Stockton and Springfield developed a notebook of known offenders in the community which was distributed to patrol officers. Crime analysts in Memphis maintained similar notebooks in their files. Norfolk utilized videotape presentations at roll calls to disseminate SHO information to patrol.

Post arrest screening of offenders for SHO status, at all sites except Memphis, began at booking. In Memphis, the prosecutor's office handled SHO arrest screening. The department's screening was only preliminary since complete arrest and conviction data were not always available at the time the case was turned over to the prosecutor. The prosecutor thoroughly rescreened all nominated arrestees for SHO status to insure that the suspect was prosecutable under the program criteria.

Two of the four sites implemented activities designed to improve warrant service - a chronic problem in most police departments. In both Springfield and Stockton, ICAP increased the emphasis on patrol service of warrants as part of directed patrol activities. Stockton initiated the dissemination of a daily bulletin identifying outstanding warrants on local offenders and frequently used a special patrol squad to serve some felony warrants. On an average, 70% of the entries in Stockton's daily bulletin were arrested. Norfolk purged many warrants from its files on a one-time only basis. The benefits of this were short lived, however, as no continuing system of updating the files was developed; the backlog quickly reappeared.

CHAPTER 4

ISSUES IN IMPLEMENTATION

Program implementation is almost always a difficult and complicated process involving not only the kind of program or technology being implemented, but also the methods used to introduce the new program into host agencies. This process of innovation was perhaps doubly difficult in the case of ICAP because of the scope of the changes that were being introduced. Participating departments not only had to deal with new and unfamiliar concepts, but also a range of activities that could affect all of the major operating and support service units within an agency. The objective of this chapter is to review some of the factors which facilitated or hindered ICAP implementation in the departments. Implementing ICAP involved activities at both the federal and local level. At the federal level, program monitors established goals for ICAP and provided implementation guides and training as well as money to encourage departments to develop local initiatives. While these supports were important to generating project interest and direction, actual implementation was affected primarily by conditions within each of the participating agencies.

THE FEDERAL INITIATIVE

Several factors affected the acceptance and implementation of ICAP by its local participants. First of all, federal monetary support was generous. Participating departments received initial grants in the \$250,000 to \$300,000 range to develop and implement a local project. Furthermore, the federal government committed itself to a lengthy involvement. Grants normally ranged from 18 to 21 months and, as long as participants reported some minimum implementation progress, one or two additional grant periods at similar support levels became almost automatic. Before the demise of LEAA, it was not uncommon for some of the cities to have received three grants covering a four to five year period. Thus, the funding level and duration provided a stable atmosphere in which the participants could embark upon innovation. Theoretically, this enhanced the opportunities for implementation as well as the integration of the innovations into the routines of the departments. The manner of implementation in the four sites suggests that most of the innovation occurred in the earlier phases of the grants.

While the lengthy implementation period certainly fostered stability, it may have also fostered some complacency. Over the course of the projects the departments tended to emphasize project maintenance activities rather than the aggressive implementation of new ICAP activities. This is reflected both

in proposals for continuation funding and in the actual implementation levels. The pace of change varied among the departments. However, approximately half of the ICAP innovations took place during Phase I, compared to a third in Phase II and a fifth in the third and final phase of the projects. In a sense, as funding continued a process of diminishing returns was set into motion. This is perhaps to be expected, given that the easier components were implemented first, and more difficult activities were postponed. Also, as ICAP progressed, more and more of the ICAP staff's time was devoted to program maintenance activities rather than to innovation.

Acceptance of ICAP also occurred because the title and goals of the program captured police attention. Moreover, ICAP offered a comprehensive set of activities to focus police resources upon crime control issues. From a pragmatic point of view, the program was also extremely appealing to police officials because of its breadth and flexibility. Unlike most LEAA programs, which focused upon narrowly confined specialized areas (Sting, arson, White Collar Crime), ICAP offered a virtual smorgasboard of activities which addressed a broad range of general police issues. Furthermore, although the departments were required to establish a crime analysis unit and focus upon enhancement of the patrol function, the specific activities to be implemented and the pace of implementation were largely determined at the local level. In addition, the appeal of ICAP was further broadened by supporting the development of unique activities in each of the sites. Thus, computer-aided dispatch systems, prosecutorial information systems, officer performance review systems, word processing and other computer hardware could all be paid for with grant monies. Although these systems could support the ICAP process, they were not integral to the major components of the program. As long as departments were willing to implement certain key components and show some progress, the peripheral activities were accorded ICAP funding. While this approach allowed departments to meet their own internal needs, it did not guarantee that essential features of the criminal apprehension aspects of the program would be implemented. Omissions by the departments were most notable in the operational areas designed to identify and apprehend active criminals (directed patrol and career criminal activities).

As originally conceived, the federal program offered a three pronged effort involving the preparation of program guides, technical assistance and monitoring to support local implementation. These important technology transfer activities fell by the wayside as administrative funding for LEAA was reduced. The first part of the technology transfer effort embodied the development of a detailed program and the dissemination of prescriptive materials. The materials were developed shortly after the first sites were funded and provided substantial program guidance in the areas of crime analysis and patrol operations. Materials from other NJ projects provided guidance materials for departmental implementation of investigative components.

A second federal support activity was the provision of direct technical assistance to the participants. This usually involved an annual site visit by federal managers or contractors to review the projects, offer implementation advice and make recommendations. When the technical assistance contract expired, virtually all on-site federal activity ceased. Communication between the federal managers and local sites was largely conducted via telephone, newsletters and periodic conference meetings where the federal program monitor could meet with individual grantees. These restrictions, plus the fact that no more than three federal monitors were responsible for the administration of as many as 40 ICAP grants and \$7 to \$8 million dollars of grant money per year, severely limited technical assistance opportunities.

The final part of the federal ICAP technology transfer effort involved the development of a monitoring system. A quarterly reporting system to capture qualitative and quantitative information was established. However, monies were never allocated to aggregate and analyze the data in these reports so they could be used to monitor either the implementation progress or ongoing impact of ICAP in the departments. In effect, the rather ambitious and necessary technology transfer process was only partially implemented. The net result was that federal managers, bogged down with grant paperwork, had only a limited view of how departments were progressing, and the departments had substantial discretion in implementing the program.

THE LOCAL INITIATIVE

No matter how well the federal technology transfer effort worked, the scope of implementation in each jurisdiction was determined by the ability and willingness of police managers to participate in the ICAP change process. Although ICAP quite ambitiously assembled various police innovations into a single program, all of the activities were doable. In fact, many of the activities were quite old and firmly recognized as good management practices. Even what might be described as new approaches to police management had been experimented with and routinized in some other police agencies. ICAP did not ask participants to engage in radical innovations. Nevertheless, it is also true that some of the activities directly and profoundly threatened established procedures and power relationships in the participating departments. When the changes were perceived to be too great or too painful, some components of ICAP were postponed to later grant periods or, sometimes, dropped completely. In spite of these occasional threats to the stability of the local status quo, it must be emphasized that all of the ICAP activities could be performed. No point illustrates this more and emphasizes the very personal nature of the change process than the way in which personnel changes affected implementation. In several instances, what was found to be impossible under one police manager became a reality under his replacement, suggesting that the attributes associated with innovative failure or success are inherent in those responsible for the innovation rather than in the innovation itself.

Perhaps the most significant determinant of successful ICAP implementation was an active commitment by the chief of police. Active commitment does not mean mere willingness to allow ICAP to happen, but forceful and continued intervention by the chief to support planning and implementation efforts. Such intervention involved establishing (with the command staff and the project director) an implementation plan, as well as repeated involvement in the implementation process to remove roadblocks to change. While it was not necessary for the chief to involve himself in the day-to-day ICAP change process, it was necessary for him to be informed of the process and available to the project as an authoritative resource.

Several roadblocks to change consistently required action by the chief to facilitate implementation. First, during the planning process it was important that the chief assert his commitment to ICAP and indicate his expectations regarding the pace of change as well as those responsible for implementing various activities. Failure of the chief to agree upon a specific and complete ICAP agenda often led to partial implementation. Furthermore, it communicated to the staff that portions of ICAP were not a priority for the department. Second, whenever ICAP specified some type of inter-agency cooperation, the chief's attention was critical. This was the case in regard to improved police/prosecutor relations and the development of the SHO component of ICAP. For example, in some sites although preliminary portions of an SHO project were developed, failure to reach an accord with the prosecutor stymied complete development.

A third area where the chief's attention was critical involved program activities requiring the cooperation of different divisions of the agency. It was our observation that support services and operating units frequently worked in isolation from one another. While the unit manager might have considerable authority in his unit, he had no authority to link his activities with other units in the department. No amount of careful planning by ICAP personnel could overcome the resistance or disinterest of command and supervisory personnel to ICAP activities unless the chief forcefully intervened. Too frequently, however, critical ICAP program activities that cut across units were not implemented because of disagreements among the command staff and the chief's subsequent failure to resolve these differences. For example, one of the major problems in implementing ICAP was getting patrol managers to use crime analysis information to support operations, i.e., to develop an aggressive and routine directed crime prevention or apprehension program based upon crime and suspect information.

In each of the departments the ICAP project director played a key role in the program. Once an ICAP agenda was established, the project director had to conduct himself as a planner, change agent and trouble shooter. The project director was responsible for the day-to-day implementation of the program. While conducting these ICAP activities, it was not uncommon for the project director to have other managerial responsibilities within the

department. In addition, as time passed and ICAP activities were institutionalized, the project director also found himself managing a new departmental activity, usually the crime analysis unit. The addition of new managerial responsibilities frequently detracted from his role as a change agent, interested only in implementing the ICAP model.

Whether or not the project director was a sworn officer or a civilian did not seem to greatly affect the implementation process. The particular skills that an individual brought to the job were more critical. The job demanded substantial interpersonal skills to "sell" the program as well as more technical planning and management capabilities. Other factors which supported the project director in developing a project were the organizational as well as physical location of the ICAP office in the department, access to and influence with the chief of police and the continued existence of an ICAP planning group composed of senior police managers who would be affected by the changes.

Because ICAP affected most operations in a department, it was critical that it be organizationally located at a high level in the department. If the project director reported directly to the chief (or a deputy chief in a larger department), implementation was generally facilitated. If, on the other hand, the project director was located in a patrol or support service unit, for example, those aspects of ICAP tended to develop while other aspects of the program lingered. Earlier paragraphs stressed the important role the chief of police played in implementation. Access to and influence with the chief by the project director was a critical factor. Because of the hierarchical authoritarian structure of police departments, the chief's support was absolutely essential when an innovation met resistance. Project directors frequently mentioned the lack of interest or support from the chief and other high ranking administrators as reasons for the department's failure to consider and implement particular ICAP activities.

From time to time each of the departments used a task force approach to facilitate implementation. These task forces sometimes acted as advisors to the entire ICAP effort while at other times they were assembled for specific purposes, e.g. to revise the offense report, develop a directed patrol program, or implement early case closure. The task force approach brought key personnel into the ICAP process at an early stage of project development. It generally fostered an approach to change which involved those who would be affected. Although the direction of change might be indicated by the chief, those who would have to manage the new system had input into the planning and timing of the innovation. In effect, key personnel were offered an opportunity to do something for themselves rather than have something done to them. The task force approach as a change strategy, generally worked quite well in introducing managers to ICAP and customizing the ICAP activities to the department. For the most part, ICAP staff did not uncritically accept proposed ICAP activities. Instead, they worked with committees to synthesize and

implement a set of workable procedures to attain project objectives. The net result of this give and take process was the development of hybrid plans which reflected the adaptation of ICAP concepts to the organizational and operational realities of the department. Compromise with original ICAP staff plans was commonplace but necessary to initiate new activities.

Aside from the key role that the chief, command staff and ICAP project director played in the implementation process, other factors were influential. Staff turn-over always brought about some disruption in the projects. At a minimum this meant a halt to some minor project activities as replacements were identified, recruited and trained. In one instance where the chief of police announced his retirement, innovation ceased for a period of time until a new chief was chosen and his ICAP agenda assessed. In some instances, a change in personnel brought individuals to key positions who were more willing than their predecessors to adopt ICAP activities. In Norfolk, almost all command assignments were routinely shifted biennially, causing inconsistencies in ICAP implementation and operations.

Although one of the sites endured a bitter strike during its first grant period, the strike and labor agreements in general did not affect implementation of the program. As long as ICAP activities did not infringe upon labor contractual issues, unionization was not a factor. If, on the other hand, departments bargained away managerial rights regarding the scheduling and deployment of personnel, key aspects of ICAP could not be implemented.

Finally, a comment about the feasibility of implementation and the size of the department is in order. ICAP was originally conceived as a program most appropriate for medium rather than large departments. In spite of this, some large cities were included in the program. It is our observation that the appropriateness of ICAP is related to departmental size in only a very limited way. For example, the investigative component of ICAP recommends the geographic decentralization of some investigative units to precincts. This is feasible only in departments with multiple precinct operations. In addition, it must be recognized that program coordination problems are much more complicated in large agencies. The upper levels of the department are usually larger, thus necessitating the involvement of a larger group of decision makers in the change process. Units tend to be more specialized and to operate more independently from one another. Finally, in an operation with multiple precincts, it is necessary to coordinate with several patrol commanders and address questions about the extent to which crime analysis, the key ICAP component should be decentralized to meet the needs of its operational constituents.

The purpose of this chapter has been to briefly discuss some of the key issues which affected ICAP implementation. The points discussed here, as well as others raised in the report, are critical to understanding the ICAP outcome. In general, we have concluded that, while the federal program was

important in stimulating interest, primary responsibility for implementation remained at the local level. Within the agencies, a successful and integrated program, as originally envisioned, required the development of new intra-organizational linkages. Such linkages were only possible with strong, active and persistent commitments to ICAP by the chief, command staff and ICAP project personnel. Few projects succeeded fully in forming the necessary linkages.

CHAPTER 5

ASSESSMENT METHOD

The purpose of the national evaluation was to conduct a process and limited outcome-impact analysis of ICAP. The Phase I case study reports indicated that implementation in the four sites varied considerably, but that each of the departments had sufficiently implemented key aspects of the program to support a Phase II assessment of project outcomes. The evaluation approach adopted for this assessment of ICAP project outcomes has been shaped by several considerations and some significant constraints and limitations identified in the Phase I evaluation. The theoretical and practical underpinnings of the evaluation methodology arise from these considerations and limitations. For this reason they are briefly reviewed here prior to describing the assessment plan and procedures.

RATIONALE

The ICAP assessment, like many others, had its real beginning well after the local projects had begun operations. This circumstance, along with several other pre-existing conditions, restricted evaluation design possibilities. Other factors included the fact that local sites varied notably in the timing and manner of implementation of specific ICAP activities as well as the types of activities initiated. Within a single site, a particular project activity might be substantively changed or discontinued after its initial implementation. In some instances, project activities were incorporated into ongoing departmental operations to the extent that they could not be clearly identified or isolated from regular agency routines. While all of these processes were in accordance with the broad scope of the national ICAP program and its emphasis on integration, it made the delineation of project boundaries and interventions for purposes of assessment quite difficult.

In addition to local project variations, there was little departmental data which was related to ICAP activities and could serve as baseline measures of pre-ICAP operations. Monitoring of ICAP activities, once initiated, also varied in nature and detail across sites and across activities within sites. These factors, along with the lack of comparable control sites and the evaluation's time frame, precluded the use of all experimental and many quasi-experimental evaluation designs which are typically used in outcome assessments.

Juxtaposed against these limiting conditions was the need to provide a broad assessment of ICAP project effects which extended beyond a local

evaluation of whether specific activities in a given site met their stated or implied objectives. To meet this need, the evaluation required that certain assumptions, which were implicit in the ICAP program, be adopted. The overall objective of the ICAP program was to improve the effectiveness and efficiency of police management and service delivery through a variety of activities (e.g., crime analysis, manpower deployment, expanded patrol role in investigations, etc.). The assumption was that such improvements would affect the department's criminal apprehension and deterrence capabilities. For the assessment, the specific assumption was that the set of local ICAP objectives and activities implemented should have some measurable department-wide impact. This assumption seemed tenable since ICAP emphasized integration and permitted a department to develop its own customized project in accordance with its particular situation. By extension, it also assumed that impact could be reflected in commonly used indicators of departmental operation.¹

Beyond these assumptions, several other considerations shaped the method of evaluation. Because the program was apprehension oriented, there was a need to gauge the extent to which specific ICAP activities influenced the arrest process. Hence, arrest was chosen as the primary outcome measure. Second, because arrest is a function of victim/witness, offender, and police activities, it was necessary to consider the extent to which each set of participants contributed to the apprehension process. Third, because ICAP encouraged participating departments to implement a wide range of innovative activities, the design also had to examine the extent to which these activities contributed to the apprehension process.

Given these considerations and the limitations discussed earlier, a general evaluation plan was developed which used a combination of qualitative and quantitative methodologies so that some triangulation² or cross validation of results might be possible. Implementation of the plan varied across

¹Issues associated with the validity of these assumptions are discussed in Chapter II of the *General Design and Guide for Evaluation of ICAP*. For some local project activities, the chain of assumptions linking them to any outcome measure are lengthy and tenuous, while for others they are quite short and obvious.

²Triangulation, as applied to an evaluation context, means the utilization of two or more methods to study the same phenomena. When the data obtained from each method are congruent, it improves the chances that the results are valid and not as prone to methodological artifact and bias. Triangulation procedures are discussed by Norman K. Denzin, *The Research Act* (New York, NY: McGraw-Hill, 2nd ed., 1978) and Eugene J. Webb et al, *Unobtrusive Measures: Non-Reactive Research in the Social Sciences* (Chicago, Ill: Rand McNally, 1966).

sites as a function of differences in operation and record-keeping procedures, variation in ICAP project activities, evaluator access to data, and differential success in instituting data collection regimen.

In this evaluation plan, assessment of ICAP project outcomes proceeded on two levels of analysis. One level consisted of time series analyses of crime and arrest data which the departments aggregated monthly for a seven year period. These measures have typically been used in monitoring police effectiveness and, in this case, provided a source of pre-ICAP baseline data. The purpose of these analyses was to determine whether the totality of the ICAP intervention had an impact on long-term patterns of departmental apprehension rates. The results of these analyses, however, would provide little information on the nature or extent of ICAP influence should an effect be found. This was the objective of the second level of analysis. Implementation of the time series proved to be illusive because of both practical methodological problems. Monthly crime and arrest data to conduct the analysis were not available for the time periods needed in two sites - Norfolk and Springfield. In regard to methodology several factors made interpretation of the time series, data impossible. These were the constantly changing scope of ICAP, the pace of implementation and the inability to specify when particular activities were implemented. Although crime arrest trends were analyzed in Memphis and Stockton linking their fluctuations to the ICAP implementation was problematic.

The second level of analysis consisted of a stratified random sample of crime and arrest reports. The crime/arrest sample spanned a several month period in each site and was analyzed to determine if and how local ICAP project activities contributed to the arrest process. This individual case analysis provided documentation and explication of ICAP's involvement in apprehension activities. Four sets of measures were established for the case level analyses. One set of measures collected information about the crime incident (e.g., type of crime, location of crime, suspect descriptions, presence of witnesses, evidence). A second set of measures collected data on the weekly and monthly levels of departmental activity (e.g., number of CFS, detective workload, staffing levels). If the case sampled was one for which an arrest was made, a third set of measures captured information on the arrest event (e.g., arresting division, police action leading to arrest, suspect identified by detectives, etc.). Also on cases with arrest, a fourth set of measures was used to note the contribution, if any, of identifiable ICAP project activities (e.g., crime analysis, directed patrols) to the arrest.

These four sets of measures were detailed in a coding guide and instruction manual (See Appendix A) which was used by evaluators as a standard data collection form for the case level analyses. Although varying from site to site, completion of the items on the coding guide for a sampled case required, at minimum, review of offense reports, plus other documents such as

arrest reports, investigator reports or supplementals, warrants, and interviews with victims, witnesses and suspects (if appropriate). Other documents from crime analysis units, detective bureaus, records section and other departmental units were also reviewed if relevant to the case or to the collection of operations data.

A fairly complex sampling procedure was implemented to guide the collection of data in the four departments. This was required in order to have a sample of sufficient size and nature such that it would be capable of reflecting any project effects yet still provide a reasonable representation of type and disposition of crimes reported to the department (the base from which to assess any ICAP project effects). The basic unit of analysis, or case, was a Part I offense and related activities subsequent to its initial reporting. For sampling purposes, two sampling pools were identified - cases with arrest and cases without arrest. The objective of the sampling plan was the selection of an equal number of cases from each pool over the sampling period. Seventy-five percent of the total cases sampled from each pool were distributed across offense types in the same proportion as their representation in the sample pool. In other words, if cases of larceny with arrest represented 10% of all cases with arrests (during the sample period), then the number of larceny cases randomly selected for the sample (e.g., 20) would represent approximately 10% of the total number of cases with arrest which were sampled (e.g., 200). This procedure ensured that for both groups, the mix of offense types was reflective of their respective departmental distributions. The other 25% of sampled cases in each group were randomly distributed over the crime types of rape, robbery and burglary (the target offenses of crime analysis and other ICAP activities). This over-representation of these offenses in the sample, along with the sampling of as many cases with arrest as without arrest, permitted a sample size of sufficient magnitude to detect even infrequent ICAP project contributions to the arrest process.³

While an over-representation of rape, robbery and burglary biased the final, overall sample, the actual distribution of cases with arrest to cases without arrest by crime type was known. This knowledge made it possible to both weight and/or randomly select cases from the overall sample that would closely approximate the actual distribution of cases in the department for the sample period. When required for a specific analysis, these statistical correction features were applied and are so noted in the text.

The selection and coding of cases lagged at least two months behind the dates of the crimes in the sample pool. This was done to ensure that the investigation was concluded, clearance recorded, all materials returned to

³In any site, if cases were sampled totally at random in the absence of any information about an arrest outcome, an average of less than one case in five would be selected which had an arrest.

the case file from investigators and that supervisors had sufficient time to officially review and close the case. Using the distribution procedures previously described, 40 cases per week (20 with arrest, 20 without arrest) were chosen from all the cases occurring in a specified week of the sample period. In most instances, the two month lag was sufficient to identify that population of offenses with arrest which comprised half the sample pool. Cases selected for the without arrest sample were rechecked at a later period to ensure that no arrest for the crime had been made subsequent to its initial selection. In those few instances where an arrest was made two months or more after the crime, that case was transferred to the "with arrest sample" and a new case was selected for the "without arrest set" from the same weekly sample interval.

Although the original sampling plan proposed a six month sample period for all four sites, the actual sample period varied from four to six months. In all sites, portions of the data needed for the case level analyses were decentralized and distributed throughout the department. Although the extent of this problem varied by site, data collection became a more expensive and time consuming task than the evaluators and departments anticipated. It was decided that the expenditure of resources was too great relative to the information gain. Consequently, in Memphis and Springfield the sample time period was reduced to four months. The sample periods for each site were: Memphis June through September 1981, Norfolk July through December 1981, Springfield July through October 1981, and Stockton August 1981 through January 1982. Lags in the start-up date of case tracking were unavoidable due to differences in evaluator and local project director schedules, and the time needed to institute data tracking and management procedures.

Exhibit 10 displays the final sample size by site. The disparities between sample size for cases with arrest and without arrest are due to a variety of factors. In some weeks, departments did not have a sufficient number of cases with arrests to fill the sample quota. This was also true in some weeks for cases without arrest (e.g., rapes). In some instances, the weekly sample quota for a specific offense in the with arrest group was two or three fewer than the total number cases in the sample pool for that week. When this was the case, all of the cases with arrest were coded. For example, the six rape and ten robbery arrests selected in Springfield and the 100 robbery arrests selected in Stockton represent the universe of cases available.

Exhibit 11 shows a detailed enumeration of the cases by offense. It should be noted that the site totals in this exhibit do not match those reported in Exhibit 10 for Norfolk, Springfield and Stockton. In these three sites, some sampled cases with arrest have the same offense but a different arrestee, i.e., more than one person was arrested as a consequence of a single offense. Both arrestees were independently selected. These "duplicate"

EXHIBIT 10

NUMBER OF SAMPLED CASES BY SITE

Sample	Memphis	Norfolk	Springfield	Stockton	Total
Arrest	324	496	207	535	1562
Without Arrest	335	484	269	502	1590
Period of Time	4 months	6 months	4 months	6 months	3152

EXHIBIT 11

NUMBER OF SAMPLED CASES BY TYPE OF OFFENSE

Site	Offense	Rape	Robbery	Burglary	Larceny	Aggravated Assault	Motor Vehicle Theft
Memphis		51	81	222	182	51	72
	With arrest	24	33	111	95	22	39
	Without arrest	27	48	111	87	29	33
Norfolk		62	119	295	363	49	68
	With arrest	32	58	129	183	25	45
	Without arrest	30	61	166	180	24	23
Springfield		17	41	207	99	27	42
	With arrest	6	10	61	53	10	24
	Without arrest	11	31	146	46	17	18
Stockton		42	178	352	203	96	49
	With arrest	17	100	162	52	65	22
	Without arrest	25	78	190	151	31	27
Total		172	419	1144	847	223	231
	With arrest	83	201	463	383	126	130
	Without arrest	93	218	613	464	97	101

cases were removed from this exhibit when distributing cases by offense type. In analyses involving measures taken from the offense report, only one of the "duplicate" cases is used to avoid biasing the results.

ANALYSES

An exploratory data analytic approach⁴ was utilized in the assessment of the case level data. In this approach, data were first analyzed in terms of univariate frequency distributions, followed by analyses of bivariate and trivariate relations among measures of ICAP project activities and departmental operations. Based on the findings of these analyses, more sophisticated multivariate analyses were applied in order to develop a comprehensive picture of the crime reporting and arrest process. Discriminant analysis was the statistical technique employed to develop a model of the factors involved in the arrest process. Discussion of this technique is provided in those sections of the report where it is first employed.

⁴For an overview of this approach, see Hartwig and Dearing, *Exploratory Data Analysis* (Beverly Hills, Calif.: Sage Publications, 1979).

CHAPTER 6

THE CRIME REPORTING AND APPREHENSION PROCESS

Performance of the law enforcement function is a very complex undertaking. The complexity springs from the fact that the police do not operate in a closed system, but must coordinate their activities with others. Some of this coordination occurs with other parts of the criminal justice system. Hence, apprehension activities engaging the police are eventually played out in the courts. More relevant to this study is the manner in which the police interact with their primary constituency - citizens in the community. It is easy to underestimate the large role that citizens play in the law enforcement function. It cannot be overemphasized, however, that the police are highly dependent upon citizens, victims and witnesses for bringing crime to their attention and for providing the most essential information in identifying suspects and ultimately making arrests. Contrary to the popular impression that given a few bits of information police and especially investigators can solve the most complex cases, our analysis indicates that without substantial victim/witness input, apprehensions are very rare. This point is underscored in order to temper the expectations that program planners at LEA and the participating departments had about what special programs, like ICAP, or for that matter police operations in general, can do to significantly improve the ability of the police to make arrests in routine cases.¹

The purpose of this chapter is to discuss several issues which profoundly affect the ability of the police to make apprehensions. The discussion is designed to frame the outcome assessment which follows within a perspective of realistic expectations. The remainder of this chapter examines the crime reporting and arrest processes found among the four departments. Although the information reported here pertains only to four police departments, it probably applies to the vast majority of the law enforcement agencies in the country. Two factors would seem to support this view. First, there is the consistency of the information across the four departments. Second, there is the general similarity of findings about the investigative process in this

¹For a review of the way in which police activity affects crime, see Daryl A. Hallman and Joel L. Naroff, *The Urban Public Sector and Urban Crime: A Simultaneous System Approach* (Washington, D.C.; GPO, National Institute of Justice, 1980).

study and those reported in earlier studies by the Stanford Research Institute, Rand Corporation and the Police Executive Research Forum.²

CRIME REPORTING

In order to appreciate the potential for the police to identify and apprehend suspects, an understanding of the crime reporting process is necessary. Police are heavily dependent upon victims and witnesses to supply basic crime information. This dependence extends from the very reporting of the crime to obtaining particulars about suspects, evidence and methods of operation. This evaluation involved a review of over 3,000 criminal cases. The review strongly suggested that, in most instances, the police have very little information upon which to develop a case. This is to be expected since, with the exception of personal assaults (in which the victim and suspect are frequently acquainted), most rational criminals try to conceal their behavior from both the victim and potential witnesses. Furthermore, criminals may act quickly in order to minimize the opportunities for observation, identification and possible apprehension.

The speed with which citizens report crimes affects the ability of the police to identify and apprehend a suspect. In slightly fewer than two thirds of the cases sampled for this evaluation, at least an hour elapsed between the occurrence of the crime and the arrival of the police on the scene to conduct a preliminary investigation. These reporting delays are a function of the fact that a large number of crimes are discovered, rather than observed in progress, and that citizens do not always report crimes to the police as soon as they become aware of them.³ Exhibit 12 displays information about the extent to which reporting lags behind actual occurrence in the evaluation sites. Across the four sites almost two-thirds of all Part I offenses were reported to the police more than an hour after they occurred. The reporting lag of more than one hour ranged from 56% of the cases in Memphis to 74% of the cases in Stockton. The net result of this delay factor is that police

²Bernard Greenberg, et.al., *Enhancement of the Investigative Function*, Volume 1, *Analysis and Conclusions*, (Menlo Park, Calif.: Stanford Research Institute, 1972), Peter W. Greenwood, et.al., *The Criminal Investigation Process*, Volume III, *Observations and Analysis* (Santa Monica, Calif.: Rand Corporation, 1975) and John Eck, *Managing Case Assignments: The Burglary Investigation Decision Model Replication* (Washington, D.C.: Police Executive Research Forum, 1979).

³For a similar point of view see Kansas City Police Department, Kansas City, Missouri, *Response Time Analysis* (Washington, D.C.: National Institute of Law Enforcement and Criminal Justice, 1977).

confront a cold crime scene in most of the cases they are called to investigate.⁴

The data in Exhibit 12 also indicate that considerable differences in reporting patterns occur when property and personal crimes are examined. Crimes against persons are reported more quickly than property crimes. Across the four sites, slightly more than one-third of these personal crimes were reported more than an hour after they occurred.⁵ This undoubtedly results from the victim's personal involvement in the crime. In contrast, three-fourths of the property crimes were reported more than an hour after they occurred. This greater delay arises because property crimes are much more likely to be discovered some time after the criminal has completed his work.

EXHIBIT 12

CRIMES REPORTED MORE THAN ONE HOUR AFTER THEIR OCCURRENCE

Crime	Memphis	Norfolk	Springfield	Stockton
All Crimes	56%	59%	66%	74%
Property	73%	69%	77%	84%
Personal	22%	36%	30%	50%
With Arrest	28%	40%	28%	55%
Without Arrest	58%	62%	71%	76%

⁴The reporting lag was measured by comparing time when the crime occurred to the time the police arrived on the scene or prepared their report. Hence, it includes citizen reporting delays as well as police response and report writing intervals. In most of the cases, officers recorded their on-scene arrival time as the reporting time. In Stockton, however, officers sometimes recorded the time they actually completed the report, not the time they arrived on the scene. This accounts for the larger portion of cases in Stockton reported after one hour.

⁵When used in this text across site "approximations" and "averages" are based on the average of the four site means; they are not weighted by the number of cases in each site.

As discussed in other sections of this report, reporting delay was related to the probability of arrest. In cases with arrest, approximately one-third of the cases had a one hour reporting lag compared to approximately two-thirds of the cases without arrest. The data strongly indicate that the longer the time between the offense and the report, the less likely police are to make an arrest. This does not necessarily mean that efforts to reduce citizen reporting or police response time will result in more apprehensions. The association between more rapid reporting and increased arrest rates may be more accurately explained by other circumstances, such as the victim or witness knowing the suspect (15% of all offenses, but 48% of all arrests), detaining the suspect prior to the arrival of the police (17% of all arrests) or the police being on the scene as the crime occurs (4% of all arrests). Although the reporting time period may be associated with the probability of arrest, its importance as an explanatory factor which produces arrest may be limited by incident circumstances and crime type.

In addition to the delay between when a crime occurs and when the police are notified, patrol officers and investigators are frequently supplied with only minimal amounts of information about the crime and potential suspects. Officers must make initial judgments about whether, in fact, a crime actually occurred. In some instances, because of the lack of a corroborating witness or physical evidence, the reporting officer must rely solely upon the testimony of the victim that a crime occurred.

Regardless of any judgment about the occurrence of a crime, the police are often confronted with very limited information upon which to conduct an investigation. This occurred in spite of the fact that each of the evaluation departments expanded their offense reports to collect additional MO and suspect information. Memphis, Springfield and Stockton expanded their offense reports to collect approximately 12% more robbery and 10% more burglary offense data. Exhibit 13 displays the extent to which officers in the four departments lack some important information needed to identify and apprehend suspects. The SRI, Rand and PERF studies of the investigative process as well as this study have found that the variables in Exhibit 13 are associated with apprehensions.⁶ Analysis of the data collected for this study provides some estimation of the extent to which these data are unavailable to investigating officers.

The data across the four sites are fairly consistent. For example, the extent to which no suspect was known to either the victim or witness averaged approximately 85% and ranged from 79% of the cases in Memphis to 88% in Norfolk. Similar patterns of consistency across sites were observed for the other critical suspect information variables. In approximately 81% of the

⁶Bernard Greenberg op cit, pp. 19-21; Greenwood op cit; and Eck op cit, pp. 69-70.

offenses, no suspect name was known to the victim or witness and in 85% of the offenses no suspect address was known. Although Exhibit 13 does not indicate the relative importance of these variables in making apprehensions, other portions of this report indicate that specific pieces of suspect information were strong predictors of arrest.

EXHIBIT 13

LACK OF APPREHENSION INFORMATION
ON OFFENSE REPORTS⁷

Information	Memphis	Norfolk	Springfield	Stockton
No suspect known to victim or witness	79%	87%	86%	88%
No suspect name	76%	78%	79%	89%
No suspect address	81%	82%	83%	92%
No license number	97%	91%	75%	85%
No physical evidence*	86%	85%	64%	76%
No witness	77%	74%	78%	77%
None of the above	50%	50%	42%	37%

*See Exhibit 14 for a list of the types of physical evidence.

The data across the four sites are fairly consistent. For example, the extent to which no suspect was known to either the victim or witness averaged

⁷Data in this and other exhibits in this chapter pertaining to information on offense reports are weighted to reflect the actual distributions of all offense reports during the data collection periods. As such, the resulting percentages are, strictly speaking, estimates based upon data from our samples, weighted to conform to the actual distribution of all offenses with and without arrest.

approximately 85% and ranged from 79% of the cases in Memphis to 88% in Norfolk. Similar patterns of consistency across sites were observed for the other critical suspect information variables. In approximately 81% of the offenses, no suspect name was known to the victim or witness and in 85% of the offenses no suspect address was known. Although Exhibit 13 does not indicate the relative importance of these variables in making apprehensions, other portions of this report indicate that specific pieces of suspect information were strong predictors of arrest.

The availability of witnesses, evidence and information pertaining to a suspect's vehicle may also be important in the apprehension process. This information is also displayed in Exhibit 13. On the average, suspect license numbers were not available in 87% of the cases. Missing license numbers ranged from 75% of the cases in Springfield to 97% of the cases in Memphis. Physical evidence was not available in approximately 78% of the cases, while witnesses were not available in 77% of the cases. More importantly, none of the above information was available for approximately 45% of all offenses in the four sites. This lack of any suspect identifying information ranged from 37% of the cases in Stockton to 50% of the cases in Memphis and Norfolk. The general picture that emerges is that approximately half of the cases referred to the police have virtually no specific information on suspects with which to conduct an investigation. In these cases, unless additional information is forthcoming from other sources, opportunities to identify and apprehend a suspect are nearly nonexistent. It must be cautioned that the mere existence of the apprehension information in the previous exhibit may not ensure the identification of a suspect. The information may be incomplete or inaccurate thus limiting investigative efforts. To provide additional insight about information quality and utility further analysis of the physical evidence was conducted. The results of this analysis are contained in Exhibit 14.

On average, physical evidence was completely unavailable in over three-fourths of all cases. The figures actually overstate the availability of usable evidence because all physical evidence was coded as present regardless of its ability to support the identification of suspects. In fact, much of this evidence was of dubious value. For example, although fingerprints were taken in a large number of cases, only in rare instances did they lead to the identification of an unknown suspect. More frequently, if a suspect had been apprehended, the prints might be used to confirm a suspect's physical presence at or near the crime scene. In addition, evidence often was limited to photographs of the crime scene. While the photos sometimes confirmed that a crime had occurred (broken window, rummaged drawers), they seldom contained information which could support the identification of suspects.

EXHIBIT 14

LACK OF PHYSICAL EVIDENCE ON OFFENSE REPORTS*

Physical Evidence	Memphis	Norfolk	Springfield	Stockton
No Photo	91%	93%	70%	93%
No Fingerprints	92%	92%	87%	87%
No Other Evidence	98%	88%	86%	93%
No Blood/Semen	99%	91%	98%	97%
No Weapons/Tools	98%	92%	99%	97%
No Other Prints	99%	93%	98%	99%
No Stain	98%	91%	99%	99%
No Vehicle	98%	93%	99%	99%
No Hair	100%	91%	100%	100%
No Evidence whatsoever	86%	85%	64%	76%

*Estimated. See footnote 7.

As part of the ICAP process, departments were encouraged to collect substantial amounts of method of operation (MO) information.⁸ Participants frequently revised their offense reports to capture additional details. The expectation was that analysis of the MO information would lead to the identification of suspects who operated in a characteristic manner. Several observations can be made about the MO data collected by the departments.

"MO information" is used in the broadest sense, to include physical description of the suspect. Indeed, the overwhelming majority of data coded as MO information in this study was of this type rather than actual method of operation.

First, MO information did not exist in approximately 39% of the cases. This varied considerably among the four sites. As can be seen in Exhibit 15 Springfield collected at least some MO information in all but 15% of its cases, but lack of MO information ranged from 44% to 48% of the cases in the other three sites. Second, the type of MO information collected was usually of such a general nature as to be virtually worthless for investigative purposes. In only about 5% of the cases were any unique suspect descriptors (aside from name, address or vehicle information) contained on the offense reports.

EXHIBIT 15

LACK OF MO INFORMATION ON OFFENSE REPORTS*

Information	Memphis	Norfolk	Springfield	Stockton
No M.O. (eg general descriptors)	44%	47%	15%	48%
No unique descriptors	88%	95%	99%	98%

*Estimated. See footnote 7.

Our analysis of the offense information in the four sites yields a very pessimistic picture of the investigative environment in which the police operate. The time lag between the occurrence of a crime and the officers' arrival at the scene coupled with the paucity of crime and suspect information and physical evidence strongly suggests that in a large number of cases the police have only the barest of information with which to work. These operational realities place substantial barriers in the way of police efforts to improve investigative arrest productivity. Furthermore, these realities greatly impact the ability of special programs like ICAP to have substantive impacts, no matter how well intentioned, conceived and executed they may be.

THE APPREHENSION PROCESS

Several features of the apprehension process in the four sites stand out as being especially important for understanding the ICAP impact. These

include the manner in which the arrest occurred and the time difference between when the crime occurred and the apprehension took place.

Conditions of Arrest

Exhibit 16 displays the way in which the sampled arrests occurred. As suggested by the exhibit, the dominant theme in the arrest process is the role that service calls play. Approximately one-half of the sampled arrests occurred as the direct result of a service call from citizens, security guards or alarms. Service calls accounted for a low of 44% of the arrests in Stockton to a high of 61% of the calls in Memphis. In these cases, although the police made an arrest, they did not play any role in identifying a suspect for apprehension. By the time officers arrived at the scene of the crime, victims or witnesses knew the identity and/or the whereabouts of the suspect. As indicated in Exhibit 17, in some instances, the suspects were being held by the victim/witness when the police arrived. The number of suspects detained prior to arrest ranged from 10% to 12% in Stockton and Springfield to 22% and 23% in Memphis and Norfolk. The largest number of these detentions involved larceny suspects apprehended by private security guards for shoplifting. Victims and witnesses also played an important role in the apprehension process.

EXHIBIT 16

CONDITIONS UNDER WHICH ARRESTS WERE MADE

Arrest Condition	Memphis	Norfolk	Springfield	Stockton
Service Call Response	61%	48%	52%	43%
Routine Patrol/Follow-up	16%	18%	31%	30%
Investigative Activity	9%	24%	9%	20%
Suspect Turned Self In	6%	6%	8%	*
Other	8%	4%	1%	1%
Number of Arrests	311	202	212	402

EXHIBIT 17

ARRESTS DETAINED BEFORE THE ARRIVAL OF THE POLICE

Detaining Person	Memphis		Norfolk		Springfield		Stockton	
	#	%	#	%	#	%	#	%
Security Guard	43	14%	66	14%	13	6%	16	3%
Victim	15	5%	6	1%	7	3%	20	4%
Witness	12	4%	37	8%	5	2%	18	4%
Total Detained	70	22%	109	23%	25	12%	54	10%
Number of Arrests	312		471		207		522	

The second major contributor to arrests in most sites was the conduct of various patrol activities including routine patrol, patrol investigative follow-up, traffic stops and field interviews. Patrol activities accounted for approximately 24% of the arrests across the four sites. Patrol arrest proportions were lowest in Memphis and Norfolk (16% and 18% respectively) and highest in Stockton and Springfield (30% and 31%).

Arrests made as a direct consequence of investigator activities averaged 15% of all arrests and ranged from 9% in Springfield and Memphis to 20% in Stockton and 24% in Norfolk. Review of the investigative files of arrest cases suggests that investigators may be more heavily involved in processing of cases with arrest than in solving crimes, especially in Memphis and Springfield. The investigative components of ICAP were designed to enable departments to quickly close unproving cases so that additional time could be focused upon cases with a better chance for solution.

In three of the sites, between 6% and 8% of the suspects voluntarily surrendered to the police. In the majority of these cases, the suspects had already been identified and were probably cases that the police were looking for. The remaining cases in the "voluntary" category of suspects are composed of special patrol operations in those of the sites (Memphis, Norfolk and Springfield) where special operations units are assigned.

entirely of warrant service. Hence, this activity may have modestly supported the warrant management component of ICAP. In Stockton, patrol officers served warrants, but the department also operated a directed patrol "strike team" that periodically used crime analysis products to mount aggressive anti-crime and arrest activities. These activities resulted in a number of arrests in Stockton.

Time Between Offense and Arrest

Analyses of the time between when a crime occurred and the time of arrest appear in Exhibit 18. As previous research has suggested, many arrests are made shortly after the crime. This is hardly surprising in light of the large role that service calls play in the arrest process. In all of the sites, nearly one-half of the arrests were made within one hour of the

EXHIBIT 18

CUMULATIVE PERCENTAGES OF ARRESTS BY TIME FROM OFFENSE TO ARREST

TIME BETWEEN OFFENSE AND ARREST	MEMPHIS	NORFOLK	SPRINGFIELD	STOCKTON
0 - 30 Min	31%	16%	43%	23%
31 - 60 Min	49%	45%	52%	51%
1 - 2 Hrs	55%	48%	57%	56%
3 - 8 Hrs	60%	56%	67%	62%
9 - 24 Hrs	66%	62%	80%	69%
1 - 7 days	80%	74%	88%	81%
30 days	90%	80%	92%	88%

CONTINUED

1 OF 2

crime. During the first 24 hour period after the crime, between 62% and 80% of the arrests were accomplished and, by the end of the first week, between 74% and 88% of the arrests occurred. The data strongly indicate that unless arrests are made very shortly after an offense occurs, the likelihood of an arrest being made at all diminishes rapidly and markedly.

Prior Suspect Contact Information

The preceding discussion sketches a rather pessimistic picture of the information police departments have to work with in the crime investigation and apprehension process. While information developed at the crime scene is usually very limited, police departments do have extensive files on persons they have previously arrested. An expectation of ICAP was that crime analysis units would be able to compare information about arrestees with offense information to develop suspect lists and possibly identify likely perpetrators. The extent to which crime analysts routinely had prior suspect information available on arrestees (prior to their sampled arrests) appears in Exhibit 19. Prior police contact ranged from nearly 38% of the arrestees in Memphis to a high of 74% in Norfolk. The range can be in part attributed to the manner in which the data were collected and the type of files maintained by each department. The Memphis data were restricted to suspects who had a previous felony arrest in the city or county. Prior misdemeanor arrests were excluded from our data set so the actual level of available information is certainly greater. In addition, Memphis did not have a system of field interview reporting. Springfield and Norfolk maintained both misdemeanor and felony arrest data as well as field interview information in their files. In addition, the Norfolk file also contained information on persons arrested in a neighboring city. Because of the crime analysis unit's file structure and legal and logistic considerations concerning access to criminal history files in the records section, these data in Stockton were not readily accessible. The data from the other three departments indicate that many of the persons arrested had previous contacts with the police. It should be stressed that the amount of information on file regarding particular individuals varied considerably, as did ease of retrieval. Thus, these figures should be viewed as conservative estimates of the extent to which sampled arrestees were previously known to the department.

EXHIBIT 19

PREVIOUS POLICE CONTACTS WITH PERSONS ARRESTED

	Memphis	Norfolk	Springfield
Previous Contact	38%	74%	51%
N	324	470	166

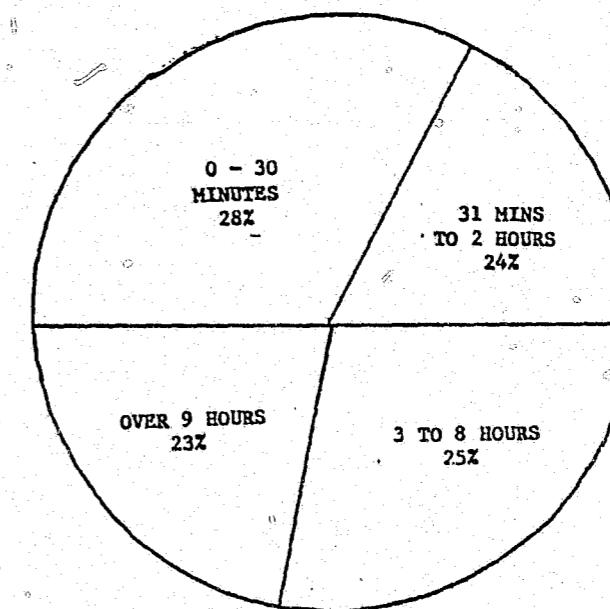
The preceding case level analyses have reviewed the crime reporting and criminal apprehension process in each of the four departments. This has been done in order to place the subsequent evaluation of specific ICAP outcomes into an operational context. Several conclusions can be drawn from the above discussion which concern the ability of police agencies to more effectively control criminal activity. Furthermore, these operational realities should temper our expectations of what the police and special programs like ICAP can do to improve criminal apprehensions. Conclusions which bear directly upon the potential impact of ICAP follow.

CONCLUSIONS

On Crime Reporting

1. The police are heavily dependent upon victims and witnesses for information to make apprehensions. Yet, police do not usually arrive at the crime scene until well after the crime has been completed. In nearly one-half of the cases, two hours elapsed between the occurrence of the crime and when the police arrived at the scene to take an offense reports.

DIFFERENCE BETWEEN WHEN THE CRIME OCCURRED AND WHEN IT WAS REPORTED TO THE POLICE

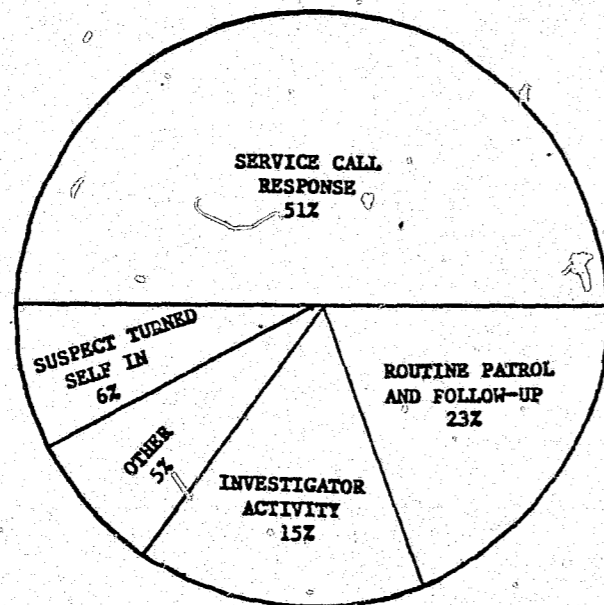


2. In the vast majority of cases the police are not provided with the kind of information and evidence needed to identify a suspect and make an apprehension. In approximately 45% of all offenses, there is no suspect nor suspect vehicle information, no witness and no evidence available to the police. Furthermore, no method of operation information whatsoever is available in 39% of the offenses.

On Criminal Apprehension

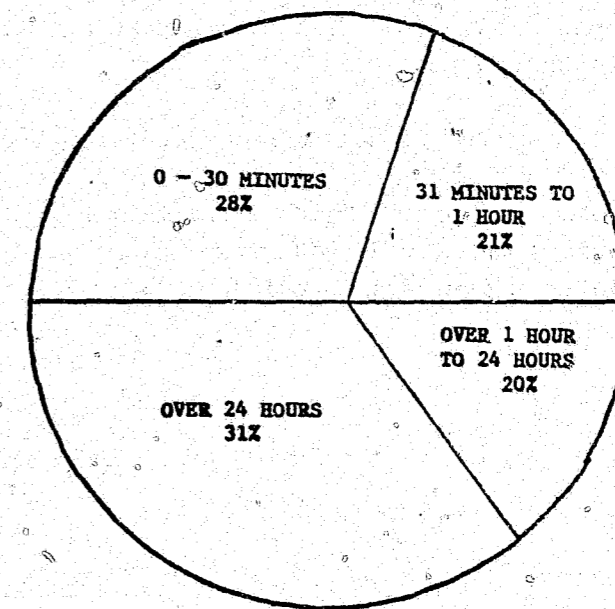
3. The apprehension process is dominated by citizen reporting and direct action. Approximately one-half of the apprehensions studied occurred as a direct result of a citizen call for service to the police. In approximately one-third of these cases the suspect was detained by the victim or witness or security guards prior to the arrival of the police.

CONDITIONS UNDER WHICH ARRESTS WERE MADE



4. The majority of the arrests occur during the first hour after a crime has been committed. As the time period between the crime and the report increases, the likelihood of an arrest drops considerably. Many of the arrests that occur 24 hours after the completion of a crime are the result of a previously issued warrant in which a specific suspect is identified.

DIFFERENCE BETWEEN THE TIME WHEN CRIME OCCURRED AND WHEN ARREST WAS MADE



5. Police department files contain considerable information about previously apprehended suspects. In addition, Norfolk and Springfield maintain field interview files accessible by name. A substantial number of the arrestees in our data base have had prior contact with the police. In most instances this contact involved a prior arrest.

Implications

1. ICAP efforts to design apprehension tactics based upon method of operation information was limited by the amount of this information on the offense reports. This lack of information affected the ability of crime analysts to identify specific patterns of crime and to link specific suspects to unique crime characteristics.
2. Because of the limited amount of suspect information on offense reports, crime analysts are usually restricted to the temporal and geographic aspects of crime when identifying crime patterns. While this may facilitate the deployment of patrol personnel during high crime times and in high crime areas, apprehension opportunities using such gross analysis depend on such deployment.
3. The manner in which criminals operate and the critical role which citizens play in the crime reporting, suspect identification and apprehension process suggest that efforts to encourage citizens to play a larger role in the protection of their property and themselves is warranted.
4. The extent to which departments have information about former offenders and suspicious persons in criminal history and field interview files suggests that information exists with which to identify serious habitual offenders and, if warranted, develop suspect oriented surveillance and apprehension strategies.

CHAPTER 7

ICAP ASSESSMENT

The purpose of this chapter is to assess the effect of ICAP upon criminal apprehensions. The analysis is based upon a thorough review of approximately 3,000 criminal cases. The review involved an examination of the contents of police investigative case files. Materials reviewed included offense and arrest reports, victim, witness and suspect statements, physical evidence, investigative notes and case disposition information. Using this data base, questions were posed about the extent to which ICAP activities affected arrests. This chapter is divided into three major sections which address the relationship between the apprehension process and crime analysis, patrol and investigative functions.

CRIME ANALYSIS ASSESSMENT

More than any other single project activity, the development of a Crime Analysis Unit (CAU) was the focal point of every participating department's Integrated Criminal Apprehension Program. It was the common theme designed to link all of the ICAP activities together. The ICAP decision model was closely allied with crime analysis. The decision model stressed the idea that police managers should use information to make both **strategic** and **tactical decisions**. It was the CAU that the ICAP model relied upon for the development of the information needed to make these decisions. In the **strategic sense**, the CAU provided police managers with written reports to support the allocation of resources, the management of calls for service and the development of investigative priorities. With respect to strategic decisions, ICAP departments were encouraged to implement telephone report units, call prioritization schemes, workload matched temporal and geographic deployment patterns, to adjust the mix of one and two-officer units and develop investigative case management systems. While these types of strategic planning were not uncommon in the ICAP departments, the CAU's were not always involved in the planning process. Strategic operations were sometimes planned by the operational and support service units independently of ICAP and the CAU.

The second focus of the CAU was the development of **tactical information**. This tactical information was designed to enhance a department's suspect identification and apprehension capabilities in two ways. First, it was expected that crime analysts, by searching their various criminal history, offense and arrest files, would be able to combine bits and pieces of information and, thus, identify likely suspects for arrest. As part of this process the analysts might also be able to identify crime trends and, thus, link already apprehended suspects to other crimes. Second, crime analysts

were to identify crime patterns and provide information about habitual offenders that patrol, special operations and investigative supervisors could use to direct their operations. These decisions were tactical in that they addressed specific crime problems. Reports generated by the CAU were to support patrol managers in designing directed patrol tactics and investigators in clearing cases based upon modus operandi and offender characteristics. The tactical impact of crime analysis is the focus of this section of the evaluation.

Crime analysis units provided a variety of functions ranging from the maintenance of an automated offense reporting system to the preparation of background information about crime for presentation to the public. Their primary ICAP objective was to support patrol officers and investigators in identifying suspects for apprehension.¹ In spite of this objective and the fact that crime analysis functions have been a part of police operations for some time, the role of such units in the apprehension of criminals has remained empirically undefined. Previous research has identified the procedures employed by crime analysis units and to some extent has identified sources and levels of both inputs and products. The current evaluation has gone beyond these process aspects, however, to focus upon the impact of crime analysis products upon arrest. The analysis which follows is not limited to products which could be shown to directly produce arrests. Rather, it includes those crime analysis activities which supported or enhanced an arrest by identifying a suspect or his criminal associates and by clearing additional cases.

The remainder of this chapter will examine the roles of crime analysis, patrol and investigations in supporting the apprehension process. The chapter discusses the total contribution of crime analysis information as well as the ways in which crime analysis facilitated apprehensions. Similarly, the patrol and investigations activities which produced arrests are subsequently addressed.

The findings in this chapter are based directly on extensive informal interviews, direct observation and analyses of quantitative data collected in the four sites. The quantitative data derive primarily from the case level samples; because most analyses in this chapter focus upon some aspect of crime analysis support to cases with arrest, it is the 1,562 case arrest sample that is most often used. As pointed out earlier, the time periods covered by case level data collection, and consequently the analyses of these data in this chapter, vary across the sites. In Memphis and Springfield, data were collected to cover four month periods; Norfolk and Stockton samples covered six month periods. Specific dates are provided in Chapter 5. For

¹For a succinct description of ICAP crime analysis applications see Richard Grassie, et al. *Crime Analysis Executive Manual* (Washington, D.C.: Law Enforcement Assistance Administration, 1977).

the same time periods, CAU records indicating requests for assistance were also analyzed and all written CAU products were reviewed.

For each sampled case with arrest, evaluators collected data concerning the type of support, if any, that was provided by the crime analysis unit to patrol officers and/or investigators who worked on the case. It should be stressed that the method of identifying/crediting crime analysis assistance also varied across the sites.

In collecting evaluative data concerning the crime analysis units, six issue areas were addressed. These areas include:

1. **Staffing Levels** - The primary focus was the relative strength of the crime analysis units as a proportion of each department's total sworn complement.
2. **Reporting Levels** - The foci were the numbers of requests for information or analysis responded to by crime analysis units and numbers of other reports or briefings provided by crime analysts.
3. **Levels of Assistance to Cases with Arrest** - With respect to each sampled arrest case, it was determined whether the crime analysis unit provided operational units with any type of pertinent information. Proportions of arrest cases with assistance are reported.
4. **Generating Source of Crime Analysis Assistance** - For each arrest case in which it was found that the crime analysis unit provided some assistance or support, it was determined whether such support was the result of a specific request to crime analysis, a crime analysis-generated report or a request which led to a crime analysis generated report or briefing.
5. **Type of Cases Crime Analysis Arrested** - For each case in which crime analysts provided some support the circumstances leading to the arrest were analyzed. The arrest circumstances included call for service response, routine patrol activities and investigative follow-up. In addition, the relationship between the time when the crime occurred and the arrest took place was analyzed.
6. **Nature of Assistance Provided to Arrest Cases** - For each arrest case in which the crime analysis unit provided some assistance or support, the type of assistance provided was determined. Types of assistance were categorized as proactive targeting of time or place; identifying information concerning suspects or their associates (including names or addresses); identification of stolen property sources; and additional cases which could be or were cleared by an arrest.

Analyses of data pertinent to each of these issue areas are presented below.

Staffing Levels

Crime analysis assistance in the four sites should be viewed in the context of the resources involved. This is not done to invite comparisons between the four sites, but since much of the site-by-site data is presented in this chapter and because the sites differ dramatically in terms of size, it seems appropriate to provide this type of background. Moreover, it serves to place the crime analysis productivity into a department-wide perspective. First, it should be emphasized that although crime analysis was the major component of ICAP, it was only a very small part of the total law enforcement effort in each of the participating sites. The size of the crime analysis staff in each of the participating agencies attests to this. As can be seen in Exhibit 20, the number of analysts varied across the sites and ranged from a low of .50 analyst per 100 sworn officers in Memphis to a high of 1.2 analysts per 100 sworn officers in Springfield. On the whole crime analysis represented less than 1% of the resources available to each of the police agencies studied. The exhibit also displays the number of target crimes (rape, robbery, burglary) that an analyst might encounter in a typical week.

EXHIBIT 20

CRIME ANALYSIS PERSONNEL

Personnel	Memphis	Norfolk	Springfield	Stockton
Number of Analysts*	3	4	2	2
Ratio per 100 Sworn Officers	.50	.68	1.2	.83
Rape, Robbery and Burglary Cases Workload per Week per Analyst	147	29	41	60

*The number of analysts reported in Exhibit 20 does not conform to the number reported in Exhibit 8. Exhibit 8 reflects the number of analysts during most of the ICAP period while Exhibit 20 reflects the number of analysts during the case study period. In addition, the number of analysts in Memphis in Exhibit 20 reflects only those assigned to the precincts from which the case study data was collected.

With the exception of Memphis, the number of major crimes which an analyst might review seems to be quite reasonable. The analysts were not charged with conducting an investigation but were responsible for detecting crime patterns and linking information about cases and suspects from offense and arrest files. The analyst caseload would be substantially higher if larceny and motor vehicle theft cases were included in the crime totals. However, analysts tended to emphasize rape, robbery and burglary cases.

Level of Crime Analysis Support

Although the crime analysis units served a variety of functions in the four departments their primary ICAP objective was to support patrol officers and investigators in identifying suspects for apprehension. In fulfilling this role, crime analysts frequently received requests from various members of the department. Based upon the four to six month data collection period, Exhibit 21 indicates the levels of crime analysis responses to requests for information from patrol, investigators and others, as well as additional reports produced by the units. Because of differing data collection time periods across the four sites, the data in this table are presented in the

EXHIBIT 21

**REQUESTS RESPONDED TO BY CRIME ANALYSTS/
ADDITIONAL REPORTS AND BRIEFINGS
PER WEEK**

Origin of Requests	Norfolk	Springfield	Stockton
Patrol	3.5	5.3	1.6
Investigations	.7	9.3	12.7
Others	.6	3.6	2.9
Total Requests	4.8	18.2	17.2
Other Reports/Briefings	4.3	20.7	8.2

form of weekly averages.² The smaller departments of Springfield and Stockton received substantially more requests than did analysts in Norfolk. The number of reports and briefings prepared by the analysts also varied across the sites. Springfield averaged the highest number of reports, while Norfolk averaged the lowest. However, the Springfield figures are somewhat inflated by the production of "vacation watch" reports in which analysts simply noted that particular citizens were on vacation and that relevant patrol officers should pay special attention to those homes.

Levels of Assistance to Cases with Arrest

Exhibit 22 indicates the numbers of cases in the offense with arrest sample in which there was evidence that the Crime Analysis Unit provided some type of information pertinent to the case. It should be stressed that assignment of cases to these categories probably underreports the levels and sources of crime analysis support, at least in some sites. In Memphis and Norfolk, to be credited with crime analysis assistance of any sort, mention of such support had to either be recorded in the investigative case jacket or the offense report, or post hoc review of crime analysis records had to provide sufficient information to associate a crime analysis product with a specific offense or arrest. In contrast to procedures in other sites, Stockton crime analysts routinely reviewed all offense and arrest reports, specifically recording any input they had provided at the time such support occurred. Springfield's data were obtained by asking the crime analysis supervisor to review each arrest on a post hoc basis and to indicate whether the unit had provided any support to the case. As a consequence of these differences in data collection procedures, Memphis and Norfolk data provide very conservative estimates of the level of crime analysis support; the Springfield estimates are the most liberal, owing to the post hoc self-report

²Memphis is excluded because the requests reported for that site differed both in type and magnitude from those reported here. An extraordinarily high number of requests in Memphis was accounted for primarily by routine name and record checks, which in the other departments were normally made directly by officers, investigators or records unit personnel rather than by crime analysts. Because such checks could not be disaggregated from the Memphis data, these categories are omitted here. To have included them would have given Memphis an average weekly total of requests in excess of 1350. Reports/briefings are also excluded as they are not comparable either; in Memphis these reports were simply computer generated 24 hour summaries of offenses/arrests, with no analysis.

method. The Stockton data, while they lack some of the potential bias of the post hoc recall method, remain self-reported data.³

As indicated in Exhibit 22, the level of confirmed CAU assistance to sampled arrests ranged from a low of less than 1% in Memphis to a high of almost 12% in Springfield. Several patterns are observable in the Exhibit. First, the general level of crime analysis assistance varied substantially among the sites. In Memphis and Norfolk, assistance ranged from 1% to 3% of all arrests, while Springfield and Stockton were credited with providing

EXHIBIT 22

CRIME ANALYSIS ASSISTANCE TO CASES WITH ARREST

Type of Assistance	Memphis	Norfolk	Springfield	Stockton
Total Cases (N) with Possible CAU Involvement	324	496	207	534
Arrests with CAU Assistance	3	15	20	38
Additional Arrests for Same Offense with Crime Analysis Assistance)	0	1	4	10
Total Arrests with Crime Analysis Assistance (% of N)	3 (0.9%)	16 (3.2%)	24 (11.6%)	48 (9.0%)

³While there appeared no specific reason to doubt the veracity of the Springfield and Stockton reports, an intervention effect may have resulted in a change (increase) in the level of crime analysis support during the data collection period. This potential effect was not measurable, since there exists no purely objective baseline measure which does not incorporate self-reported assistance. The decision to employ these different methods of crediting crime analysis with assistance to cases with arrest was dictated primarily by site specific resource constraints. However, the empirical result is a relative narrow range within which one might expect the "actual" level to fall.

EXHIBIT 23

SOURCE OF CRIME ANALYSIS ASSISTANCE

assistance in from 9% to 11% of such cases. The actual level of assistance may, in one sense, be greater than suggested by this exhibit, given that many arrests in the sample were a direct result of a citizen-generated call for service (approximately 51%) and/or occurred within one hour of the crime (approximately 50%). If these cases were dismissed as not being particularly susceptible to crime analysis assistance, the proportional contribution of crime analysis to what might be defined as "workable cases" would increase in each of the sites. Second, nearly all of the assistance in three of the sites involved the provision of information about a suspect who was previously or subsequently arrested. In Stockton, however, crime analysis also assisted in the identification of additional suspects in approximately 21% of the cases in which they provided arrest assistance.

Generating Source of Crime Analysis Assistance

In each of the departments, analysts responded to requests for information from operational units. In addition, the analysts in Norfolk, Springfield and Stockton routinely provided operations personnel with unsolicited crime and suspect information. Much of the latter information was distributed via special bulletins.

Exhibit 23 reports the sources of crime analysis assistance to cases with arrest. The Source column contains three categories:

1. **Request to CA:** Includes those situations in which an officer or investigator made a specific query of the crime analysis unit and received a response which aided in making an arrest, provided information pertinent to arrest processing or otherwise enhanced the case against the arrestee.
2. **CA Initiated:** Includes those situations in which crime analysts made a written report or verbal briefing based upon analysis of reported crime information, and this information assisted in making or enhancing an arrest.
3. **Both:** Includes those situations in which an officer or investigator queried the crime analysis unit, and the unit responded by preparing a written report or formal briefing which then led to an arrest or case enhancement.

Source	Memphis	Norfolk	Springfield	Stockton	Total
Request to CA	3	5	20	26	54 (60%)
CA Initiated	0	3	4	14	21 (23%)
Both	0	7	0	8	15 (17%)
TOTAL	3	15	24	48	90

Because of the small numbers of actual crime analysis assistance, some care must be exercised in interpreting the data in Exhibit 23. Review of the source data suggests that, in general, most crime analysis "assists" resulted from officer or investigator requests. This was particularly the case in Memphis and Springfield when 100% and 83%, respectively, of the assistance was a result of a request to crime analysis for information. With the exception of Memphis, roughly one-fourth of the assists directly originated from the crime analysts on the basis of their routine review and analysis of offense and/or arrest reports. Stockton exhibited the highest proportion of crime analysis initiated arrest cases (30%). This can be partially attributed to the crime analysis assisted special patrol strike force.

Types of Cases Assisted by Crime Analysis

The objective of this section is to present information about the types of cases in which the crime analysis units assisted in the apprehension process. The following analysis is based upon only three arrests in Memphis, 16 in Norfolk, 24 in Springfield and 48 in Stockton. On occasion, because of the small number of arrests, data from the four departments have been collapsed for analytical purposes. Crime analysis assistance is analyzed in relation to the manner in which the arrest occurred, the time between the offense and the arrest, and the type of assistance provided by crime analysts.

Exhibit 24 crosstabulates crime analysis assistance with the manner in which the arrest occurred. The relatively small number of cases with assistance suggests that chance is an important factor in classifying the arrest condition of such cases, particularly in Memphis. If the admittedly significant role of chance is ignored for sites other than Memphis, the patterns of crime analysis are at least suggestive of the types of support which were provided. In Stockton, for example, the most frequent assistance was associated with the "other" category, and almost all of these cases were in-progress arrests by that department's strike force which often planned its

EXHIBIT 24

CRIME ANALYSIS ASSISTANCE BY ARREST CONDITION

Arrest Condition	Memphis	Norfolk	Springfield	Stockton
	N	N	N	N
Service Call Response*	1	6	4	5
Routine Patrol Activities and Follow-up**	0	2	11	8
Investigative Activities***	0	6	3	13
Suspect Turned Self In	1	1	4	0
Other****	1	2	1	22
TOTAL	3	17	23	48

*Includes arrests resulting from CFS from victim, witness, security guard or alarm.

**Includes arrests resulting from routine patrol, field interview, traffic stops, on-view crimes or patrol follow-up.

***Includes arrests resulting from investigator follow-up or tips from informants or other sources.

****Includes arrests resulting from special operations, directed patrol, warrant service or off-duty officers.

tactical operations in part on the basis of CAU-generated information.⁴ In Norfolk, where procedural aspects of the department's case handling creates a heavier than normal burden for investigators, the most frequent category of assistance by arrest condition is in support for arrests made through investigative activities. Indeed, if Stockton strike force cases are ignored, this category of support is also most frequent in that site. In Springfield, support to routine patrol activity arrests is most common. This is followed by call-for-service arrests (primarily a patrol function, although not all call-for-service arrests are made by patrol). As will be subsequently demonstrated, the patrol support role for Springfield's CAU was reflected in other variables as well.

The relatively small number of cases with crime analysis assistance makes it difficult to compare the distribution of cases with assistance to the distribution of all arrests. Aggregating cases across sites produces clearer comparative patterns but at a cost to methodological rigor. Acknowledging this cost, albeit undefined, Exhibit 25 compares aggregated data for arrests with crime analysis assistance an all arrests combined across all four sites.

EXHIBIT 25

CONDITIONS UNDER WHICH ARRESTS WERE MADE
ALL SITES COMBINED

Arrest Condition	With CA Assistance	All Arrests	Proportion of Arrests with Assistance	Rank
Service Call Response*	13	754	.017	5
Routine Patrol/Follow-up**	19	360	.053	4
Investigative Activity***	17	275	.062	2
Suspect Turned Self In	4	68	.059	3
Other****	23	76	.303	1
Total Arrests	76	1533	.050	-

(*See Exhibit 24 for * explanation)

⁴The specific types of information provided by Crime Analysis will be subsequently discussed.

Generally, these data suggest that crime analysis information is most "helpful" on arrests made within one hour of the offense or on arrests which occur more than one week after the offense. If Stockton strike force cases are excluded (cases in which we know that most crime analysis support was provided prior to an in-progress arrest), the proportion of crime analysis support to cases in which an arrest took more than one week to make is even more dramatic. Indeed, as noted earlier (Exhibit 18), across all sites only 18% to 26% of all arrests were made more than a week following the offense. Yet, overall, between 33% and 60% of crime analysis support went to such cases (a range which rises even higher if Stockton's in-progress arrests are excluded).

Nature of Assistance Provided to Arrest Cases

Crime Analysis assistance comes in varied forms. In its most dramatic and proactive form, it may predict the time and place of an offense, and the prediction leads directly to an arrest. In other instances, crime analysis aids in the post-incident identification of suspects or their associates. For example, analysts may provide names, addresses or vehicle identifications of possible suspects or their criminal associates; help to associate recovered stolen property with a particular offense; or assist in "clearing" other cases involving the same suspect(s).

ICAP crime analysis activities had the potential of supporting the law enforcement function in several different ways. These included crime prevention, pre-crime tactical operations and post-crime investigative activities. Crime analysis can support crime prevention by identifying geographic and temporal patterns of criminal activity which can be used by the police and citizens to plan activities. Although this potential is a part of ICAP, no substantial efforts were made by the four departments evaluated to use ICAP funds to develop or enhance their department's crime prevention activities. Norfolk moved in this direction, but only during its final grant extension phase when ICAP was reorganized to encompass crime prevention and funds were spent on training. Stockton had a crime prevention program but it was not substantially augmented by ICAP developments.

A second potential for ICAP was in the area of on-scene apprehensions. By identifying high crime locations, crime analysis can support the targeting of police personnel. This targeting may involve enhanced visible patrol and/or undercover activities of varying levels of intensity. The expectation of this activity is that it will deter suspects and/or lead to the rapid identification of crimes in-progress and the apprehension of suspects. Of the four evaluation sites, only Stockton deployed special units on the basis of crime analysis information. Stockton did this by creating a special operations strike force which was deployed on an as-needed basis to address specific problems identified by crime analysis or other units. The other departments used a much less active approach. Norfolk and Springfield

provided patrol with crime analysis bulletins that identified crime patterns. However the departments did not develop any special mechanisms to shift resources away from routine patrol to conduct special operations. Patrol commanders used their own discretion in deciding the type and level of tactical response to crime analysis bulletins. The Memphis crime analysis unit did not routinely prepare crime pattern bulletins. Instead, the department provided patrol commanders with a daily summary of criminal activity. Patrol commanders were free to use these data as they saw fit.

In seeking to identify the impact these crime analysis reports and the resultant patrol activities might have had upon the apprehension process, it is relevant to review apprehensions that were made while crimes were in progress and shortly after they occurred (within 60 minutes). If crime analysis were successful in predicting crime patterns and in mobilizing patrol activity, one would expect that this would play a role in in-progress apprehensions.

A third potential impact of crime analysis upon apprehensions is the possibility that suspects can be identified and apprehensions made by analyzing information on the offense report. By comparing suspect MO, suspect characteristics and vehicle information and property descriptions on offense and arrest reports, it was expected that analysts would identify potential suspects. The comparison of current offense report data with other information available to crime analysis usually occurs on the day following a crime, since analysts typically review new cases at the beginning of each day. Therefore, unless a special inquiry is made to crime analysts, reports are not likely to be reviewed until the working day following an offense. Hence, it is unlikely that analysts would be able to influence a case outcome until the report has been prepared and routed through regular channels.

A fourth potential impact for crime analysis concerns the support it lends to investigators to identify additional crimes in which the suspect might have been involved. It is possible that by reviewing suspects, MO and vehicle information on other crime reports, analysts can link the suspect to other crimes. The expectation of ICAP program planners was that this would allow the police to clear a larger proportion of unsolved crimes and, even more important, develop stronger multiple offense cases against those already apprehended. In general, the evaluators found a reluctance upon the part of the police to extend much effort in linking of suspects to additional crimes. This is, in part, a reaction to prosecutorial decision-making. Prosecutors usually preferred to prosecute for the offense with which the suspect was most recently involved and arrested. This is probably a reaction to the fact that although the police may have sufficient information to clear cases using crime analysis data or make a probable cause arrest, they may not have sufficient physical evidence or victim/witness support to prove guilt beyond a reasonable doubt, the basis upon which prosecutors make case selection judgements.

Exhibit 27 analyzes the various types of assistance crime analysts supplied to operations personnel. With respect to any particular arrest, the CAU may have provided more than one type of support. Exhibit 27 incorporates assistance in the form of plotted crime patterns and predicted times and places of likely future occurrences, but only in the latter two sites did these predictions lead to arrests which were sampled.

All sites provided arrest support primarily in three general areas. Often, some type(s) of suspect or associate ID information was provided, such as names, addresses or vehicle descriptions. This information enable police personnel to identify and/or locate a suspect. This type of support often pre-dated the arrest. In other instances, arrests resulted when analysts compared property held by suspicious persons with offense report descriptions of previously stolen property, thereby enabling the police to link suspects to particular crimes. Finally, crime analysts using offense information at their disposal were able to link suspects to additional crime and as a result clear unsolved cases.

EXHIBIT 27

TYPE OF CRIME ANALYSIS ASSISTANCE PROVIDED TO ARRESTS

Type of Assistance	Memphis	Norfolk	Springfield	Stockton
Time or Place Prediction	0	0	5	14
ID of Suspect	2	5	9	6
Address of Suspect	1	2	10	1
ID of Associate	0	5	8	1
ID of Suspect Vehicle	0	0	7	1
Stolen Property	1	6	1	9
Additional Case Clearances	1	13	9	20
Other	0	0	3	14
Total of Sampled Arrests Receiving Assistance	3	16	24	48

*Note: The totals are less than the sum of the above frequencies because some arrests received more than one type of assistance.

PATROL AND INVESTIGATIVE SUPPORT

The preceding sections of this chapter have examined the ways in which crime analysis supported the apprehension process in each of the departments. Although crime analysts were never involved in actual arrests, they did identify crime problems and suggest tactical operations that street units might engage in to apprehend criminals. Furthermore, by searching their various data bases, crime analysts were able to identify potential suspects for apprehension. This section of the chapter examines the performance of operational units, in particular patrol and investigations. The purpose is to examine the extent to which the patrol and investigative management components of ICAP affected the apprehension process. The vehicle for conducting this assessment is an analysis of the way in which arrests occurred. Exhibit 28 displays the extent to which various units in the department were involved in making arrests. In this context, "making arrests" means the physical arrest itself. The officers making the arrest also may have been involved in identifying the persons to be arrested. In some instances however, the arresting officer might not have been involved in identifying the suspects. This happened quite frequently when patrol officers served warrants or picked up someone at the request of an investigator.

EXHIBIT 28

ARRESTING UNIT*

Arresting Unit	Memphis	Norfolk	Springfield	Stockton
Patrol	89%	62%	91%	75%
Investigations (Detective or Juvenile)	9%	31%	9%	22%
Other**	2%	7%	0%	3%
N	293	456	191	523

*Does not include arrests in which the suspect surrendered to the police. Sixteen (5%) suspects in Memphis, 34 (7%) in Norfolk, 15 (7%) in Springfield and one person in Stockton surrendered themselves.

**Includes traffic, K-9, vice, narcotics and other special units.

As can be seen in the exhibit, arrest is primarily a patrol function. Across the four sites, patrol accounted for 76% of the arrests. Only 9% of all sampled arrests in Memphis and Springfield were made by investigators. Norfolk investigators received credit for the highest percentage of arrests (31%) across the four sites. This is accounted for primarily by the fact that Norfolk investigators were so often present at the scene of the crime when the initial report was taken. In such situations, patrol would frequently return to service while investigators would complete the on-scene investigation and fill out the paper work, often taking credit for an arrest in which the patrol officer was holding a suspect prior to the arrival of the detective.

Patrol Assessment

One of the primary functions of the crime analysis unit, as envisaged by ICAP planners, was to supply patrol administrators with the data they needed to make both strategic and tactical decisions. As discussed in Chapter 3, the departments were more successful in adopting the strategic service call management and personnel allocation prescriptions of ICAP (albeit often without crime analysis unit input), than they were in adopting the tactical prescriptions. None of the departments established a discrete operational unit to act upon information provided by crime analysts, and only Stockton used crime analysis information on a regular basis to plan and carry out special tactical operations. In the other departments, analysis information was made available to commanders and supervisors. However, no policy was developed requiring them to conduct an operational response.⁵ As a consequence, crime analysis as a tool for tactical patrol planning was underutilized. The failure to adopt aggressive tactical operations targeted at particular high crime areas or repeat offenders is readily discernable in the arrest sample data. For example, among 1,322 arrests analyzed in the four sites, only two arrests in Norfolk and 13 arrests in Stockton occurred because patrol personnel developed a tactical operation. There were no such arrests in either the Memphis or Springfield samples.

The focus of ICAP was upon implementing a wide variety of activities (service call management, workload based deployment, increased patrol investigative responsibility) designed to enhance the ability of patrol to control crime and make arrests. While it is not possible to evaluate the individual contributions of these managerial innovations upon arrest, it is possible to review the way in which patrol made apprehensions in each of the departments.

⁵In Norfolk, some crime analysis products included a "Reply Memo" which commanders were expected to complete explaining what action had been taken. Compliance varied considerably over the course of the ICAP project, but replies were often ambiguous and analysts were generally dissatisfied with the types and levels of operational response.

The review which follows is designed to provide information about arrests made by patrol officers and to indicate the extent to which patrol arrests were the result of reactive or proactive police procedures.

Exhibit 29 displays the condition under which patrol officers made arrests in the four departments. The exhibit is divided into four categories that represent a continuum from proactive to reactive patrol arrest conditions. In the four departments, most patrol arrests are reactive in nature because they are the direct result of a call for service. The vast majority of the call for service arrests resulted when citizens called the police, although security guard and alarm calls are also significant contributors.

EXHIBIT 29

MANNER IN WHICH PATROL OFFICERS MADE ARRESTS*

Arrest Condition	Memphis	Norfolk	Springfield	Stockton
Special Operation	7%	4%	1%	1%**
Directed patrol or warrant assignment	7%	4%	1%	1%**
Routine Patrol	18%	28%	36%	38%
Follow-up	8%	8%	10%	14%
Random patrol	1%	7%	9%	16%
On-view	4%	4%	6%	8%
Traffic stop	3%	5%	3%	1%
Field interview	3%	0%	2%	1%
Calls for Service	72%	66%	62%	57%
Victim or witness	52%	39%	51%	44%
Security guard	14%	24%	10%	6%
Alarm	6%	3%	2%	7%
Other	3%	7%	7%	3%
N	260	283	174	368

*Does not include arrests in which the suspect surrendered himself to the police.

**Excludes strike team cases

The percentage of patrol arrests made as a direct call for service response averaged 70% and ranged from 57% in Stockton to 72% in Memphis. The next most frequent contributor to arrests was routine patrol activities. These are activities that officers engage in largely on an individual and unplanned basis. They are the direct result of the manner in which officers observe the street, and the extent to which they intervene in that which they observe. Although there is considerable variety across the sites, more of these routine patrol arrests occur during random patrol than during other activities. Another important contributor to these arrests was the patrol follow-up. Most of these follow-up apprehensions occurred within a few hours of the offense. Although none of the departments at the time of the data collection formally allowed patrol officers to keep offense reports for follow-up, officers might pursue a case during their tour of duty.⁶ Officers were usually made aware of these cases as the result of a call for service. When police arrived at the scene, the suspect had usually fled. However, enough information was supplied to the officer so that he could proceed with efforts to make an apprehension.

The third major activity that resulted in routine patrol arrests involved on-view incidents in which patrol officers discovered crimes in progress and were able to make apprehensions. This occurred in approximately 6% of the arrests across the four departments. Finally a smaller number of arrests was made as a result of traffic stops, which occurred when the officers approached suspicious persons, persons who fit wanted descriptions or persons who failed to obey traffic regulations. The field interview and traffic stops more often resulted in the arrest of persons with outstanding warrants than of suspects of crimes which had just occurred.

The extent to which special patrol operations resulted in arrests was of particular interest to the evaluation. Among the various patrol activities, special operations accounted for a very small part of total arrests and these were virtually all simple warrant service. Special operations accounted for only 3% of the arrests across all sites. This varied from .5% of arrests in Springfield to 1% of the arrests in Stockton. Stockton's percentage of arrests made in this manner would increase considerably (to 7%) if strike team arrests were allocated to patrol. However, strike team cases included actual directed tactical assignments.

⁶For a time, patrol officers in Springfield were permitted to retain selected cases for more extensive follow-up in the days following a crime report. Although data collected and analyzed by the department indicated patrol officers had a fair amount of success in making follow-up apprehensions, the approach was dropped at the end of the test period because of objections from detectives.

The "other" category of arrests made by patrol involved several different circumstances. The majority of cases in the "other" arrest category involved the arrest of suspects at the request of investigators. It was a common practice among all of the departments for detectives to ask patrol officers to pick up wanted suspects. The remaining cases in the other category involved arrests that came about because of tips from informants or actions by off-duty officers.

Investigative Assessment

The investigative components of ICAP were modeled after the Managing Criminal Investigations (MCI) program developed by the National Institute of Justice and field tested in several sites. The MCI program was concerned primarily with investigative management practices, rather than with tactical operations. The assumption of the program was that improved investigative effectiveness would result if the caseload of investigations was reduced via early case closure thus allowing detectives to spend more time on the most promising cases. Furthermore, improved performance was expected to result if investigative supervisors took a more active role in monitoring the progress of cases assigned to detectives.

Two measures from the ICAP evaluation data base can be used to assess the manner and effectiveness of investigators in furthering the departments' apprehension objectives. These are the extent to which detectives identified previously unknown suspects and the extent to which they made apprehensions.

Exhibit 30 displays the extent to which investigators added to the apprehension productivity of the department by identifying suspects whose names were not on the offense report. The data indicate considerable variability across the sites. Investigator identifications ranged from a low of 8% of the cases in Memphis to a high of 24% in Norfolk. The higher rate in Norfolk is in part due to the way investigators operate in that city. They are dispatched to the scene of a crime much more frequently than their counterparts in the other departments. In many felonies, Norfolk detectives are immediately dispatched to the scene, essentially giving them an opportunity to conduct the entire investigation of a case.

Exhibit 31 displays the number of arrests made by investigators and the manner in which these arrests occurred. These arrests generally occurred as a result of some follow-up activity. In Memphis, special operations also accounted for a significant proportion of investigative arrests, but these arrests were comprised of warrant services. Among all sites, investigators made occasional arrests by responding directly to service calls and during "patrol", here a euphemism for riding about the city as they were conducting other investigations. Tips from informants appeared to play only a small role in allowing investigators to apprehend suspects. However, it may simply be that many such tips are never recorded or mentioned in the case files.

EXHIBIT 30

DETECTIVE IDENTIFIED A PREVIOUSLY UNKNOWN SUSPECT

Suspect ID	Memphis	Norfolk	Springfield	Stockton
Number of cases	26	114	20	88
Percent of cases	8%	24%	12%	21%
N	324	472	166	419

EXHIBIT 31

MANNER IN WHICH INVESTIGATORS MADE ARRESTS*

Arrest Condition	Memphis		Norfolk		Springfield		Stockton	
	#	%	#	%	#	%	#	%
Investigative follow-up	15	55%	84	61%	15	88%	98	84%
Special Operations	5	19%	6	4%	-	0%	4	3%
Routine Patrol	1	4%	13	9%	2	12%	6	5%
Call for Service	2	7%	29	21%	-	0%	9	8%
Tip	4	15%	6	4%	-	0%	-	0%
N	27		140		17		117	

*Does not include arrests in which the suspect surrendered himself to the police.

CONCLUSION

One conclusion of this study is that crime analysis units - when given dedicated operational support - will produce analyses which can be used in tactical planning. Without such dedicated support, the analysis function of crime analysis units seem to have less utility. In the four evaluation sites, most crime analysis support to cases with arrest did not constitute or result from analysis, however. In many instances crime analysts provided information regarding a suspect's name, address, physical description or modus operandi which any officer could have easily retrieved from on-line data systems or a brief review of past offense or arrest reports containing the suspect's name. Both thoroughness and efficiency may be maximized by assigning these retrieval responsibilities to a particular unit. But, while crime analysis units may appropriately be assigned these retrieval responsibilities, a well run records unit could probably have accomplished the same tasks.

Moreover, while providing investigators and patrol officers with information pertaining to suspects is an important function, it does not, for the most part, require or constitute analysis of suspect, offense or arrest data. It is this type of analysis for which crime analysis units were originally created. Granting that the four crime analysis units varied considerably in the extent to which they attempted to "analyze" crime data - Memphis did little, if any, analysis while Norfolk and Stockton were quite active - the departments also varied in their capacities to effectively utilize the results of such analyses.

Effective utilization of crime analysis products requires that those with responsibility for tactical planning receive and incorporate the products in their planning. The questions legitimately arise, "How much tactical planning is going on?", and "Who in the department is doing tactical planning?" Such planning was a major goal of ICAP, but the evaluators found little evidence to suggest that tactical planning was going on in those areas of major crime analysis emphasis e.g., robbery and burglary. In this respect, ICAP failed to change the way in which police function in the four sites studied.

Indeed, it was concluded, albeit somewhat tentatively, that crime analysis units, as they were organized and operated in the four sites, had little effect on the apprehension of criminals. The fault lies not so much with the inadequacies of the units, but, rather, with the lack of operational support from other organizational entities. Persistent in the convenient belief that crime analysts provided them with little new information, most patrol supervisors and commanders provided no operational support even when they received crime predictions based upon sound analysis. As a consequence,

the potential for crime analysis units to support subsequent apprehension of criminals remains largely an empirically unanswered question, even in the four sites.

Of the four ICAP evaluation sites, only Stockton routinely routed crime analysis products to a specialized operational unit which considered such products in planning their activities. During 1981, the Stockton "strike team" conducted 25 "missions". Of these, at least 11 were based in whole or in part upon crime analysis products. At least seven (almost two thirds) of these crime analysis supported missions resulted in the apprehension of criminals. On the basis of this admittedly limited data, it was concluded that a unit which employed crime analysis information in its planning of tactical operations was able to do so with positive results.

Conclusions regarding the impact of ICAP on patrol and investigations are difficult to derive from the analysis of case level data in the absence of pre and post program measurements. Ideally, the performance of these units would be compared before and after the ICAP intervention. Even if it were not possible to pinpoint which changes were specifically ICAP induced, pre/post measurement would make any changes discernable. Unfortunately, all data had to be collected relatively near the end of the ICAP grant periods. By the time this evaluation collected impact data, all ICAP planned patrol changes had been made and routinized. In contrast, several of the departments were still in the process of making changes in the investigative component of their ICAP project.

In spite of these methodological limitations, the data analyzed concerning the manner in which patrol officers and investigators made arrests strongly suggest that in the four assessment sites, ICAP-type activities played only a minimal role in the apprehension process. However, the data do not suggest that this is a failure of ICAP, per se. Rather it appears to be a function of the predominately reactive nature of arrests, in general. The major shortcoming of ICAP in three of the assessment sites lies in its apparent lack of success at inculcating the notion that tactical operations can be planned on the basis of information which is routinely collected by police departments. The limited extent to which such operations were planned makes a generalizable conclusion regarding their actual effectiveness impossible.

CHAPTER 8

FACTORS CONTRIBUTING TO ARREST

ICAP encouraged participating departments to enhance the investigative function by developing improved offense reports which would gather additional crime information and better structure the conduct of preliminary investigations. As discussed earlier, three of the four departments increased the amount of information categorized on their offense reports by roughly 10%. Furthermore, efforts were made to involve patrol officers more completely in the initial investigation of a crime. The objective of these activities was to gather additional information at the crime scene which might ultimately lead to the identification and apprehension of suspects.

Other researchers have conducted similar analyses in attempts to understand the investigations process and to develop case screening models which predict whether particular cases will be successfully investigated. For example, a 1973 Stanford Research Institute (SRI) study concerning the investigative function identified EEI's, or essential elements of information which they found associated with burglary clearances for cases where arrests made off-scene.¹ The EEI's were incorporated into a tentative weighting scale which was proposed as a method for investigative supervisors to review new burglary cases and decide which cases were worth further investigation. The following five elements were found to reliably predict how a burglary case would be closed: estimated range of time of occurrence; witness reporting the offense; on-view report of the offense; usable fingerprints; and suspect information developed, ie. the suspect was named or described.

The SRI report was followed by another major study of the investigation process conducted by The Rand Corporation.² The Rand report did not develop a case screening model, but researchers examined case files and other information systems to determine what led to suspect identification in cleared cases. They found that in the large majority of cleared cases, identification of the suspect was provided at the time of initial reporting of the offense. Most remaining cases were usually solved through mug shot or lineup, a special operation or in some spontaneous manner unrelated to any investigator's action.

¹Bernard Greenberg, Oliver S. Yu and Karen I. Lang, *Enhancement of the Investigative Function, Volume I: Analysis and Conclusions* (Menlo Park, California: SRI, January 1973) pp. 19-21.

²See Peter W. Greenwood, Jan M. Chaiken, Joan Petersilia, and Linda Prusoff, *The Criminal Investigation Process, Volume III: Observations and Analysis* (Santa Monica, California: Rand, October 1975).

The Police Executive Research Forum (PERF) replicated the SRI research in 26 departments. PERF "...found that the SRI model can accurately predict the outcome based on information available before the follow-up investigation begins."³ As this study correctly points out, however, for cases in which arrests occur off-scene, this information must be acted upon if an arrest is to result. We would also point out that the information needed to make an arrest is often less than that needed to convict, and hence some investigative activities may go into making an arrest "pay off" without a conviction pay-off.⁴

In this chapter we report the results of univariate and multivariate analyses of data taken from case files in each of the four sites. Like Rand, we make no pretense of developing a case screening model, per se. But like SRI and the PERF replication, we do attempt to distinguish cleared cases on the basis of a multivariate discriminant analysis technique which produces a predictive model for each site. We do not propose this model for case screening for several reasons. First, we systematically exclude some cases which a manager would have to decide how to handle. Such cases will be described prior to each analysis. Second, our primary purpose in conducting the analysis was to determine how arrests were made in each site and to isolate, to the extent possible, any specific ICAP inputs. Finally, while we recognize that different types of offenses may have idiosyncratic characteristics that would weight the importance of particular variables differently, collapsed together several categories of Part I offenses in making these calculations. If the analyses were to be used to guide case screening, it would be necessary to compute a separate model for each crime type or to weight each crime type differently.

UNIVARIATE ANALYSES

As an initial step in attempting to develop arrest models for each of the four ICAP sites, the distributions of each department's arrest and nonarrest samples were compared across certain discrete variables. The variables chosen for these comparisons were ones suggested by previous research on case solvability and/or convictability. In keeping with the evaluative objective of this inquiry, some management and ICAP-related variables were also included. Because most variables were dichotomous in nature, responses usually indicated the presence or absence ("Yes" or "No") of the variable in each data set. Exhibit 32 indicates the variables used in these analyses. Appendix C displays the presence of "Yes" responses to these variables in the arrest and without arrest samples by site.

³John E. Eck, *Managing Case Assignments: The Burglary Investigation Model Replication* (Washington, D.C.: PERF, 1979), pp. 69-70.

⁴With respect to the issue of arrest "quality" and convictability, see Brian Forst, Frank J. Leahy, Jr., Jean Shirhall, Herbert L. Tyson and John Bartolomeo, *Arrest Convictability as a Measure of Police Performance* (Washington, D.C.: Department of Justice, July 1982).

EXHIBIT 32

VARIABLES USED IN ANALYSIS

- *ADDSUS = Was address of suspect known?
- ALARM = Was an alarm activated?
- BLSMN = Were blood or semen found as evidence?
- *CRMSCN = Was crime scene searched or processed?
- DECTPR = Was detective at the scene when report was taken?
- *DIDSUS = Did detectives ID suspect?
- *EVIDNC = Was evidence found on the scene?
- *FINPRT = Were fingerprints found?
- HAIR = Was hair found on the scene?
- JUVN = Was a juvenile involved as suspect?
- *LICNO = Was vehicle license number recorded?
- *MODESC = Count of M.O./suspector descriptors
- *NAMSUS = Was name of suspect known?
- OTHEVI = Was other evidence found on scene?
- OTRPRT = Other prints found on the scene
- PATFU = Patrol follow-up conducted
- PHOTO = Were photos taken of scene?
- PREWART = Arrested on previous warrant
- *PRSNLIN = Personal injury to victim
- SERLNO = Stolen property had serial number/unique identifier
- STAIN = Were stains found on the scene?
- SUPPL = Count of supplemental reports
- SUSIDC = Number of suspects on offense report
- *SUSKWN = Was suspect known to victim?
- *SUSVEH = Was suspect vehicle described?
- *UQSUSD = Count of unique suspect descriptors
- *VALUE = What was the dollar value of stolen property?
- *VEH = Was vehicle recovered as evidence?
- VEHCL = Color of suspect vehicle described
- VEHSTY = Body style of suspect vehicle described
- VEHUQ = Unique descriptors of suspect vehicle
- VEHYR = Year of suspect vehicle described
- *VICINT = Number of victim interviews
- WEAPN = Was a weapon involved?
- *WITINT = Number of witness interviews
- *WITNS = Was there a witness to the offense?
- WPTL = Were weapons/tools recovered as evidence on scene?
- *WTOTCRS = Weekly total offense reports
- *WKCFS = Weekly calls for service

*Indicates variable was also entered in the discriminant analyses which follow in the multivariate portion of this chapter.

Analysis began by crosstabulating each variable with whether or not an arrest was made on the case.⁵ The arrest variable was further broken down by whether or not the arrest was made within one hour of the offense. In these preliminary runs, data were not weighted to reflect the actual ratio of arrests to total cases handled by the department. As a consequence, the results reflected the frequency of occurrence for a given variable in the two roughly equal size samples, but did not reflect its distribution in the universe of all offenses reported during the data collection periods.

To further refine these analyses, these sample frequencies of a variable's occurrence were weighted to reflect their estimated presence in the universe of offenses which were reported during the data collection periods.⁶ To produce results which could be readily compared with those of other researchers (most notably the SRI research by Greenberg, Yu and Lang), statistical estimates comparing the probabilities of arrest with and without various offense information variables were made. Some variables which other studies (SRI, INSLAW, Rand) found to be associated with arrest were also included regardless of their apparent importance in the preliminary crosstabulations. In addition, the availability of a description of a suspect's vehicle (argued by SRI to contain considerable "noise") and whether a weapon was used (as a surrogate for seriousness) are included.

As with the similar research by SRI and PERF, only cases cleared off-scene were included in the analyses. However, we further limited our analysis to cases in which the arrest was made more than one hour after the offense occurred. This is a more conservative method than employing only off-scene arrests. While the latter arrests are a subset of the former, many off-scene arrests still occur within one hour. More importantly, we found that limiting analysis to arrests made more than an hour after the offense not only emphasizes the importance of the information as an investigative tool, but also reduces the necessity of making judgments regarding whether particular variables were actually present prior to arrest. Indeed, we found instances of both offense and arrest reports being completed subsequent to arrest, even for some arrests which were made off-scene. Including such cases in an arrest sample artificially inflates the importance of some variables (particularly suspect name, address, description and whether the suspect was known to the victim or witness) in producing arrests.

⁵Crosstabulation is technically a bivariate method of analysis. However, in these analyses, the observed frequencies were based on two separate samples (with arrest and without). Thus for each variable a single frequency of occurrence is associated with each sample.

⁶Weightings were determined using the proportion of arrest cases to total cases handled by the police department for the period of data collection.

The following variables were examined in the univariate analysis:

- SUSKWN: "Yes" indicates that a victim or witness knew the suspect(s).
- NAMSUS: "Yes" indicates that the victim or witness was able to provide the complete name of a suspect(s).
- WITNS: For property crimes, "Yes" indicates that a victim or witness observed the incident in progress. For personal crimes, "Yes" indicates that someone other than the victim observed the incident.
- SUSVEH: "Yes" indicates the availability of at least a partial description of the suspect(s) vehicle.
- EVIDNC: "Yes" indicates that physical evidence of the crime was obtained (whether or not the evidence was used to identify a suspect).
- WEAPN: "Yes" indicates that a weapon was used during commission of the crime (excluded from the burglary comparisons).

For each variable, probabilities of arrest were computed. In each analysis, $P(\text{AR} | \text{Yes})$ equals the statistical probability that an arrest would be made when a "Yes" existed for the relevant variable; $P(\text{AR} | \text{No})$ equals the probability of arrest with "No" to the relevant variable. The difference in these two conditional probabilities allows a relative ordering of the univariate improvement associated with each variable. All calculations were based on the weighted randomly selected samples. Statistical significance was ascertained using a Z-score of the difference between the two samples, with asterisks indicating whether the difference was statistically significant: * $p \leq .05$; ** $p \leq .01$; *** $p \leq .001$. Because they were the Part I crimes most often targeted by ICAP Crime Analysis Units, robbery and burglary are examined by site below.

ROBBERY

Memphis: Exhibit 33 presents the arrest probabilities for robbery across the four evaluation sites. In Memphis, only SUSKWN significantly improved the probability of making an arrest. When the victim or witness knew the suspect, the probability of arrest was .16, compared to .05 when the suspect was not known. While statistically significant, this difference is small compared to similar improvements in other sites.

Norfolk: SUSKWN was also the variable showing the greatest association with arrest for robbery in Norfolk. When the suspect was known, the probability of arrest improved from .16 to .74. Knowing the name of the suspect (NAMSUS) also improved the probability of arrest a substantial amount, from .16 to .66. Indeed, in Norfolk, a "Yes" response to all variables except WEAPON produced statistically significant positive differences in the probability of arrest compared to "No" responses.

Springfield: In Springfield, there were no sampled robbery cases in which a suspect was arrested without the existence of evidence or the use of a weapon in the commission of the crime. Thus, Z-scores and statistical significance cannot be computed for these variables. However, if one assumes that the actual probabilities of arrest without these variables approach zero (.001) for this site, then it would appear that they are second and third only to the name of the suspect being known as predictors of arrest. A positive response to NAMSUS improved the probability of arrest in Springfield from .10 to .86. The presence of a witness also provided a substantial improvement in the probability of arrest.

Stockton: Only Stockton matched Springfield's probability of arrest for robbery of .86, when the name of the suspect (NAMSUS) was known (an improvement from .16 without the name). Here, however, SUSKWN was also important; the difference in conditional probabilities of arrest was .16 without a "Yes" to SUSKWN, .76 with a "Yes". Like Norfolk, all other variables but WEAPON produced a statistically significant improvement in the probability of arrest; however, the level of difference ranged only from .13 to .22 for these variables.

BURGLARY

Memphis: Exhibit 34 presents the conditional arrest probabilities for burglary in each of the sites. In Memphis, positive responses to WITNS, SUSKWN, and NAMSUS improved the probability of making an arrest although the level of difference compared to negative responses ranged only from .11 to .16.

EXHIBIT 33

**CONDITIONAL PROBABILITIES OF ROBBERY ARRESTS WITH
SELECTED OFFENSE INFORMATION**

MEMPHIS

Variable	P(AR Yes)	P(AR No)	Difference	Z-Score
SUSKWN	.164	.052	+.112	2.221*
NAMSUS	.139	.054	+.085	1.848
SUSVEH	.096	.063	+.033	.856
WITNS	.070	.079	-.009	-.228
EVIDNC	.065	.086	-.021	.583
WEAPN	.068	.092	-.025	-.611

NGRFOLK

Variable	P(AR Yes)	P(AR No)	Difference	Z-Score
SUSKWN	.744	.156	+.588	4.147***
NAMSUS	.659	.158	+.501	3.611***
EVIDNC	.504	.173	+.331	2.808**
SUSVEH	.370	.177	+.193	2.132*
WITNS	.335	.161	+.174	2.320*
WEAPN	.243	.138	+.105	1.440

SPRINGFIELD

Variable	P(AR Yes)	P(AR No)	Difference	Z-Score
NAMSUS	.861	.100	+.761	3.970***
EVIDNC	.616	.000	+.616	NA
WEAPN	.501	.000	+.501	NA
WITNS	.538	.138	+.400	2.242*
SUSKWN	.614	.307	+.307	.733
SUSVEH	.429	.211	+.218	.998

STOCKTON

Variable	P(AR Yes)	P(AR No)	Difference	Z-Score
NAMSUS	.861	.160	+.701	3.898***
SUSKWN	.755	.162	+.593	3.932***
EVIDNC	.365	.145	+.220	3.150**
SUSVEH	.356	.167	+.189	2.388*
WITNS	.273	.148	+.125	2.083*
WEAPN	.237	.180	+.057	.907

* = p > .05
 ** = p > .01
 *** = p > .001

EXHIBIT 34

CONDITIONAL PROBABILITIES OF BURGLARY ARRESTS WITH
SELECTED OFFENSE INFORMATION

MEMPHIS

Variable	P(AR Yes)	P(AR No)	Difference	Z-Score
WITNS	.182	.027	+.155	5.134***
SUSKWN	.154	.030	+.124	4.145***
NAMSUS	.142	.034	+.108	4.008***
EVIDNC	.093	.042	+.051	1.939
SUSVEH	.091	.046	+.045	1.404

NORFOLK

Variable	P(AR Yes)	P(AR No)	Difference	Z-Score
SUSKWN	.361	.092	+.269	4.560***
NAMSUS	.319	.088	+.231	4.659***
EVIDNC	.179	.106	+.073	1.980*
SUSVEH	.186	.116	+.070	1.202
WITNS	.153	.114	+.039	1.029

SPRINGFIELD

Variable	P(AR Yes)	P(AR No)	Difference	Z-Score
NAMSUS	.627	.065	+.562	6.262***
WITNS	.542	.070	+.472	5.506***
SUSVEH	.511	.102	+.409	3.460***
SUSKWN	.421	.111	+.310	2.634**
EVIDNC	.188	.100	+.088	2.028*

STOCKTON

Variable	P(AR Yes)	P(AR No)	Difference	Z-Score
SUSKWN	.401	.052	+.349	6.541***
NAMSUS	.369	.063	+.306	4.903***
WITNS	.344	.052	+.292	6.366***
SUSVEH	.243	.073	+.170	3.072**
EVIDNC	.161	.059	+.102	3.940***

* = p \geq .05
 ** = p \geq .01
 *** = p \geq .001

Norfolk: In Norfolk, positive responses to SUSKWN, NAMSUS and EVIDNC all produced statistically significant differences in the probabilities of arrest compared to circumstances with negative responses to these variables. Again the levels of difference were not great (ranging from .07 to .27), but "Yes" to SUSKWN and NAMSUS did bring the probability of arrest to over .31. Surprisingly, perhaps, only in Norfolk was the arrest probability for burglary not significantly improved by the presence of a witness.

Springfield: Positive response to all of the selected variables produced statistically significant positive differences in arrest probabilities in Springfield. Even more striking is the fact that, except for EVIDNC, the levels of difference (improvement) ranged from .31 to .56, bringing probabilities of arrest to between .42 and .63 depending upon which variable(s) had positive response. Having the name of the suspect was most important.

Stockton: Like Springfield, positive responses to all variables produced statistically significant improvements in Stockton. Positive differences ranged from .10 to .35 with arrest probabilities for positive responses ranging from .16 to .40. Probabilities of arrest were all greater than .34 with "Yes" to SUSKWN (most important), NAMSUS and WITNS.

Summary

Strictly speaking, univariate analysis should only be used to assess which variables, taken by themselves, had the greatest affect upon probabilities of arrest. In the eight discussions above (four each for robbery and burglary), a positive response to SUSKWN most often provided the greatest improvement in probability of arrest. It was, in this regard, closely followed by NAMSUS. These results are hardly surprising in light of previous research on this issue. Similarly, the importance of having a suspect vehicle description is only occasionally of statistically significant value, a finding confirmed in the earlier research by SRI.⁷ For robbery cases, the presence of a weapon was never shown to improve the probability of arrest.

MULTIVARIATE ANALYSES

Univariate analysis is an appropriate tool for determining which variables, taken individually, are the best indicators that an arrest will occur. But in the real world, no variable exists in isolation from others. Multivariate analysis permits an estimation of the collective effect of variables on arrest.

⁷SRI reported considerable "noise" on this variable, i.e., many cases of inaccurate descriptions.

Unfortunately, the basic mathematical assumptions underlying most multivariate methods are difficult to meet. Despite this problem, most researchers have gone ahead and applied the methods, often with results which seem to have stood the "test of time" and replication. In the area of research concerned with factors associated with arrest, SRI successfully employed discriminant analysis techniques in the development of burglary arrest models.⁸ The Police Executive Research Forum (PERF) subsequently applied the basic SRI burglary screening model to cases in 26 member departments and confirmed its accuracy.⁹

Using the multivariate analytical techniques employed in the SRI research, namely bivariate correlation and discriminant analysis, the current study sought to develop the best models for discriminating between cases which resulted in arrest and those which did not in each of the four evaluation sites. Unlike previous research by SRI and PERF, the goal of this research was not to develop or test a case screening model. Rather, the objective was simply to determine which variables contributed to arrests in an exploratory effort to understand the nature of possible ICAP effects.

Preparatory to developing discriminant functions, bivariate correlation coefficients were calculated for selected pairs of variables. In these analyses, the data were weighted to correspond to the total distribution of offenses which occurred during the data collection period. The bivariate correlations performed two functions. First, the procedure provided a single standard value, "r", for comparing the relationship of variables to arrest. Second, using the same standard, it helped to ascertain the extent to which variables which were independently associated with arrest were themselves highly associated, i.e., intercorrelated.

Discriminant analysis was next performed. The purpose of discriminant analysis is to statistically distinguish between two or more groups, in this instance between cases with arrest and cases without arrests. The analysis begins by selecting **discriminating variables**, i.e., case characteristics which might be used to distinguish the arrest and non-arrest cases from one another. Here, the univariate and bivariate results were used to select variables which were individually associated with arrest. Mathematically, discriminant analysis weights case characteristic variables and combines them in a linear function. The function maximizes the difference in the normalized mean values for the linear equations which best describe each group. By combining variables in this way, the technique provides a better method of differentiating between cases with arrests and those without arrests, than relying upon any one variable alone. In conducting the analysis separate sets of variables were analyzed in each site.

⁸Greenberg, et al., op cit.

⁹John E. Eck, op cit.

Because the research was exploratory in nature and univariate results indicated considerable overlap of important variables across offense categories, Part I offenses were combined. Homicide and arson were excluded in all other analyses. Aggravated assaults were also excluded because it was felt that unidentified personal relationships between victims and suspects might confound predictability. Similarly, other cases which had characteristics which might be confounding were excluded. For example, cases in which the arrest occurred less than an hour from the offense often had complete information about the suspect on the offense report simply because the suspect(s) was already in custody at the time the offense report was actually completed. Including such cases, even if the arrest was made "off-scene" would artificially inflate the importance of such variables as Name of Suspect (NAMSUS), Address of Suspect (ADDUS) and Description of Suspect (MODESC).

Cases were always systematically excluded if case characteristics suggested that an arrest was reasonably assured from the moment of its reporting. For example, if the suspect(s) was detained by a security guard, victim, witness or other nonsworn officer prior to the arrival of the police, or if an alarm call led directly to the arrest, the case was excluded regardless of when the arrest actually occurred. Cases in which the commission of the offense was viewed by the officer were also excluded. If an arrest occurred as a result of warrant service or other special operation, or if the suspect surrendered to the police, the case was excluded. In systematically excluding some cases from the analysis, the object was always to omit cases for which no investigation was necessary to identify a suspect and make an arrest. This is not to suggest that investigators' time was not spent, appropriately and necessarily, in the processing of cases which were excluded from the analysis.

In the initial discriminant analysis runs, seventeen variables were included. These were variables which had shown the highest correlations with arrest, and/or the greatest difference in the univariate probabilities of arrest. In subsequent runs, some workload data (e.g., calls for service, level of reported Part I offenses, etc.) were also entered.

An objective of the discriminant analysis was to correctly classify as many cases as possible with the fewest number of variables. A correct classification was one in which the discriminant function correctly predicted whether or not an arrest was made in the case on the basis of the variables included.

Discriminant analyses were conducted on this dichotomous grouping of cases (with and without arrest) using the Statistical Package for the Social Sciences (SPSS) Discriminant Analysis procedure. (SPSS was used in all statistical analyses.) A stepwise selection method was employed using Rao's criterion for variable selection. Variables which were present at the time

the offense was reported were permitted to compete with the others for entry into the model. Variables which pertained to subsequent investigative processes were then entered. Tolerance level was set at .01 and F-to-enter at .25 in the stepwise procedure used.

A series of analyses was employed to identify the smallest set of variables which resulted in a significant discriminant function for each site. Although considerable overlap was found across the sites in terms of the variables which discriminated among the cases, the best function varied somewhat by site. Exhibit 35 displays the variables which formed a statistically significant function for each site along with their function coefficients, canonical correlation, statistical significance and percentage of cases correctly classified.

As Exhibit 35 indicates, a somewhat different discriminant function was identified for each site. Canonical correlations for each site were in the moderate range. Statistical significance of each function was at the .001 level, based on chi-square statistics derived from the reported Wilk's Lambda values. The percentages of cases correctly classified ranged from 65% to 86%, a slight to moderately strong improvement over the 50% correct classifications one would expect due to chance alone.

Three variables were fairly consistent discriminators: having a witness to the offense, victim or witness reporting the name of the suspect, and victim or witness reporting the license number of a suspect's vehicle. The presence of a witness to the offense suggests the possibility of more complete information and, in many cases, a corroborative source. The presence on the offense report of a suspect's vehicle license number, as provided by the victim or witness, would allow a DMV check on name and address of owner, thereby providing suspect identifying information. Similarly, when the victim or witness reported a name of the suspect, other information sources could be queried to provide further information and possible corroboration.

In addition to WITNS, NAMSUS and LICNO, two variables were present in the functions of two sites. VEH, recording whether or not the suspect's vehicle was obtained as evidence, was a good discriminator of subsequent arrest in two sites. This again suggests the importance of obtaining the name of suspect to investigate success, since vehicle registrations would provide such a "lead". VICINT, the number of interviews of the victim, was the only variable which appeared in the function of more than one site. This suggests that, at least for those sites, follow-up interviews may often have provided information which supported an arrest. Because VICINT was an indicator of investigator activity, it was allowed to enter only after other variables had accounted for as much variability (variance) as possible. The fact that it still made a significant contribution to the discriminant function is an indicator of its importance.

EXHIBIT 35

SUMMARY OF DISCRIMINANT ANALYSIS RESULTS

	Memphis	Norfolk	Springfield	Stockton
N	402	645	325	666
Variables and Standardized Canonical Function Coefficients	WITNS = -.343 SERLNO = .425 LICNO = -.196 WITINT = .731	NAMSUS = .716 DECTPR = .412 LICNO = .270 VEH = .167 DIDSUS = -.292	NAMSUS = .740 WITNS = .311 VEH = .222 LICNO = .560 SUSVEH = -.497 VICINT = -.607	WITNS = -.092 NAMSUS = -.196 VICINT = .931
Canonical Correlation	.47	.45	.73	.67
Wilk's Lambda	.784	.799	.470	.549
Chi Square (df)	97.07(4)	144.02(5)	241.27(6)	396.13(5)
Probability	$p \leq 0.001$	$p \leq 0.001$	$p \leq 0.001$	$p \leq 0.001$
Percent of Cases Correctly Classified	67%	76%	88%	84%

Three other variables, also indicators of investigator activity, were present in the discriminant function of one site each. One of these variables, whether a detective was present when the offense report was taken (DECTPR), was allowed to compete with the offense report variables because it was not viewed as follow-up activity. This variable was a good discriminator only in Norfolk where the frequency of a detective's presence at that stage is greater than in any other site, whether or not an arrest occurred. Similarly, a detective identifying a previously unknown suspect was a good discriminator in Norfolk, even after all other variables had been allowed to

enter. In Memphis, the number of witness interviews was an important discriminator even after other variables, including presence of a witness, had been entered. Only two other (non-investigator) variables, SERLNO and SUSVEH, were good discriminators in the function of even one site.

CONCLUSION

The univariate and multivariate analyses clearly suggest the importance that particular types of suspect identifying information have towards eventual arrest. In general, the type of information which was important was information which might have directly produced a name. Evidence, with the exception of license number or actually obtaining a suspect's vehicle (both of which could provide a name and address) was relatively unimportant, particularly in the multivariate models.

These results give little encouragement to the types of ICAP offense report changes which simply increased the amount of information on offense reports. While they emphasize the importance of the preliminary and follow-up investigations, the key to success would appear to remain the ability to obtain useful information directly from victims and witnesses. When this type of informational support is lacking - as it is in a majority of cases - the probability of arrest is quite small.

CHAPTER 9

ASSESSMENT IMPLICATIONS

The findings presented in earlier sections of this report indicate that ICAP projects did not demonstrate attainment of those criminal apprehension and crime control goals specified in the LEAA program announcements. This does not imply that ICAP was not a worthwhile program. The program enabled a large number of departments to examine their operations and, in some cases, design alternate methods of service delivery. Certainly the implementation of telephone reporting systems, early case closure and the improved deployment of patrol personnel contributed to the improved management of the police function in each of the sites. In some cases these innovations improved the flow of offense and arrest reports, while in other instances they eliminated redundant activities and relieved officers of rather fruitless "paper shuffling" routines. In addition, each of the sites (especially Memphis) was able to acquire additional computer equipment and automate portions of the operational support and records functions.

ICAP supported the improvement of police procedures and management in a variety of ways. Some innovations had a direct impact on the manner in which sworn personnel operated. First, each of the assessment departments either established or planned to establish a telephone reporting system. Telephone reporting was based upon several assumptions. First, it was felt that minor crime reports with no investigative leads could be handled without dispatching a patrol officer. The departments have found this to be the case. In three of the departments between 17% and 37% of the offense reports were diverted because of telephone reporting. Another assumption was that by diverting these minor calls patrol officers would have more time available for serious calls and proactive or directed patrol type activities. In a cost benefit analysis of the Telephone Reporting Unit (TRU) in Stockton it was estimated that 630 patrol hours could be saved per month. This was compared to manhours spent staffing the TRU. On average, when the TRU was staffed by fewer than three full time and one half time person, manhours spent in the TRU were less than would have been spent by patrol completing reports. When TRU staff exceeded these figures, the situation was reversed. Even when TRU staffing did not result in a net savings of departmental manhours, the value of freeing up patrol manhours may have been worth the greater investment of clerk and trainee hours.

TRU reports were also considered more cost effective. The monthly cost of Stockton's TRU operation in 1980 was approximately \$3,500. This figure included monthly salaries for a half time police clerk supervisor, a full time clerk typist and two police trainees, monthly operating costs (e.g., phones, word processor leases) and initial start up costs discounted at 12%

over ten years. Dividing by the number of reports produced, the cost of completing one report ranged on a month-to-month basis from \$5.20 to \$6.20. If police trainee salaries were not included, since it is a departmental cost not directly incurred by the TRU, the cost per report dropped to between \$2.50 and \$3.50. The estimated cost of a police officer completing a similar report, based on salary alone, was \$7.09 per report. This estimate is conservative since it does not include vehicle costs, greater fringe benefits for sworn officers or response time. Thus, even if the TRU exceeded a 3.5 staff complement, it completed reports for approximately a dollar less per report than sworn officers. The actual productivity of the TRU is somewhat underestimated in these figures since only crime reports were used in computing the per report cost. The TRU also completed daily reports (i.e., matters of record) and handled referrals to other agencies. An administrative benefit of the TRU's operation has been an improvement in the standardization and quality of offense reports. Police trainees working in the TRU received more extensive report writing training while light duty officers got a refresher course. In addition, more reports were being produced in a standard manner since they were being done by permanent TRU staff.

The four assessment departments experimented with a variety of patrol operational changes. Perhaps the greatest changes occurred in the scheduling and assignment of patrol personnel. Stockton, using the patrol plan model* developed by the National Institute of Justice instituted a computerized deployment plan that was reviewed periodically to ensure that the temporal scheduling of personnel matched service demand fluctuations. A similar system was used in Springfield. Springfield abandoned an inefficient equal shift staffing plan and implemented a schedule based upon workload demands. Furthermore, an improved workload based beat structure and a procedure designed to periodically adjust schedules and beats to match changing workload conditions were implemented. Memphis, rather than alter its temporal scheduling plan and beat structures, both of which were moderately related to workload demands, chose to change its mixture of one and two-officer patrol units. During ICAP the department abandoned broad reliance on two-officer units (70% of all units) to rely heavily upon one-officer units (70% one-officer units). Of the four sites, only Norfolk failed to make significant changes in its patrol scheduling plan. Throughout ICAP the department continued to operate with an equal shift staffing plan that was not matched to workload demands. The changes in patrol utilization in Memphis, Springfield and Stockton were significant improvements over their pre-ICAP operational procedures and offered the departments some flexibility for implementing the proactive patrol components of ICAP.

*Heller, Nelson B., *What Law Enforcement Can Gain from Computer Designed Work Schedules* (Law Enforcement Assistance Administration, November 1974); *Schedule/Plan - Software for Designing Employees' Work Schedules Using Low Cost Microcomputers and Programmable Calculators* (National Institute of Justice, 1979).

Each of the assessment evaluation departments also streamlined the flow of investigative case reports. This was an important undertaking because of the large role that crime reporting and investigative follow-up play in defining the workload of a police department and its organizational structure. The investigation of reported crime is largely a paper flow process in which documents are initially prepared by patrol and passed on to the investigative bureaus for review, verification and sometimes further investigation. In the vast majority of cases, investigators merely administer the paper flow. In only a small number of incidents do they add any substance to a case. Analysis of the non-arrest cases in our data base indicated that investigators identified a previously unknown suspect in approximately 18% of the cases. These figures ranged from a low of 8% in Memphis to 24% in Norfolk.

Each of the departments attempted to eliminate duplication of investigative efforts by according patrol officers responsibility for completing more thorough on-scene crime investigations. Furthermore, patrol officers in Memphis, Stockton and Norfolk and detectives in Springfield were given authority to close certain cases without an automatic investigative followup. This eliminated approximately 35% to 40% of the cases in Norfolk and Stockton and approximately 50% to 55% of the cases in Memphis and Springfield for an automatic investigative follow-up. Most of these cases were minor burglaries and larcenies for which no apprehension information was available.

Finally, ICAP through its cluster meetings, support of site visits and technical assistance exposed departments to new concepts and styles of operation. Police managers were provided with opportunities to observe first-hand the advantages and problems associated with implementation and maintaining many of the project activities advocated by the ICAP program. Such experiences were probably instrumental in demonstrating to department decisionmakers that aspects of the ICAP program were both feasible and pragmatic. In brief, they demonstrated to sworn personnel that changes could be made in departmental operations and lowered their initial resistance to considering such changes. On a more tangible note, the ICAP projects enabled departments to improve their tactical capabilities by supporting the purchase of such items as "handy-talkies", hidden cameras and silent alarms, identikits, fingerprint kits and computer software to allow rapid automated searches for suspect and vehicle information. These products provided departments with such benefits as greater officer safety, improved investigative capabilities, and the ability to detect more crimes in progress.

FACTORS LIMITING AN ICAP IMPACT

Several factors limited the ability of ICAP to have an impact on the crime control process. Some of these factors were beyond the control of the police, while others were related to the design of the ICAP project and

departmental operations. First, as indicated in Chapter 5 of this report, the police work under severe handicaps. Criminals are, on the whole, quite successful in conducting their activities in a secretive manner. Thus, in the majority of crimes, except for knowledge that a crime occurred, there is very little evidence which might lead to the positive identification and arrest of a suspect. Where evidence is available it is usually supplied by either the victim or witnesses. Thus, the police are largely dependent upon a criminal making an overt mistake or upon some type of intimate knowledge about the crime or criminal from either the victim or a witness. Furthermore, there is very little the police can do to increase the amount of suspect information available to bring post-crime investigations to a positive arrest outcome.

A second set of factors which inhibited the ICAP impact was the failure of any site to fully implement the program and the nature of the implemented activities. As ICAP moved from recommending administrative and organizational changes to recommending changes in the way patrol and investigative tasks were conducted, the degree of implementation was reduced. This was particularly detrimental in regard to some of the patrol tasks. For ICAP to improve police performance, it was necessary that patrol officers change their usual procedures of responding to service calls and conducting random patrol. ICAP recommended that the departments encourage first line supervisors to use operational and crime data to plan daily operations but discouraged participants from developing specialized anti-crime units. This later recommendation may have unwittingly stifled development of strongly proactive anti-crime activities. Norfolk was the only site which appeared to have increased the latitude given first line supervisors in detailing patrol officers to short term directed activities, usually at the officers' request. But none of the four evaluation sites developed a directed patrol program which was integrated with other ICAP elements. Only Stockton developed a strike force (assembled periodically to conduct special anticrime activities) which regularly used crime analysis products. This type of activity had potential for improving probabilities of arrest. Yet, three of the departments did not make any substantial or lasting effort to restructure patrol work tasks so that they would be target oriented.

A third factor which may have limited the ICAP potential in each of the assessment sites was the failure by any site to fully implement the entire ICAP program. An underlying tenet of ICAP was its emphasis on the integration of departmental and project activities. The purpose behind many ICAP program activities was to forge or improve the links between various departmental operations. The ICAP premise was that by improving the coordination between various units and sections of the department, the effectiveness and efficiency of police operations would be improved. Project activities, as implemented, varied greatly in the extent to which they were integrated into department operations. Within and across sites, the nature and depth of the interface between ICAP units and other departmental units varied considerably. The most commonly observed difficulty was the failure of operational

units to use ICAP crime analysis products to plan patrol and investigative activities. At one extreme, some ICAP units operated in a seemingly isolated and almost independent manner away from the mainstream of departmental activity. In other instances, no meaningful distinction could be made between the involvement of these ICAP units and any other support units in the daily operation of the department. The function of these units had been accepted and incorporated into the operational framework of the department. This acceptance was often a mixed blessing especially when departmental needs which were not in accord with ICAP objectives or activities took precedence. The most succinct assessment of ICAP's integration into the departments is that it was mixed and that a major ICAP component, crime analysis, was frequently only very weakly linked to operations.

A fourth factor which inhibited achievement of LEAA's crime control objective for the program concerns the chain of assumptions which link various program/project activities to their proposed outcomes. More specifically, some local project activities involved a more tenuous and longer set of assumptions relating the influence of that activity to improved law enforcement. Of particular note are those project activities that were primarily aimed at improving the efficiency of administrative functions within the department as opposed to enforcement effectiveness in the community. Exhibit 36 identifies a representative sample of ICAP activities in terms of this efficiency/effectiveness dichotomy. Crime analysis has not been included since it primarily performs an analysis and planning support, rather than an operational function. While the distinction between the efficiency and effectiveness orientation of activities is not truly dichotomous, each activity has been categorized by its most immediate effect upon the law enforcement operation. In general:

- **Efficiency** refers to those ICAP activities and internal processes that are designed to improve the workflow of the organization, eliminate duplication of effort and bring about a better match between resources and service demands. They are designed to streamline operations so that more resources can be focused upon the crime fighting mission of the department.
- **Effectiveness** refers to those ICAP activities that directly affect the department's ability to prevent and deter crime and to apprehend criminals. Here we are not concerned with organizational structure or style, management systems or monitoring, deployment patterns or case screening. These administrative mechanisms are only important insofar as they enable street level personnel to engage in new tasks or tactics that improve crime prevention, deterrence and apprehensions.

EXHIBIT 36

EFFICIENCY/EFFECTIVENESS ASPECTS OF ICAP

ICAP PROGRAM ACTIVITIES			
	PATROL	INVESTIGATIONS	HABITUAL OFFENDERS
EFFICIENCY	Temporal Deployment	Expanded Patrol Role	Liaison with Prosecution
	Geographic Deployment		
	Call Prioritization	Early Case Closure	SHO and Criteria
	Telephone Report Unit	Organization Allocation	SHO File
	Preliminary Reports by Patrol	Police Prosecutor Feedback	Screen Arrests at Booking
	Computer Aided Dispatch		
EFFECTIVENESS	Community Service Aides	Manage/Monitor On-Going Cases	SHO Notebook
	Directed Patrol	Apprehension Oriented Tactics	Improved Warrant Service
	Follow-ups by Patrol	Increase Emphasis Upon Clearance	
	Crime Prevention		

Although arguments can be made that some of the efficiency activities can contribute to effectiveness, this cannot be unconditionally assumed. For example, although telephone reporting systems are designed to handle crime calls efficiently, thereby increasing the time that street officers have to improve their effectiveness, there is no guarantee that street officers will make more effective use of their time.

Considering this, it is clear that those ICAP project activities which are primarily efficiency oriented (i.e., their immediate purpose is to accomplish such things as improving organizational workflow, reducing duplication of effort, improving the match between resources and service demands, and streamlining operations) are less likely on both theoretical and practical grounds to have an impact on ICAP's major goal - the control of crime and the apprehension of suspects. Such efficiency-oriented project activities are also more likely to be susceptible to a variety of additional factors which can disrupt or adversely affect the chain of events linking the project activity to enforcement outcomes. On the other hand, effectiveness-oriented project activities (i.e., activities which directly influence the department's criminal apprehension and crime deterrence capabilities) are less influenced by these factors and more obviously related to the ICAP goal. As shown in Exhibit 35, many ICAP activities fall into the efficiency category. The limited number of direct, outcome related activities most likely reduced any potential ICAP enforcement impacts.

A final factor which affected the achievement of ICAP's outcome goals was related to the issue of improved departmental efficiency. ICAP asserted that, by improving efficiency through such things as improving temporal and geographic patrol deployment, increasing the use of one rather than two officer units and eliminating duplicative investigator effort by instituting early case closure procedures, time would be created so that officers could focus more of their attention upon crime control. Each of these activities may have improved efficiency and generally provided officers with greater flexibility to engage in planned anti-crime activities. However, with the exception of the Strike Force in Stockton, none of the departments made any strong effort to capitalize upon any time which may have been created. In the absence of a strong managerial initiative, such time was used as individual officers saw fit. In many instances, this probably meant a reduced workload rather than increased effort to control criminal activity.

Given the factors listed above, it is not surprising that the ICAP crime control impact was of a very limited nature. Furthermore, the design of ICAP was as much efficiency oriented as it was aimed at effectiveness. Finally, the failure of the departments to change their operations to focus more specifically upon crime control worked against achievement of the program's crime control objectives.

FUTURE RESEARCH INITIATIVES

This evaluation of ICAP has not only addressed that particular program but also examined general issues in police performance. In general, it has painted a rather grim picture of the ability of identification and apprehension capabilities. It is with this in mind that the following research recommendations are made.

Topic 1. Research/Demonstration: Crime Analysis System Development

Although the evaluation of the ICAP crime analysis component in this report indicates a mixed impact, crime analysis has substantial potential. The ability to capture and use information for operational decisions will expand as computer technology itself improves. The constraining factor in the use of information by the police is not the computer hardware, but the ability of police personnel to imaginatively use information to improve their effectiveness. Several major shortcomings were observed in the way the ICAP crime analyst groups operated. First there was a reluctance among some of the sites to expend the resources on software development that was necessary to fully use their computer technology. Departments were generally reluctant to hire the computer professionals needed to design and adequately program the computer hardware. Second, with some exceptions the crime analysts did not show a great deal of imagination in using the data that was available for post-crime follow-up or predictive purposes. Much of the analysis that was performed was of a fairly mundane nature. Finally, the almost total lack of responsiveness of police operational units to the crime analysis products seriously undermined the crime analysis potential.

The development of experimental demonstration crime analysis units coupled with research components in several departments could provide solid information upon which to develop and demonstrate effective crime analysis techniques. Such a demonstration could provide basic information upon which to develop model crime analysis systems and techniques.

This research demonstration would involve the development of:

- More efficient data collection forms for offense, arrest, field interview and suspect intelligence information;
- Computer hardware and software to analyze the data for general trends as well as to search for specific pieces of information;

- Reporting mechanisms that operations personnel (patrol, investigations and tactical) could use to implement strategies and tactics designed to apprehend serious habitual offenders and develop stronger cases against them;
- Strategies and tactics that operations personnel can use to implement crime deterrence and apprehension operations against habitual offenders; and
- Routine procedures that departments can use to assess the effectiveness of various apprehension tactics and which will enable them to make informed decisions concerning the allocation and assignment of resources.

Topic 2. Research/Demonstration: Improved Post-Arrest Case Development

The evaluation indicates that the ability of the police to make arrests is quite limited. To a large extent the police are dependent upon citizens for apprehension information. Furthermore, it does not appear that the ICAP strategy which focused upon increasing the number of arrests made by the police was successful. This occurred because of flaws in the design of the program and because the department failed to implement some of the program's basic components. ICAP did not stress the efforts by the police to enhance the quality of the cases in which arrests were made. Case enhancement could improve the chances that these cases would receive a favorable prosecutorial review and a positive judicial outcome. Studies of arrest case outcomes by INSLAW and others strongly indicate that a large number of cases submitted to the prosecutor are not accepted. Furthermore, investigators seldom aggressively attempted to improve the amount of evidence available in the post-arrest period. These circumstances have disastrous consequences for the criminal justice system. Criminals are actively aware that their chances of apprehension and prosecution are extremely low. Thus, crime does not carry a great deal of risk. Victims and criminal witnesses soon learn that the criminal justice system affords little protection.

The development of a research demonstration to explore the feasibility of making stronger and broader cases against persons already arrested could improve the effectiveness of the criminal justice system. This could be done in two ways. First, special effort should be made to obtain additional witness and victim information and physical evidence in arrest cases. Second, investigators would more fully explore the extent to which arrestees may be linked to additional crimes. This approach assumes that an arrestee was involved in other crimes for which no arrest has been made. The investigator begins by systematically reviewing similar crimes to develop a range of other

crimes the arrestee could have been involved in. To be effective, such a system would demand development of a crime intelligence and analysis system that would support identification of crime patterns, MO information and suspect characteristics. The research would explore the feasibility of using more aggressive investigative methods to discover other crimes committed by the suspect. The use of "buy money" to purchase information about crimes and the more extensive use of search warrants to locate stolen property might be considered. Finally, an effort would be made to develop perpetrator-oriented patrol and investigative strategies for improving surveillance of likely repeat offenders upon their release from custody.

Topic 3. Research: Case Attrition and Degradation

Although police are the gatekeepers to the criminal justice system, it is the prosecutor who usually determines the charges that will be filed against a suspect and which cases will be accepted for adjudication. In this regard, prosecutors have enormous discretion in determining whether and how to prosecute criminal complaints.¹ ICAP and other studies of the criminal justice system suggest that police/prosecutor cooperation has been limited. Even more disturbing is the lack of police knowledge concerning the reasons why cases are dropped by prosecutors. Prosecutors frequently argue that police make arrests that will not stand up to prosecutive standards. Others argue that prosecutors are overburdened and must drop some cases completely or reduce charges in other cases. Finally, the police frequently plead ignorance of what standards of evidence the prosecutor needs and the reason why "solid" cases are dropped.

Despite these various points of view, it is clear that many cases are dropped or reduced to lesser charges.² This occurs in the case of serious habitual offenders as well as others. Given that police apprehension rates are low, it is important that cases be given the fullest consideration. As a consequence, there is a need to examine the attrition process in a case level analysis which would allow more extensive analysis of case characteristics than previous research has permitted. The proposed research would identify

¹Joan E. Jacoby and Leonard R. Mellon, *Policy Analysis for Prosecution: Executive Summary* (Washington, D.C.: Bureau of Social Science Research, April 1979), p. 2.

²Barbara Bassier, "51% of Manhattan Felony Charges Found Reduced," *The New York Times*, February 12, 1982, p. 1. See also New York City Police Department, *Felony Case Deterioration: Process and Cause* (Office of Deputy Commissioner Legal Matters, December 1981). The level of case attrition but not the reasons for it are documented in Brian Forst, Judith Lucianovic and Sara J. Cox, *What Happens After Arrest* (Washington, D.C.: Institute for Law and Social Research, August 1977).

factors affecting case attrition and develop mechanisms to ensure that police present thorough cases to the prosecutor and that prosecutors clearly delineate their adjudication priorities and evidentiary needs. There is a need to objectively examine the issues surrounding case degradation and to develop guidelines that both police and prosecutors can use to ensure that as much as possible is done to prosecute successfully a maximum number of cases. A study, conducted in four to six sites, could provide considerable insight into these problems and lay the basis for the development of solutions.

Topic 4. Research: Police Crime Prevention Activities

The original ICAP grant guidelines called for the creation of a crime prevention unit in participating departments. The guidelines recommended that such a unit represent 1% of the sworn strength. As ICAP developed, the staffing requirement was dropped from the guidelines and little serious emphasis was given to an ICAP crime prevention initiative. In spite of the initial crime prevention emphasis of ICAP and the fact that, from time to time, federal monitors spoke about crime prevention, the topic remained a minor ICAP activity. Only one of the four evaluation sites used ICAP to implement or upgrade their crime prevention activities. The site (Norfolk) which began to embrace crime prevention as a part of ICAP, did so only in the extension phase of its final grant.

Given the large and important role that citizens play in the apprehension process and the limited ability of the police to affect apprehension rates, a greater focus upon developing police/citizen crime prevention strategies would seem to merit research consideration. Several methods might be used to gather information about police/citizen crime prevention initiatives and their impacts. First, there is a need to know what police departments are currently doing to focus research upon crime prevention.

The use of the National Evaluation Program (NEP) format to gather descriptive and evaluative information about police crime prevention strategies would appear to be an important initiative. Among the issues which could be addressed in an NEP-type review would be the extent to which police agencies:

- are aware of crime prevention activities;
- have incorporated crime prevention concepts into their decision-making processes;
- have developed crime prevention activities;
- have committed resources to crime prevention activities apprehension tactics, and
- have developed working relationships with community organizations in crime prevention.

Other factors to be considered in the review would be an analysis of barriers to the implementation of police crime prevention activities as well as mechanisms that have been developed to facilitate implementation of these activities. Furthermore the assessment would involve a review of the effectiveness of these programs.

Topic 5: Research: Assessment of Police Efficiency

ICAP embodied a number of activities designed to improve the efficiency of police operations. These included service call management techniques like telephone reporting and call prioritization, patrol management techniques like the greater use of one officer units, community service officers and improved temporal and geographic deployment and improved investigative management techniques like early case closure. While some of these activities may lead to improvements in effectiveness, they are primarily methods designed to provide service more efficiently. They have the potential for lowering the costs involved in providing police service.

In the past several years cut-back management have become the watch-words of state and local governments. Local police agencies have experimented with a number of activities designed to cut the costs involved in providing law enforcement services. The National Institute of Justice has supported this process by providing cut-back management seminars and preparing descriptive materials. These initiatives are justified given trends in federal, state and local budgets. Since the mid-1970's municipal employment has been declining while budgets have been increasing rapidly. As a consequence police sworn personnel nationwide have been declining since 1974. It is unlikely that this trend will be reversed in the near future. As municipal and police executives find that they are unable to maintain personnel levels, there will be a growing need for information about the extent to which various cutback management techniques can allow an agency to restrain budget increases yet maintain service levels. While the various cut-back management techniques identified by NIJ and others have been helpful, there is no quantitative information available about the extent to which various techniques affect law enforcement costs. A systematic inquiry into the way in which and the extent to which efficiency improvement activities affect agency costs and performance is needed. The development of an economic model relating police operational procedures and improved management techniques to service delivery costs would go a long way toward providing police administrators with the information they need to make informal decisions.

APPENDIX A

INTENSIVE CASE ANALYSIS

DATA COLLECTION ELEMENT

ITEM TOPICS

1. Arrest Report
2. Offense Report
3. Offense/Arrest Characteristics
4. Investigative Characteristics
5. Crime Analysis
6. Case Disposition
7. Criminal History of Arrestee

APPENDIX A

INTENSIVE INVESTIGATIVE CASE ANALYSIS

DATA COLLECTION FORMS

- ITEM # ITEM
- 1 Site No. ① SITE1
 Stockton = 1 Norfolk = 3
 Memphis = 2 Springfield = 4
- 2 Sequence No. ②-5 SEQNO1
1. ARREST REPORT
 (If offense report only - skip to item 16 - code 8's in cols 6-46)
- 3 Calendar Week No. ⑥-7 CALWK1
- 4 Arrest Report No. ⑧-12 ARRPT
- 5 Date of Arrest / / ⑬-14/15-16/17-18
 99/99/99 = unknown (ADAY) (AMON) (AYR)
- 6 Time of Arrest (24 hour clock) ⑰-22 TIMARST
- 7 Name(s) of Arresting Officer(s) (Write names on bottom of code sheet)
- 8 Was suspect employed? ⑳ EMPL
 1 = No 9 = Unknown
 2 = Yes
- 9 Suspect was charged with? (Code one only) ㉔-25 CHARG
 01 = Rape 05 = Motor Vehicle Theft
 02 = Robbery 06 = Arson
 03 = Burglary 07 = Assault
 04 = Larceny-Theft 09 = Unknown

ICAP CODE BOOK

- ITEM #
- 10 Was suspect arrested on previously issued warrant/complaint? ㉖ PREWART
 1 = No 9 = Unknown
 2 = Yes
- 11 Arresting Division (officer who takes suspect into custody) (Code one only) ㉗ ARRDIV
 0 = Other 5 = Telephone Reporting Unit
 1 = Patrol 6 = Juvenile
 2 = Detectives 8 = Not applicable
 3 = Traffic 9 = Unknown
 4 = Special Operations
- 12 Was suspect detained by others before arrival of arresting officer? ㉘ DETN
 1 = No 9 = Unknown
 2 = Yes (Code all that apply below)
 a) Turned self in = ㉙ TRNIN
 b) Detained by victim = ㉚ VICHLD
 c) Detained by witness or others = ㉛ WITHLD
 d) Detained by nonsworn security personnel = ㉜ RNTCOP
 e) Detained by other sworn officers = ㉝ OTHCOP
 (Codes for Columns 29-33)
 1 = No
 2 = Yes
 8 = Not applicable
- 13 Were other persons arrested at the same time as the suspect? ㉞ OTHSUSA
 1 = No
 2 = Yes
 9 = Unknown

ICAP CODE BOOK

ITEM #

- 14 Was suspect arrested: (Code one only) _____ ©35-36 ARSTCON
- 01 = During response to victim and/or witness CFS (Code 8's in Item 15)
 - 02 = During response to security personnel's CFS (Code 8's in Item 15)
 - 03 = During response to alarm CFS (Code 8's in Item 15)
 - 04 = During conduct of patrol follow-up (if checked, go to 15)
 - 05 = During conduct of investigator follow-up (if checked, go to 15)
 - 06 = During conduct of field interview report (if checked, go to 15)
 - 07 = During conduct of traffic stop/violation (if checked, go to 15)
 - 08 = Turned self in
 - 09 = During conduct of special police operation (e.g., directed patrol, tactical squad) (Code 8's in Item 15)
 - 10 = During response to on view crime - on view arrest but not as part of special police operations (Code 8's in Item 15)
 - 11 = During routine patrol
 - 12 = By off-duty officer
 - 13 = In response to tip from informant (Code 8's in Item 15)
 - 88 = Not applicable
 - 99 = Unknown

- 15 Was the arrest made on the basis of a suspect identification? (Code all that apply)

- | | | | |
|--|-----|-----|---------|
| a) Provided by victim | = 8 | ©37 | SUSID1 |
| b) Provided by witness | = 8 | ©38 | SUSID2 |
| c) Provided by patrol | = 8 | ©39 | SUSID3 |
| d) Provided by investigators | = 8 | ©40 | SUSID4 |
| e) Provided by traffic | = 8 | ©41 | SUSID5 |
| f) Provided by other departmental units | = 8 | ©42 | SUSID6 |
| g) Provided by other suspects | = 8 | ©43 | SUSID7 |
| h) Provided by physical evidence (e.g., photograph, stolen property, footprints, etc.) | = | ©44 | SUSID8 |
| i) By tip/informant | = | ©45 | SUSID9 |
| j) | = | ©46 | SUSID10 |

(Codes for Columns 37-46)

- 1 = No
- 2 = Yes
- 8 = Not applicable
- 9 = Unknown

ICAP CODE BOOK

ITEM #

2. OFFENSE REPORT

- 16 Site number _____ ©47 SITE2
- 1 = Stockton
 - 2 = Memphis
 - 3 = Norfolk
 - 4 = Springfield
- 17 Case designator _____ ©48 CASDSN
- 1 = offense with arrest sample
 - 2 = offense without arrest sample
- 18 Sequence No. _____ ©49-52 (Same as Item 2) SEQNO2
- 19 Calendar week number _____ ©53-54 CALWK2
- 20 Offense/crime report number _____ ©55-59 CRNO
- 21 Offense type (Code one only) _____ ©60-61 OFFTYP
- | | |
|--------------------|--------------------------|
| 01 = Rape | 05 = Motor Vehicle Theft |
| 02 = Robbery | 06 = Arson |
| 03 = Burglary | 07 = Assault |
| 04 = Larceny-Theft | 09 = Unknown |
- 22 Date of crime occurrence _____ / _____ / _____ ©62-67
- C DAY C MON C YR
- (If a range of days is given - e.g., over the weekend - code as 77/77/77)
- 99/99/99 = Unknown
- 23 Date of crime report _____ / _____ / _____ ©68-73
- C R DAY C R MON C R YR
- 99/99/99 = Unknown
- 24 Time of crime occurrence _____ ©74-77 TIMOC
- (24 hour clock)
- (If a range of time is given on a particular day, code a time which falls halfway between the times provided, for example, 1700 to 1950 would be coded as 1 8 2 5).
- 9999 = Unknown

ICAP CODE BOOK

ITEM #

25 Time crime report filled out _____ ©78-81 TIMRPT
(24 hour clock)

9999 = Unknown

26 Difference between time offense occurred and time crime
report was taken (Code one only) _____ ©82 DIFTIM

- 1 = 0-30 minutes
- 2 = 31-60 minutes
- 3 = 1-2 hours
- 4 = 3-8 hours
- 5 = 9-16 hours
- 6 = 17-24 hours
- 7 = Over 24 hours
- 8 = Not applicable
- 9 = Unknown

27 Reporting division completing offense report (Code one only) _____ ©83
CRDIV

- 0 = Other
- 1 = Patrol
- 2 = Detectives
- 3 = Traffic
- 4 = Special Operations
- 5 = Telephone Reporting Unit
- 6 = Juvenile
- 8 = Not applicable
- 9 = Unknown

28 Were there witnesses to the offense? _____ ©84 WITNS

- 1 = No
- 2 = Yes
- 8 = Not applicable
- 9 = Unknown

29 Was there any personal injury to the victim(s)? (Code one only) _____ ©85
PRSNLIN

- 1 = No personal injury
- 2 = Minor personal injury
- 3 = Serious personal injury (required hospitalization)
- 4 = Death of victim
- 8 = Not applicable
- 9 = Unknown

ICAP CODE BOOK

ITEM #

30 Were any weapons used in the commission of
the offense? _____ ©86 WEAPN

- 1 = No
- 2 = Yes
- 8 = Not applicable
- 9 = Unknown

31 The location of the offense (Code one only) _____ ©87-88 CLOC

- | | |
|--------------------------|------------------------|
| 01 = Residential | 07 = Street/Alley |
| 02 = Commercial-Business | 08 = Lot/Park/Yard |
| 03 = Hotel/Motel | 09 = Other |
| 04 = Mobile Home, Camper | 10 = Jail/Holding Cell |
| 05 = Institutional | 99 = Unknown |
| 06 = Vehicle | |

32 Was suspect known to victim and/or witness? _____ ©89 SUSKWN

- 1 = No
- 2 = Yes
- 8 = Not applicable
- 9 = Unknown

33 Was an alarm activated? _____ ©90 ALARM

- 1 = No
- 2 = Yes
- 8 = Not applicable
- 9 = Unknown

34 Were the serial numbers or other unique identifiers of any stolen
property/checks/cash/etc. recorded? _____ ©91 SERLNO

- 1 = No
- 2 = Yes
- 8 = Not applicable
- 9 = Unknown

ICAP CODE BOOK

ITEM #

44 Was there any description of the suspect(s) vehicle(s) _____ ©115
SUSVEH

1 = No 8 = Not applicable

2 = Yes (Code all that apply)

- a) Year _____ ©116 VEHYR
- b) Make _____ ©117 VEHMK
- c) Color _____ ©118 VEHCL
- d) Body style _____ ©119 VEHSTY
- e) License Number _____ ©120 LICNO
- f) Unique descriptor (e.g., low rider) _____ ©121 VEHUQ

(Codes for Columns 116-121)

- 1 = No
- 2 = Yes (Complete)
- 3 = Partial information
- 8 = Not applicable

45 Count of General Suspect/MO Descriptors checked _____ ©122-123
(See Coding Guide for specific instructions) _____ MODESC

- 88 = Not applicable
- 99 = Unknown

46 Count of Unique Suspect Descriptors checked _____ ©124-125
(See Coding Guide for specific instructions) _____ UQSUSD

- 88 = Not applicable
- 99 = Unknown

ICAP CODE BOOK

ITEM #

3. OFFENSE/ARREST REPORT

47 Difference between time of offense and time of arrest
(The time of offense is recorded in Items 22 and 24 on the
offense report section and time of arrest are Items 5 and 6
of the arrest report section). _____ ©126-127 DIFAO

- 01 = Arrest while offense in progress
- 02 = Arrest within one hour of offense
- 03 = Arrest within two hours of offense
- 04 = Arrest within four hours of offense
- 05 = Arrest within eight hours of offense
- 06 = Arrest within 24-hours of offense
- 07 = Arrest within two days of offense
- 08 = Arrest within three days of offense
- 09 = Arrest within four days of offense
- 10 = Arrest within five days of offense
- 11 = Arrest within six days of offense
- 12 = Arrest within seven days of offense
- 13 = Arrest within two weeks of offense
- 14 = Arrest within three weeks of offense
- 15 = Arrest within four weeks of offense
- 16 = Arrest within two months of offense
- 17 = Arrest within three months of offense
- 18 = Arrest within four months of offense
- 19 = Arrest within five months of offense
- 20 = Arrest within six months of offense
- 21 = Arrest within 7 to 12 months of offense
- 22 = Arrest within 1 year or more of offense
- 77 = Date of crime occurrence unknown
- 88 = Not applicable
- 99 = Unknown

48 Did any of the same officer(s) fill out arrest and offense report?
(Check signatures, see Item 7 of arrest report section) _____ ©128

OFFCHK

- 1 = No
- 2 = Yes
- 8 = Not applicable
- 9 = Unknown

ICAP CODE BOOK

ITEM #

4. INVESTIGATIVE SECTION

49 Was the case assigned to detectives (Code one only) _____ ©129 ASNDET

- 1 = Case not assigned (Skip to next coding section, Weekly Operations - Item 57 - Code 8's in cols 130-145)
- 2 = Case assigned
- 3 = Case re-opened
- 9 = Unknown (Skip to next coding section, Weekly Operations - Item 57 - Code 8's in cols 130-145)

Data Source for Items 50-56

Case File (Offense reports with or without arrests which were assigned to detectives)

50 Number of Non-administrative Supplementals _____ ©130-131 SUPPL
(Do not count crime scene processing supplementals)

- 88 = Not applicable
- 99 = Unknown

51 Number of Witness Interviews _____ ©132-133 WITINT

- 88 = Not applicable
- 99 = Unknown

52 Number of Victim Interviews _____ ©134-135 VICINT

- 88 = Not applicable
- 99 = Unknown

53 Was Crime Scene Searched/Processed _____ ©136 CRMSCN

- 1 = No
- 2 = Yes - at request of patrol
- 3 = Yes - at request of detectives
- 4 = Yes - no request necessary (policy on certain crimes)
- 8 = Not applicable
- 9 = Unknown

ICAP CODE BOOK

ITEM #

54 Was a previously unknown suspect(s) identified by detectives? _____ ©137 DIDSUS

- 1 = No
- 2 = Yes
- 8 = Not applicable
- 9 = Unknown

55 On cases assigned to detectives with no arrest, was suspect statement taken? _____ ©138 SUSSTMT

- 1 = No
- 2 = Yes
- 8 = Not applicable
- 9 = Unknown

56 On cases assigned to detectives with no arrest was a warrant or complaint issued in the case? _____ ©139 WRNTISS

- 1 = No
- 2 = Yes - Date of warrant _____/_____/_____ ©140-145
(WRNTDAY)/(WRNTMON)/(WRNTYR)

- 8 = Not applicable
- 9 = Unknown

(Codes for Columns 140-145)

- 88/88/88 = Not applicable
- 99/99/99 = Unknown

ICAP CODE BOOK

ITEM #

5. CRIME ANALYSIS

Arrest Reports

(Code only if arrest report is also coded - i.e., Items 3 - 15 otherwise code 8's in cols 147-175)

57 Site Number _____ ©146 SITE3
 1 = Stóckton 3 = Norfolk
 2 = Memphis 4 = Springfield

58 Sequence Number (Same as Item 2) _____ ©147-150 SEQN03

59 Was any information provided by the crime analysis unit pertinent to this arrest? _____ ©151 CAAR
 1 = No 8 = Not applicable
 2 = Yes

59a If yes, was this information provided (Code one) _____ ©152 CASRCE
 1 = as a result of a request to crime analysis
 2 = as a result of an unrequested crime analysis report or briefing
 3 = Both
 8 = Not applicable

60 Did this information aid/contribute to arrestee's identification? _____ ©153 CAID
 1 = No
 2 = Yes
 8 = Not applicable

ICAP CODE BOOK

ITEM #

61 Did this information aid/contribute in arrestee's vehicle identification? _____ ©154 CAVEHID

- 1 = No
- 2 = Yes
- 8 = Not applicable

62 Did this information aid/contribute in identifying arrestee's associates? _____ ©155 CAASSOC

- 1 = No
- 2 = Yes
- 8 = Not applicable

63 Did this information aid/contribute in obtaining address of arrestee? _____ ©156 CAADDR

- 1 = No
- 2 = Yes
- 8 = Not applicable

64 Did this information aid/contribute in establishing time and/or place of offense occurrence? _____ ©157 CAPRDT

- 1 = No
- 2 = Yes
- 8 = Not applicable

65 Did this information aid/contribute in identifying additional offenses committed by arrestee? (Were additional cases cleared/solved by this information?) _____ ©158 CACLR

- 1 = No
- 2 = Yes
- 8 = Not applicable

ICAP CODE BOOK

ITEM #

66 Did this information aid/contribute to identification of stolen property? ___ ©159 CAPROP

- 1 = No
- 2 = Yes
- 8 = Not applicable

67 Did any of the following items aide/contribute to this arrest (Code all that apply)

- | | | |
|--------------------------------|-----|--------------|
| a) Daily Confidential Bulletin | ___ | ©160 DCB |
| b) Career Criminal Mugbook | ___ | ©161 CCM |
| c) Hidden Camera Photo | ___ | ©162 CAMRA |
| d) Pawn Shop Detail (T-SACS) | ___ | ©163 PAWN |
| e) Gang File | ___ | ©164 GANGF |
| f) Crime Stoppers | ___ | ©165 CRSTPRS |
| g) Department Mugbooks | ___ | ©166 MUGBK |
| h) Silent Alarm | ___ | ©167 SILALRM |
| i) Directed Patrol | ___ | ©168 DIRPAT |

(Codes for Columns 160-168)

- 1 = No
- 2 = Yes
- 8 = Not applicable

68 Was arrestee in crime analysis files, (e.g., field interview file, known offender, career criminal, etc.) prior to arrest? ___ ©169 INFILE

- 1 = No
- 2 = Yes
- 8 = Not applicable
- 9 = Unknown

ICAP CODE BOOK

ITEM #

6. CASE DISPOSITION

70 Did prosecutor accept case for prosecution? ___ ©170 DAACC

- 1 = No
- 2 = Yes
- 3 = No because victim refused to prosecute
- 4 = Juvenile Court
- 8 = Not applicable
- 9 = Unknown

71 Was defendant prosecuted? ___ ©171 DAPROS

- 1 = No
- 2 = Yes
- 8 = Not applicable
- 9 = Unknown

71a If Yes, final disposition. ___ ©172 DISP

- 1 = Convicted
- 2 = Not convicted
- 8 = Not applicable
- 9 = Unknown

72 Was arrestee a career criminal? ___ ©173 CC

- 1 = No
- 2 = Yes
- 8 = Not applicable
- 9 = Unknown

7. CRIMINAL HISTORY OF ARRESTEE

73 Total number of previous arrests (exclude traffic and DWI violations) ___ ©174-175 PRIORS

APPENDIX B

TIME SERIES ANALYSES OF CRIME AND ARREST

TRENDS IN MEMPHIS AND STOCKTON

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APPENDIX B

TIME SERIES ANALYSES OF CRIME AND ARREST TRENDS IN MEMPHIS AND STOCKTON

The basic goals of ICAP were to increase apprehensions and deter crime. Across all the sites, many diverse project activities were undertaken in pursuit of these goals. Crime and arrest trend analyses were conducted in Memphis and Stockton to assess the existence and nature of any overall ICAP impact which could be detected in monthly departmental Part I crime and arrest data. The tacit assumptions underlying these analyses were that the net effect of all project activities would result in the attainment of the overall program goals and that it would be reflected in those measures.

The specific measures used for the analyses were the monthly arrest rates (i.e., the ratio of arrests for a given offense to the number of such offenses reported) for total Part I crime and the specific crimes of rape, robbery, burglary and larceny. Rape, robbery and burglary were selected on the basis of their being specifically targeted by most crime analysis units. Larceny was included since units occasionally focused on crime series of this type when patterns were in evidence. The total Part I arrest rate was included as a global measure of possible project impact since an aggregate measure might reflect cumulative effects which would not be significant for individual crime types. Ratio measures were chosen since they reflect the interdependent relationship between crime and arrest data. In a single value they present departmental productivity (i.e., arrests) relative to reported criminal occurrences. Both criminal deterrent and apprehension effects (the ICAP goals) can influence the value. In addition, the crime/arrest ratio is less susceptible to measurement errors than clearance data and is not as prone as reported crime data to strong cyclical or seasonal variation.

Because of inter- and intra-site variations in the nature and implementation of project activities, a number of fairly discrete intervention points could be identified for each site (e.g., initiation of directed patrols, crime analysis units, or telephone report units). However, using such multiple intervention points in a time series analysis incurs several methodological problems (e.g., multicollinearity among the intervention dummy variables, limited number of observations between succeeding interventions). Analyzing each possible intervention point in a separate model raises the possible issue that if significant changes in a time series are associated with a later intervention point, it may include summative or interaction effects associated with earlier interventions. The concomitant operation of several, interrelated project activities obfuscates any delineation of which specific project effort may be primarily responsible for any observed effect.

Because of these difficulties and the underlying assumption that the activities would produce a net effect, a single intervention point was chosen.

The a priori point chosen was the start of Phase II of the ICAP project in each site, January 1978 in Memphis, February 1978 in Stockton. The major operational components which comprised each site's project (e.g., crime analysis units) had been initiated by that point and continued to operate at varying levels for the duration of Phase II and Phase III.

The general analytic procedure used was an ordinary least square (OLS) time series regression analysis. Since the purpose of the analyses was not to build substantive models of arrest rates, but rather to assess any influence which the ICAP project may have had, the general approach followed for each measure was to identify pre-ICAP intervention time series trends with a polynomial fitting function and seasonal dummy variables. Higher order terms were added as long as statistically significant improvements were noted in the model. The resulting model was then applied to the entire time series. Dummy variables coded to reflect post-intervention changes in the level and slope of the series were then added to the model to see if they significantly improved the amount of "explained" variance (R^2) in the dependent measure. Residuals from these models were tested for autocorrelation (Durbin-Watson d-statistic) in order to assess the existence of possible bias in standard errors for the coefficients which could result in misleading significance tests. If autocorrelations were found to exist, the model was reestimated using a pseudo-generalized least squares (GLS) method with the indicated autoregressive parameter. This procedure adjusts for the possible bias. Visual inspection of the time series plots for each crime type in each site, a review of series variances, and some initial modeling indicated that using pooled cross-sectional and time series procedures would be inappropriate. The problems of heteroscedasticity, multicollinearity and overall model complexity offset any statistical advantages this approach might provide.

Time series analyses for Memphis and Stockton will be presented in the next two sections followed by a general discussion of the findings in these two sites. As noted in the Evaluation Method section of this report, reliable monthly time series data were not available for Norfolk and Springfield. Consequently, only annual data from these cities are reported and briefly analyzed.

Memphis

Exhibit 37 displays the mean monthly arrest rates by type of crime for Memphis for the 48 month period prior to the ICAP intervention and for the 36 month period following the ICAP intervention point. During the three year period of the ICAP intervention total Part I arrest rates declined 38% compared to the four year pre-ICAP period. For total Part I crime, a significant ($p \leq .05$) decreasing linear trend component was found for the pre-ICAP series. The addition of seasonal and higher order trend components did not significantly improve this R^2 . Full time series regressions using the intervention dummy variables along with the linear trend component failed to change the initial model. Neither level nor slope of the series changed

EXHIBIT 37

MONTHLY ARREST RATE* MEANS PRE/POST
ICAP PHASE II START UP (1/79)

MEMPHIS

Crime Type	Pre-ICAP (N=48)	Post ICAP (N=36)
Total Part I Crimes	.13 (.03)	.08 (.02)
Rape	.27 (.13)	.26 (.13)
Robbery	.20 (.08)	.13 (.06)
Burglary	.10 (.03)	.06 (.02)
Larceny	.12 (.05)	.06 (.02)

*Arrests per month/offenses per month = arrest rate

notably as function of the ICAP intervention variables. Inspection of the residual correlogram and d-statistic ($d = 1.29$) indicated autocorrelation among the residuals. The correlation for a one unit lag was .30 which dropped quickly. The linear component was re-estimated using an autoregressive model of one-unit lag or AR(1) on the full series. The pseudo-GLS estimates of this time model are displayed in Exhibit 38.

EXHIBIT 38

PSEUDO-GLS ESTIMATES OF TOTAL
PART I ARREST RATE

MEMPHIS

Variable	Regression Coefficient	R ² /F
Intercept SEQID	.160* -.001*	R ² = .52 F(2,81) = 43.27* d-statistic = 1.81

*p \approx .05

SEQID = Linear Trend Counter

Residuals from this re-estimated model were not significantly autocorrelated. Exhibit 39 presents the plot of the Total Part I arrest rate. Although all time series analyses were conducted on monthly data, plots are presented using quarterly averages to provide a smoother representation of the curve and to reduce the number of points needed to represent it. Over the series, there is a general decline punctuated by one or two periods with notable drops in arrest rate. Within each year, there is some variability from month to month but this fluctuation does not appear to reflect any significant seasonal patterns.

Similar decreasing trends in monthly arrest rate were also observed for robbery and burglary. However, these trends were not statistically significant for the pre-ICAP series. There were also no significant seasonal components for either crime type. When the full time series was modeled, the ICAP intervention variable for change in slope of the series (ICAPSLPE) was statistically significant and accounted for a greater percent of the R² variance than the dummy variable (ICAPLEV) for change in series level. Neither variable provided significant improvement in R² when entered in a regression after the other variable. No significant autocorrelation among residuals was found.

Although this finding would seem to suggest that the decline in the Memphis arrest rate for these two crimes became more pronounced subsequent to the ICAP project, this result may be attributable to the increased number of observations and the absence of a linear trend variable in the full time series model (one was not used since the baseline level of decline was not statistically significant). ICAPLEV may have included a portion of the variance attributable to the linear trend noted in the pre-ICAP series. To check on this possibility, the full time series was reestimated for both crimes with a linear component included. In this model, the linear component variable was statistically significant. Neither ICAPLEV or ICAPSLPE provided a significant improvement in R² over that of the linear component. This secondary analysis indicates that for burglary and robbery, a general decline in the arrest rate, especially in the last three years, occurred. Exhibits 40 and 41 contain the coefficient estimates for the robbery and burglary models respectively. Exhibit 37 shows the mean arrest rate for these two crime types pre/post the ICAP intervention point.

For the larceny arrest rate data, significant linear, quadratic and seasonal components were found for the pre-ICAP series. The addition of the ICAP intervention variables in the analyses of the full time series did not provide a statistically significant improvement in the R² variance. Inspection of the residuals ($d = .85$) indicated significant autocorrelation (+.40 for one unit lag showing a rough exponential drop over subsequent lags). The coefficients were re-estimated using an AR(1) model. The pseudo-GLS estimates of the model are presented in Exhibit 42. After reestimation, residuals were not significantly autocorrelated. Exhibit 37 displays the mean arrest rate for larceny in relation to the ICAP intervention point.

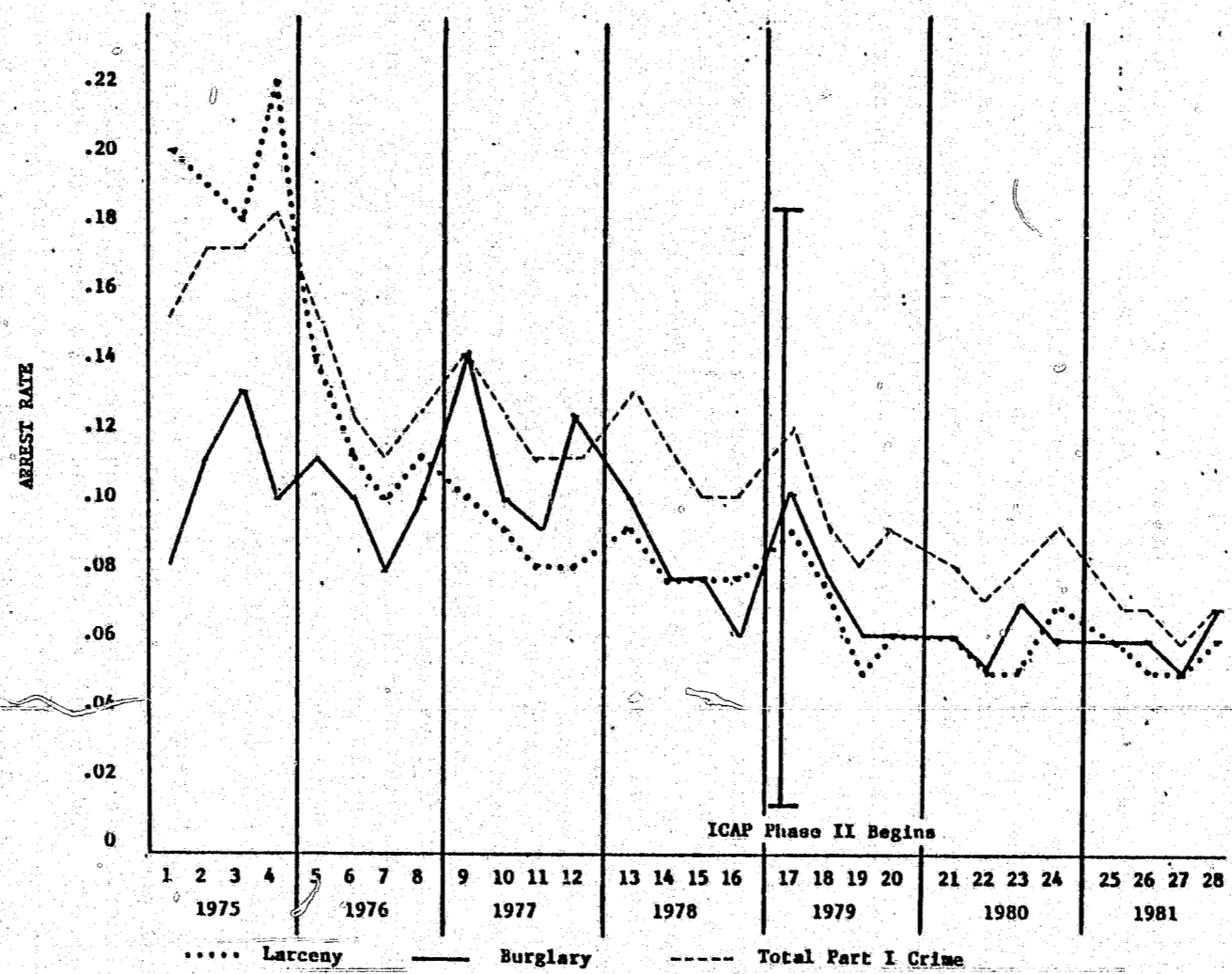


EXHIBIT 39
MEMPHIS QUARTERLY ARREST RATES

EXHIBIT 40

ORDINARY LEAST SQUARE ESTIMATES OF
ROBBERY ARREST RATE - MEMPHIS

Variable	Regression Coefficient	R ² /F
Model Intercept ICAPLEV ICAPSLPE	.203* .127 -.003*	R ² = .27 F(2,81) = 15.64* d-statistic = 2.13
Model Intercept SEQID	.240* -.001*	R ² = .24 F(2,82) = 26.20* d-statistic = 2.03
Model Intercept SEQID ICAPLEV ICAPSLPE	.213* -.0004 .116 .002	R ² = .28 F(4,80) = 10.46* d-statistic = 2.14

*p < .05

EXHIBIT 41

ORDINARY LEAST SQUARE ESTIMATES OF
BURGLARY ARREST RATE - MEMPHIS

Variable	Regression Coefficient	R ² /F
Model Intercept ICAPLEV ICAPSLPE	.098* .029 -.001*	R ² = .29 F(3,81) = 16.95* d-statistic = 1.73
Model Intercept SEQID	.116* -.0007*	R ² = .24 F(2,82) = 37.80* d-statistic = 1.76
Model Intercept SEQID ICAPLEV ICAPSLPE	.111* -.0005 .016 -.0004	R ² = .32 F(4,82) = 12.73* d-statistic = 1.78

*p < .05

Exhibit 38 graphically depicts this time series. As can be seen in Exhibit 38 larceny arrest rates declined in curvilinear fashion over the series to a fairly stable level for the years 1980 and 1981. Within the years, there was a tendency, on average, for the arrest rate to be higher in fall/winter than spring/summer.

EXHIBIT 42 |

PSEUDO-GLS ESTIMATES OF LARCENY
ARREST RATES - MEMPHIS

Variable	Regression Coefficient	R ² /F
Intercept	.195*	r ² = .61 F(4,79) = 30.89* d-statistic = 1.91
SEQID	-.004*	
QUAD	.00003*	

*p = .05

QUAD = Quadratic Trend Counter

Sl = Seasonal Dummy Variable

The pre-intervention arrest rate for rape in Memphis displayed no significant seasonal, linear or higher order trend components. Full time series regressions using intervention dummy variables to assess any changes in level or slope of the time series post-ICAP were also nonsignificant. No significant autocorrelations in residuals in any model analyzed for rape were noted. Exhibit 37 displays the pre-and post intervention means for this rape arrest series. Exhibit 43 includes a plot of the rape series. As shown in this exhibit, the rape arrest rate, although fluctuating considerably from period to period within a year (due to the relatively smaller number of offenses), has remained fairly stable over the seven years displayed.

Taken as a whole, these analyses demonstrate little support for any ICAP influence on the monthly arrest rates in Memphis. With the exception of rape, Memphis arrest rates for the crimes analyzed declined over the study period. The presence of the ICAP project did not appear to be reliably associated with either an attenuation or accentuation of this trend. However, it should be noted that for robbery and burglary arrest rates, the rate of decline which was not statistically significant before ICAP, became so when the time period subsequent to ICAP was included. A review of the

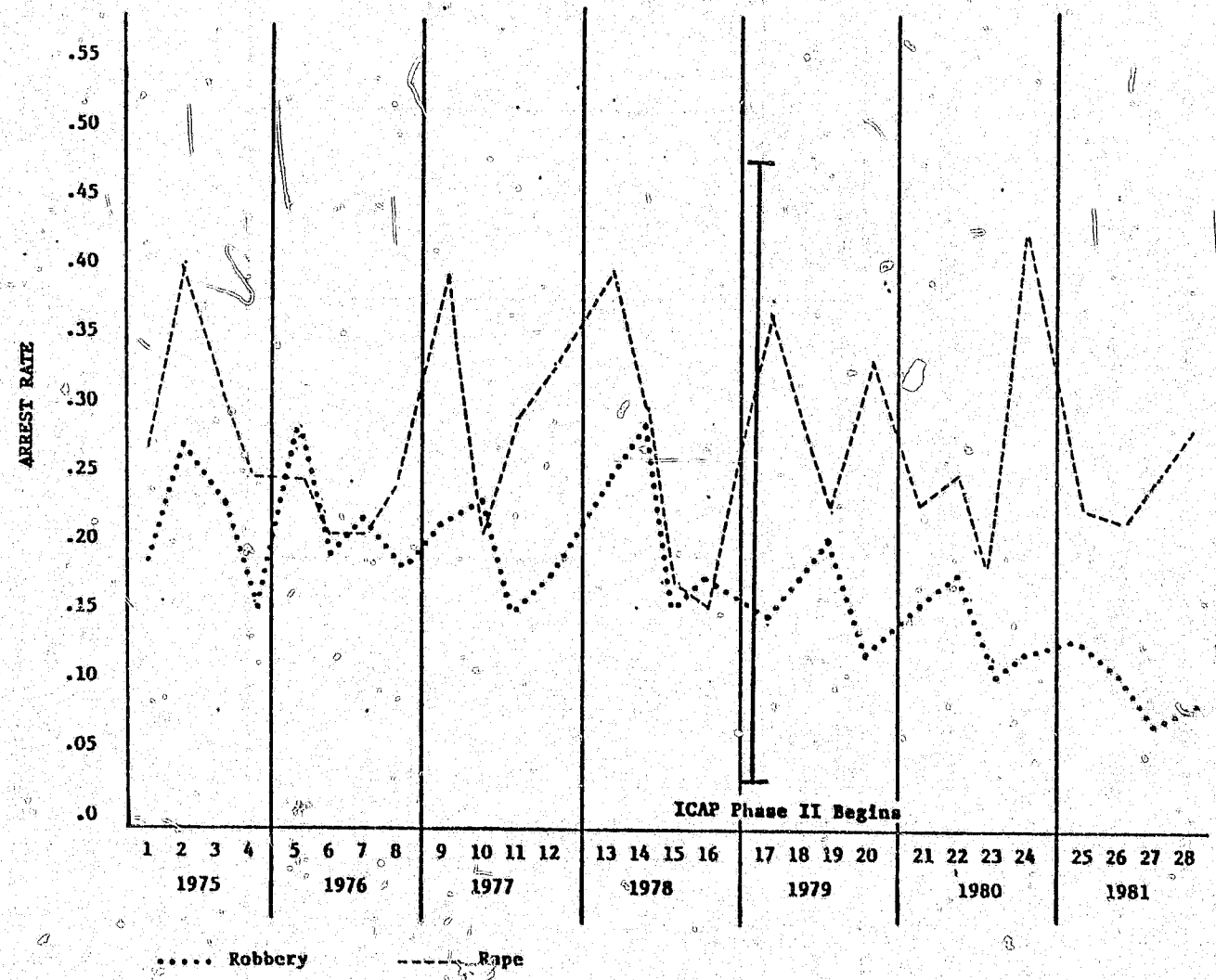


EXHIBIT 43

MEMPHIS QUARTERLY ARREST RATES

offense and arrest data separately revealed a general pattern of recent increases in offenses over the last two years while arrests remained stable after previous years of decline (Exhibit 44 provides a demonstration of this for total Part I and larceny offenses and arrests using the average monthly figures for each year in the series). It is quite likely that many factors, both external and internal to department, contributed to these trends. Some possible factors could include changes in citizens' propensity to report crime, revision of departmental procedures and policies concerning arrest, and reallocation of sworn personnel. Whatever these factors may be it appears from these analyses that ICAP did not affect the department's arrest rates to any significant statistical or practical degree.

EXHIBIT 44

AVERAGE MONTHLY CRIME AND ARREST DATA - MEMPHIS

Year	Total Part I Crimes	Total Part I Arrests	Larceny Offenses	Larceny Arrests
1975	4561	756	2231	431
1976	4094	519	2018	235
1977	3747	442	1626	138
1978	3624	381	1457	118
1979	3705	350	1536	101
1980	4265	333	1705	99
1981	4436	303	1912	109

Stockton

Exhibit 45 presents the monthly arrest rate means for the period before and the period after the ICAP intervention point. As shown in the exhibit, burglary and robbery show little or no change in series level pre/post ICAP. Although the rape arrest rate is higher for the post-ICAP period, the effect is not significant due, in part, to series variance and reduced number of data points. Exhibit 46 displays a plot of the rape and robbery time series while Exhibit 47 presents the burglary series. Pre-intervention arrest rates

EXHIBIT 45

MONTHLY ARREST RATE* MEANS PRE/POST
ICAP PHASE II START-UP (2/79)
STOCKTON

Measures	Pre-ICAP (N=49)	Post-ICAP (N=36)
Total Part I Crimes	.12 (.02)	.14 (.02)
Rape	.30 (.30)	.37 (.28)
Robbery	.26 (.11)	.25 (.08)
Burglary	.09 (.02)	.09 (.02)
Larceny	.01 (.006)	.02 (.007)

*Arrests per month/offenses per month = arrest rate
(SD) = Standard Deviation

for rape,² robbery, and burglary in Stockton displayed no significant seasonal, linear or higher order trend components. Full time series regressions using intervention dummy variables were also not significant. The pre-ICAP arrest rate for larceny also did not demonstrate any significant seasonal, linear or higher order trends. For the full time series, a significant change in series level (ICAPLEV) was noted. The addition of ICAPSLPE (change in series slope) did not provide a significant improvement in R² when entered after ICAPLEV, nor did it account for more variance than ICAPLEV when used alone. Exhibit 48 presents the OLS estimates of the larceny model. No significant autocorrelation among residuals was noted. Although there was no indication of any trend in the baseline series, a second model using the linear trend variable and ICAPLEV was estimated as a check procedure similar to the analysis of robbery and burglary in Memphis. The linear trend component was nonsignificant.

²Because some months had no rape offenses and other contiguous months had no rape arrests, the rape measure could only be meaningfully computed on a quarterly basis. This reduced the number of observation points for the full series to 28. All analyses for rape used these quarterly data points.

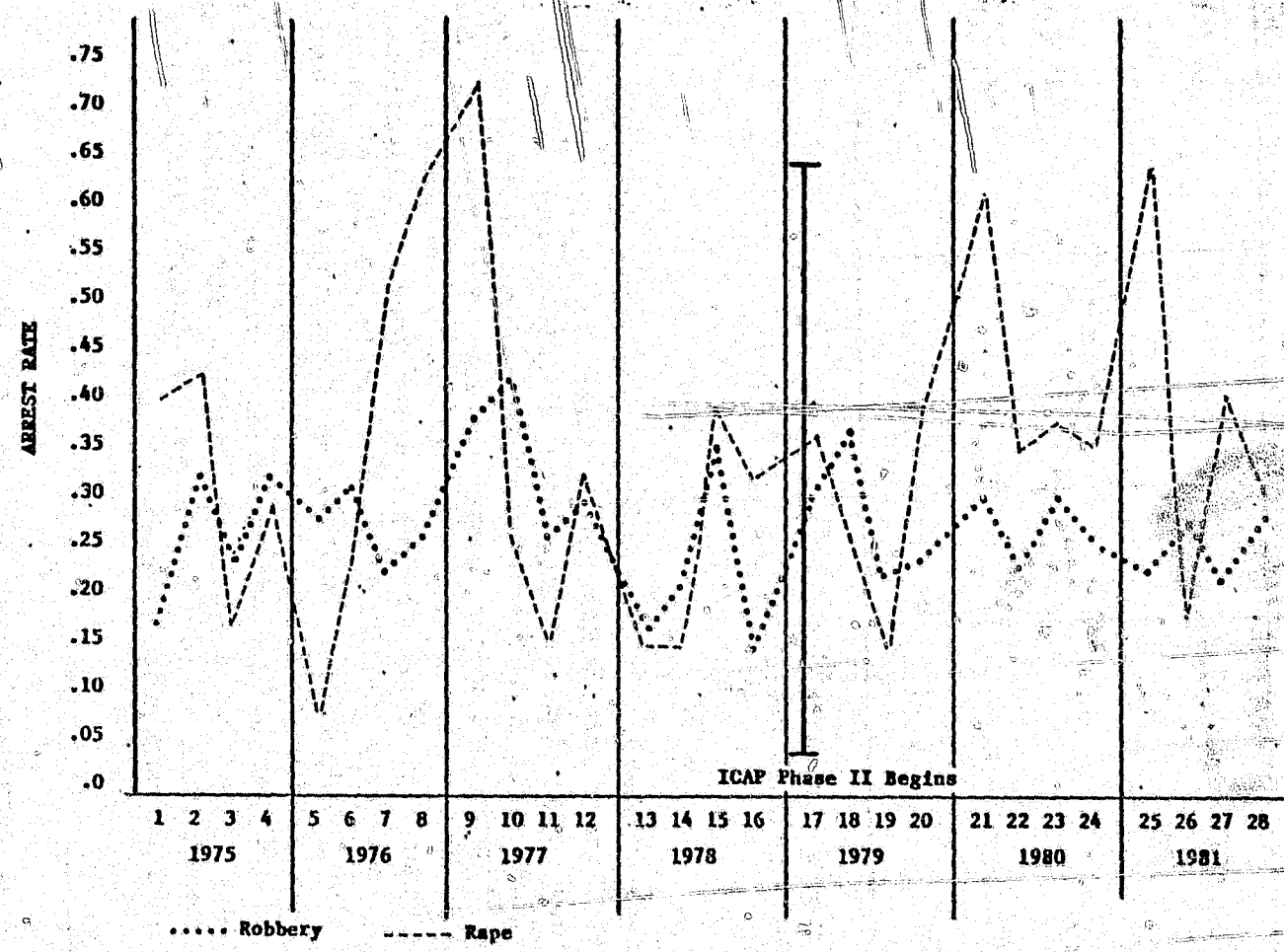


EXHIBIT 46
STOCKTON QUARTERLY ARREST RATES

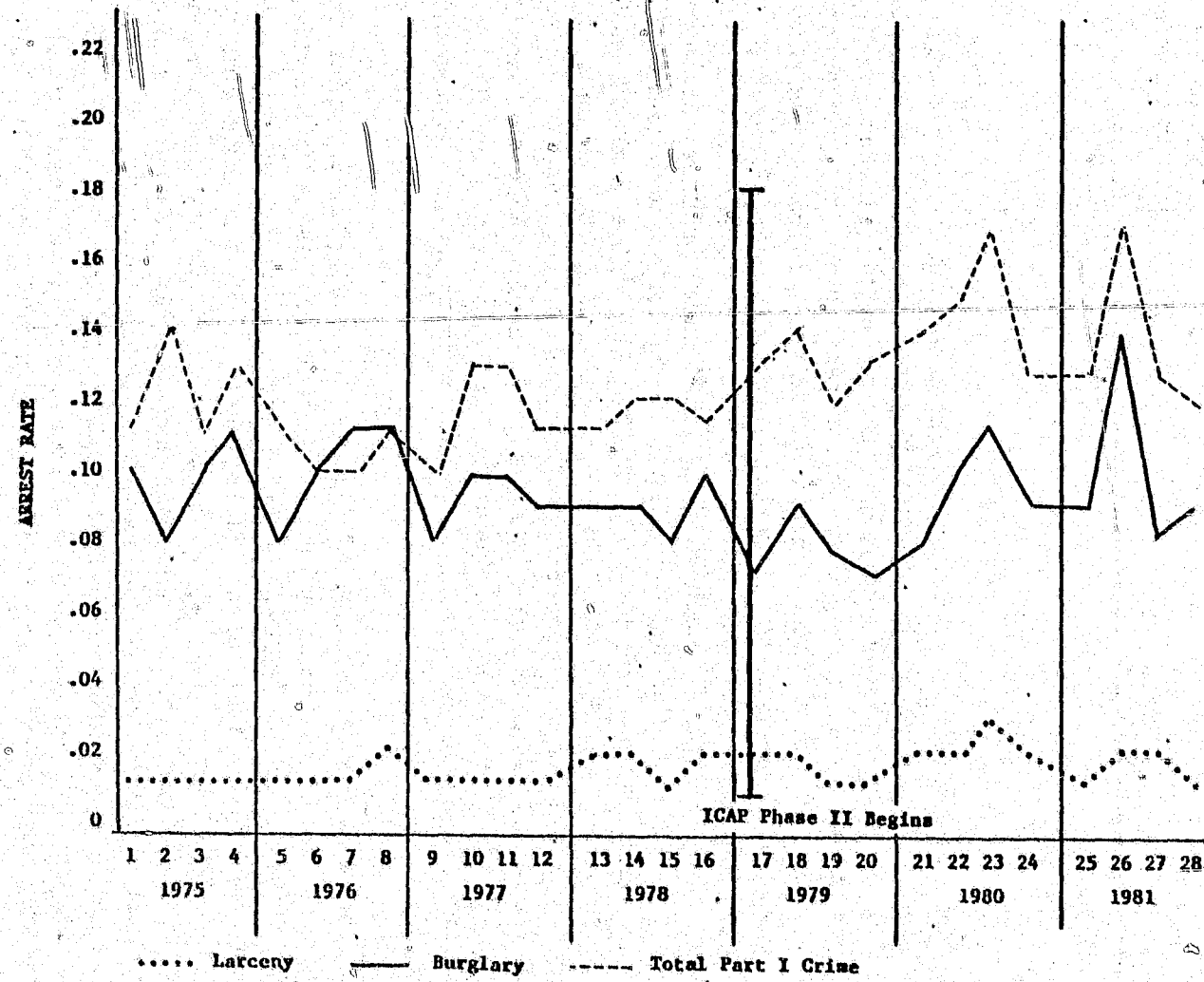


EXHIBIT 47
STOCKTON QUARTERLY ARREST RATES

EXHIBIT 48

OLS ESTIMATES OF LARCENY ARREST RATE - STOCKTON

Variable	Regression Coefficient	R ² /F
Intercept	.012*	R ² = .12 F(2,83) = 11.19* d-statistic = 1.96
ICAPLEV	.005*	

*p > .05

As shown in Exhibit 45, the larceny mean arrest rate, although very low in absolute value, doubled in the period after the ICAP intervention point. In terms of monthly averages, this constitutes an increase of roughly 6 to 12 arrests per month. This increase in arrest rate is due to greater arrest productivity and not to a reduction in offenses. Average post-ICAP monthly larceny offenses increased by 22 percent over the pre-ICAP average. Exhibit 47 displays the plot of the larceny series. In general, a fairly stable elevation of the series occurred in the last quarter of 1978. This corresponds well with the implementation of two major components of the ICAP project in this period and in early 1979. The crime analysis unit became fully operational in November 1978 and initiated the conduct of several proactive patrol missions concerning Christmas season thefts in the parking lots and stores of local shopping centers. In early 1979, the patrol "Strike Team" was instituted. Missions conducted by this unit over the years often resulted in larceny arrests especially when operations were conducted in high crime areas.

With one exception, Total Part I arrest rate displayed a pattern similar to larceny. No significant seasonal, linear or higher order trends were found for the baseline series. A significant increase in series level was noted for the full time series as a function of the ICAP dummy variable (ICAPLEV). As with the larceny series, ICAPSLPE did not improve the model, nor was it a better single predictor than ICAPLEV. However, a significant autocorrelation among lag 1 residuals was found (r = .34, d = 1.28). The single variable model was re-estimated using AR(1). The re-estimated model is presented in Exhibit 49. As with larceny, adding a linear trend component to the model as a check procedure proved nonsignificant while ICAP remained significant. Exhibit 47 displays the quarterly plot of Total Part I arrest rate. From the intervention point forward, an increase in the level of the series can be seen although there is considerable arrest rate fluctuation in the post-ICAP phase.

EXHIBIT 49

PSEUDO-GLS ESTIMATES OF
TOTAL PART I ARREST RATE

STOCKTON

Variable	Regression Coefficient	R ² /F
Intercept	.116*	R ² = .17 F(2,82) = 8.49* d-statistic = 2.06
ICAPLEV	.021*	

*p > .05

Although the significant post-ICAP increase in Total Part I arrest rate can be attributed, in part, to the observed increases in larceny and rape arrests rates. (See Exhibit 44), they are insufficient to account for the total magnitude of the change. As with larceny, the post-ICAP increase in arrest rate (averaging between 40 to 80 more arrests per month) is due to higher arrest productivity and not a reduction in number of offenses. Post-ICAP monthly offense level was 26 percent higher than the pre-ICAP level. The lack of change in robbery or burglary arrest rates suggests that ICAP may not play a singular role in this overall increase. To determine the other crime types contributing to the Part I increase, a post hoc analysis of assault and motor vehicle theft arrest rates was conducted.³ Exhibit 50 presents the pre/post ICAP means for these crime types. As indicated in Exhibit 50, the arrest rate for assault increased 45% and the rate for motor vehicle theft increased 33% during the post-ICAP phase. Since neither crime type was a specific ICAP target crime, the role of ICAP in facilitating these increases is difficult to specify.

³These arrest rates were not prepared for or included in the time series analysis since they were not ICAP target crimes.

EXHIBIT 50

MONTHLY ARREST RATE MEANS PRE/POST
ICAP PHASE II START UP (2/79)

Measures	Pre-ICAP (N=49)	Post-ICAP (N=36)	Pre/Post Z Change
Assault	.11 (.03)	.16 (.04)	+45%
Motor Vehicle Theft	.06 (.02)	.08 (.03)	+33%

(SD) = Standard Deviation

Two possible sources of ICAP influence on these other Part I arrest rates might be the Strike Team operations and issuance of the Daily Confidential Bulletin (DCB). The DCB was a document distributed daily to sworn officers containing information on recent crimes, suspects and warrants. As noted in regard to larceny, Strike Team missions occasionally resulted in arrests not directly related to the mission. In addition, a review of Strike Team monthly reports indicated that 35 to 45 percent of their missions were directed towards crimes other than rape, robbery or burglary. The DCB often included items on individuals suspected of, or wanted for, other offense types. In fact, over a two year period, only 35 percent (N=755) of the DCB items dealt with the crimes of rape, robbery and burglary. Fourteen percent of the DCB items were on assault and motor vehicle theft. Arrests were made for 81 percent of these entries. For all DCB entries across all crime types, 70 percent had associated arrests.

While the DCB and Strike Team operations have undoubtedly contributed to the increase in total arrest rate, monthly estimates of their contribution based on departmental documents and reports would, at best, account for only one third to one half of the average monthly increase post-ICAP. In accordance with an initial assumption made about the time series analyses (i.e., that the particular set of activities implemented in a given site would influence a gross impact measure), it might be further assumed that other Stockton project activities also contributed in less specifiable ways. While this may be true, it is not strongly supported by the case level data presented in other sections of this report, and the lack of any significant change in the ICAP project target crimes of rape, robbery and burglary. Other factors may have played an important role in facilitating overall departmental arrest productivity. One plausible alternative event which could account

for the increase independent of, or in conjunction with, ICAP is the change in the size of the patrol force which took place during the latter half of Phase II. During this time, patrol manpower increased about 16 percent over its previous level through officer reassignments and new officer additions.

Discussion

The ultimate or long-term goal of ICAP was to increase apprehensions and deter crime. The time series analyses of Memphis arrest rates failed to provide any support that such a desired impact occurred in that site. In Stockton, there is partial support for some project impact, although considerable caution should be exercised in attributing the increase in arrest rates primarily to ICAP. Ignoring for the moment the multitude of exogenous factors which influenced these outcomes, attention to some between site differences in project activities may aid in interpreting the results.

Perhaps the most essential difference concerns the presence in Stockton of project activities which have a fairly direct connection to the criminal apprehension process (e.g., Strike Team, DCB, patrol missions). In Memphis, the thrust of the project was more towards the management of criminal information and investigations. While these activities can facilitate making of arrests by sworn personnel, they represent a more diffuse support service.

Differences in the operational characteristics of the crime analysis units (CAU) may also be pertinent in interpreting the time series results. Relative to Memphis, Stockton's CAU tended to focus more on the production of analytical reports which identified suspects, areas, or problems to be addressed by patrol or the Strike Team in some proactive fashion. Their links with operational units were fairly well established. The CAU was supported by command staff such that, in response to certain CAU reports, it was required policy that operational units initiate some activity. Memphis, on the other hand, developed a stronger capability to respond to inquiries by detectives for crime and suspect information. To generalize somewhat, Stockton's CAU was organizationally and functionally capable of assisting and/or directing patrol apprehension efforts. Memphis CAU did not develop this capability but instead provided an information service to aid sworn personnel in such areas as case clearance, suspect identification and location of suspect residence.

Many other project differences exist, and even more differences (e.g., departmental size) could be cited if the two departments in which the projects operated were also considered. What influence such differences may have had on the findings of these analyses is extremely difficult to specify. The analytical procedures used in these time series are fairly simplistic. Other time series procedures exist, and more complicated models of crime and

arrest in these sites could be developed.⁴ However, it is quite doubtful that even with the addition of more complex statistical methodology the substantive thrust of the results would change in any notable fashion. Simple inspection of the plots and means would suggest that no clear effect is discernable. Matters of statistical significance and measurement validity aside, the presence of the ICAP project is associated with only marginal improvement in total arrest productivity relative to crime incidence in one of two sites. Data from the process evaluation indicates that some ICAP operations which were present in Stockton, and not present in Memphis, may have contributed to this effect. The case level analysis of ICAP involvement in arrests displayed a similar pattern of results between these two sites (See Exhibits 22 and 30). However, the estimated magnitude of these ICAP effects is limited suggesting that this relationship between ICAP activities and arrest rate is not sufficient to account for all or most of the observed increases in the one site in which they occurred.

⁴Such models were considered but many measures (e.g., calls for service, manpower, community demographics, etc.) were often too grossly aggregated to be meaningfully used in a monthly time series. Other problems of missing data, changes in recording procedures and questionable assumptions about the interrelationships among variables and their lags also existed.

END