If you have issues viewing or accessing this file contact us at NCJRS.gov.

124137

U.S. Department of Justice
Office of Justice Programs
National Institute of Justice

National Institute of Justice / ***Issues and Practices***

Use of Microcomputers in Criminal Justice Agencies

124137

About the National Institute of Justice

The National Institute of Justice is a principal research branch of the U.S. Department of Justice. The Institute's mission is to develop knowledge about crime, its causes and control. Priority is given to policy-relevant research that can yield approaches and information that State and local agencies can use in preventing and reducing crime. The decisions made by criminal justice practitioners and policymakers affect millions of citizens, and crime affects almost all our public institutions and the private sector as well. Targeting resources, assuring their effective allocation, and developing new means of cooperation between the public and private sector are some of the emerging issues in law enforcement and criminal justice that research can help illuminate.

Carrying out the mandate assigned by Congress in the Anti-Drug Abuse Act of 1988, the National Institute of Justice:

- Sponsors research and development to improve and strengthen the criminal justice system and related civil justice aspects, with a balanced program of basic and applied research.
- Evaluates the effectiveness of justice improvement programs and identifies programs that promise to be successful if continued or repeated.
- Tests and demonstrates new and improved approaches to strengthen the justice system, and recommends actions that can be taken by Federal, State, and local governments, private organizations, and individuals to achieve this goal.
- Disseminates information from research, demonstrations, evaluations, and special programs to Federal, State, and local governments, and serves as an international clearinghouse of justice information.
- Trains criminal justice practitioners in research and evaluation findings, and assists practitioners and researchers through fellowships and special seminars.

The Director of the Institute is appointed by the President of the United States, and upon confirmation by the Senate, serves at the President's pleasure. The Director establishes the research and development objectives of the Institute. The Director has final authority to approve grants, contracts, and cooperative agreements, and maintains responsibility for fiscal operations of the Institute. In establishing its research agenda, the Institute is guided by the priorities of the Attorney General and the needs of the criminal justice field. The Institute actively solicits the views of law enforcement, courts, and corrections practitioners as well as the private sector to identify the most critical problems and to plan research that can help resolve them.

James K. Stewart

Director

U.S. Department of Justice
National Institute of Justice
Office of Communication and Research Utilization

Use of Microcomputers in Criminal Justice Agencies

by

J. Thomas McEwen

May 1990

Issues and Practices in Criminal Justice is a publication of the National Institute of Justice. Designed for the criminal justice professional, each *Issues and Practices* report presents the program options and management issues in a topic area, based on a review of research and evaluation findings, operational experience, and expert opinion in the subject. The intent is to provide criminal justice managers and administrators with the information to make informed choices in planning, implementing and improving programs and practice.

Prepared for the National Institute of Justice, U.S. Department of Justice, by Institute for Law and Justice, Inc. under contract number OJP-85-C-006. Points of view or opinions stated in this document are those of the author and do not necessarily represent the offical position or policies of the U.S. Department of Justice.
The author is J. Thomas McEwen of the Institute for Law and Justice, Alexandria, VA.

National Institute of Justice
James K. Stewart
Director

124137

U.S. Department of Justice
National Institute of Justice

This document has been reproduced exactly as received from the person or organization originating it. Points of view or opinions stated in this document are those of the authors and do not necessarily represent the official position or policies of the National Institute of Justice.

Permission to reproduce this [redacted] material has been granted by

Public Domain/OJP/NIJ
U.S. Department of Justice

to the National Criminal Justice Reference Service (NCJRS).

Further reproduction outside of the NCJRS system requires permission of the [redacted] owner.

Program Monitor

Jonathan Budd
National Institute of Justice
Washington, D.C.

The Assistant Attorney General, Office of Justice Programs, coordinates the activities of the following program Offices and Bureaus: National Institute of Justice, Bureau of Justice Statistics, Bureau of Justice Assistance, Office of Juvenile Justice and Delinquency Prevention, and Office of Victims of Crime.

Acknowledgements

To initiate this project, several persons attended a meeting in Alexandria, Virginia, to present their views and experiences with microcomputers in the criminal justice field. In attendance at the meeting were the following:

Police Officer Marc Buslik
Chicago, Illinois, Police Department

Lt. Doug Caperton
Collier County, Florida, Sheriff's Department

Mr. J. David Coldren
Illinois Criminal Justice Information Authority

Lt. James Dillon
Delaware State Police Headquarters

Sgt. Maurice McGough
St. Petersburg, Florida, Police Department

Chief Ray Nash
Summerville, South Carolina, Police Department

Mr. Dave Roberts
SEARCH Group, Inc.

Deputy Chief Gary Wieczorek
Lake Forest, Illinois, Police Department

Topics at the meeting included the role of microcomputers in criminal justice settings, current and future applications, problems with the implementation of microcomputers, and many others. The meeting proved invaluable in laying the groundwork for this report.

Members of the National Institute of Justice (NIJ) also supported this project from its inception. We would like to acknowledge the guidance of Mr. Jonathan Budd, a staff member of NIJ's Research Applications and Training Division, in the development of this report. The project also received support from Ms. Virginia Baldau, Division Director at NIJ, and Mr. Paul Cascarano, Assistant Director.

Table of Contents

Acknowledgements iii

Chapter 1

Microcomputers in Criminal Justice
- Introduction 7
- Classifying Microcomputer Systems 8
- Developers of Microcomputer Systems 12
- Obstacles to the Use of Microcomputers in Criminal Justice Agencies 14

Chapter 2

Database Applications
- Introduction 17
- Microcomputer Assisted Police Analysis and Deployment System (MAPADS) Chicago Police Department 18
- Systems for Small Police Departments 19
- LOCKUP SEARCH Group, Inc. 20
- D.A.'S ASSISTANT SEARCH Group, Inc. 21
- Prosecution Management Support SystemConference of District Attorneys Raleigh, North Carolina 22
- Juvenile Court Docketing and Indexing System Michigan Judicial Data Center 23
- Traffic and District Court Systems Anderson County and Coffey County, Kansas 24
- PROBER-GX National Council on Crime and Delinquency 25
- Summary 25

Chapter 3

Bulletin Board Systems
- Introduction 43
- Law Enforcement Bulletin Boards 43
- Judicial Bulletin Boards 44
- American Correctional Association's ACAnet/CInet 46
- National Criminal Justice Reference Service 46
- Summary 47

Chapter 4

Analysis Applications
Introduction 51
Spatial and Temporal Analysis of Crime 51
Expert Systems 52
IMPACT Projection Model 54
Summary 55

Chapter 5

Conclusions

The Impact of Microcomputers 61
Benefits of Microcomputers for Criminal Justice Agencies 61
Costs of Microcomputers 62

References 63

Appendix A

Database Systems 67
Bulletin Boards 68
Analysis Systems 69

Appendix B

Bulletin Board Numbers 73

Appendix C

Glossary of Terms 77

Chapter 1

Microcomputers in Criminal Justice

Introduction

Ten years ago, a report on microcomputers would have been very short. At that time, there was really only one type of microcomputer available on the market, and it was considered a novelty for computer buffs. However, what started as a novelty quickly turned into a technological boom. By 1983, the Apple Computer Corporation had grown from two individuals working in a garage to an international corporation of four thousand employees with annual sales of four billion dollars.[1]

This early success did not go unnoticed by other computer manufacturers. Within five years, there were at least 20 major manufacturers of microcomputers. A revolution in computing was underway, and it continues unabated today.

The technological change brought about by microcomputers has been an explosion in data processing capabilities coupled with a rapid decline in costs. Extensive data processing capabilities are now affordable. As a result, microcomputers appear today in all aspects of our society, including homes, schools, businesses, and government agencies. Microcomputers are increasingly becoming a part of our everyday life.

This report discusses the emerging role of microcomputer systems in criminal justice agencies. In this chapter, we discuss four types of microcomputers in existence today and several general applications now found in criminal justice agencies. The remaining four chapters discuss specific applications. Chapter 2 is devoted to database management systems, since they are the most visible applications found in criminal justice agencies today. The text defines database management systems and describes seven specific applications. Electronic Bulletin Board Systems (BBSs) are the topic of Chapter 3. These systems have become increasing popular as an alternative for communicating with citizens and exchanging information among criminal justice professionals. In Chapter 4 are descriptions of three advanced applications on microcomputers. The intent in Chapter 4 is to illustrate the ability of microcomputers to perform functions that previously required much larger computers. Microcomputers have provided a means for these applications to become available

Specific Systems Discussed in this Report

- The Microcomputer Assisted Police Analysis and Deployment System (MAPADS) developed by the Chicago Police Department to assist police commanders in allocating resources. It includes information from neighborhood groups on problems in their neighborhoods as well as official crime reports to the department.
- The Prosecutor Management Support System (PMSS) developed by the Conference of Districts Attorneys in North Carolina. The system includes grand jury calendars, case listings, and prosecutor statistics.
- The Supreme Court of South Carolina (SCONC) bulletin board. Callers into the board obtain opinions recently filed in the Supreme Court and Court of appeals, recently decided petitions in the Supreme Court, current Supreme Court Calendar, and other items of interest. Judges in the state may have private communications in a section of the board called "The Judges' Chambers" specifically reserved for them.
- A spatial analysis program developed by the Illinois Criminal Justice Information Authority. The program locates the portion of a given geographic area containing the largest concentration of crimes.
- The PROBER-GX system offered by the National Council on Crime and Delinquency. This system is tailored specifically to the needs of probation agencies.

to state and local agencies. Finally, Chapter 5 presents conclusions on the impact of microcomputers in criminal justice.

The applications described in this report are only a small sample of what exists. Indeed, it would be impossible to describe every type of application now appearing in criminal justice agencies. The objective of our sample is to illustrate what is possible with microcomputers and discuss how various applications have improved agency operations. The report seeks to illustrate the advantages of microcomputers to agencies that may still be unsure of how microcomputers might assist their agencies.

All application software described in this report is "public domain" programs. This means that their development was supported by federal, state, or local funding. The programs are therefore available from appropriate dissemination sources for any interested agency. The designation of "public domain" does not, however, mean that the programs are free of charge. The dissemination sources may charge for their support of the programs and the cost of copying the programs and printing the documentation.

Microcomputer applications are also available from private companies, particularly software development firms. Many of these applications are excellent and should be considered by agencies interested in acquiring software programs for their operations.

The selection of public domain programs for this report is intentional, since our objective is to illustrate how microcomputers can be applied in criminal justice settings. The decision is in no way intended to endorse public domain applications over privately developed programs. Types of systems not discussed in this report are systems for case management, evidence tracking, computer based training, computer aided dispatch, accident and crime scene diagraming, offender sketching, desktop publishing, scheduling, witness notifications, and many others. These are important systems, and their omission from this report is not meant to reduce their significance to criminal justice agencies. Discussing all types of systems would result in an excessively long report. The systems discussed here typify what is possible with microcomputers, but are not an exhaustive listing.

In line with illustrating what is possible with microcomputers, this report includes applications that show promise but are not yet well established. For example, the electronic bulletin boards described in Chapter 3 have proven very beneficial to the agencies that have developed them. However, bulletin boards exist in only a few agencies. They represent an emerging microcomputer application that will probably expand greatly in the coming years.

The expert systems in Chapter 4 are also just starting to gain the interest of criminal justice agencies. Experiments in several police departments, most notably the Baltimore County, Maryland, Police Department, indicate that expert systems can play a significant role in criminal investigations and other applications. However, they require carefully developed databases which evolve and improve with time. Another five years may be necessary before these systems prove their value in actual operations.

Another report listing more microcomputer systems is the Criminal Justice Microcomputer Guide and Software Catalogue developed by SEARCH Group, Inc., under a grant from the Bureau of Justice Statistics.[2] The catalogue includes a detailed discussion of basic microcomputer components, operating system options, and selection of microcomputer systems. Over 150 application programs are listed in the catalogue. A related publication specifically devoted to court systems is the Automated Court Management Information Systems Directory: Reference Manual, published by the Bureau of Justice Assistance. This publication includes descriptions of over 1,800 court management systems, some of which are microcomputer systems.

Classifying Microcomputer Systems

For the purposes of this report, we have defined four "levels" of microcomputers:[3]

- Microprocessor Boards
- Limited Microcomputers
- Stand-alone Microcomputers (sometimes called Personal Computers or "PCs")
- Local Area Networks

The levels represent increasing capabilities, which are limited with microprocessor boards and extensive with local area networks. Costs also increase from less than one hundred dollars for some microprocessor boards to several thousand dollars for local area networks. As described in the follow-

ing sections, the microcomputers at each level have their own unique applications.

Microprocessor Boards

Every microcomputer contains tiny electronic components called integrated circuits, popularly called chips. Each chip contains fabricated electronic circuits, packed into black plastic rectangles about 1 inch long and 1/4-inch wide. To the casual observer, each of these chips look pretty much the same. A closer look shows that each chip is different, depending on the function it performs.

The microprocessor is the most important chip. As the "brain" of the microcomputer, it evaluates and executes every instruction given by the computer's software. The rest of the chips support the microprocessor. Microprocessors are designated by their numbers, such as the 68000 chip, the 8088 chip, or the 80386 chip.

Microprocessor boards are single application microcomputers based on chips with limited memory and associated logic circuits. These boards do not incorporate a keyboard. Instead, input data typically comes from sensors and other circuits, while output is in the form of either electronic signals, a graphic display, or sets of instructions to some other device (usually another computer). In the criminal justice field, applications of microprocessor boards include the following:

- Equipment Monitoring
  - Security Alarm Sensors
- Automated Instrumentation
  - Crime Laboratory Equipment
  - Radar Instruments
- Data Processing and Entry
  - Voiceprint Conversion
  - Analog-Digital Conversion
- Communications Interface/Conversion
  - Telecommunications Linkages
  - Terminal-to-Computer Interfaces

As an example, most crime laboratory instruments include microprocessor boards. These instruments analyze drugs, alcohol, paints, dyes, stains, inks, explosives, and other materials from crime scenes. The board may provide the results of the analysis in a digital display or as a printed report that includes graphical displays.

The full range of applications for this level of microcomputer are too numerous to discuss here. Microprocessor boards are accepted as normal components of devices and sometimes are not even considered microcomputers. However, it is important to identify them as a group to differentiate their capabilities from other types of microcomputers.

Limited Microcomputers

Limited microcomputers are the next step upward in complexity and capability. They include handheld, "laptop," and portable microcomputers with the following minimal characteristics:

- 32,768 (32K) to 131,072 (128K) bytes of memory
- Keyboard for entering messages or information
- Display monitor

A limited microcomputer may also include a diskette drive, hard disk, and read-only memory for retrieving data and programs. Many come with modems to communicate with other computers.

The St. Petersburg, Florida, Police Department is the forerunner in applications for "laptop or notebook size" microcomputers. Every officer in patrol operations now has a portable microcomputer for preparing reports while on patrol. Each portable has 64,000 bytes of memory, a full keyboard, and a 320-character display monitor (8 lines of 40 characters each). A program included with the computer prompts officers for all the information required to complete an offense report. Data verification is performed as information is entered. Completed reports are transmitted to a central microcomputer through a cellular phone in the car or any other available telephone. Alternatively, the officer can come to headquarters and connect the portable microcomputer to the central computer.

Officers in St. Petersburg receive an eight-hour training course on how to write reports with their portable computers. The result is that officers spend less time creating better reports. Other applications have been added to the system, including an automated surveillance notebook and a typing tutor.

Other sections in the police department also have portable computers, with a total of over 500 portable computers now assigned to department personnel. Personnel in the investigative operations (criminal investigation, vice and narcotics, youth

services, and intelligence), services bureau (training/research, communications, and records), community awareness, and legal liaison are included in this total.

Interest in portable microcomputers has increased as a result of these efforts. The St. Petersburg, Florida, Police Department has taken the lead in the development of applications with portable microcomputers. It is estimated that over 50 other police departments now have portable microcomputers in their patrol operations. Further, both the Los Angeles, California, and Toronto, Canada, Police Departments have started pilot tests with portables. The Chicago Police Department has been testing the use of portable computers in conjunction with a computer aided dispatch (CAD) system. The intent of the department is to incorporate portable terminals in their CAD system within the next three years. Primary applications will be report generation and access to selected databases (e.g., name checks).

Parking ticket systems are another example of the use of portable microcomputers. These systems are small hand-held computers usually weighing less than three pounds. They have a limited keyboard for recording data items such as the date, time, and license number. One system on the market contains 175 ticket forms, allowing immediate issuance of the tickets. Other systems require the printer to be available in the patrol car for printing the tickets.

In more advanced parking ticket systems, information on stolen vehicles and scofflaw lists are loaded daily into the portable computer. As data for a parking violation is entered, the computer checks the license number against its memory and lets the officer know if it finds a match.

Stand-Alone Microcomputers

The third level of microcomputers includes self-contained or "stand-alone" microcomputers. These are capable of complete applications on their own, and may also communicate with other levels of microcomputers and with mainframe computers. However, their primary purpose is to perform a variety of functions independent of other systems.

A stand-alone microcomputer usually will have the following features:

- 64,000 to 2,000,000 bytes of memory
- 1 or 2 floppy disks
- Hard Disk with 20 to 320 megabytes of storage
- Monochrome or color monitor
- Dot matrix or laser printer

"Personal computer" is another common term for this type of system. The terminology "stand-alone microcomputer" was selected for this report to emphasize the independence of the systems.

In addition, a stand-alone microcomputer may include other items:

- Modem for communicating with other systems
- "Mouse" to control the screen cursor
- Math co-processor to speed arithmetic operations.

This description highlights one of the problems in defining microcomputers. As the capabilities of microcomputers have expanded and increased in speed, the term "micro" has become misleading. Today's microcomputers have many of the same capabilities as yesterday's mainframe computers. Further, applications exist on microcomputers today that required mainframe computers in the past.[4]

Stand-alone microcomputers are the most visible type of computers found in criminal justice agencies. It is safe to say that the majority of criminal justice agencies have at least one stand-alone system in their operations. They have become more popular as prices have decreased and capabilities have increased.

Criminal justice applications on stand-alone microcomputers are extensive. However, the bulk of the applications can be classified into the following general categories:

- Word processing (e.g., typing letters, memos, etc.)
- Spreadsheet applications (e.g., budget preparation)
- Database applications (e.g., records management)
- Advanced analysis applications (e.g., statistical analysis).

Word processing is probably the most popular application of stand-alone microcomputers. Some of the most common word processing programs are WordPerfect, WordStar, Microsoft Word, MultiMate, and Volkswriter. Features commonly found

in these programs include automatic hyphenation, spelling checks, numerous font choices, and automatic searches with replacements.

Criminal justice agencies continue to be "paper intensive," and word processing fits well into generating the reports completed by police, prosecutors, courts, probation, parole, and other agencies. The time savings attributed to word processing is obviously enormous. Further, accuracy and report quality have improved as word processing programs have expanded their capabilities. Word processing has changed the way in which agencies prepare their letters and reports.

Spreadsheet applications are also popular in many criminal justice agencies. A spreadsheet program is in many ways a word processor for numbers. It models an accountant's ledger sheet by dividing the screen into rows and columns. Numbers can be inserted into any of the individual cells defined by the rows and columns. Unlike a word processor, the user can then operate on the numbers. For example, a row of numbers can be added to obtain a total, or two columns can be multiplied together to form a third column. Further, the "worksheet" can be stored on the hard disk for later retrieval.

Budget preparation is a typical use of a spreadsheet program. The budget figures can be entered into a column of the spreadsheet, then added to obtain a total. The real value of spreadsheets is that any time a number in the column is changed, the total automatically changes. The user can instantaneously see the effect on the total.

The Los Angeles Police Department offers several excellent examples of spreadsheet applications. Recognizing the potential of spreadsheets, its Department of Information Services developed a training manual to instruct department personnel on how to use a spreadsheet. The training manual covers getting started with a spreadsheet, entering and editing data, defining totals, and saving and printing a worksheet. It also has several practice exercises. Operational units within the department have developed several spreadsheet applications.

Database applications are another major type of application found on stand-alone microcomputers. Database management systems allow a user to capture information on virtually any type of record. Popular database applications found during this study included crime reports in police departments, case information for prosecutors and courts, inmate information for jails, and client data for probation and parole agencies.

Based on the results of this study, we believe that database applications have had a significant effect on the operations of many criminal justice agencies. For this reason, Chapter 2 is completely devoted to this subject. The chapter starts with a description of database management systems and is followed by several examples. Included are applications for crime analysis, jail inmate tracking, court docketing, probation case management, and others. The examples were selected because the database systems had an impact on how the criminal justice agency operates.

The final category for stand-alone microcomputers is called analysis applications. These applications require the capabilities of a computer. That is, they are virtually impossible to perform manually either because of the difficulty of the problem or the amount of time required.

A Sampling of Spreadsheet Applications

- The Vehicle Resources Spreadsheet automatically calculates the miles driven for vehicles in the department and produces reports for fleet maintenance.
- The Deployment Guide Spreadsheet tracks officer assignments and produces totals on the number of officer days available compared to expected workload.
- The Detectives Activities Summary Spreadsheet allows entry of the number of cases assigned by type and the number of arrests made during the month. The spreadsheet then produces a summary report of monthly activity.
- The Traffic Summary Spreadsheet shows traffic accident statistics by geographic area and type of accident (injury, hit and run, pedestrian, etc.). The spreadsheet includes totals from the previous year and calculates the percentage change.

Chapter 4 describes three examples of analysis applications. Included are time series and geographic analysis programs for crimes, an "expert system" for residential burglaries, and a projection program for prison populations. They emphasize the point that microcomputers now perform applications that previously required larger computers. While these applications are not as prevalent as other types of applications, they serve an important role in criminal justice agencies. More applications of this type can be expected in the future.

Local Area Networks

The final level of microcomputer systems is actually a network of connected stand-alone microcomputers. One microcomputer is the "file server" or host, with the other microcomputers connected to it. A Local Area Network (LAN) program links the microcomputers, and programs, data, and peripheral devices are shared by all users.

In Chapter 2, we describe a LAN system in a district court in Kansas. It consists of a file server microcomputer with five stand-alone microcomputers connected to it. The court files in the file server are accessible by any of the five microcomputers. In this way, one user can update a record, and other users can retrieve the record to see the result. From a user's perspective, the files are part of their own system.

Developers of Microcomputer Systems

Important lessons can be derived from examining who is developing these microcomputer systems in criminal justice agencies. The developers fit into the following categories:

- Individuals Within Criminal Justice Agencies
- Membership Associations
- State and Local Agencies
- Private Companies

Each of these groups is discussed in the following sections, along with the advantages and disadvantages of each approach.

Individuals Within Criminal Justice Agencies

The expertise of agency personnel has increased as microcomputers have been introduced into the agencies. There are numerous examples where an employee became personally interested in microcomputers and took the initiative to develop a system for the agency. Sometimes the person's interest starts with a home computer and extends to the work environment. The individuals who develop these systems may be operational or management personnel. Chapter 2 contains examples of database applications developed by a patrol officer, a police chief, and a judge.

The applications developed by employees are usually small at first, but increase in size and complexity. For example, simple calculations in a spreadsheet are quickly defined. However, spreadsheets have their own programming "language," and can include macros, user prompts, and menus.

The primary advantage of employee-developed systems is that individuals within an agency already have a working knowledge of agency operations. They also bring a high degree of commitment to the development of their systems. If someone is hired from outside the agency, an employee must explain all the procedures of the agency before the system is developed. Even then, details are omitted that prove important later.

There are also disadvantages to this approach. A common problem is that the developer is transferred to another part of the agency. The expertise leaves one section and goes to another. In the worst case, the system becomes dormant because no one else knows how to use it. Further, if the system fails to operate, no one knows how to correct it.

A related problem is that many systems are not documented by the developer. While the need for a user's manual may appear obvious, it is surprising how often a manual does not exist. Other documentation should include record layouts, technical documentation, and program listings. If no documentation exists, it is even more likely that the system will not be used after the developer leaves.

Not all agencies are fortunate enough to have individuals with the talent and interest to develop systems. In these instances, the agencies can turn to outside sources for systems. The other three types of development fall into this category.

Membership Associations

Many associations have developed microcomputer systems to support the functions of their membership. These associations may be local, state, or national in scope. For example, SEARCH Group, Inc. in Sacramento, California, has states as its primary members. The Criminal Justice Statistics

Association (CJSA) was initially an association of state Statistical Analysis Center directors. It has expanded to include police, court, and juvenile planners; corrections researchers; and legislative analysts. Both associations offer a variety of services to their memberships including policy analysis, training, technical assistance, and development of computer programs.

SEARCH Group has developed several microcomputer systems, including the LOCKUP system for jail administration and the D.A.'S ASSISTANT program for support in a prosecutor's office. CJSA offers the IMPACT program for projecting prison populations. These systems are discussed further in this report.

Criminal justice membership associations have several advantages for development and support of microcomputer programs. They have full-time employees with backgrounds in the criminal justice field. Consequently, they are familiar with the problems and needs of local criminal justice agencies. In addition, it is usually easy for them to offer training courses on the applications. For its IMPACT system, CJSA offers short training courses each year to provide hands-on experience with the program.

A disadvantage of using systems developed by associations is that a staff member may not be immediately available to handle problems with a system. Most associations have a central headquarters where all the supporting staff work. To overcome the distance problem, they may offer telephone assistance to work through a problem at a local site. In many instances, this approach resolves the problem, but extensive problems will require the user to send details of the problem to the association for closer review.

Another problem is that associations have turnover in personnel just like individual agencies. The loss of a key programmer can have a devastating impact on the support of a particular application. In general, these associations try to have more than one person knowledgeable about an application to ensure continuity of support.

State and Local Agencies

Another impetus for system development has come from agencies within a state structure or a local jurisdiction.

The Illinois Criminal Justice Information Authority is an excellent example of this approach. The Authority is a governmental body made up of state and local criminal justice officials, representatives of the public, and a full-time professional staff. Its 15-member board includes criminal justice officials and experts from the private sector.

The Authority's staff performs a variety of functions in support of criminal justice agencies in the state. These functions include analysis of crime trends, training, technical assistance, and development and operation of automated information systems.

These systems are mixtures of mainframe and microcomputer systems. PIMS is a real-time system that operates from a minicomputer. Police departments access PIMS from terminals in their departments. In some instances, microcomputers serve as the terminals for accessing the system. The RAPS system was initially a mainframe application, but a microcomputer version is now available.

For several years, the Authority staff has also conducted research in crime analysis. In particular, staff members have pioneered the application of time series analysis and geographic analysis to crime incidents. Federal funding has supported these research efforts.

With the improvements in microcomputers, these crime analysis tools are now available from the Authority. As discussed in Chapter 4, two major software programs are now available. One performs time series analysis to identify trends in the increases and decreases of crimes. The other identifies geographic patterns of crimes. Both programs have received wide distribution within Illinois and to agencies and research organizations in other states.

At the local level, there are many examples of microcomputer support from the city or county data processing section. In some jurisdictions, a microcomputer support section is established for the specific purpose of developing applications for local agencies. This section works with agencies throughout the jurisdiction in the development of microcomputer systems. The support section may completely develop an application, or it may serve as a technical advisor in assisting agency personnel on an application. In addition, training may be provided by this section.

These state and local agencies have many of the same advantages and disadvantages as associations. For example, many of the Authority staff personnel have experience in the criminal justice field. They

The Authority Supports Several Computer Systems

- The Police Information Management System (PIMS) automates the collection and maintenance of police records. It also links users to other state and national law enforcement computer systems.
- The Rapid Automated Prosecution System (RAPS) is aimed at meeting the information management needs of a prosecutor's office. It gives information on cases from arrest through appeal.
- The Correctional Institution Management Information System (CIMIS) maintains information about inmates at state prisons and local jails. It supports the logistics of moving inmates to court and work assignments.

bring an understanding of agency operations to the development of an application. They also are able to provide good support for agencies when problems arise with an application. Turnover of key personnel is a disadvantage of this approach with state and local agencies.

Private Companies

Many private companies provide software for criminal justice applications. The programs tend to be complex applications requiring extensive development time. The companies are willing to invest in development with the anticipation of recovering their costs through sales.

Software from private companies exists for virtually all major applications in criminal justice. For example, several crime analysis systems are available for police departments. Many of these are actually records management systems that handle all types of records in police departments. Crime analysis is one of many applications in the system. Other software available for police departments includes computer aided dispatch systems, traffic accident analysis, investigative management information systems, fleet management systems, intelligence systems for narcotics operations, and many others.

There are also several management information systems for prosecutors' offices and courts. These systems track cases from initial entry into the office until final disposition.

State and local agencies frequently purchase a system by issuing a request for proposals from prospective companies. The request for proposals will specify the requirements and ask companies to respond with descriptions of what they have to offer. In some instances, the request is for the programming services of a private company to develop a system tailored to the needs of the requesting agency. Companies respond with proposals that outline their approach to the project and anticipated costs.

Obtaining a program from a private company has several advantages. One advantage is that software from private companies tends to be error free. If other agencies have used the software, any errors have probably been corrected. Another advantage is that private companies are usually responsive to problems that arise from their products. Future sales depend on the satisfaction of clients. A private company will usually designate an account representative to handle any problems occurring at a given installation.

There are also disadvantages to private companies. For example, many companies offer "canned" programs for a particular application. Modifications to fit local practices are impossible with canned programs, which means that the company is the only source for changes and additions to the programs.

Another problem with private companies is that they may stop supporting a particular product. If a system does not result in a sufficiently high volume of sales, the company may decide that the system is not going to be profitable. Support for the system then declines substantially.

In an extreme case, a private company may go out of business. In these instances, all customers are on their own in solving any problems with the systems purchased from the company.

Obstacles to the Use of Microcomputers in Criminal Justice Agencies

Applications will continue to be developed on microcomputers for criminal justice agencies. As

with many other facets of society, agencies are starting to accept microcomputers as necessary components of their operations.

While the future for microcomputers is favorable, there are still several obstacles that agencies are likely to face in the future. One is resistance to microcomputers by the top management. Some management personnel oppose the introduction of automation into their agency because it changes the manner in which the agency accomplishes its work. Overcoming this problem may occur in two ways. One is the acceptance of microcomputers by other agencies. Leaders of organizations like to keep up with their peers, and if one agency introduces an innovation, others may follow. Second, enterprising individuals within an agency may develop applications that illustrate the advantages of microcomputers to the organization. These applications may come to the attention of the management. Recognition of an improvement in operations provides the impetus for developing other systems.

When microcomputers were first introduced into local agencies, there was considerable opposition from many centralized data processing departments. These departments believed that they needed to have strong control over all processing of data. Control of the systems was usually the issue rather than opposition to the particular applications. It is certainly true that microcomputers result in the decentralization of data processing. Agencies no longer have to depend on a centralized data processing department to analyze data and produce reports. The independence was welcomed in criminal justice agencies where centralized data processing operations had ignored their needs.

As microcomputers have proliferated, the opposition of data processing departments has decreased. Indeed, the trend is toward the integration of microcomputer systems with mainframe computers. A primary goal of integration is the sharing of data and programs. With this approach, agencies retain their independence for developing their own systems while making the data available for the benefit of the entire jurisdiction.

One of the prices of independence, compared to centralized data processing, is the change in responsibility for data security. With centralized data processing, data security is easier since fewer computer systems are involved and a limited number of security procedures have to be established. Decentralization with microcomputers shifts the responsibility of data security closer to the end users. More persons may be able to access the data without passing security checks and generally no electronic log exists on who has accessed the system. Users of microcomputer systems must pay particular attention to the security of the data on their systems.

Sharing information among agencies also poses problems with decentralized microcomputer operations. For example, two neighboring police departments may both collect intelligence information on drug dealers. Similarly, crime statistics from a police department's microcomputer may be of interest to a community group or another municipal agency. To share information, there must first be an awareness of what information is located on each microcomputer in the system. Then there must be a concerted effort to make the information available in printed or machine readable form.

The lack of standards among database systems represents a technical problem in sharing information. For example, different database packages have different internal mechanisms for storing data. In general, one package cannot directly read a database file created by a different package. Overcoming this problem requires the purchase of another program to translate databases from one format to another. Alternatively, the database from one system can be "exported" to create a file that is "imported" by another system.[5]

Mainframe systems have similar types of compatibility problems. For example, several companies have developed Automated Fingerprint Information Systems (AFIS) for coding, storing, and searching fingerprints. The different technical approaches for digitizing fingerprints have created compatibility problems. A particular problem occurs when a state agency has one type of AFIS system while local agencies have another system. Under this circumstance, there is no way to search one system with the digitized fingerprints from the other system.

A final problem for criminal justice agencies is finding the expertise to develop and operate microcomputer systems. The alternatives for development of systems, discussed previously in this section, will probably continue as the main sources for criminal justice agencies. Some agencies will be fortunate enough to find good expertise within their agencies while others will obtain systems from outside sources. The advantages and

disadvantages of the various approaches will continue to hold in the future.

Finding personnel to operate microcomputer systems is a growing problem in criminal justice agencies. Personnel need training in all types of applications—word processing, spreadsheets, databases, and specialized systems. Two difficulties are arising. First, these positions are sometimes difficult to fill since they require more skills than most clerical and secretarial positions. Second, turnover in these positions may increase since their learned skills are beneficial to other agencies and private companies. Continual recruitment and training are the keys to addressing the personnel problems. An agency must plan for the turnover that is likely to happen in these positions. Searching for qualified personnel should occur on a regular basis to insure that vacant positions are filled quickly with minimal disruption to operations. Further, the agency should take steps to provide the necessary training programs for these systems. Some training may be internal from other qualified personnel. Outside training courses may also be useful.[6]

As the capabilities of microcomputers continue to increase, more criminal justice agencies can be expected to use them. In the future, we will see an expansion of current applications and the introduction of new applications. As indicated above, there are likely to be problems associated with the introduction of these applications. To enjoy the benefits of microcomputers, agencies will have to make concerted efforts to integrate these applications into their agencies and retain the staff necessary for their support.

Chapter 2

Database Applications

Introduction

Database management systems provide for easy capture, retrieval, and reporting of information. They can maintain information on records of any type, and they can edit, sort, merge, and retrieve the information based upon given criteria. In an application for prosecutors' offices, described later in this chapter, the database system contains information on all cases, including victims, defendants, witnesses, charges, bonds/bail, sentences, and court events. With database systems, the information on individual cases is easily retrievable. Management reports summarizing all cases are also available on demand.

Like index cards in a file, records are divided into *fields*, each of which contains a particular piece of data. Examples of fields are items such as a date, a last name, or a case number. The records in a database for crimes are the individual offenses; the fields include type of offense, address, time, names of victims, and other descriptive information.

One source describes a database system as the electronic equivalent of a perfect research assistant and file clerk.[7] A prosecutor could, for example, ask the system to provide all the cases with "Smith" as the defendant's name. Alternatively, a prosecutor could ask for all cases scheduled for court on a given date. Retrieving information in a rapid and accurate manner represents the primary advantage of these database management systems.

Popular database management systems on the market today include DBase, RBase, Condor, DataFlex, Clarion, Paradox, Reflex, Excel, and Advanced Revelation. These systems have been in existence for many years and are now available for many types of microcomputers. While these systems vary in how tasks get accomplished, the same functions appear in most systems:

- Data entry and editing of records.
- Retrieval of records based on criteria provided by the user.
- Sorting of records in the order specified by the user.
- Report definition and generation according to the format given by the user.

For data entry, most systems allow the user to define a form on the screen reflecting the data fields. The screen form usually mirrors the format of the source document. Data entry starts by keying information from a written report to the screen form. The system then accepts and stores the information as a record in the database file.

Editing data is another important feature of database systems. With most systems, editing occurs by matching fields against lists of acceptable codes for the fields. For example, the type of offense from a crime report is compared to a list of allowable offense codes provided by the user. If the offense code is not in the list, the system displays an error message. Corrections occur at this point before the data becomes a part of the database file. Editing fields in this manner has become a standard procedure with database systems.

The power of database systems comes into play with the retrieval of records. In a crime file, for example, a display of all robberies during November can be requested. To narrow the list, the user can ask for only the robberies that occurred between 3 p.m. and 7 p.m. These records are then reviewed by scrolling through the screen or printing a report. Retrieval of records in this manner is usually rapid, requiring only a few seconds.

The ability of database systems to sort records in a particular order is another important database function. The sequence in which records are entered into the system is not important, since the program's sort capabilities can arrange the records in whatever order desired. Extending the above example, robberies could be listed in date and time order. In another request, the list could be by address or by some other field in the record. Arranging data in different ways in a rapid fashion is an obvious advantage of computer database systems over manual systems.

Reports are the final important feature of database systems. The types of reports range from listings of

records showing selected fields to statistical reports showing averages and other information. For an application, standard output reports are defined by the user and produced on demand. To develop standard reports, the user tells the system which fields to include in a listing and how the records are to be sorted for the report. The system then produces the report under the specifications provided by the user.

The remainder of this chapter provides examples of database applications in criminal justice. Individuals within various criminal justice agencies accounted for the development of most of these system discussed. The National Institute of Justice and the Bureau of Justice Assistance provided support for the development of some of these systems. Regardless of the development process, integration into agency operations is a common feature of all these systems.

The following is a list of the systems discussed in this chapter:

- Microcomputer Assisted Police Analysis and Deployment System (MAPADS)
  Chicago Police Department
- Systems for Small Police Departments
  - Summerville, South Carolina
  - Eaton, Ohio
  - Winter Park, Florida
- LOCKUP
  SEARCH Group, Inc.
- D.A.'S ASSISTANT
  SEARCH Group, Inc.
- Prosecution Management Support System
  Conference of District Attorneys
  Raleigh, North Carolina
- Juvenile Court Docketing and Indexing System
  Michigan Judicial Data Center
- Criminal, Civil, and Traffic Court Systems
  Anderson County and Coffey County, Kansas
- PROBER-GX
  National Council on Crime and Delinquency

Appendix B contains a list of contact names and addresses for these applications.

These systems are representative of the types of microcomputer applications for criminal justice agencies. The list is obviously not all-inclusive, since many other agencies have excellent systems to support their operations. The intent is to illustrate the use of microcomputers in criminal justice agencies and provide illustrations of their successful application. The discussions include examples of input screens and selected output reports.

Microcomputer Assisted Police Analysis and Deployment System (MAPADS) Chicago Police Department

Supported by funding from the National Institute of Justice, the Chicago Police Department has developed the Microcomputer Assisted Police Analysis and Deployment System (MAPADS), a system specific to the crime analysis needs of law enforcement. The primary objective of MAPADS is to provide automated support to police commanders in allocating resources. MAPADS integrates an incident database with an analysis capability to produce automated "pin-maps."

To accomplish its objective, MAPADS has the following features:[8]

- MAPADS uses graphic display and mapping software, coupled with statistical and numerical analysis software.
- MAPADS permits sophisticated database manipulations.
- MAPADS provides a source for intelligence in areas that are normally weak.
- MAPADS generates more palatable intelligence in the form of maps, charts, and summaries.
- MAPADS makes reports and analyses customized in response to local administrative and operational concerns.
- MAPADS addresses perceptions of crime, as well as actualities through community level input and feedback.

Under the grant terms, the 25th Police District served as the test area for MAPADS. The district is 10 square miles and contains approximately 170,000 residents. In 1987, it had 296 sworn personnel. During the year, they handled 116,000 calls for service, including approximately 14,000 Part I crimes.

There were two information sources during the test. First, patrol officers provided their incident reports

for entry into the system. Information from these reports included the type of offense, date, time, and other related data. Second, the Chicago Alliance for Neighborhood Safety (CANS) provided information on "incivilities," which are incidents not normally requiring police intervention but representing causes for concern in the community. CANS provides data on many community concerns, including gang and narcotics activities. The community knows these problems, and the project provided a mechanism to relay the information to the police.

Other organizations that participated in the project included the Center for Research in Law and Justice at the University of Illinois at Chicago and the Center for Urban Affairs and Policy Research at Northwestern University. The University of Illinois researched the relationship between officially reported criminal incidents and the more complete description of community concerns reflected in MAPADS. It also worked directly with the Detective Division to create an investigative component to MAPADS. Northwestern University worked on software evaluation and development for the project. Its interests originated from prior research on the fear of crime in communities.

MAPADS determines target areas for "community based/problem oriented policing" in the district. With the computer-generated data in incidents, incivilities, and community problems, the system produces a complete and accurate picture of community problems. Daily incident listings provide information on criminal incidents (Exhibit 2-1 shows a report provided to citizens). In addition, weekly reports show incidents for each of the district's twelve beats. Accompanying maps indicate serious crimes occurring on each beat (Exhibit 2-2). Field officers place these maps into their notebooks for easy graphic reference.

Exhibit 2-3 shows a combination of official incident reports and CANS data. The oblong shaded area along West Lemoyne Street highlights a narcotics hot spot. A pattern of burglaries emerges around the hot spot. District commanders used this information to reduce burglaries in the beat and eliminate the narcotics activities.

Another successful application came as detectives tracked offenses within a five-district area. MAPADS identified a pattern of taxicab robberies, and field officers received the information. A short time later, a district patrol officer observed that the suspicious activities of a group of individuals matched the pattern. The officers made arrests at this time. Victims later identified the individuals and charges were placed against the individuals for all the robberies identified by MAPADS.

Four primary benefits of MAPADS have been identified:[9]

- MAPADS has provided local police managers with a proactive decisionmaking tool.
- General patrol deployment and specific patrol assignments have improved through the preparation and analysis of maps and reports from MAPADS.
- MAPADS has enhanced investigative crime analysis through the graphic representation of the maps.
- Police/community relations have improved by creating a channel of communications.

In summary, the MAPADS provides a good example of merging a microcomputer application into the decisionmaking of a police organization. By having the system available in the district, information from citizen groups became available. The system is now part of a permanent change in the performance of policing in this district.

Systems for Small Police Departments

Small agencies may be the largest group of beneficiaries of the advent of microcomputers. The lower cost of microcomputers has allowed them to enter into automation. The following paragraphs describe the experiences of three small police departments. In two of the departments (Summerville, South Carolina, and Winter Park, Florida), key personnel within the departments developed the systems. In the Eaton, Ohio, Police Department, commercial software was purchased and then modified by department personnel to fit their operations.

Summerville, South Carolina, is a small community of 18,000 population located 20 miles from Charleston. The chief of the 30-member police department previously worked for the Institute of Police Technology & Management (IPTM), which provides training courses and software systems for law enforcement applications.

His objective in Summerville was to develop a unified microcomputer system to handle all the department's functions. The primary functions in-

cluded arrest reporting, crime analysis, fleet management, and budget control. Toward this aim, the chief purchased a database system with which he was familiar from his experience at IPTM. The department then started to develop a system that its records clerk, who had minimal computer background, could understand and use.

The resulting system has four interrelated files:

- Incident File
- Name File
- Arrest File
- UCR File

As seen in Exhibit 2-4, a Master Data Entry Menu provides several options for entering and editing data for these files. The bottom portion of the exhibit shows the Master Data Entry Screen.

In addition to these files, the system also tracks the department's budget and provides fleet management information. The chief developed all the applications and trained members of the department to use the system.

The system provides several standard output reports on a daily, weekly, and monthly basis. In addition, personnel in the department can develop their own ad hoc reports. According to the chief,

> The system's ad hoc report capabilities allow us to analyze information quickly from a variety of perspectives. That's essential because our environment is very dynamic and requires us to adapt quickly to changing circumstances.

Even in small departments, there is a need to be able to respond quickly with information on a variety of questions that arise. The introduction of microcomputers has provided a means for this agency to respond to new situations.

In Winter Park, Florida, a community of 23,000 persons, the police department has developed a "DB-FILE Case Management System" to assist the detective bureau. It is a menu-driven system that includes the following choices:

1. New Case Assignment Menu
2. Detective Name Menu
3. Detective Suspect Menu
4. Case File Menu
5. Staff Menu
6. Crime Codes Menu

With this system, the user can enter new cases, correct case records, produce reports, assign crime codes, and check the status of cases. Detectives were the first users of the system, but the chief has commented on the expansion of the system to other sections:

> The entire department uses the system, including Records, Emergency Communications and the Detective Bureau. Most of our staff have only a basic acquaintance with computers, although certain people are skilled in the database and DOS.[10]

The Police Department in Eaton, Ohio, (population 7,000) has obtained several systems from the Institute for Police Technology and Management. Included in their system are databases for incidents, arrest reports, employee shift data, evidence inventory, vehicle maintenance, warrants, accident data, expenditures, crime data, and gun registration files. IPTM did the initial installations, which included a week of training on the applications.

Before the purchase of these systems, no one in the department had much experience with microcomputers. However, the officer in charge of the system became very familiar with it. He modified the system to fit the department's procedures, and also designed both a warrants application and a night reference directory.

LOCKUP
SEARCH Group, Inc.

LOCKUP is an automated jail management system developed by SEARCH Group, Inc. with funding provided by the National Institute of Justice. The *Executive Summary* for LOCKUP states that its primary function is to "provide jails with a tool to improve the quality of information maintained on inmate populations and facility status."[11]

LOCKUP computerizes all jail recordkeeping activities from inmate booking to release. Updates of records occur at any time based on additional information and the movement of inmates. Operators of the system can retrieve information on any person entered into the system. Further, several jail management reports are produced by the system on demand. An ad hoc report capability in the system also allows users to define special reports.

Initial tests of the LOCKUP system were in the Dickson, North Dakota, jail (average daily popula-

tion of 35) and a sheriff's office in Hanford, California (average jail population of 342). Hanford personnel estimated that LOCKUP's booking and release reports saved officers 14 to 35 hours each week.[12] As noted by Hanford jail personnel, LOCKUP's rebooking process allows officers to retrieve exiting personnel and medical information rather than having to reenter the data. Further, the Hanford personnel customized their system to print data gathered in the booking stage on the fingerprint card.

LOCKUP can operate in either a single user or multiuser environment. As a menu driven system (Exhibit 2-5 shows the System Menu), knowledge of operating system commands and program names become unnecessary. Even inexperienced operators have been able to operate the system with a minimum of training.

The LOCKUP system is now operating in 13 agencies. It has proven to be a successful system for small and medium-sized jails as the focal point for recordkeeping.

D.A.'s ASSISTANT
SEARCH Group, Inc.

D.A.'S ASSISTANT is another database system developed by SEARCH Group, Inc. The Bureau of Justice Assistance provided funding for D.A.'S ASSISTANT. The system maintains information for prosecutors on all cases, including defendants, charges, bonds/bail, sentences, court events, victims, and witnesses.[13] D.A.'S ASSISTANT tracks cases from the first report to the prosecutor through final disposition. At any time, information from cases can be merged with a word processor into predesigned forms to produce letters and legal documents.

The experiences in Missouri offer an excellent case study on the implementation of this microcomputer system. The Information Systems Division, Missouri State Highway Patrol, pioneered the state's efforts to develop standard systems for prosecutors. For medium and large offices, the Division developed a minicomputer system, called the Missouri Office of Prosecution Services Integrated

Primary Functions of LOCKUP

- Booking —Information entered during the booking process includes personal data (such as physical description and address); arrest data (arresting agency, officer, and cell assignment); medical data (brief medical assessment and emergency contact person); property data (personal property and vehicles); and charge data (charge description, bail amount, and charge disposition). Exhibit 2-6 shows the Booking Screen. The system automatically assigns booking numbers at the start of the process.A booking sheet is automatically printed at the end.
- Data Modification —The operator can edit and modify all booking information.
- Searching —Records in the system are searched by either the booking number or by name. Name (full or partial) searches optionally include sex, race, and date of birth to narrow the amount of output. The operator then views the complete arrest information.
- Classification — Factors that influence an inmate's housing classification are entered through a series of questions and a point scale. Information on segregation factors (e.g., suicide risk, communicable diseases, physical handicaps) and length of stay can also be entered. The Classification Decision section of the system then recommends assignments for inmate housing.
- Release —If a release is authorized, the system prints a release sheet along with the inmate's cell movement log, cash transaction log, and visitor and phone log. The LOCKUP historical files then receive all the booking information.
- Reports —System operators can select from nine management reports on the Report Menu. The reports include lists of (1) inmates currently housed, (2) inmates scheduled for release (Exhibit 2-7), (3) sentenced inmates, and (4) inmates scheduled to appear in court on a given date and time.
- Billing —LOCKUP can generate monthly billing invoices and a Billable Agency Report. The report shows the amount billed to each agency on a month-to-month and year-to-date basis.

Case Management System (MOPICS). Fifteen prosecutors' offices now have this system.

For smaller offices, the Division customized the D.A.'S ASSISTANT system to meet the needs of the state. The modifications support the following functions:

- Standard statewide offense codes based on statutes.
- Standard statewide instructions for case handling by offense developed by the Missouri Office of Prosecution Services (MOPS).
- Full data compatibility with the Statewide Criminal History System.
- Case tracking journals.
- Electronic report of case dispositions to the central criminal history repository

Twelve offices installed the resulting system, called MOPICS/PC. The Director of MOPS has stated "The MOPICS/PC technology has been a boost to the rural prosecutor offices not only in terms of improved case tracking and management, but also because of its financial feasibility."[14]

The New York State Division of Criminal Justice Services (DCJS) also customized the D.A.'S ASSISTANT system to meet its needs. Modifications include the addition of data specific to drunken driving charges and the development of additional reports, including special reports on drunk driving cases. DCJS also added a "quick inquiry" screen to allow operators to check the defendant's address, state identification, FBI and indictment numbers, and height and weight. According to the Director of Information Systems Improvement Program,

> Without D.A.'S ASSISTANT being available to us, we could never have implemented a prosecution case-tracking system within such a short time frame. The district attorneys using D.A.'S ASSISTANT are quite satisfied with the system.

Prosecution Management Support SystemConference of District Attorneys Raleigh, North Carolina

The Conference of Districts Attorneys is a statutory organization established by North Carolina in 1984 to support the prosecutor offices in the state. It performs a variety of functions for the 36 district attorney offices including training, information dissemination, and data processing support.

The Conference developed the Prosecution Management Support System (PMSS) through grant funds provided by the Bureau of Justice

Primary Functions of D.A.'S ASSISTANT (Exhibit 2-8 gives the Main Menu):

- Open and Screen Cases – New cases into the prosecutor's office are entered into the system even if only partial information is available (Exhibit 2-9). Data captured in the system includes originating agency, incident number, location, case type, primary defendant, offense date, arrest date, attorney, and charges. Information about the next court event can also be entered.
- Update Case Information – Additional information about a case is entered as it becomes available. An operator can retrieve a case by number or title. Additions and changes may be made to the information for the case.
- Name Searches – The database can be searched based on a person's partial name, full name, or Social Security number. Information on the person's aliases, the numbers of the cases for the person, and the person's relationship to each case (victim, witness, or defendant) are displayed. Case information is retrieved by selecting a case associated with the person.
- Documents and Reports – Reports from D.A.'S ASSISTANT are obtained on demand from a menu or by creating ad hoc reports with the database. Predefined reports include (1) a screening report, (2) a list of cases scheduled for court, (3) lists of the pending cases (Exhibit 2-10), and (4) case aging, case history, defendant, and disposition reports. Warrants, subpoenas, and victims' rights letters are automatically generated (Exhibit 2-11) and merged with forms in a word processor. Local statutory language can be included in these documents.

Assistance. Six district attorney offices served as pilot sites for the system. Prosecutors from these offices participated in the initial phase of the project and continued through the testing of the system. With the grant funds, the Conference contracted with programmers to develop and revise the system.

The PMSS provides data entry screens for case information, charges, dispositions, defendants, and witnesses (Exhibit 2-12). Output from the system includes the following types of reports (see Exhibit 2-13):

- Grand Jury, Trial, and Non-Jury Calendars
- Listing of Cases by Case Number, Defense Attorney, Prosecutor, Investigator, Witness, and Defendant
- Listing of Cases by Charges and by Age from Arrest Date
- Listing of Cases without Indictments and Cases or Indictment with no Schedule Event
- Listing of Cases Lacking a Law Enforcement Report
- Prosecutor Statistics by Case Status, Disposition of Closed Cases, Reasons for Pleas and Dismissals

The PMSS also generates Defendant File Cards and Victim File Cards which contain basic information about the case, as well as form letters to victims informing them of case openings, trial dates, and dispositions. Names and addresses of victims, as well as calendar data, can be saved to a file so they can be used with a word processing program.

As a result of the successful pilot test, the state purchased microcomputers for all 36 offices. The Conference then added the PMSS to these systems and conducted training to users in each office.

The Executive Secretary of the Conference has commented on two important aspects of the development and implementation of the system. First, in the design stage of the pilot test, the prosecutors requested extensive capabilities in the system, including some features they later decided to drop. Second, successful implementation within an office requires a commitment by the District Attorney, as support staff may be reluctant to adopt new procedures and technologies. Third, offices with effective manual case tracking systems may be less receptive to automation than are those which have no system in place, since staff may be unwilling to recognize the benefits of automation.

Juvenile Court Docketing and Indexing System
Michigan Judicial Data Center

As a branch of the State Court Administration Office, the Michigan Judicial Data Center (MJDC) operates as a full-service automation resource for Michigan courts. MJDC has responsibility for developing on-line, distributed, and microcomputer systems for court agencies in the state. All systems must adhere to the methods of processing at the local level. In existence for over 15 years, MJDC has implemented numerous systems for courts in the state.

The MJDC developed the Juvenile Court Docketing and Indexing System for smaller counties desiring a standalone automated system. Adapted from an on-line juvenile system operated by the MJDC, the system allows court personnel to enter, store, and retrieve case-related data.

Functions of the Juvenile Court Docketing and Indexing System include the following:[15]

- Scheduling and monitoring of case-related events
- Preparation and maintenance of the court calendar
- Preparation of the court calendar
- Statistical reporting
- Indexing of pertinent data

The Master Menu (Exhibit 2-14) allows access to six modules in the system: Respondent, Petition, Party, Event, Index, and Acknowledgement.

The *respondent* screen allows for entering the case number and information on the juvenile, including name, date of birth, sex, race, and other descriptions. Status information about the case can also be entered, including the dates on when the case was opened, closed, and reopened.

The *petition* screen updates the respondent information by adding the types of offenses to the system.

Information on all persons associated with the case is entered with the *party* screen.

The *event* screen allows for entry of all actions for a particular petition of a case. Disposition records are generated when an event is entered for bond,

restitution, administrative costs, or reimbursement amounts.

A *special acknowledgment* screen allows for additions, modifications, and inquiries related to the filing of acknowledgments of paternity.

Inquiry screens provide for retrieval of cases based on case number, petition number, or name. A *summary* screen provides for inquiries to obtain all events for a particular petition of a case. With the *name* screen, the database is searched by last name, full name, or phonetic sound-alike. The screen then displays information on the matched cases.

The system was pilot tested in the counties of Leelanau and Cass in 1988. Based on the pilot test, two other counties have implemented the system, and further expansion will occur in the coming months.

Traffic and District Court Systems Anderson County and Coffey County, Kansas

Anderson County and Coffey County are two of the four counties comprising the Fourth Judicial District in Kansas. In 1983, a District Judge for these two counties became interested in microcomputers as a potential tool in his courts. Through the county, he obtained a microcomputer and a database management system. While he had no prior experience in computers, he was able to develop systems for handling traffic, civil, and criminal cases in the courts. Approximately 30 counties have now implemented all or parts of these systems.

In both the Anderson and Coffey County courts, the systems work under a Local Area Network (LAN) with six microcomputers. One microcomputer operates as the file server for the other five microcomputers. Since each court has a clerk, a probation officer, and three deputies, everyone has a microcomputer with access to the system.

Traffic Case System

The traffic case system allows for entry of information on all traffic cases coming into the court system. Functions in the system include recording extensions of time to pay, setting trial dates, processing checks and cash payments (including partial payments), recording bond forfeitures, preparing letters and memos on cases, and recording the final dispositions of cases.

According to the Clerk of the Court in Coffey County, the traffic case system has saved a considerable amount of time and has improved the efficiency of the court. For example, under Kansas traffic law, suspension of a person's license can occur after the person ignores extension notices on time to pay and fails to appear in court. The suspension is by the state Department of Motor Vehicles upon notification by the local courts.

The system in Coffey County has automated the process for these cases. With an option in the system, the database files can be searched for tickets in which the appearance dates have past and the tickets have not been paid. The system then generates a 30-day notice for these offenders. If the 30-day notice has already been sent and the 30 days have elapsed, the system prints a suspension order to be forwarded to the Department of Motor Vehicles.

Generating quarterly reports is another time saving feature of the system. Before the microcomputer system, several types of daily counts were recorded and then tabulated on a quarterly basis. Frequently, the quarterly totals would not be correct because of errors in recording the daily figures. The system automatically generates the quarterly reports, a process requiring only about 20 minutes of computer time.

District Court System

The District Court system supports virtually all types of cases in the court, including criminal, civil, adoption, divorce, juvenile, probate, children in need of care, and small claims (civil). Information normally entered on these cases includes case number, plaintiff's name, defendant's name, date, type of hearing, and assigned judge. The system can be accessed to provide a list of current cases by either defendant or plaintiff names. Information on any case in the list can then be displayed.

Of particular value with this system is its ability to automatically generate the Court Docket (Exhibit 2-15). The docket shows the court dates along with information on the cases, including assigned judge, case number, plaintiff's name, defendant's name, time, and names of attorneys.

The system has numerous other beneficial options. For example, a file on attorneys gives the name of the firm, address, and telephone number for each attorney. Lists are generated by last name, judicial district, and individual county. In another module,

the user provides information to determine child support obligations. The system then calculates the amount of support for each party involved.

As an aside, the system also allows for entry of information on marriages and probate cases. In Coffey County, the system includes approximately 9,000 probate cases and 12,000 marriages, with the earliest dating to the 1850s. Persons interested in their genealogy frequently come to courts for historical information. A complete listing for any given name is then quickly available from the database.

Approximately 30 counties around the state have obtained either the traffic or district court system. The judge who developed the system has personally installed the system in many of the courts and has provided on-site training. He has been impressed with the interest of many persons who are using the system and with their abilities to learn the system.

He has also trained two persons in the state in the details of the system. When someone has a problem in operating a system, a telephone call to one of these persons usually resolves the problem. Otherwise, contact with the judge is necessary. This "pyramid" approach ensures that several people have in-depth knowledge of the systems. It also provides a quick mechanism for users to resolve their problems and avoids dependence on one expert.

These systems provide an excellent example of the development of database applications by persons not previously knowledgeable in microcomputers. The Clerk in Coffey County notes that she "could not operate without these systems," indicating that the systems have become an operational necessity of these courts.

PROBER-GX
National Council on Crime and Delinquency

The PROBER-GX system offered by the National Council on Crime and Delinquency (NCCD) is a complete microcomputer system tailored specifically to the needs of probation agencies. Developed initially by the Isthmus Corporation with the PROBER database system, NCCD now has the exclusive license to market the system with criminal justice agencies. More than 120 offices in 40 agencies across the country have acquired the system, including all the local offices in Minnesota and Vermont. In the next few months, all local offices in Virginia will receive the system.

The File Maintenance function of PROBER-GX provides for data entry in the following areas (Exhibit 2-16):

- Investigation
- Supervision and Case Data
  - Case Records
  - Payment Records
  - Detain/Violation/Warrant Records
- Community Service
- Probation Officer Workload and Assigned Cases
- Probation Officer Workload and Investigations

Exhibit 2-17 shows probation and parole case data available in the system.

The extensive output from the system comes in the form of listings and summary reports. Exhibit 2-18 shows the listings and report available from the system. Listings include new cases, cases terminated, case reviews by officers, and case expirations by officer. These can be generated for date ranges provided by the user. Lists of active cases are also possible by name, tracking number, and officer. The system includes seven types of listings on community service status, including active cases (by officer, work site, and name), cases opened, cases closed, and monthly and year-to-date admission statistics.

In addition to these reports, the user can define a report by choosing a file for a report, then selecting the fields for the listing. This ad hoc capability is an excellent feature not found in most systems.

A recent enhancement to the system tracks financial payments by the offender. Total payments and balances displayed on the screen are automatically tabulated whenever a payment record is entered for an offender. Summary reports are available to tabulate receipts by individual and for any period of time.

Summary

Database applications probably represent the most popular application of microcomputers in operational settings. Only a few database applications have been described in this chapter, but they are representative of what can be achieved with these

systems. It would have been just as easy to discuss other database applications, such as fleet management, personnel lists, property inventories, traffic citations, evidence, bicycle registrations, pawn management, and many others. The number of applications is limited only by the imagination of users.

As discussed at the start of this chapter, the primary functions of database systems include data entry, data editing, record retrieval, sorting, and report generation. The LOCKUP system by SEARCH Group illustrates all these functions. Booking information can be entered and edited. Searches against the database can be made to retrieve complete arrest information. Reports can be generated on inmates currently housed, scheduled for release, sentenced and scheduled to appear in court. Use of the computerized system improves data accuracy and retrieval speed over manual systems. These are important advantages in a busy jail environment and are typical of what can be achieved with these packages.

The trend in database packages is towards easier development of applications. With many database packages, users define files, input forms, and output reports by interactively working with the package rather than writing detailed programming instructions. Application programmers will continue to be needed for more complex systems, but end users can now develop many smaller applications without assistance. The combination of need and ease of use should result in more implementation of database applications in criminal justice systems.

CRIMINAL ACTIVITY REPORT/CHICAGO POLICE DISTRICT 0284 HOUR PERIOD ENDING 0800 DATE: 8/5/88 CONFIDENTIAL-FOR POLICE USE ONLY

OFFENSE	LOCATION	TIME	DESCRIPTION AND COMMENTS (Include R.D. Number)	
Burglary Unlawful Entry	**2511** 1800 block of Nashville	0900 / 1800	Entry was made in a unknown manner. Loss at this time. T.V. set.	K 328490
Vehicle Theft	**2512** 1700 block of New England	0001 / 0600	None 1974 Honda 350 Blue in color.	K 325660
Vehicle Theft Attempt	**2512** 2300 block of Normandy	2300 / 0100	1982 Pont. Firebird Attempt only. 1974 Honda 350 Blue in color.	K 328570
Vehicle Theft	**2513** 1700 block of Melvina	0030 / 0500	BJ3421 ILL. 88 1979 Buick Electra Green in color.	K 327703
Vehicle Theft	**2513** 5800 block of North	1100 / 1500	31501 ILL. 88 1987 Cad. 4dr. Gray in color.	K 328149
Robbery Strong Arm	**2514** 6300 block of Fullerton	1640 /	No description of offender. Offender took victim bike.	K 328430
Vehicle Theft	**2514** 5700 block of Parker	0100 / 0900	LB5901 ILL. 88 1980 Olds 98 Blue in color.	K 328268
Burglary Forcible Entry	**2521** + 2500 block of Lotus	0700 / 1000	Entry was made thru front door of garage. Loss at this time. Lawnmower.	K 328797
Vehicle Theft	**2522** 2200 block of Lavergne	0100 / 0500	None 1980 Cad. 2dr. Blue in color.	K 327737
Battery Aggravated	**2523** 5100 block of Division	1935 /	Offender 1 M/B 22 5'09 160lbs. Offender hit victim with a baseball bat.	K 328681
Battery Attempt	**2523** 5400 block of Potomac	0400 / 0500	Attempt only.	K 328060
Vehicle Theft	**2531** 3900 block of North	0200 / 1400	HS4707 ILL. 88 1978 Buick Electra White & Red in color.	K 325699
Vehicle Theft	**2531** 1400 block of Avers	2100 / 2300	ML3763 ILL. 88 1980 Buick Electra Gold in color.	K 328917
Vehicle Theft Attempt	**2531** 4400 block of Hirsch	2200 / 0700	Attempt only. 1988 Chev. Blazer	K 324043
Vehicle Theft	**2532** 4000 block of Wabansia	0400 / 0600	JH7903 ILL. 88 1984 Chev. Camaro Gold in color.	K 327964
Vehicle Theft	**2532** 2200 block of Lavergne	0800 / 1100	ZL40 ILL. 88 1980 Chev. Caprice Blue in color.	K 327380
Burglary Attempt	**2533** 2400 block of Harding	0800 / 0820	Attempt only.	K 327787
Burglary Forcible Entry	**2533** 2200 block of Monticello	0800 /	Entry was made thru window of apartment. Loss at this time. Microwave.	K 328066

Exhibit 2-1
MAPADS Daily Report Citizens

Exhibit 2-2
MAPADS Crime Map for Beat 2523

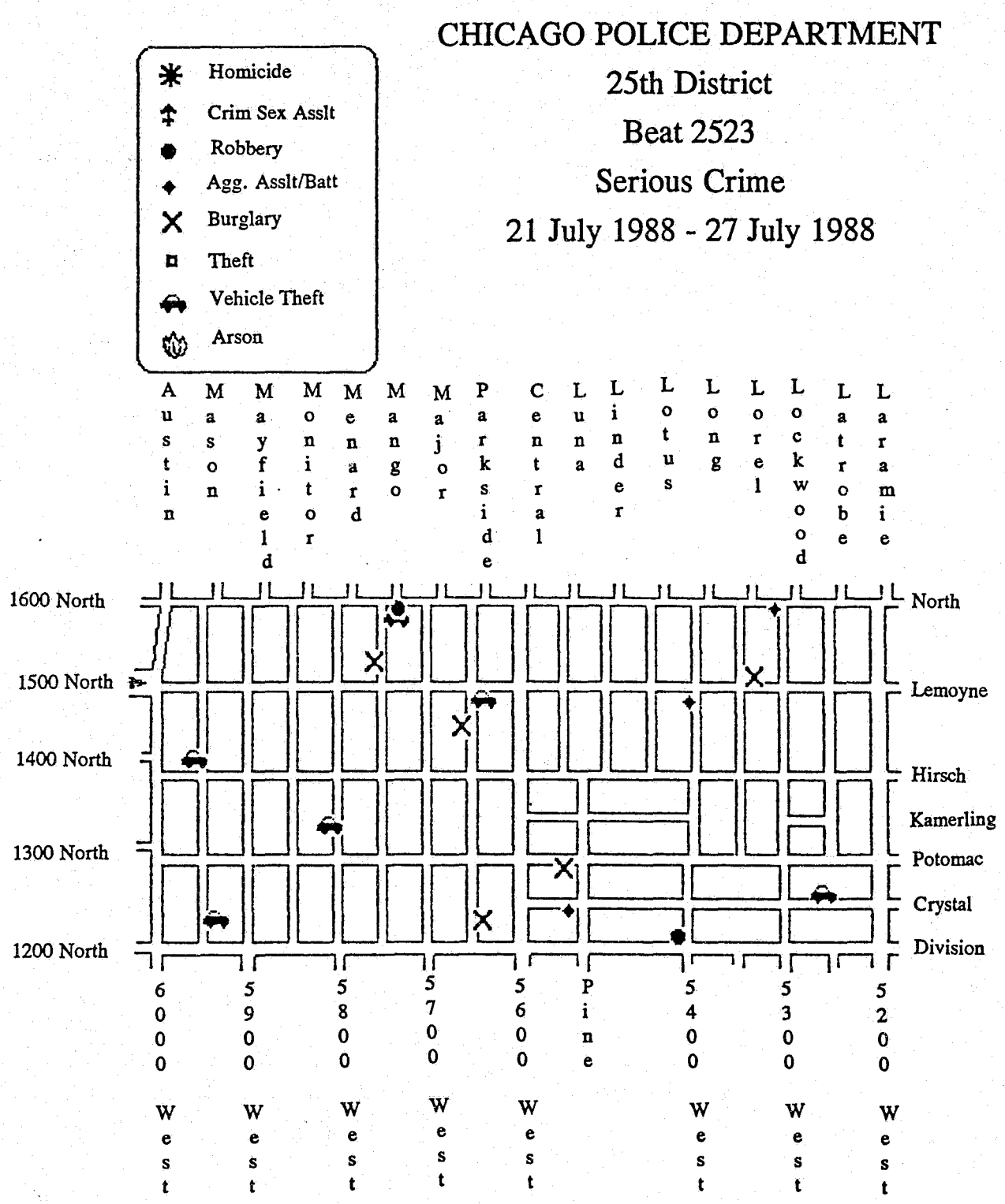


Exhibit 2-3
MAPADS Narcotics and Burglary Pattern for Beat 2523

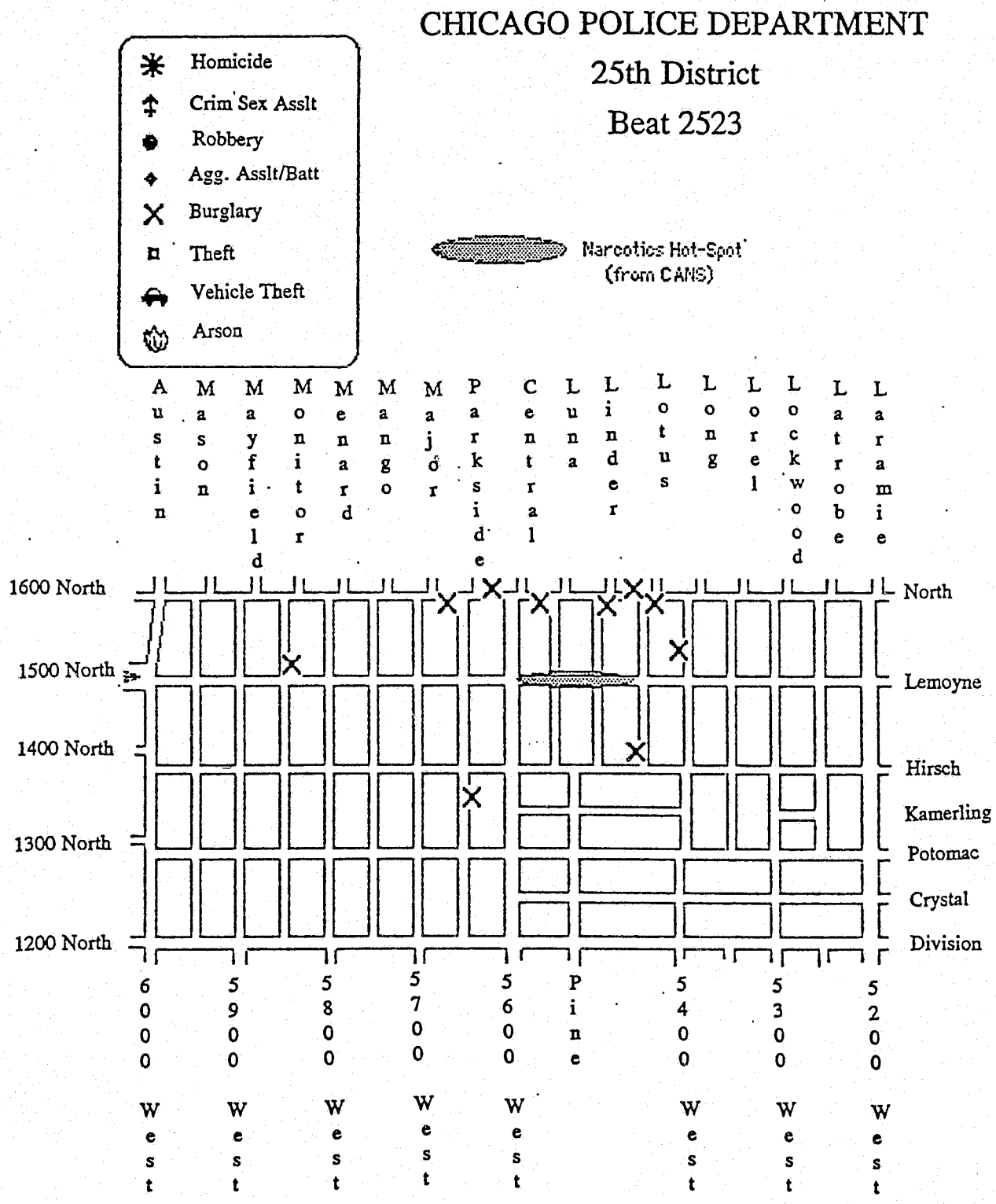


Exhibit 2-4
Summerville Police Department
Master Data Entry Menu

```
SUMMERVILLE POLICE DEPARTMENT

MASTER DATA ENTRY MENU

1. Enter New Incidents
2. List New Incidents
3. Search/Update Incidents
4. Enter New Dispositions
5. Search/Update Dispositions

6. Print Daily Report
7. Run Error Check
8. Post Master File to Incident,
   Name, UCR, and Arrest Files
9. Empty the Master File
10. Post New Dispositions

11. Return to Main Menu
12. Exit to Condor
13. Exit to DOS


Enter number:
_____________________________________________________________

                    MASTER DATA ENTRY SCREEN

 Number :_______        Type :_____________________        Ext :_

INCIDENT INFORMATION
    Loc.name :_____________________      Tract :____      Officer :___
     Loc.add :_______              Loc.street :_____________________
    Inc.date :_________    Status :__     Det :___      Clr.date :_________

NAME INFORMATION
    Class :_            Last :_____________________      First :_______________
      Add :_______     Street :_____________________      Phone :_____________
     City :_______________                        State :__
     Race :_             Sex :_                    Age :__

UCR INFORMATION
    Code :__           Stolen :_______      Recovered :_______

ARREST INFORMATION
      DOB :_________       SSN :___________      Charge :_____________________
    Dispo :__         Dispo.dt :_________      Sentence :_____________________

FILES TO APPEND TO ==>  Incident :_    Name :_    UCR :_    Arrest :_    JV :_
              Rep mode: Ins mode (INS), Del char (DEL), Erase field (F6)
```

Exhibit 2-5
LOCKUP
System Menu

```
LOCKUP
SACRAMENTO COUNTY JAIL
SYSTEM MENU

1 -> Booking
2 -> Release
3 -> Search/Inquiry
4 -> Modify
5 -> Medical
6 -> Classification
7 -> Outdate
8 -> Billing
9 -> Log
10 -> Reports
11 -> Operator Utilities
12 -> Exit

Enter module number here:
```

Exhibit 2-6
LOCKUP
Booking Screen

```
LOCKUP - BOOKING IN PROGRESS

Booking No: 87000051

                                                                  Person Screen
Person ID No.      Last Name      First      Middle
  87000001         GARRISON       SANDRA     KATHLEEN

Sex: F   Race: W      Address: 1108 LANCASTER WAY
DOB: 03/25/59         City: SACRAMENTO          State: CA  Zip: 95822-1014
Age:                  Phone: 916 / 555-4666     Driv Lic: H4506645 State: CA
Height: 5'10"
Weight: 130 lbs.      Employer: BANK OF AMERICA     Position: TELLER
Hair Color: BLND      Work Number: 916 / 555-2550   SSN: 565-33-3655
Eye Color: BLUE
Build: TALL           Place of Birth: SACRAMENTO    State: CA   Citizen? Y
Complexion: NORM      SID: WA000686                 FBI: 398468J11

Scars/Tattoos:
Remarks: SUBJECT IS VERY COMBATIVE.

ESC        CTRL-END        PAGE UP        PAGE DOWN        ENTER
Cancel     Booking Complete  Previous Screen  Next Screen    Next Screen
```

Exhibit 2-7
LOCKUP
Releases Scheduled

RELEASES SCHEDULED FOR 01/14/87
Monday, January 12, 1987 @11:01
SACRAMENTO COUNTY JAIL
Facility: Detoxification

Page: 1

Book No	Inmate Name	Cell	PropLoc	Cash	Holds	Bail Type	Chrg Disp
87000078	GUTIERREZ, JULIE	DET310	Box 420	250.50	SPRO		CONT
87104501	ALBERTGETTI, RICARDO	MAX400	Box 903	3.81		NONE	
87439860	MURPHY, STEVEN	HOLD02	Box 409	32.29			

Exhibit 2-8
D.A.'S ASSISTANT Main Menu

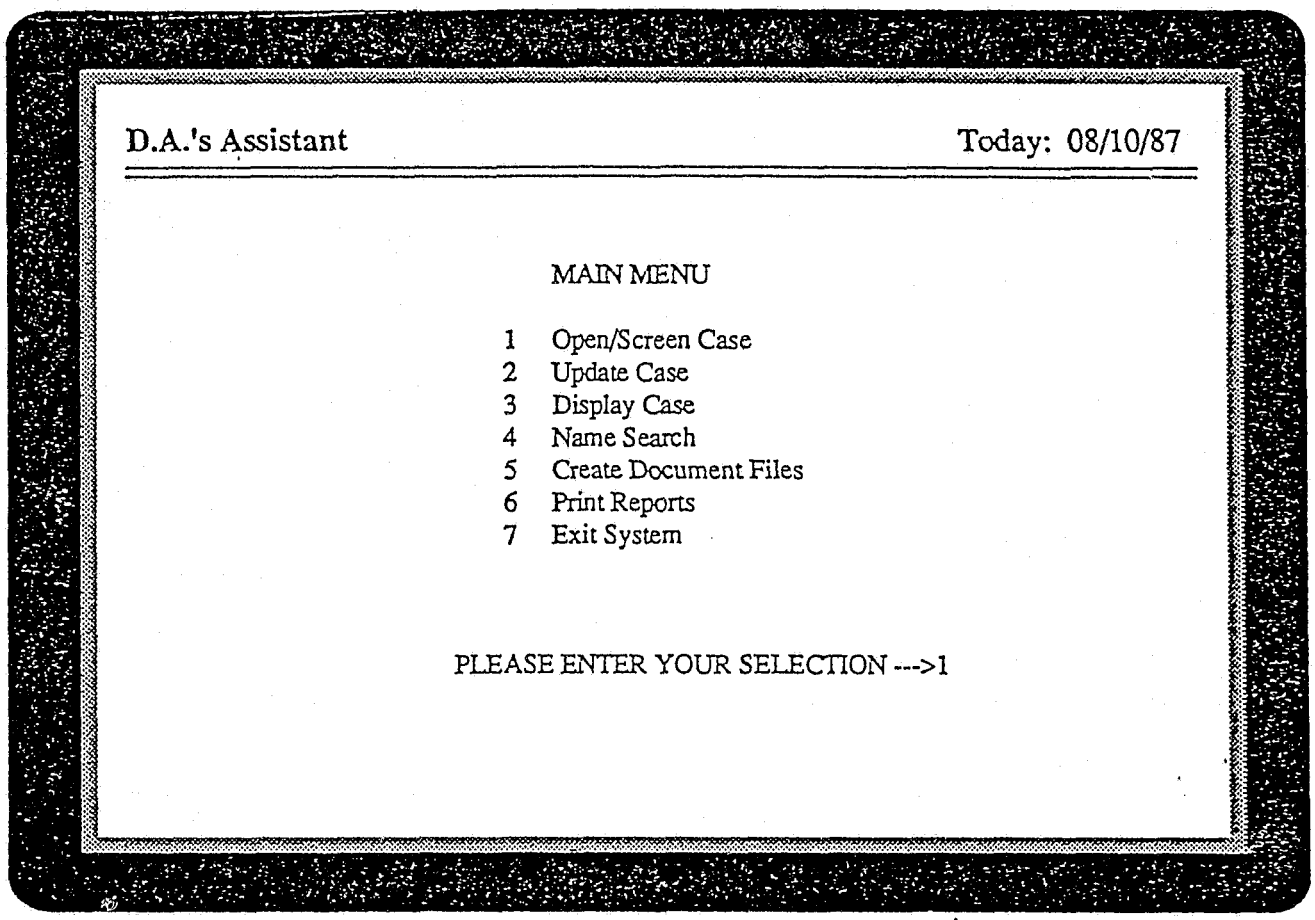
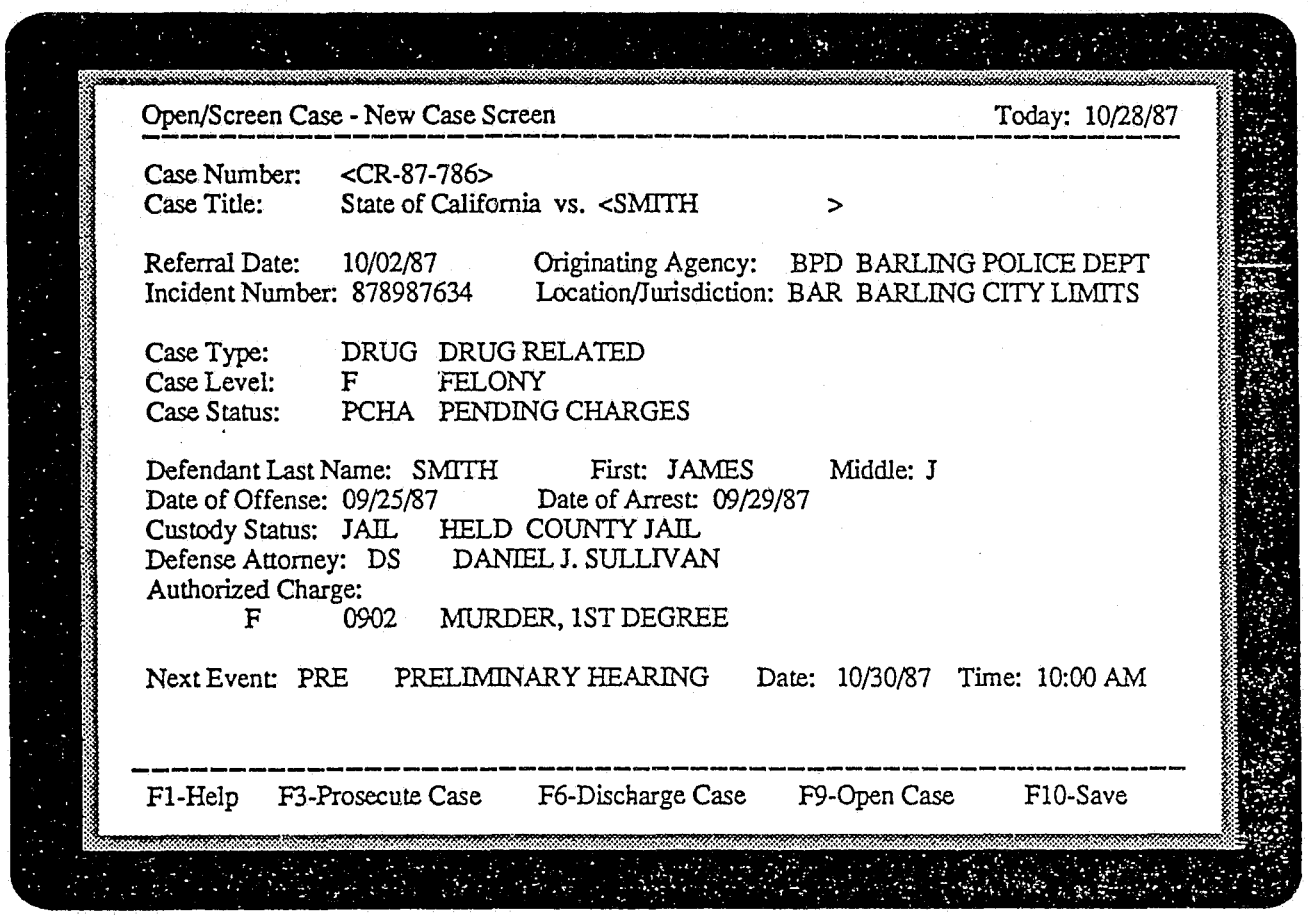


Exhibit 2-9
D.A.'S ASSISTANT New Case Screen



Open/Screen Case - New Case Screen Today: 10/28/87

Case Number: <CR-87-786>
Case Title: State of California vs. <SMITH >

Referral Date: 10/02/87 Originating Agency: BPD BARLING POLICE DEPT
Incident Number: 878987634 Location/Jurisdiction: BAR BARLING CITY LIMITS

Case Type: DRUG DRUG RELATED
Case Level: F FELONY
Case Status: PCHA PENDING CHARGES

Defendant Last Name: SMITH First: JAMES Middle: J
Date of Offense: 09/25/87 Date of Arrest: 09/29/87
Custody Status: JAIL HELD COUNTY JAIL
Defense Attorney: DS DANIEL J. SULLIVAN
Authorized Charge:
F 0902 MURDER, 1ST DEGREE

Next Event: PRE PRELIMINARY HEARING Date: 10/30/87 Time: 10:00 AM

F1-Help F3-Prosecute Case F6-Discharge Case F9-Open Case F10-Save

Exhibit 2-10
D.A.'S ASSISTANT Pending Cases Report

PENDING CASES REPORT for 10/01/87 thru 10/06/87
Run Date: 10/06/87 Run Time: 10:05 Page: 1

Case No	First Defendant	First Charge
CR-87-354	BROWN	SETTING FOREST FIRE
	Next Event: 10/09/87	9:00 AM PRELIMINARY HEARING
CR-87-489	JOHNSON	AGGRAVATED ROBBERY
	Next Event: 10/11/87	11:30 AM PRELIMINARY HEARING
CR-87-674	BROWN	AGGRAVATED ASSAULT
	Next Event: 11/03/87	2:00 PM ARRAIGNMENT
CR-87-678	HOULAHAN	CARRYING PROHIBITED WEAPON
	Next Event: 10/25/87	3:00 PM PLEA DOCKET

Exhibit 2-11
D.A.'S ASSISTANT Subpoena Report

SUBPOENA REPORT for 10/01/87 thru 10/06/87
Run Date: 09/15/87 Run Time: 10:03

Event Date: 10/01/87

Case No	Time	Event	Judge
CR-87-217	10:00 AM	JURY TRIAL	MICHAEL VIRGA
Subpoena For:		ADAMS,MICHAEL,J	WITNESS
		HOULIAHAN,SEAN,MICHAEL	VICTIM
CR-87-238	02:30 PM	JURY TRIAL	MARVIN HARRIS
Subpoena For:		MENDOZA,SUSAN,TERI	VICTIM
		SMITH,BARNEY,L	INVESTIGATOR
		WEIR,JACK,P	WITNESS
CR-87-287	10:00 AM	JURY TRIAL	MICHAEL VIRGA
Subpoena For:		FONG,CHRISTOPHER,L	ARRESTING OFFICER

Exhibit 2-12

PMSS Data Entry Screens

DATA ENTRY SCREENS FOR PMSS

Header Screen

CASE # GF8800001 Case Name XXXXXXXXXXXXXXXXXX Can Close? T
Charges 1 Open Date 99/99/99 Agency XX
Defendants 1 Prosecutor XXXXXXXXXX Law Enf # 9999999
Witnesses 1 Investigator XXXXXXXXXX Received (Y/N) Y

Case notes XXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXX

Charge Screen

Charge # 1 Defn. (L/F) XXXXXXXXXXXXXXXX XXXXXXXXXXXXXXX Alias XXXXXXXXXX
CRS # 99CR99999 (Date) (Cont.)
Offense 99/99/99 PC Hearing 99/99/99 99
Arrest 99/99/99 Grand Jury 99/99/99 99
Statute xxxxxxxxxx Felony Y Arraignment 99/99/99 99
Type XX Trial 99/99/99 99

Case age Next Event 99/99/99 Code XX Cont? N

Disposition Type XX

Disposition Screen

Charge # 1 Defendant (L/F) XXXXXXXXXXXXXXXX, XXXXXXXXXXXXXXXX Alias XXXXXXXXX
CRS # 99CR9999
Disposition 99/99/99 Judge XXXXXXXXXXX
Plea Type XX Superior Ct. Y
Plead Charge XX Restitution $99,999.99
Plead to Fel Y Date Appealed 99/99/99
Agreement XX Appeal Result XX
Reason XX Sort Code XX Type XXXXXXXXXXXXXXXXXX
Sentence:
XXXXXXXXXXXXXXXXXXXX

Exhibit 2-13

PMSS Listings by Prosecutor, Defendant, and Investigator

CASES BY DEFENSE ATTORNEY

FOR DISTRICT 40
FRANCIS BACON, DISTRICT ATTORNEY

NO.	ATTORNEY	DEFENDANT NAME	CASE NO.	PROSECUTOR	CHARGE	CRS NO.
1	Martin	Joe Lewis	GF8800003	Willis	Controlled Substance	88CR54321
2	Sanders	Mike Pope	GF8800005	Dunn	Not found in database	88CR12344
3	Michaels	Norman Day	GF8800004	Smith	Controlled substance	88CR12344
4	Dennison	Phil Glass	GF8800004	Jones	Fraud, other	88CR14432
5	O'Grady	Bill Linch	GF8800001	Mill	Arson, burning	88CR54223
6	Lamb	Mark Connor	GF8800001	Landers	Arson, burning	
7	Scruppers	Lynn Desander	GF8800001	Carson	Breaking and Entering	88CR12344
8	Parsons	Beth Landen	GF8800002	Miller	Burglary	88CR12344

CASES BY PROSECUTOR

FOR DISTRICT 40
FRANCIS BACON, DISTRICT ATTORNEY

NO.	PROSECUTOR	CASE NO.	DEFENDANT NAME	ATTORNEY	CHARGE	CRS #
1	Matthews	AF8888888	Lila Thomas	Smith	Not found in database	
2	Kotter	GF8800002	Michelle Kims	Louis	Burglary	88CR12344
3	Mills	GF8800001	Tammy Lawrence	Mauldin	Arson, burning	88CR54223
4	Johnson	GF8800001	Kathy Martinson	Hills	Arson, burning	
5	Piles	GF8800001	Bill Hemphill	Parks	Breaking and Entering	88CR12344
6	Donahue	GF8800003	Linda Cooper	Press	Controlled substance	88CR54321
7	Lyles	GF8800004	Jerry Neal	Ross	Controlled substance	88CR12344
8	Brewer	GF8800004	Miles Lenders	Stiles	Fraud, other	88CR14432
9	Kepeck	GF8800005	Mary Griffin	French	Not found in database	88CR12344

CASES BY INVESTIGATOR

FOR DISTRICT 40
FRANCIS BACON, DISTRICT ATTORNEY

NO.	INVESTIGATOR	CASE NO.	DEFENDANT NAME	PROSECUTOR	CHARGE	CRS #
1	Keller	GF8800002	Tanya Robson	Jones	Burglary	88CR12344
2	Tailer	GF8800003	Brenda Mitchell	Connors	Controlled substance	88CR54321
3	Adams	GF8800005	Lisa Stanfield	Robbins	Not found in database	88CR12344
4	Anderson	GF8800001	Stella Gill	Martin	Arson, burning	88CR54223
5	Phillips	GF8800001	Ken Leahy	Andrews	Arson, burning	
6	Blondon	GF8800001	Steve Serell	Cross	Breaking and Entering	88CR12344
7	Cleaver	GF8800004	Marty Hines	Kimmons	Controlled substance	88CR12344
8	Ingals	GF8800004	Don Abrems	Benson	Fraud, other	88CR14432

Exhibit 2-14
Michigan Juvenile Court System—Master Menu

Master Menu Screen
Figure 1

JUVENILE TRANSACTION REQUEST SCREEN
VERSION 1.0 DATE: 1/3/88

MENU ITEM	FUNC	CASE #	SFX	PETITION	ENT #	ERROR MSG
1. RESPONDENT						
2. PETITION						
3. PARTY						
4. EVENT						
5. INDEX						
6. ACKNOWLDG						

INQUIRY SCREENS

	FUNC	CASE #	SFX	PETITION	ENT #	TYPE
7. SUMMARY						
8. NAME TYPE		NAME				
9. DOCKET XOR S---)						DAT
		TYPE	ATTNY	BEGIN	DATE	

O. ATTORNEY
A. REPORTS MENU
B. FILE MAINT
(--PRO = PROFESSIONAL, FAC = FACILITY, CHG = CHARGE, CODE

Tap item of your choice. (E to End F1 = HELP when cursor is in under

Copyright (C) Michigan Judicial Data Center

Exhibit 2-15

ANDERSON COUNTY COURT DOCKET
GARNETT, KANSAS
ROBERTA CLARK, CLERK
913 448-6886

PREPARED ON
MARCH 22, 1989

CASE NO.	PL. NAME	VS. DEF. NAME	TIME	SET FOR	PL. ATTY	DEF. ATTY
			March 27, 1989 Monday			
JUDGE SMITH:						
88PR 3			9:00	SALE R/E	T. SOLANDER	
88CR 124	STATE OF KANSAS		9:30	SENTENCING	C. COLE	T. SOLANDER
88CR 125	STATE OF KANSAS		9:30	SENTENCING	C. COLE	T. SOLANDER
89PR 9			10:00	PROBATE OF WILL	S. DOERING	
88PR 35			10:00	FINAL SETTLE	S. DOERING	
88PR 38			10:00	FINAL SETTLE	O. COLE	
87CR 94	STATE OF KANSAS		10:00	MOT. REVOCATION	C. COLE	J. DOWELL
81PR 6			10:00	LEASE OIL/GAS	F. JANTZ	T. SOLANDER, O.COLE
88CV 13			10:30	CONF/TRIAL SET	J. PHELAN	S. DOERING
89DV 9			11:30	MOT. REST ORDER	W. WALKER	
			March 28, 1989 Tuesday			
JUDGE FROMME:						
89SC 7			9:15	TRIAL		
89TR 169	STATE OF KANSAS		10:00	APPEARANCE	C. COLE	
88CR 70	STATE OF KANSAS		10:00	MOT. REVOCATION	C. COLE	W. WALKER
89CR 19	STATE OF KANSAS		10:00	APPEARANCE	C. COLE	
89TR 163	STATE OF KANSAS		10:00	APPEARANCE	C. COLE	
89JV 4			1:00	PRE-ADJ.	C. COLE	
89JV 5	JUVENILE (S.H.)		1:00	PRE-ADJ.	C. COLE	
89JV 6			1:00	PRE-ADJ.	C. COLE	O. COLE
89JV 7	JUVENILE (J.D.)		1:00	PRE-ADJ.	C. COLE	
			April 3, 1989 Monday			
JUDGE SMITH:						
89CR 10	STATE OF KANSAS		9:00	SENTENCING	C. COLE	W. WALKER
88DV 7			9:30	CUST MOT (3 HRS)	G. MATHEWS	S. DOERING
89PR 10			10:00	DET. OF DESCENT	R. COLE	
87PR 51			10:00	FINAL SETTLE	F. MITCHELSON	
89PR 11			10:00	PROBATE OF WILL	F. JANTZ	
89CV 9			10:30	DISC CONF	O. COLE	M. BUSER
89CR 13	CITY OF GARNETT		1:00	TRIAL (2 HRS)	T. SOLANDER	W. WALKER
			April 4, 1989 Tuesday			
JUDGE FROMME:						
89SC 8			9:15	TRIAL		
89TR 151	STATE OF KANSAS		9:30	ARRAIGNMENT	C. COLE	R. BEZEK
89TR 83	STATE OF KANSAS		9:30	REVIEW	C. COLE	
89TR 202	STATE OF KANSAS		10:00	APPEARANCE	C. COLE	
89LM 27			10:00	ANSWER	W. WALKER	
88DV 74	STATE OF MISSOURI, EX		10:00	JUDGE REV ONLY	J. DOWELL	S. DOERING
89LM 14	THE CITY OF GARNETT		10:00	ANSWER	T. SOLANDER	
89JV 8			11:00	PRE-ADJUD.	C. COLE	
89JV 9			11:00	PRE-ADJUD.	C. COLE	

Exhibit 2-16
PROBER-GX File Maintenance Screen

NCCD GX - DATA SET MODULES

PROBER

*** FILE MAINTENANCE - Data Set Selection *** NCCD X

1. Investigation
2. Supervision & Case Data
3. .....Case Records
4. .....Payment Record
5. .....Detain/Violation/Warrant
6. Community Service
7. .....Work Record
8. All Offender Screens
9. Backload Case/Community Serv.
10. PO Workload
11. PO Workload & Assigned Cases
12. PO Workload & Investigations
13. Report Control Dates
14. Offense Table
15. Workload Table
16. General Code Table

Option..... 1
Enter the number for the type of data you wish to access.

F2Add

Exhibit 2-17

NCCD GX - PROBATION/PAROLE CASE DATA

PROBER

*** FILE MAINTENANCE - Record Access - Inquiry *** NCCD X
Supervision & Case Data by Prober Tracking Number
Probation Case Data

1 Smith, John L 10-15-1985 A 10-15-1987 86-11 04-15-1986

Prober Tracking No.... 1
Started On.....10-15-1985
Adult/Juvenile Case...A
To End On.....10-15-1987
Docket.....86-11
Review Due.....04-15-1986 Agency ID - 345678
Supervising Officer... 1 Bustem, Imgonna
Most Serious Offense.. 2 PC 261 Rape
Criminal Statute.....943.25(A)
Presiding Judge.....Roy Bean
Special Conditions....
New/Continuing Supv...N
Status..... Active
Closed On.....
Final Case?.....
Receiving Jurisdictn..

PROBER

*** FILE MAINTENANCE - Record Access - Inquiry *** NCCD X
Supervision & Case Data by Prober Tracking Number
Case Financial Data

1 Smith, John L 10-15-1985 A 10-15-1987 86-11 04-15-1986

FINANCIAL OBLIGAT'NS..	ORDERED	PAID	BALANCE
Restitution.....	300.00	250.00	50.00
Fines.....	75.00	70.00	5.00
Fees.....	100.00	90.00	10.00
Court Costs.....	45.00	45.00	.00
Victim/Witness Fees...	100.00	5.00	95.00
Attorney Fees.....	100.00	10.00	90.00
Other Costs.....	50.00	50.00	.00
** Totals.....	770.00	520.00	250.00

Date of Last Payment..08-04-1988

PROBER

*** FILE MAINTENANCE - Record Access - Inquiry *** NCCD X
Supervision & Case Data by Prober Tracking Number
Violation and Warrant Data

1 Smith, John L 10-15-1985 A 10-15-1987 86-11 04-15-1986

Date of Violation.....01-27-1987
Violation Descript'n..Violated By Use of Drugs
Date of Warrant.....01-30-1987
Local/Rgnl/St./Natnl..N Nationally
Issuing Judge.....Roy Bean
Date Served/Recalled.._____

Exhibit 2-18

NCCD GX - PROGRAMMED REPORTS

```
PROBER          *** REPORTS - Selection Scan ***                NCCD X

ID       Description
MASTER 1 Alpha List Of All Persons in Master File
MASTER 2 List of Persons Being Detained
MASTER 3 Supervision Cases Due for Reassessment
MASTER 4 Backload Cases/ Data Entry Form
MASTER 5 Profile by Age, Sex, Race, Class, AdlJuv
MASTER 6 Crosstab Age by Combined Sex/Race Code

PROB-  1 New Cases For Period of:
PROB-  2 Cases Terminated for Period of:
PROB-  3 Case Reviews By Officer for Period Of:
PROB-  4 Probation Month & Period Totals
PROB-  5 Cases Expirations By Officer for Period:
PROB-  6 All Active Cases - By Name
PROB-  7 All Active Cases by Prober Tracking #
PROB-  8 All Active Cases by Officer
PROB-  9 Cases Past Expiration Date: Still Active
PROB- 10 Case Statistics for Adds in REPORT Month
PROB- 11 Outstanding Balances

PO RPT 1 Officer Workload Summary by Unit
PO RPT 2 Officer Supervision Workload
PO RPT 3 Officer Investigation Workload

INV-   1 Investigations Due for Period Of:
INV    2 Inv. Stats. PO by Inv., Period Of:

PAYMNT 1 List and Total Payments by Receipt #
PAYMNT 2 List and Total Payments by Payment Date
PAYMNT 3 Personal Payment History of Offender
PAYMNT 4 Payments Received, Period Of:

COMSRV 1 Community Service - Active by PO
COMSRV 2 Community Service - Active by Worksite
COMSRV 3 Community Service - Active by Name
COMSRV 4 Community Service Cases Opened: Period
COMSRV 5 Community Service Cases Closed: Period
COMSRV 6 Community Service Termination Statistics
COMSRV 7 Community Service Month & Period Totals
COMWRK 1 Community Work Completed for Period Of

TABLE  1 List Offense Table by Code
TABLE  2 List Offense Table by Offense Descript'n
TABLE  3 List Workload Table by Code
TABLE  4 List General Code Table by Code
(End Of List)

Position to the Desired Report, and press a function key.

F2Add F3Inquiry F4Change F5Delete F6Move F7Print this Report F9Previous F10Next

 Accepting: Option Key
```

Chapter 3

Bulletin Board Systems

Introduction

Since 1985, the Garland, Texas, Police Department has operated an electronic "Crimestoppers Bulletin Board" as a means of providing timely information to citizens. The bulletin board exists on a microcomputer accessible over telephone lines by another microcomputer or computer terminal (the telephone number for dialing into the system is 214/205-2129). After accessing the Crimestoppers system, a caller can read over 30 bulletins which contain crime prevention information. Topics include crime prevention tips for the elderly, safety procedures for latchkey kids, and how to foil car thieves. You can also leave messages for the police department or for others who dial into the system. Messages to the police department have included reports of suspicious activities, reports of criminal incidents, and inquiries on local ordinances and state laws.[16]

Bulletin Board Systems (BBSs) are specialized microcomputer systems containing messages accessible by dialing into the system. They exist on almost any topic imaginable. For example, there is a National Genealogical BBS (for family history and genealogical research), The Second Ring (Online computer magazine index operated by the San Jose Public Library), the ASTROnomy BBS, and the Dallas Law BBS (lawyers' forum on legal issues related to telecommunications). While the exact number of BBSs is unknown, there is agreement that over 10,000 boards exist in the United States today.

To access a bulletin board, you need:

- A microcomputer or computer terminal
- A modem
- A communications program
- Access to a telephone line

A microcomputer is the usual access device, although any computer terminal may also be used. The modem is the hardware necessary to connect the microcomputer to a telephone line.[17] The modem either initiates a message over the telephone line or receives a message from the line. The communications program provides the software to link a microcomputer to a bulletin board. There are many communications programs on the market, ranging in cost from $50 to $200. Most allow the user to store several telephone numbers to bulletin boards and other computer systems. The user selects a telephone number and the communications package automatically calls the system.

Police departments having bulletin boards include Berkeley, California; San Jose, California; Pasadena, California; Lakewood, Colorado; Boise, Idaho; Garland, Texas; Arlington, Virginia; and Fairfax County, Virginia. Bulletin boards devoted to legal topics have been established by the states of North Carolina, North Dakota, and California. The National Institute of Justice operates NIJ*NET for grantees and other groups doing business directly with NIJ, and the National Criminal Justice Reference Service (NCJRS) has a bulletin board to provide on-line information for individuals and organizations involved in criminal justice policy and research. Appendix B contains a list of the known boards for public safety, including telephone numbers and names of system operators.

Law Enforcement Bulletin Boards

Bulletin board systems have been established by several local police departments as a means of expanding communications with citizens. While each board has unique features, police department BBSs will usually have the following:

- Bulletins on crime prevention tips for particular offenses such as vehicle thefts, burglaries, and rapes.
- Bulletins on crime prevention tips for special groups, such as senior citizens, disabled children, and latchkey children.
- Capabilities for callers to download bulletins and other information from the bulletin board to their systems.
- Capabilities for callers to leave messages for either the police department or other callers into the system.

The Berkeley, California, Police Department established its bulletin board, called the Guardian, to offer an alternative approach for citizens to obtain information about the police department and its

activities. Exhibit 3-1 shows the Main Menu from the Guardian. Typing the letter or word shown in brackets enables the caller to activate a menu item. For example, entering a "B" results in the Guardian Bulletin List shown in Exhibit 3-2.

The bulletins are generally three to five pages in length and contain general information on a topic. The vehicle theft bulletin gives background on the problem of vehicle thefts in the country, followed by prevention tips for all types of vehicles, including motorcycles, bicycles, trail bikes, trucks, and recreational vehicles. It also gives information on how to avoid thefts of Citizen Band (CB) radios and license plates. The last portion of the bulletin is a form for recording vehicle information. In addition to viewing these bulletins, callers can transfer any of these bulletins to their system.

The Fairfax County, Virginia, Police Department operates a bulletin board specifically for Neighborhood Watch organizations. Included on this "Neighborhood Watch Information Center" board is a calendar of events for neighborhood watch training sessions, how to call the police department with information on crimes, and an application form for the Northern Virginia Crime Prevention Association.

The Police Executive Research Forum (PERF) offers a subscription service to its METAPOL system. While not technically a bulletin board, METAPOL is a microcomputer based system for linking police executives and the academic community. It is also a communications mechanism for the Commission for Accreditation of Law Enforcement Agencies (CALEA). METAPOL subscribers include chiefs of police, police administrators, professors, federal law enforcement executives, and other persons in the criminal justice field.

Users of the system participate in a variety of "conferences" by contributing messages or responding to other professional input.

In summary, METAPOL offers a technological procedure for law enforcement executives and educators to discuss and debate key issues affecting law enforcement agencies.

Available Conferences in METAPOL

- Chiefs and Sheriffs
- Executive Staff
- News and Notes
- Police Database
- PERF Membership
- Policing in the 21st Century
- Domestic Violence
- Drug Issues
- Accreditation Issues
- Reaccreditation Issues
- CALEA Staff Inquiries
- CALEA Standards Interpretations
- Exemplary Programs
- CALEA Meeting Information
- CALEA Assessors Conference

Judicial Bulletin Boards

The states of North Dakota, North Carolina, and California have established bulletin boards specializing in judicial topics.

The North Dakota board, called LegalNet, contains special information services for judges, lawyers, court employees, and members of advisory committees of the state judicial system. LegalNet started on June 1, 1989 as a cooperative project of the State Bar Association of North Dakota, its Real Property, Probate and Trust Law Section, the University of North Dakota Law School, Legal Assistance of North Dakota, and the North Dakota Judicial System. It is managed by the North Dakota LegalNet Commission as a cooperative service for judges and lawyers of the state.

LegalNet has three basis components:

- Bulletins – Time-sensitive documents addressing new developments in the LegalNet service and calendars of current interest in the state legal system.

- Messages – Electronic messages can be exchanged among LegalNet users. Messages may be directed to a specific recipient, a group of recipients, or all LegalNet users.
- Files – Documents of general interest are available as files for viewing on the screen or transferring (downloading) to another system.

The Files portion is the most extensively developed LegalNet component. It contains over 50 files divided into the following major topics:

- Opinions of the North Dakota Supreme Court
- Opinions of the North Dakota Court of Appeals
- Judicial Planning Committee and Subcommittee Activities
- Attorney Standards Committee Activities
- Court Services Administration Committee Activities
- Judiciary Standards Committee Activities
- Alphabetical Listing of Attorneys in North Dakota
- North Dakota Legislative Information Related to the Judiciary
- State Bar Association Listings

Any of these files can be viewed and downloaded to the caller's computer system.

There are approximately 125 regular users of the board with about five calls each day. Recent state Supreme Court decisions and Attorney General opinions represent the primary interests in the board. The Supreme Court decisions reside in the system until they are available elsewhere in printed forms. Thus, a primary advantage of LegalNet is to disseminate information on recent decisions in a more rapid manner.

Although LegalNet is relatively new, it has enthusiastic support of key judiciary persons in the state. The Chief Justice of the North Dakota Supreme Court has noted:

> We anticipate that North Dakota LegalNet will contribute significantly to communication within the legal system of North Dakota. North Dakota LegalNet reflects the important contribution of new technologies to improving the quality and efficiency of public and private services. This technology also contributes to bringing together the legal community of North Dakota regularly and conveniently for consultation on issues of mutual concern and makes information more accessible to all interested persons. We welcome LegalNet.

In North Carolina, the Supreme Court Of North Carolina (SCONC) bulletin board is a public board with the primary purpose of making the opinions and other public information of the Appellate Courts of North Carolina available electronically. The board is located in the office of the Clerk of the North Carolina Supreme Court.

The complete list of bulletins available on the board are the following:

- Personnel of the Supreme Court (with phone numbers)
- Personnel of the Court of Appeals (with phone numbers)
- Opinions Recently Filed in Supreme Court of North Carolina
- Petitions Recently Decided in Supreme Court
- Current Supreme Court Calendar
- Opinions Recently Filed in Court of Appeals
- Index of Rules of Appellate Procedure
- North Carolina Supreme Court Fiscal Year 1988-89 Caseflow Statistics
- Index of Rules Recently Amended by the Supreme Court

The primary topics in SCONC are Supreme Court and Court of Appeals opinions. These opinions may be viewed and transferred to the caller's system.

In addition to these bulletins, SCONC also has several areas which are restricted to specific classes of users:

- "The Lawyers' Room" is limited to licensed attorneys (in or out of North Carolina). It includes sample briefs, special orders of the Court, and programs such as time management and docketing programs.

- "The Judges' Chambers" is limited to judges. It offers a relatively confidential forum, a route to the Administrative Officer of the Court, and a place for exchange of items of particular judicial interest.
- "The Clerks' Conference" is for appellate court clerks across the country, particularly for communication among members of the National Conference of Appellate Court Clerks.

American Correctional Association's ACAnet/CInet

The American Correctional Association (ACA) operates a network called ACAnet on a subscriber basis for information sharing in the field of corrections. Services offered by ACAnet include the following:

- Corrections Hotline—News about corrections
- Career Bulletin Board—Employment opportunities
- Electronic Mail—Private message system
- Database—Correctional software, datasets, and articles
- Reports—Abstracts of management studies and reports
- Conference—Realtime electronic meetings
- Forum—Discussions on correctional issues
- Shopping Service—Catalog of correctional products.

The ACA also operates two mini-networks on ACAnet. One mini-network is devoted to correctional industries and the other to the subject of AIDS. These mini-networks are accessible through ACAnet.

The correctional industries network, called CInet, offers the following features:

- PIECP—Contains information on the Prison Industry Enhancement Certification Program (PIECP) which allows certified correctional industry programs to sell goods in interstate commerce and to bid on Federal contracts.
- Peer Consultant Roster—Lists the names of individuals available to provide peer technical assistance in areas such as marketing and sales, management, and quality control.
- Supplies/Vendors Service—Contains a list of products purchased by correctional industries, and includes supplier and user information.
- Database Abstracts—Contains abstracted reports, studies, and articles pertaining to correctional industries.

As with ACAnet, CInet also posts job openings and upcoming events, allows conferences among users, and enables members to participate in ongoing discussions about issues in correctional industries.

National Criminal Justice Reference Service

The National Criminal Justice Reference Service (NCJRS) was created in 1972 to serve as a centralized clearinghouse for criminal justice publications. It provides dissemination services for the Office of Justice Programs, which includes the National Institute of Justice, the Office of Juvenile Justice and Delinquency Prevention, the Bureau of Justice Statistics, the Bureau of Justice Assistance, and the Office for Victims of Crime. Final reports from projects funded by these agencies are among the holdings of NCJRS. Journal articles and research reports from other agencies are also maintained by NCJRS. The staff handles inquiries by telephone concerning publications on any criminal justice topic and makes publications available in the form of publications, films, and microfiche.

The NCJRS bulletin board provides another service for criminal justice practitioners and researchers. The User Guide for the bulletin board shows how users of the board have access to:

- News and reviews of criminal justice developments, activities, and new publications.
- Body armor database containing information on all body armor tested by the Technology Assessment Program.
- An indexed library of information about criminal justice policy.
- Electronic mail and document transfer.
- Continuing conferences with other users on key policy and research issues.

- An opportunity to participate on-line in surveys of emerging issues and practices.
- AutoBid software which can be downloaded by users to help police fleet managers select patrol vehicles.

As an example of what is available, the Current News Items of the board presently contains a summary of the National Drug Control Strategy and information on the Drug Information & Strategy Clearinghouse sponsored by the Housing and Urban Development (HUD) Department. Another option on the bulletin board provides articles on drug trafficking and the relationship between drug use and pretrial misconduct. A description of the "Drugs and Crime Resource Package" is also available, including the contents of the package and how to obtain it.

Finally, NCJRS has added two databases to its bulletin board for access by its users. One database contains summaries of state statutes on victims' rights and the other has reports and articles on technological assessments of police equipment, such as body armor. Each database can be searched for key words. The files containing the key words can then be viewed by the caller.

Summary

Electronic bulletin board systems for criminal justice agencies are a relatively new technology with great potential. The systems discussed in this chapter are only a sample of what can be achieved.

There are several advantages to an electronic BBS. For example, a BBS can be operational on a twenty-four hour basis. Callers into the system can obtain information from the system at any time and leave messages to be viewed by someone at a later date. Information can be made readily available on a BBS. The LegalNet BBS receives information from participants via diskettes. The only exception is the Supreme Court which has a direct line from its computer system to the BBS microcomputer. Another advantage of a BBS is that it can contain information not yet available in printed form. For example, opinions filed by the North Dakota Supreme Court are immediately available on LegalNet between the date of filing and date of publication.

A BBS also offers greater opportunity for interested parties to comment on a subject. For example, the METAPOL communications network allows subscribers to make statements on topical issues in law enforcement. In North Carolina, the Calendar of the Supreme Court is available on the SCONC board. This may result in an increase in the number of amicus briefs filed in North Carolina. Without the system, an attorney may have no easy way of knowing if a case is being argued on a topic that is of interest to a client.

Finally, BBSs provide another way for criminal justice agencies to share information. Many police departments have downloaded the bulletins available on the Garland, Texas, BBS. The departments can then modify these bulletins with a word processor and have them available in their department or on their own bulletin board.

More uses of bulletin boards will undoubtedly be found as their popularity increase among criminal justice agencies.

Exhibit 3-1

The Guardian BBS Main Menu

```
= = = = = = = = = = = = = = = = = = = = = = = = = = = = = = = = = = = = = = = = = = = = = = = = =

----------THE GUARDIAN BBS MAIN MENU----------
+ = = = = = = = = = = = = = = = = = = = = = = = = = = = = = = = = = = = = = = = = = = = = = = = +

                [A]bandon a conference                  [N]ew files listed
                [B]ulletin listings                     [O]perator page
                [C]omment to the sysop                  [OPEN] a [DOOR]
                [CHAT] with another user                [P]age length setting
                [D]ownload a file                       [Q]uick scan the message base
                [E]nter a message to a user             [R]ead messages
                [F]ile listings                         [S]ystem Questionnaire
                [G]ood-bye                              [T]ransfer protocol
                [H]elp me!                              [V]iew your settings/status
                [I]ntroduction screen                   [W]rite new user information
                [J]oin in a conference                  [X]pert mode (on/off)
                [K]ill your message(s)                  [Y]our personal mail
                [M]ode (color on/off)                   [Z]ip scan for text

+ ---------------------------------------------------------------------------------------------- +

Main Board Command? B
```

Exhibit 3-2

The Guardian Bulletin List

1. August Vollmer - history of:
2. Law Enforcement Code of Ethics
3. Short History of Berkeley
4. Berkeley Crime Clock for 1988
5. Berkeley Crime Stats. for 1988
6. Berkeley Arrest Stats for 1988
7. Berkeley Accident Stats. for 1988
8. Descript. of Communications Center
9. Neighborhood Watch Info.
10. Business Watch Info.
11. Berkeley Boosters Info.
12. "Who can I talk to about..."
13. Scooter Thefts
14. Burglaries

----------[CRIME PREVENTION TIPS]----------

15. For Seniors
16. Re: Fraud & Swindles
17. For Disabled
18. Re: Counseling
19. Re: Vehicle Thefts
20. Re: Vacations
21. Re: Rape
22. Re: Latchkey Children

---

23. Crime Stats. in the U.S. 1987
24. National Crime Clock for 1987
25. Crime Stats. for selected Countries, 1980 U. N. data
26. Crime Stats. for selected Countries, 1984 Interpol data

View: [1 - 26], [L]ist, [Enter] = none?

Chapter 4

Analysis Applications

Introduction

In this chapter, we present three more advanced types of microcomputer applications. The first is a crime analysis application from the Illinois Criminal Justice Information Authority. Sophisticated time series and geographic analysis form the basis for this application. The second example is an "expert system" developed in the Baltimore County, Maryland, Police Department that identifies suspects for residential burglaries. The system is now in an operational test mode, but early indications are that the approach is sound for identifying offenders. The final example is the IMPACT system offered by the Criminal Justice Statistics Association. The IMPACT system makes projections of prison populations based on current population and expected intake and release rates.

The common feature of all three systems is that they require the capabilities of a computer to perform. That is, the applications are virtually impossible to do manually either because of their mathematical complexity or because of the inordinate amount of time that would be required. Before the introduction of microcomputers, all three of these applications would have required a large mainframe computer. The advances in microcomputer capabilities over the past ten years are clearly illustrated by these applications.

Spatial and Temporal Analysis of Crime

For several years, the Illinois Criminal Justice Information Authority has conducted research in crime analysis. The research has focused on geographic and time-related patterns of crimes in Illinois communities. STAC is an acronym for the Spatial and Temporal Analysis package developed by the Authority. It was created in response to requests by Illinois law enforcement agencies for improved crime analysis capabilities. STAC can be used to locate clusters of criminal activity in a community by combining time and geographical data on crimes.

STAC is comprised of two programs. The Time Program helps to determine the most likely time of day and day of week that a particular type of crime will occur. The Space Program helps find those areas in a community where there is a concentration of crimes. These "hot spots" can then be graphically portrayed.

The User's Manual for the Time Program gives a succinct description of its operation:[18]

> The program analyzes two data categories—day of week and the hour of the day. It describes the distribution of a given group of incidents over an entire week by calculating the percentage of those incidents that occurred on each day of the week (Sunday, Monday, etc.). Similarly, the program calculates the percentage of incidents that occurred during each one-hour interval. This way, it is possible not only to analyze the distribution of incidents over the entire day, but also to compare levels of activity at different times of the day.

The Time Program also addresses a common problem in crime analysis concerning unknown times of occurrence. Suppose, for example, someone leaves home for work at 8 a.m. and returns at 6 p.m. that evening to find that a burglary occurred. The burglary could have happened any time while the house was empty. Many systems omit this burglary from analysis because the exact time of occurrence is unknown.

The Time Program offers two options for handling unknown times: the *probability distribution method* and the *maximum number method*. Both options use the range of potential hours for the offense, but differ in the weight applied to each hour. Output reports from the Time Program display the distribution of offenses by hour of day taking the hour ranges into consideration when the exact time is unknown. The Time Program therefore uses all the time information available in the report, rather than only the reports with exact times.

The Space Program developed by the Authority examines the geographic distribution of incidents. It provides a variety of spatial analysis features, including a radial and numeric search function, and hot spot identification. Through the radial search option, the locations of crimes occurring around a

selected point with a given radius are identified. With the hot spot portion of the program, all crime locational data with a program-identified hot spot are provided.[19]

As described in the User's Manual,

> The program lays down overlapping circles of a given size on a map of the town. It then counts the number of occurrences of a certain type of crime within each circle. The center point of the circle containing the most crimes is the hottest circle for that type of crime. A hot spot is then defined by drawing a standard deviational ellipse around the incidents that are in the hottest circle, or in an overlapping cluster of hot circles. Because the circles overlap, the hot spots reflect how the crimes are actually clustering, without interference from any artificial boundaries, such as ward or beat borders.

Exhibit 4-1 shows an example from the Space Program for motor vehicle thefts. The program identified the hot spot shown in the western end of the town.

Many police departments in Illinois have acquired these programs for their use. More than 40 agencies in the state have acquired the Time Program. Further, STAC has been obtained by over 50 organizations outside of Illinois.

Expert Systems

An expert system attempts to capture the knowledge of an expert in an area and apply that knowledge to solve problems. The expert is usually someone with many years of experience in a particular speciality, such as a burglary or homicide detective. Expert systems embody human knowledge in computer memory in such a way that it can provide seemingly intelligent advice on a problem. It can also offer explanations and justifications of its advice on demand.

Expert systems have existed for over 20 years in industrial and commercial situations. The Sinter Advisor diagnoses moisture level problems in a smeltering plant. Another system assists in identifying radar patterns from intercepted emissions. The BUILD expert system helps in the selection of retaining walls based on the design of the structure and different classes of retaining wall types.[20]

Expert systems have also been applied to decision-making problems in the legal area. Tasks performed by these systems include interpreting the law, anticipating the legal consequences of proposed actions, and predicting the effects of changes in legislation.[21] Legal systems include the JUDITH system for assisting lawyers in reasoning about civil law cases and the LRS system for performing knowledge-based legal information retrieval.

Most expert systems depend on the development of "rules." Later in this section, we give a description of an expert system for identifying residential burglary offenders. A rule in the system is "If the house was protected by an *alarm system*, then the offender was *experienced*." An investigator suggested this rule based on past cases. It was further estimated that the rule was true about 60 percent of the time. That is, in 60 percent of the cases where a house was protected by an alarm, it turned out that the offender was experienced.

Other rules have different connections between offense and offender characteristics and different probabilities, generally varying from 20 to 75 percent. These percentages have a cumulative impact when the rules are applied to a given offense. Persons in the suspect file with similar *modus operandi* to the offense are likely to be identified as suspects. The strength of the identification depends on the number of rule matches and the probabilities associated with these rules.

Interest in expert systems for criminal investigations began in England with efforts to develop a general investigative support system.[22] Part of the effort was to capture *modus operandi* at crime scenes and match it with operating characteristics of known criminals. The result was the development of a rudimentary investigative system. The computer language for the system was Prolog, an artificial intelligence system. Extensive inferences did not result from the system, but it demonstrated the feasibility of the expert system approach.

The efforts in England served as the impetus for a research and development grant from the National Institute of Justice followed by a demonstration grant funded by the Bureau of Justice Assistance. The Jefferson Institute for Justice Studies received the grant to test an expert system for investigations. The Baltimore County, Maryland, Police Department served as the site for the test, with residential burglaries as the target crime.

The police department in Baltimore County experimented with its expert system for residential burglaries from 1988 until January 1990. By the end of the experimental period, they entered information on approximately 3,000 solved burglary cases and 1,700 unsolved cases. The system also contained information on 675 suspected or known burglars.

During the experimental period system usage averaged over 100 inquiries per month. Most inquiries involved cases in which the investigators believed that they had identified the offenders, but wanted to see what the system produced as a list of suspects. The inquiries matched case characteristics against the suspect file using the 147 rules developed for the system. Even though experimental, the inquiries resulted in seven "hits" between case characteristics and suspects.[23] All seven were arrested and charged with the burglaries.

An example from the experimental period illustrates the viability of expert systems. An experienced investigator recognized the *modus operandi* from four related burglaries as characteristics of a known burglar. He immediately named this person as the key suspect. The investigator's partner, who had considerably less experience, had doubts and decided to describe the burglaries to the expert system. In three of the four burglaries, the system named the known burglar in its list of potential suspects. This example illustrates that younger detectives will probably use the system more as a means of generating an initial list of suspects while older detectives could use the system for support of their instincts.

As of January 1990, the expert system became fully operational and accessible by burglary detectives in the police precincts. With microcomputers in the precincts, detectives now dial into the expert system located in the microcomputer at headquarters. They can then make inquiries against the suspect file.

Based on the Baltimore County experiences, the Bureau of Justice Assistance supported similar projects in Tucson, Arizona; Charlotte, North Carolina; and Rochester, New York. Expert systems are also underway in Spokane, Washington; Fernandina Beach, California; and Multnomah County, Oregon. These projects are in various phases of development, and results are not yet available.

Judging from the experiences of these projects, expert systems require significant effort to develop. Many of the activities are labor intensive and costly in terms of the investigative staff hours needed to develop the systems. The following lessons from these projects summarize the major efforts necessary to bring an expert system on line in a police department.[24]

1. Designate a Project Team.

Like many other projects in police departments, expert systems require proper direction and adequate staffing. A project team coordinates all the development activities and provides controls on how the system is implemented. It should be directed by someone with practical knowledge about the targeted crime. Most importantly, the team should include detectives who have extensive experience in investigations of the target crime.

2. Acquire Knowledge Base.

The first major task in developing an expert system is the "rules meeting." The objective is to capture the knowledge of the best detectives in how they proceed in their investigations. In the BJA demonstration programs, these meetings usually lasted two days. Participants were divided into small work groups with assignments to develop statements on the most important aspects of investigations.

These statements become the rules in the expert system. For example, one rule in the residential burglary system is, "if the medicine cabinet was searched, then the suspect is a drug abuser." Along with the rule, a value or probability is given. For example, detectives in one jurisdiction assigned a value of .90 to this rule. This means that in nine cases out of ten, the rule holds true.

3. Design Data Collection Forms.

Expert systems require both incident and offender information. The rules define the necessary data elements. For example, the example previously given connected the searching of a medicine cabinet to whether the offender was a drug abuser. The incident form must therefore capture the searching of the medicine cabinet, and the offender form must indicate drug abuse. Exhibit 4-2 shows the incident report currently in use by the Charlotte Police Department for its housebreaking expert system.

4. Establish Procedures for Data Collection.

Procedures for data collection depend upon local practice. In most agencies, patrol officers will provide the basic information on the initial incident report. However, crime lab technicians, crime analysts, and other personnel may also contribute information to the database. Arrest reports are the primary source for offender information. It is particularly important that the developers of the expert system receive the arrest reports on a regular basis.

5. Build the Database.

Success of an expert system is greatly dependent on the number of records in the system. As more records become available, stronger associations will arise. Reconstructing closed cases at the start of the project is essential but time consuming.

6. Train Personnel.

Training is necessary for all detectives who use the system. Making them comfortable with the system is essential for the long-term success of the system. In addition, an operator needs to be identified with responsibilities for editing and validating the information in the system. This person need not have extensive computer background, but should have knowledge of department operations and investigative procedures.

In summary, expert systems hold promise for criminal investigations. The computer's analysis capabilities are the key to the success of these systems. Although still in their infancy, expert systems eventually may become standard tools in investigative operations.[25]

IMPACT Projection Model

The Criminal Justice Statistics Association, Inc. in Washington, D.C., offers a microcomputer system, called the Interactive Models for Projecting Arrest and Corrections Trends (IMPACT). The Bureau of Justice Statistics supported the development of the model. IMPACT offers five methods for conducting projections and numerous utilities for comparing alternative policy scenarios, calculating future costs based on population projections, and comparing population projections to projected systems capacity.[26]

IMPACT is a menu-drive system that takes the user through the necessary steps in conducting a projection, using the following general model:

1. Design the projection, including choice of a population, variables, data, and the appropriate model flow and decision points.

2. Project the source, the starting point of the model. For example, projecting an arrest trend as the source of a jail population.

3. Factor in decision probabilities (maximum of ten). For example, the probability of filing based on arrest, the probability of going to court based on a filing, and the probability of detention.

4. Calculate the intake to the projected population.

5. Enter the estimated length of stay for the population.

6. Calculate releases and the population at future points in time.

IMPACT provides two methods for projecting the source of a population and, combined with two methods for calculating releases, results in four options for building models. Quick Project, which projects future population based on admissions and length of stay data, is the fifth method in IMPACT.

As a simple example, Exhibit 4-3 shows projections for eight prison groups for 1993 using only admissions, average daily population, and length of stay data. The first four columns are input provided by the user. IMPACT then calculates the future population and the number of prisoners released from each group in 1993.

Much more complex projects are possible with IMPACT. A user can provide more detailed information on the expected rates of admissions and releases. Further, the results can be aggregated by time periods or offender groups. IMPACT's calculation methods are based on the work of various states and localities—its primary benefits being their availability on a microcomputer, and providing instantaneous results once a projection model is developed.

The following examples illustrate how IMPACT is now used in the field:

- Legislative impact analysis, and in preparing fiscal impact statements during a legislative session.
- Local (jail) facility projections, comparing the differential effects of detention and incarceration alternatives.
- Development of "what if" scenarios—for example, "What would the current population be if Release on Recognizance bonds were not allowed?"
- Projection of statewide prison populations.
- Projection of secure juvenile detention bedspace needs for an urban multi-county region.
- Comparing IMPACT projections to the results of other models as a check for methodology.

Summary

The applications in this chapter need the capabilities of a computer. The computer brings computational speed and data storage efficiencies not available in manual systems. For example, the Space Program in the STAC package conducts an exhaustive search to identify high crime areas. The computer's speed enables the program to identify these areas in a relatively short period of time. With the expert system in Baltimore County, the microcomputer organizes information about cases and suspects. Moreover, the rules in the system represent the collective experiences of many burglary investigators. Having these investigators available for every case is obviously impossible. The expert system is an attempt to capture their talents in a systematic manner.

One of the difficulties with these applications is that they generally take longer to develop and implement. The STAC package was developed after several years of research by the Authority on crime analysis. The IMPACT program also represents several years of research to determine the best methods for forecasting criminal justice populations. Expert systems will always require time to develop the rules and the database needed for successful application. The Baltimore County application is already two years into development, and its value probably cannot be measured for another two years of full operation.

While these disadvantages must be considered, it can also be expected that analysis applications will continue to be developed. Criminal justice agencies can benefit greatly from the output of these systems. Indeed, they may have more long-term impact than many of the other applications discussed in this report.

Exhibit 4-1
STAC Map for Motor Vehicle Thefts

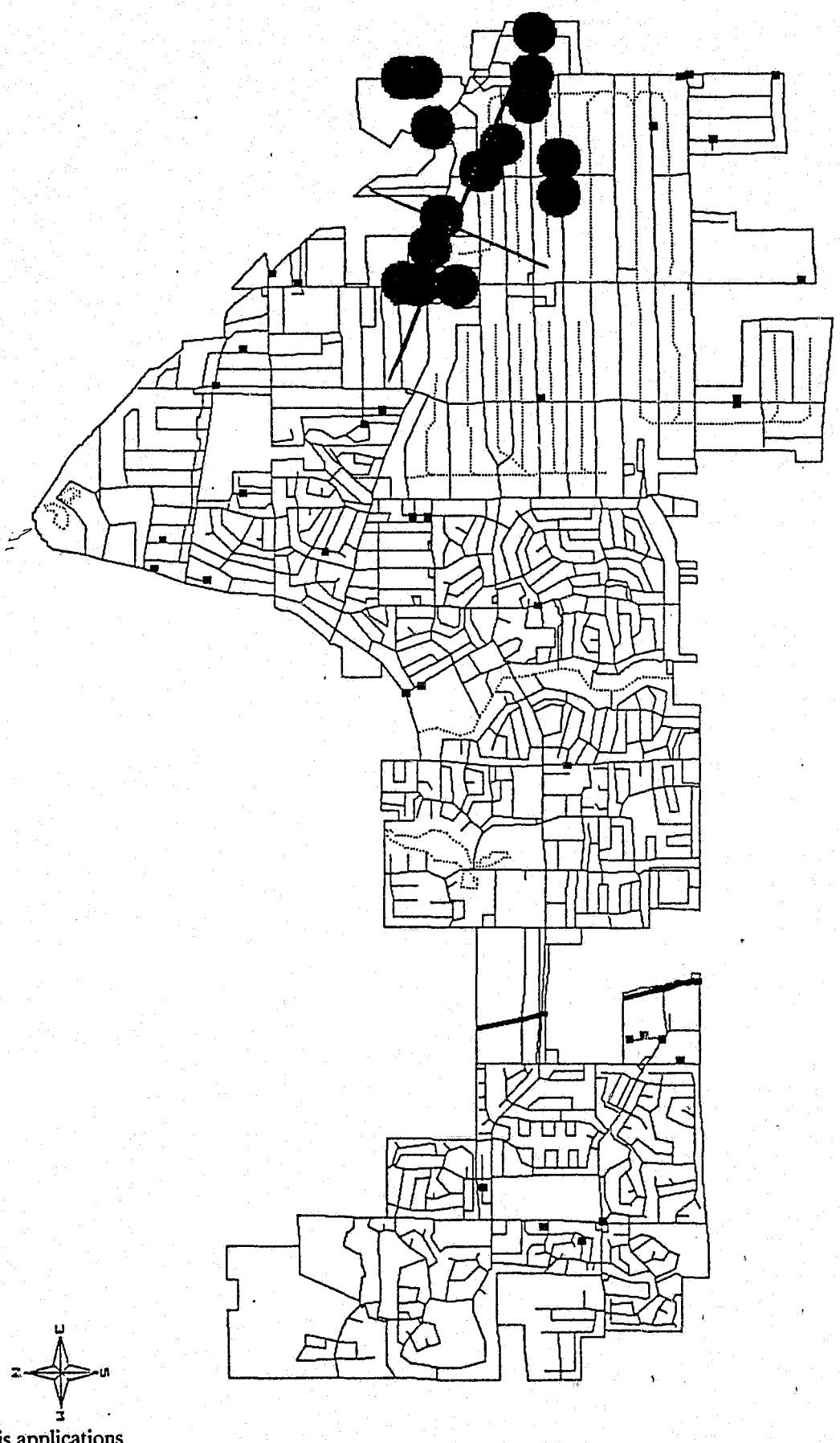


Exhibit 4-2
Data Collection Form for Expert System on Housebreakings

CHARLOTTE POLICE DEPARTMENT
HOUSEBREAKING EXPERT SYSTEM:

INCIDENT REPORT

COMPLAINT #_____

VICTIM:_____
ADDRESS:_____

DATE: FM __/__/__/ TO __/__/__/
m d y m d y

TIME OF BURGLARY:
DAYTIME ___ DARKNESS ___ NOT KNOWN ___
IF DAYTIME, MORNING____ AFTERNOON ____

VICTIM:
ELDERLY____ FENCE____
PRIOR BURG'S____
DRUG DEALER____

OTHER ASSOCIATED OFFENSES:
ROBBERY____ HOMICIDE____
RAPE____ ASSAULT____
ARSON____

(Strike all numbers that apply)

I. CHARACTERISTICS OF RESIDENCE AND AREA

A. SIGNS OF OCCUPANCY
1. CAR PRESENT
2. LIGHTS ON
3. RADIO/TV ON
4. AIR CONDITIONING ON
5. TOOLS, EQUIP. IN YARD
6. OTHER SIGNS

B. OCCUPIED (*PEOPLE VISIBLE*)
1. YES

C. SIGNS UNOCCUPIED
1. NO CARS
2. NEWSPAPER/MAIL
3. NO LIGHTS
4. TRASH CANS
5. PUBLIC NOTICE
6. OTHER SIGNS

D. KNOWN UNOCCUPIED
1. YES

E. VACANT
1. YES

F. DWELLING TYPE
1. SINGLE FAMILY
2. APARTMENT-ELEVATOR
3. TOWNHOUSE
4. MOTEL

G. ENVIRONMENTAL
1. VISUALLY SCREENED
2. NEAR MAIN THUROFARE
3. NEAR PUBLIC TRANSPURTATION
4. RURAL FARM
5. RICH NEIGHBORHOOD
6. NO OUTSIDE LIGHTS
7. PREDOMINANTLY BLACK
8. CORNER HOUSE
9. END UNIT
10. GROUND LEVEL
11. PUBLIC HOUSING PROJECTS
12. NEAR SCHOOL
13. NEAR DRUG REHAB CENTER
14. NEAR CONSTRUCTION
15. NEAR PARK/RR TRACKS/SHELTER

H. LOCATION
1. ADAM 1
2. ADAM 2
3. ADAM 3
4. BAKER 1
5. BAKER 2
6. BAKER 3
7. CHARLIE 1
8. CHARLIE 2
9. CHARLIE 3

I. RISK TO OFFENDER
1. HIGH
2. LOW

J. PROTECTED
1. DOG PRESENT
2. ALARM SYSTEM
3. GUARDED GATES/ IRON BARS

II. ENTRY

P.O.E. _____

A. RISK-REDUCTION
1. CUT ALARM/PHONE CORD
2. TURN OFF EXT. LIGHTS
3. BREAK GLASS/TEST
4. RING/KNOCK FIRST
5. REMOVE POWER METER

B. ENTRY POINT
1. MORE THAN ONE POINT
2. ENTRY SMALL
3. HARDLY NOTICEABLE
4. SECOND STORY/HIGH

C. SOPHISTICATION
1. HIGH
2. LOW

D. BROUGHT TOOLS WITH
1. YES 2. NO 3. UNKNOWN

E. TYPE OF ENTRY
1. NO FORCED ENTRY
2. SMASH
3. BODY FORCE
4. BREAK GLASS
5. CUT GLASS
6. PRY MOLDING
7. ENTRY BY SCAM
8. REMOVE GLASS
9. REMOVE SLIDING GLASS DOOR
10. SKYLIGHT
11. REMOVE IRON BARS
12. TAMPER DEAD BOLTS
13. AIR CON. REMOVED
14. FORCED HEAVY DOOR OPEN

F. TYPE OF TOOL
1. NO TOOL USED
2. GRIPPING TOOLS
3. GLASS CUTTER
4. PRY TOOL
5. SUCTION CUP
6. GLASS ADHESIVE/ WINDOWS TAPED
7. CREDIT CARD
8. HAMMER/AXE
9. PASS KEY

III. TYPE AND EXTENT OF SEARCH

A. TYPE
1. RANSACK
2. TIDY
3. BOTTOMS UP
4. SYSTEMATIC
5. GRAB/NO SEARCH
6. NO SIGN

B. EXTENT
1. ONE ROOM OR AREA
2. MASTER BEDROOM
3. CHILD/JUVENILE ROOM
4. KITCHEN AREA
5. ENTIRE PREMISE
6. ATTIC/BASEMENT
7. MEDICINE CABINET
8. REFRIGERATOR
9. LIQUOR CABINET
10. CONCEALED COMPARTMENT

IV. PROPERTY TAKEN/NOT TAKEN
(strike applicable items)

A. PROPERTY TAKEN
1. SILVER
2. JEWELRY
3. FUR
4. ART
5. ANTIQUE
6. COLLECTIBLES
7. CASH ONLY
8. HIGH CASH VALUE
9. JUNK JEWELRY
10. SILVERPLATE
11. TV
12. RADIO
13. MICROWAVE
14. VCR
15. CAMERA
16. CREDIT CARDS/CHECKS
17. CONCEALABLE ITEMS
18. WALLET/POCKET BOOK
19. HAND GUNS
20. LONG GUNS
21. ALCOHOL– HARD LIQUOR
22. ALCOHOL–ALL OTHER
23. DRINKS–NON-ALCOHOLIC
24. FOOD TAKEN/CONSUMED
25. DRUGS/PRESCRIPTIONS
26. DRUGS/NON PRESCRIPTION
27. CLOTHING FEMALE-NOT UNDERGARMENTS
29. CLOTHING FEMALE-UNDERGARMENTS
30. CLOTHING-MALE
31. WOMEN'S MAKEUP
32. CHILD/TEENAGE MISC.
33. BLANKETS
34. FURNITURE
35. REFRIG/LG. APPLIANCE
36. SAFE
37. CAR STOLEN
38. POWER/LAWN EQUIPMENT
39. PIGGY BANK
40. OTHER_____

B. OPPORTUNITY, BUT NOT TAKEN
1. VALUABLES
2. JUNK JEWELRY/SILVERPLATE
3. STREET DISPOSABLE
4. HANDGUN
5. LONG GUN
6. AUTO
7. FOOD
8. OTHER

V. BEHAVIOR AT SCENE

A. VANDALISM
1. EXTENSIVE
2. SOME

B. OBNOXIOUS
1. DEFECATION
2. URINATION
3. GRAFFITI-TRADEMARK
4. GRAFFITI-WHITE RACIAL SLUR
5. GRAFFITI-BLACK RACIAL SLUR

C. PROP. HIDDEN/DROP/ DUMPED IMMED.AREA
1. YES

D. PILLOWCASE OR/ SUITCASE USED
1. YES

E. FORENSIC
1. GLOVES
2. SOCKS
3. FABRIC MARK
4. TISSUE/TOWEL

F. PRINTS FOUND
1. ENTRY
2. OTHER PLACES
3. POOR QUALITY
4. MULTIPLE SHOE PRINTS

G. UNUSUAL
1. YES *(describe on reverse side of form)*

VI. TRANSPORTATION USED

1. FOOT
2. TRUCK
3. CAR
4. CAB
5. PUBLIC TRANSPORT
6. BIKE/MINI-BIKE

VII. IF SUSPECT OBSERVED
(use "best" suspect description)

A. AGE
1. JUV., 15 OR LESS
2. YOUTH 16-20
3. ADULT

B. SEX
1. MALE
2. FEMALE

C. STATURE
1. MUSCULAR
2. THIN
3. OBESE
4. TALL
5. SMALL

D. ACCOMPLICES
1. YES

E. RACE/ETHNIC
1. WHITE
2. BLACK
3. HISPANIC
4. OTHER

F. ARRESTED
1. YES

ACTION TAKEN

LATENTS? Y___ N___ PHOTOS? Y___ N___ EVID? Y___N___

REPORTING OFFICER_____
CODE NUMBER: _____

DATE ENTERED_____
DATA ENTRY ID:_____

Exhibit 4-2 (continued)

ADDITIONAL
UNUSUAL .
INFORMATION_____

_____

_____

_____

_____

HOUSEBREAKING EXPERT SYSTEM: **ARREST REPORT**

SUSPECT NAME:_____ **COMPLAINT #:**_____
Last, First Middle **ARREST #** _____

SUSPECT ADDRESS:_____ **ARREST**
_____ **DATE:** ___/___/___/
_____zip_____ m d y

I. OFFENDER
(Strike all numbers that apply)

A. BIRTH DATE

___/___/___/
m d y

B. SEX
1. MALE
2. FEMALE

C. RACE/ETHNIC
1. WHITE
2. BLACK
3. HISPANIC
4. ASIAN
5. INDIAN
6. OTHER

D. BURGLAR STATUS
1. EXPER.
2. AMATEUR
3. CAT
4. ROBBER

E. BACKGROUND
1. TRANSIENT

F. WORKS WITH ACCOMPLICES
1. USUALLY
2. SELDOM
3. NEVER

G. ABUSER
1. ALCOHOL
2. DRUGS

H. C.J. STATUS
1. PAROLE
2. PROBATION
3. PRIOR ARRESTS

I. LOCATION OF RESIDENCE
1. ADAM 1
2. ADAM 2
3. ADAM 3
4. BAKER 1
5. BAKER 2
6. BAKER 3
7. CHARLIE 1
8. CHARLIE 2
9. CHARLIE 3
10. NON-CITY RESIDENT
11. NO FIXED ADDRESS

J. STATURE-*strike all applicable*
1. MUSCULAR
2. THIN
3. OBESE
4. TALL
5. SMALL

II. RELATED INCIDENTS (COMPLAINT #'S)
[Cleared by arrest (CBA), or exceptionally cleared (EX-CL)]

NUMBER	*EX-CL CBA*	NUMBER	*EX-CL CBA*	NUMBER	*EX-CL CBA*	NUMBER	*EX-CL CBA*

REPORTING OFFICER_____ DATA ENTRY ID:_____
CODE NUMBER: _____ DATE ENTERED:_____

Exhibit 4-3
Impact Prison Projections

CURRENT 1988
FUTURE 1993

	CURRENT POPULATION	CURRENT L.O.S. (IN MONTHS)	FUTURE YEARLY ADMISSIONS	FUTURE L.O.S. (IN MONTHS)	FUTURE POPULATION	# RELEASED ON LAST YEAR
1	446	181	50	181	533	35
2	358	84	42	84	325	47
3	214	36	130	36	357	117
4	1747	56	480	56	2071	440
5	1493	43	360	43	1340	376
6	838	41	260	41	877	256
7	1594	22	494	22	951	526
8	498	21	430	21	738	419
9	0					
10						
	7188	50	2246	40	7192	2215

Chapter 5

Conclusions

The Impact of Microcomputers

The last ten years have seen tremendous improvements in the capabilities of microcomputers. They have been accepted as an essential tool by small and large businesses to improve efficiency and effectiveness in an economic manner. In general, microcomputers have been introduced into criminal justice agencies more slowly than businesses. Implementation problems were discussed in Chapter 1, centering on issues of decentralization, data security, information sharing, and recruitment of personnel to operate the systems. Inevitably, some criminal justice agencies decided several years ago to experiment with microcomputers and test their benefits. The introduction of laptop microcomputers in the St. Petersburg, Florida, Police Department is a prime example. As the success of the laptops became known, many police departments inquired about their advantages, and several eventually adopted laptops.

Criminal justice agencies can be expected to acquire more microcomputers as costs continue to be attractive and capacities continue to improve. Most local governments have fiscal problems and no longer feel they can invest in large mainframe computers. Microcomputers offer an alternative to these jurisdictions by providing computer power at lower expenditures. This is particularly important to criminal justice agencies which cannot be expected to have increases in personnel. Their alternative is to maintain their productivity through greater use of microcomputers.

This discussion should not be interpreted as saying that microcomputers will eventually replace larger mainframe computers. Microcomputers and mainframe computers play different roles in criminal justice agencies. The role of microcomputers has been illustrated in this report. In general, microcomputers suffice for applications with relatively small databases and a limited number of users. Mainframe computers are a necessity for larger databases. Moreover, mainframe computers provide extensive telecommunications capabilities not found in microcomputers.

Benefits of Microcomputers for Criminal Justice Agencies

Based on the applications in this report, there are three overall benefits to microcomputers in criminal justice systems:

- Microcomputer applications can replace manual systems resulting in increased efficiency and effectiveness.
- Microcomputers applications can assist in changing how agencies perform their functions.
- Microcomputer applications can bring new techniques to assist criminal justice agencies.

Examples of the first benefit can be seen in the introduction of microcomputers into smaller police agencies. Chapter 2 discussed the applications developed by the police departments in Summerville, South Carolina; Winter Park, Florida; and Eaton, Ohio. The microcomputer systems have allowed these departments to respond more rapidly to new situations. In all three departments, the number of applications increased as personnel became familiar with microcomputer operations. Similar benefits on efficiency are reflected in the use of the traffic and district court systems in Anderson County and Coffey County, Kansas. These systems have been accepted to the extent that the court personnel would probably not return to the manual system.

The introduction of a technology such as microcomputers can also result in changing how agencies conduct their operations. The MAPADS application in Chicago is a key component of a change in district operations on how police commanders allocate resources. MAPADS allows input from citizen groups on "incivilities." Combining official crime reports with citizen information results in a more complete picture of district problems. Police commanders can then be more responsive in addressing district problems.

The electronic bulletin boards offer another example of how police agencies are changing. These boards provide another alternative for citizens to

communicate with police. They also provide a new communication mechanism for police agencies to exchange messages, crime prevention bulletins, and other information.

The analysis applications discussed in Chapter 4 are all examples of techniques not previously available to criminal justice agencies. Expert systems represent an emerging application which may prove to be of great benefit to police investigators. Similarly, the IMPACT program provides a method of projecting criminal justice populations. A manual procedure for performing these applications would be virtually impossible.

Costs of Microcomputers

The benefits of microcomputers have not come without incurring costs. These costs are represented by the initial outlay of funds for hardware, by the purchase of software packages or software development costs, by personnel costs for capturing and entering data, and by training costs for system operators. Depending on the objectives of the agency, these costs can be kept to a minimum by obtaining public domain software, conducting in-house training, and using current personnel for data collection and system operation. At the other extreme, the costs can be considerable if an agency pays for development of tailored software and needs additional personnel for the system.

Attempting to compare benefits with costs is difficult with any computer system. It is problematic to place a dollar figure on increased efficiency and effectiveness. Further, dollar figures cannot be placed on the benefits derived from operating in a different manner than in the past. One measure of system success is its lasting power within an agency. If a system remains active in an agency, then it can be concluded that the agency views its benefits as outweighing the costs. On the other hand, a system may be cancelled or omitted by an agency because it is too costly for maintenance and data collection compared to beneficial usage. The key is that each agency must decide whether a given microcomputer application has been worth its costs over the long term.

In summary, this report indicates what is now possible with microcomputers in criminal justice agencies. The applications discussed in this report only scratch the surface. In the future many more applications will appear and microcomputers can be expected to be an integral part of virtually all agencies.

References

1. Stine, G. Harry. *The Untold Story of the Computer Revolution*. New York, New York: Arbor House, 1985.

2. SEARCH Group, Inc. *The Criminal Justice Microcomputer Guide and Software Catalogue*. SEARCH Group, Inc., Sacramento, California. (June 1988). Developed under BJS Grant No. 83BJ-CX-K001.

3. For an earlier version of this classification, see Wormeli, Paul, Thomas Castor, and Thomas McEwen. *Microcomputers and Criminal Justice: Introducing a New Technology*. Technical Report No. 23 (December 1978). SEARCH Group, Inc.

4. This is not to say that microcomputers are small mainframes. Indeed, there have also been major advances in larger computers. Criminal justice systems have benefited from these advances in expanded telecommunications services, larger databases, expanded networks, and many other areas.

5. Exporting from a database package means that the data is written to a file that can be read by other packages. A common procedure is to export a database to a standard ASCII file. A different database package can then import or read this file.

6. In Chicago, the city's Management Information System provides basic and intermediate computer training for microcomputers and mainframes. In addition, the police department's Training

Academy provides training in specialized applications.

7. Turley, James L. *PCs Made Easy*. New York, New York: Osborne McGraw-Hill, 1989.

8. Casey, Matthias E., and Marc Buslik. "Computerized Decision Support: Innovative Policing in Chicago." Chicago Police Department. September 1988.

9. Ibid.

10. "Departments Automate with Database Software." *Law and Order*. June 1988.

11. LOCKUP: A Microcomputer-based Jail Management System, Executive Summary. SEARCH Group, 925 Secret River Drive, Suite H, Sacramento, California 95831.

12. Waterhouse, Linda D. "Jail Management Software Developed with NIJ Support." Research in Action. National Institute of Justice (April 1989).

13. D.A.'S ASSISTANT: A Microcomputer-based Prosecutor's Management Support System, Executive Summary. SEARCH Group, 925 Secret River Drive, Suite H, Sacramento, California 95831.

14. Bradley, Dr. Robert J. "Missouri Automates Prosecutors' Offices." *Interface: The Justice Newsmagazine of SEARCH Group, Inc.* Spring 1989.

15. Sweat, Peggy A. and Thomas G. Dibble. "Juvenile Court Docketing and Indexing System." *Court Technology Reports: Transferable Systems*. National Center for State Courts, Williamsburg, Virginia, 1988.

16. One inquiry asked whether snakes are legal pets in Texas. The answer, as provided in a return message, is that they are not.

17.The term "modem" is an acronym for "MOdulator/DEModulator." Technically, a modem translates digital pulses from a computer into analog signals for telephone transmission, and analog signals from the telephone into digital pulses the computer can understand. Most modems are installed as boards inside the microcomputer, although modems can also be external devices.

18. Spatial and Temporal Analysis of Crime (STAC). Illinois Criminal Justice Information Authority.

19. Bates, Samuel. "Spatial and Temporal Analysis of Crime." Research Bulletin. Illinois Criminal Justice Information Authority.

20. Quinlan, J. Ross, editor. *Applications of Expert Systems*. New York, New York: Addison-Wesley Publishing Company, 1987.

21. Waterman, Donald A., Jody Paul, and Mark Peterson. "Expert Systems for Legal Decision Making." in *Applications of Expert Systems*. J. Ross Quinlan, editor. New York, New York: Addison-Wesley Publishing Company, 1987.

22. Hulbert, John. "The Use and Potential Use of Artificial Intelligence for Police, Security and Intelligence Activities." Paper for Institute of Police and Technology Management Symposium. February 1988.

23. Output from expert systems is similar to output from Automated Fingerprint Identification Systems. That is, a list of suspects is provided along with a score for each suspect that roughly reflects the probability that the suspect committed the offense.

24. Jacoby, Joan. "Residential Burglary Expert System: Overview." Jefferson Institute for Justice Studies. Washington, D.C.

25. For more information on expert system applications, see *Handbook on Artificial Intelligence and Expert Systems in Law Enforcement* by Edward Ratledge and Joan Jacoby (Westport, Connecticut: Greenwood Publishers), 1989.

26. Dall, Owen, and Eric Marx. *Impact User's Guide (Version 2.0)*. Washington, D.C.: Criminal Justice Statistics Association, Inc.

Appendix A

Points of Contact

Database Systems

LOCKUP and D.A.'S ASSISTANT

Mr. Dave Roberts
Ms. Cheryl Gambetta
SEARCH Group, Inc.
925 Secret River Dr., Suite H
Sacramento, California 95831
916/392-2550

JUVENILE COURT DOCKETING AND INDEXING SYSTEM

Mr. Richard Wilhelm, Executive Director
Mr. Charles Taylor, Systems Supervisor
Michigan Judicial Data Center
27300 Eleven Mile Road
Southfield, Michigan 48034
313/352-8990

MAPADS

Deputy Chief Matthias E. Casey
Detective Division—Administration
Police Officer Marc Buslik
Data Systems Division
Chicago Police Department
1121 South State Street
Chicago, IL 60605
312/744-8605

LAPTOP MICROCOMPUTERS

Sgt. Maurice McGough
St. Petersburg Police Department
1300 1st Avenue North
St. Petersburg, FL 33705
813/893-7799

SMALL POLICE DEPARTMENT SYSTEM

Chief Ray Nash
Summerville, South Carolina Police Department
100 East Doty
Summerville, SC 29483
803/871-2463

PROSECUTION MANAGEMENT SUPPORT SYSTEM

Ms. Patton Galloway
Conference of District Attorneys
19 West Hargett Street
Suite 501
Raleigh, North Carolina 27601
919/733-3484

CRIMINAL, CIVIL, AND TRAFFIC COURT SYSTEMS

District Judge James J. Smith
Fourth Judicial District
Anderson County Courthouse
Garnett, Kansas 66032
913/448-6886

Bulletin Boards

PERF METAPOL

Mr. Dan Stern
Mr. Chris Leahy
Police Executive Research Forum
2300 M Street, NW, Suite 910
Washington, D.C. 20037
202/466-7820

LegalNet

Mr. Larry Spears
State Capitol
600 East Boulevard Avenue
Bismark, North Dakota 58505-0530
701/224-2689

NCJRS*BBS

Ms. Pamela McIntyre
National Criminal Justice Reference Service
1600 Research Blvd., Mail Stop 3H
Rockville, MD 20850
301/738-6621

SCONC

Mr. Greg Wallace
Clerk
Supreme Court of North Carolina
P.O. Box 2170
Raleigh, North Carolina 27602
919/733-3723

NIJ*NET

Mr. Martin Lively
National Institute of Justice
633 Indiana Avenue, NW
Washington, D.C. 20531
202/272-6011

Garland, Texas Crimestoppers

Ms. Mel White
Data Services Dept.
217 North Fifth St.
Garland, Texas 75040
214/205-2234

Berkeley, California

Officer Dave Frederick
Berkeley Police Department
2171 McKinley Avenue
Berkeley, CA 92703
415/644-6743

ACANet

Ms. Gwyn Smith Ingley
Ms. Donna Duncan
American Correctional Association
8025 Laurel Lakes Court
Laurel, MD 20707
800/825-2665, Ext. 282

Analysis Systems

PROBER-GX

Mr. Peter Quigley
MIS Applications Director
National Council on Crime and Delinquency Midwest
6409 Odana Road
Madison, WI 53719
608/274-8882

EXPERT SYSTEMS

Ms. Joan Jacoby
Jefferson Institute for Justice Studies
1910 K Street NW, Suite 601
Washington, D.C. 20006
202/659-2882

SPATIAL AND TEMPORAL ANALYSIS OF CRIME

Dr. Carolyn R. Block
Senior Research Analyst
Statistical Analysis Center
Illinois Criminal Justice Information Authority
120 South Riverside Plaza
Chicago, IL 60606-3997
312/793-8550

IMPACT

Ms. Hildy Saizow
Criminal Justice Statistics Association
444 North Capitol Street, NW, Suite 606
Washington, D.C. 20001
202/624-8560

Appendix B

Bulletin Board Numbers

Bulletin Board System	BBS Number	SYSOP
All Points (Georgia)	(404) 738-3626	Charles Bruni/Mike Haas
APCO New Smyrna Beach, Fl.	(904) 423-1312	Bill Kuhn
Arlington, Va.	(703) 358-3949	Jim Caldwell
Berkeley, California	(415) 644-6806	C.J. Orsi
Boise, Idaho	(208) 323-8626	Hugh McNichols Mike Worley
Bryan, Texas	(409) 779-2936	C. Walling/D. Cuthberson
Car 54 (Ontario, Canada)	(519) 256-9077	Al Porter
CjaBoard (California)	(415) 495-5942	Sam Smith
College Station, Texas	(409) 764-2983	
DEA Phoenix, Arizona	(602) 253-3891	N/A
Fairfax NWIS	(703) 256-7516	Josh Brown
FIRENET (Colorado)	(719) 591-7415	Woody Woods
Garland, Texas	(214) 205-9129	Mel White
Irving, Texas	(214) 721-2745	Louis Hamilton
Lakewood, Colorado	(303) 987-7388	Larry Scheidemaan
LegalNet (North Dakota)	(701) 224-9807	Larry Spears
Maricopa County, Arizona	(602) 256-1609	C. Brokschmidt
METAPOL (PERF)	N/A	Dan Stern/Chris Leahy
NCJRS	(301) 738-8895	Pam McIntyre
NIJ*NET (Washington, D.C.)	(202) 724-6171	Martin Lively
Northern Michigan Univ.	(906) 227-2658	Dave Russell
Pasadena, California	(818) 405-4242	Lou Gallo
Plano, Texas	(214) 578-1311	Mike Burney
San Jose CRIMEBYTES, Ca.	(408) 287-8399	Flory, Kranich, Saito
SCONC (North Carolina)	(929) 733-0486	Greg Wallace
SEARCH-BBS	(800) 448-8257	Seth Jacobs
So. San Francisco, Ca.	(415) 877-5341	Daryl Jones
State Criminal Justice, Wa.	(206) 764-4002	Ian Wallace
U of N. Florida (IPTM)	(904) 646-2775	Bob Bradley

Appendix C

Glossary of Terms

This list is provided with the permission of SEARCH Group, Inc. in Sacramento. It is part of a larger glossary in "The Criminal Justice Microcomputer Guide and Software Catalogue" (June 1988 by SEARCH Group, Inc.) prepared under BJS Grant No. 83BJ-CX-K001.

Glossary of Terms

alphanumeric: A set of characters which includes both uppercase and lowercase letters, digits and some special characters (-,/,*,$,(,),+,=,etc.).

analog format: A physical representation of information such that the representation bears an exact relationship to the original information. For example, the electrical signals on a telephone channel are analog data representation of the original voice data, (also see digital format).

analyst: A person who is skilled in the identification, definition, and development of techniques for the systematic solution of problems.

artificial intelligence: The capability of a device to perform functions that are normally associated with human intelligence, such as reasoning, learning and self-improvement.

ASCII: American Standard Code for Information Interchange. The standard code used to represent letters, numbers, and special functions as a series of zeros and ones. This seven-bit standard code was adopted to ease the interchange of data among various types of data processing and data communications equipment.

BASIC: Beginner's All-purpose Symbolic Instruction Code. A high-level, second generation algebraic programming language designed for ease of use and ease of learning. BASIC has a small number of commands and simple syntax. BASIC has been implemented on most computers.

batch processing: A data processing technique wherein a program with all the required and associated data are processed during a single machine run without user interaction or intervention. Contrast to "interactive" and "conversational."

baud: A unit of signaling speed generally equal to one bit per second. Thus, 8 baud equals 1 character per second.

bit: The smallest unit of information recognized by a computer and its associated equipment.

byte: A group of adjacent binary digits (bits) operated on as a unit by the computer. Normally, the eight bits that represent a character or number in binary code.

COBOL: Common Business Oriented Language. An "English-like" second generation high-level programming language designed by the U.S. Navy in the 1950s.

communication device: Hardware components that allow a microcomputer to communicate with other computer systems and peripheral devices, such as ports, modems and facsimiles.

communication software: Software that enables microcomputers to share data and information with remote systems.

compile: To prepare a machine language program from a program written in a higher level program language, such as COBOL, FORTRAN, C or PASCAL.

compiler: A computer program which converts an entire high-level language program into a machine language program from a source program. The compiler is capable of replacing single program statements with a series of machine language instructions or with a subroutine.

digital format: Data represented in discrete, discontinuous form; for example, the representation of numbers in binary form by a series of 1's and 0's.

data: The basic units of facts, concepts or instructions represented by numeric, alphabetic, graphic or special characters that are used for communication, interpretation or processing by human or automatic means.

database: Information stored in a computer for subsequent retrieval. A set or collection of interrelated data (with limited duplication) designed to serve one or more applications, and stored in such a fashion that the data are independent of the programs that use them. Thus, a common, controlled approach can be used for adding, modifying, and retrieving data.

data processing: The process of converting data into information and the manipulation, storage, and retrieval of that information.

data transfer rate: The speed at which a computer reads or writes data to a storage medium.

DBMS: Data Base Management System. The collection of software used to create files, maintain data and generate reports stored in a database.

debug: To detect, correct, and eliminate mistakes and logical flaws in computer systems and programs.

dedicated: Hardware, software, or procedures which are designed for a specific use.

directory: 1. A logical portion of disk space which is named by a user when it is created. A directory is used to hold a list of a logically related files. A directory may be part of another directory (a subdirectory) or it may contain several other directories and files. A directory is analogous to a drawer in a file cabinet in which the user stores files. 2. The list of files displayed when a listing command is entered at any directory level of the file structure.

disk: See also floppy disk, hard disk. A flat, circular, rotating magnetic media upon which magnetic pulse coded can be written and read.

disk cache buffer: An area in the memory of a system into which large portions of disk files are read prior to an actual request to read the entire section. This increases the chance that the next disk read request can be read from memory rather than from the disk. Since memory is much faster than the disk, performance is greatly improved.

disk caching: A process of reading large portions of a file or disk into a special buffer thereby decreasing the number of disk reads required for the rest of the data and improving performance.

download: The transfer of information from a remote computer to a local host computer.

dumb terminal: A video display terminal with minimal capabilities.

electronic mail: The transmission and storage of messages through use of computers and telecommunications.

emulate: To imitate one system with another so that the host system accepts the same data, executes the same programs and maintains the same functionality as the imitated system.

emulator: A type of program or device that allows programs written for one system to operate on another. Emulators make a system "look like" the emulated system to the programs.

erase: To remove data from storage without replacing it.

executable code: Programming code which is immediately executable by the computer.

execute: To run a program or carry out an instruction.

file: A collection of related information or data sets stored and manipulated as a single unit. Files can be stored on disks, in memory, on tape or can be sent to a printer.

fixed-length record: A record which always has the same number of characters. Contrast with "variable-length record."

floppy disk: Also know as floppy diskette and flexible diskette. A removable magnetic storage medium composed of a thin mylar plastic coated with a magnetic oxide material and enclosed in a semi-rigid

protective plastic jacket. Floppy disks come in three sizes; standard 8 inches, minifloppy 5-1/4 inches, and microfloppy 3-1/2 inches.

flowchart: A diagram that uses symbols and interconnecting lines to show the logic and sequence of a specific set of operations. Flowcharts are used to break a complex problem into smaller, more manageable pieces.

fourth generation language: A programming language, usually based on a database management system, which uses a non-procedural (menus) interface for programming rather than a procedural (source code) interface.

hard disks: A high-capacity, high-speed, rigid, rotating magnetic media random access storage device. Hard disks may contain multiple read/write heads and multiple disks and allow users to read, write and erase data and files.

input: Pertaining to the introduction of data, information, or instructions from an external device into a system.

interactive: An application where an input or inquiry by a user causes an immediate action by the system in response to the input. Contrast to "batch" and "conversational."

interpreter: A program which translates and executes each source code expression before translating and executing the next, without first translating the entire source program into executable code. Interpreters are slow, but provide greater interaction than a compiler.

KB: Kilobyte. A unit of measure for memory or disk storage capacity. Two to the tenth power or 1024 in decimal.

LAN: Local Area Network. A collection of computers which are connected so that they may communicate and share peripheral devices (such as hard disks and printers) and possibly access remote hosts or other networks.

logic: (1) The science dealing with the formal principles of reasoning and thought. (2) The basic principles and application of truth tables and the interconnection among logical elements required for arithmatic computation in an automatic data processing system.

logical file: One or more logical records.

logical record: The structure of a record as designed by the programmer.

macro: A single symbolic statement that, when translated, results in a series of executable statements.

magnetic tape: Plastic tape with a magnetic surface layer on which data can be stored. Data is magnetically stored in an eight-bit or six-bit coding format. Magnetic tape is normally one-half-inch in width, with 9 recording tracks and a recording density of 1600 bits per inch (bpi) or 6250 bpi.

mainframe: A large scale multiuser computing system and associated peripheral equipment. A mainframe typically has a 32-bit bus or greater, a performance greater than 12 million instructions per second (mips), and a serving capability of more than 256 users. Mainframe computers typically require a dedicated support staff of multiple personnel for operation and programming.

master file: A relatively large file of information which is updated on a periodic basis and is used as a primary source of reference.

MB: Megabyte. A unit of measure for memory or disk storage capacity two to the 20th power or 1,048,576 in decimal.

menu: A list of the options available at a particular place in a computer program. Menus allow users with little computer knowledge to utilize powerful systems.

micro: Slang for a microcomputer-based system.

microcomputer: A small scale single-user or multiuser computing system and associated peripheral equipment. A microcomputer typically has a 32-bit bus or less, performance less than 5 mips and serves less than 32 users. Microcomputers typically do not require a dedicated support staff for operation or programming.

minicomputer: A medium scale multiuser computing system and associated peripheral equipment. A minicomputer typically has a 32-bit bus or greater, performance greater than 5 mips (but less than 10 mips) and is capable of serving more than 32 users (but less than 256 users). Minicomputers typically require a dedicated support staff of one or two personnel for operation and programming.

mips: An acronym for Million Instructions Per Second. Refers to the average number of machine language instructions a computer performs in one second.

modem: MODulator/DEModulator. A hardware device that transforms digital data from a computer into analog format to transmit or receive data by telephone lines. There are both internal and external modems.

mouse: A hand-held pointing device designed to move on a flat, horizontal surface, which creates a digital signal indicating its position which can be used by the computer to position the cursor in an analogous position on a display screen.

output: 1. Pertaining to a device, process or program which allows data, information or instructions to exit a system, including monitors and printers. 2. Data which has completed processing by the computer.

personal computer: A moderately priced microcomputer system intended for personal use rather than commercial purposes.

plotter: A hard copy output device which uses movable colored pens to graph data.

port: 1. In hardware, connectors which allow two devices to be cabled together to allow communications. 2. In software, a memory address which is used for purposes of transferring information. 3. To rewrite a program in order to enable execution on a different type of computer other than the computer upon which the program was originally written.

RAM: Random Access Memory. A memory into which data can be placed (written) and from which data can be retrieved (read). The primary type of memory used in computer hardware. RAM is temporary storage; turning off the electricity causes all data to be erased.

record: A collection of related information that is treated as one unit within a file.

ROM: Read-Only Memory. A special type of memory used in computer hardware that is permanently programmed with one set of instructions. ROM is not erased when the electricity is turned off.

RS23C: Also RS232. A data communications standard for the interconnection of serial devices.

software: A generic term for all computer programs. A set of stored instructions and procedures that can be recalled as needed for the computer to execute. Contrast with "hardware."

spreadsheet: A mathematical formula processor, like a word processor for numbers. A spreadsheet program allows you to enter a series of mathematical formulas, also known as mathematical models, which the spreadsheet software will constantly calculate.

stand-alone system: A self-contained computer system that can work independently, not connected to or under the control of another computer system.

system: All of the equipment, personnel, material, procedures, documentation, and information which forms a self-sufficient unit capable of attaining specified objectives.

telecommunications: A means of communication in which computers use telephone lines to transmit and receive information.

transparent: Pertaining to information or activities which are not recognizable by a program, device or user.

user: (1) Anyone who owns or uses a computer for problem solving or data manipulation. (2) Anyone who requires the services of a computer system.

variable length record: A record having a length independent of the length of other records with which it is logically or physically associated. Contrast with "fixed-length record."

vendor: A company that sells computers, peripherals, and/or operating systems and other software.

window: A section of the video display which is used for some special purpose.

word processor: A program which allows the operator to create, edit and format text in a temporary format which is saved in the memory or storage of the computer until needed for printing or modification.

write: To record data on a hard disk, floppy diskette, or memory.

U.S. Department of Justice
Office of Justice Programs
National Institute of Justice

Washington, D.C. 20531

Official Business
Penalty for Private Use $300

BULK RATE
POSTAGE & FEES PAID
DOJ/NIJ
Permit No. G–91