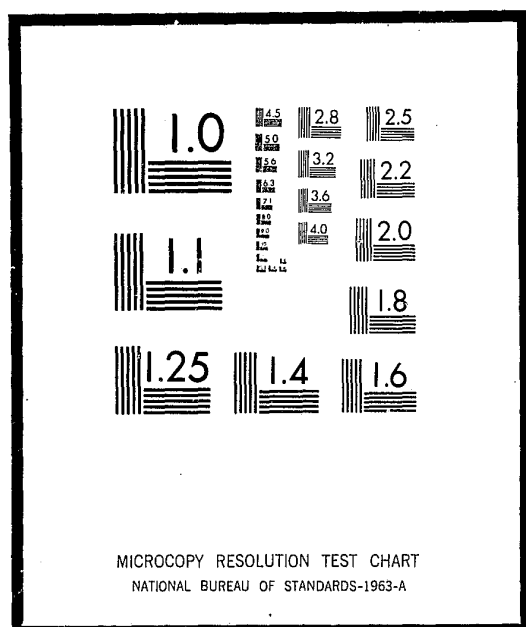


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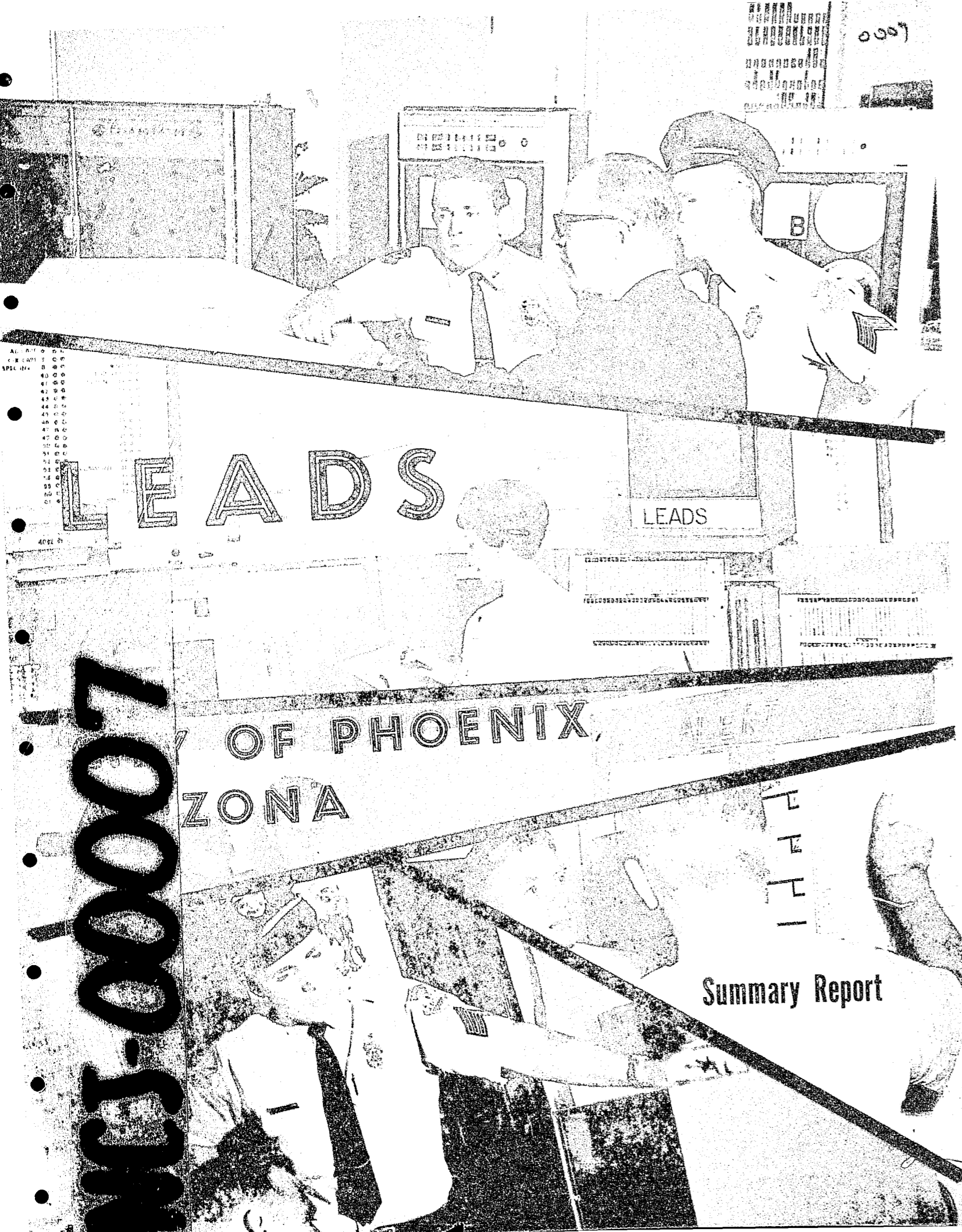
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ANNOTATION:
DEVELOPMENT AND IMPLEMENTATION OF A MODEL POLICE RECORDS AND COMMUNICATIONS SYSTEM.

ABSTRACT:
THE PHOENIX POLICE DEPARTMENT REVIEWS THE PRESENT STATE OF ITS INFORMATION SYSTEM AND MAKES RECOMMENDATIONS FOR IMPROVEMENTS ON STORAGE, RETRIEVAL AND DISTRIBUTION OF DATA. METHODS ARE EXPLORED WHEREBY IMPROVEMENT CAN BE MADE IN THE DEPARTMENT'S COMMUNICATIONS SYSTEMS. REVIEW OF THE PROJECTS DESIGN INCLUDED ORGANIZATION AND SPECIAL STAFFING REQUIREMENTS, DATA COLLECTION AND CREATION OF A DATA BASE, AND THE ACTUAL DEVELOPMENT AND IMPLEMENTATION OF THE SYSTEM. SEE NCJ-00110 AND NCJ-00111 FOR FULL REPORT.



CITY OF PHOENIX
LEADS PROJECT
POLICE RECORDS AND DATA SYSTEM STUDY

SUMMARY REPORT

This project was supported by LEA Grant No. 050 awarded by the Attorney General under the Law Enforcement Assistance Act of 1965 to the City of Phoenix, Arizona. Persons or organizations undertaking such projects under Government sponsorship are encouraged freely to express their professional judgment, findings, and conclusions. Therefore, views or opinions stated in this document do not necessarily represent the official position or policy of the U. S. Department of Justice.

PREPARED BY
THE CITY OF PHOENIX

IN COLLABORATION WITH
GRIFFENHAGEN-KROEGER, INC.
CONSULTANTS
SAN FRANCISCO
FEBRUARY 1968

Summary Report

SUMMARY REPORT *

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*This Summary Report is a condensed narrative of Volumes 1 and 2.

The Grant

In June of 1966, the City of Phoenix made application to the Office of Law Enforcement Assistance, U. S. Department of Justice, for a Federal grant to develop a "model police records and communications system." The OLEA awarded a grant of \$92,485; this money to be supplemented by \$51,211 of "in-kind" services by the City. The grant (#050) was authorized by the Law Enforcement Assistance Act of 1965 (PL 89-197).

The duration of the study was originally set at 12 months, from August 1, 1966, until July 31, 1967. However, the length of the study was extended by grant amendment to January 15, 1968, for completion of the design, and to April 30, 1968, for the review and printing of the final report.

The City of Phoenix contracted with Griffenhagen-Kroeger, Inc., public administration consultants, to direct and coordinate the project. The consultants provided the technical assistance and the specialized personnel required to manage the study. The City's obligation consisted of providing "in-kind" equipment, supplies, space and staff services.

Objectives of the Project

The project was entitled "LEADS" (Law Enforcement Assistance Development Study). The project's objectives were:

1. To study, in depth, the records system of the Phoenix Police Department and other connected agencies, and to design a modern, economical and efficient information system.
2. To design methods by which the information could be rapidly received, stored, retrieved, and distributed.

The overall objective was to make the field officer more effective through improved information.

The records system aspect of the study was directed toward providing, to the greatest extent possible, advanced electronic information processing techniques to deal with the large volume and diversity of records involved.

The objective of the communications system aspect of the study was basically that of developing overall improvements in voice and data communications in both radio and wire modes so that much greater efficiency could be achieved in communications between data banks and the police command and the officers in the field.

A further goal of the project was that of developing new methods for receiving, inputting, processing and retrieving of law enforcement information utilizing computer concepts and electronic and electro-mechanical transmittal devices.

Project Organization and Staffing

The project was managed by Griffenhagen-Kroeger, Inc. through a home office general supervisor, a resident project manager, and a staff consisting of one full-time information systems specialist and two part-time procedural analysts.

The City dedicated one full-time captain (who also acted as coordinator between the consultant and the police and other City departments), two full-time sergeants, and additional staff contributions as needed from the police and finance departments (the latter department contains the City's computer services center and Research and Budget Division).

Project progress review and policy determination were provided by an Advisory Committee appointed by the City Manager consisting of the Assistant to the City Manager (chairman), the Finance Director, the Research and Budget Director, the Police Chief, and the Police Captain assigned to the project.

Staff Development

Because of the relative inexperience of the City staff in information systems or procedural analysis, some early training was provided by the consultant and the General Electric Company (the manufacturer of the City's current equipment) in computer systems, basic programming, procedural analysis and reporting. In addition, a general orientation lecture on computer systems was given to the police department higher command levels to provide an early appreciation of the potential that the computer presents for information systems improvements.

Additional staff development consisted of the attendance of two project representatives at the First National Symposium on Law Enforcement Science and Technology held in Chicago in March 1967.

Project Methods and Results

The project was conducted in four major stages:

1. Orientation.
2. Creation of an Information Base.
3. System Design.
4. Documentation.

Orientation

The orientation consisted of:

1. Gathering as much documented information as possible concerning technological development in other law enforcement systems that had a bearing on the objectives of the project.
2. Organizing two-man team visits to other law enforcement agencies considered to have system improvements of interest to the project.

Twelve out-of-state agencies or data centers and 10 agencies within the state were contacted and information in a number of pre-specified areas was obtained.

3. An analysis of obtained information to determine which LEADS project objectives had already been attained elsewhere.
4. The development of a work program and schedules for each major phase of the project.

Creation of an Information Base

The information base was created through the following techniques and procedures:

1. Questionnaires were distributed to all police department personnel with the request for submissions that would identify information, communications and operating problems and provide suggestions for improvements. Personnel were instructed to use imagination and creative thought in submitting their ideas. The response consisted of some 1,000 contributions which were then submitted to a thorough analysis. The submitted information contributed significantly to the final system design.
2. A definitive information element catalog was created by:
 - a. Analyzing every department form and classifying each information element on the form in a number of ways:
 - its relationship to a departmental function,
 - its transaction frequency,
 - whether it was an input, an output, or a generated item,
 - whether it consisted of letters, numbers, or both.

- b. Supplementing the forms elements with contributions of information elements taken from the departmental submissions discussed above.

This catalog became a primary source of information during the design phase of the project.

3. All procedures in the police department which involved an exchange of information were intensively studied and documented.
4. A "state of the art" survey was made among major computer and communications equipment manufacturers so that the project staff could be aware of any restrictions that might be placed on system design due to equipment limitations.

System Design

The system design was accomplished in a number of steps or phases which consisted of:

1. Identification and development of the records and files that would be required in the final system.
2. Assignment of all information elements to a record or file.
3. Identification and development of the system and sub-system blocks which were to become major design elements.
4. Development of procedures and forms for all input to the processing stage of the proposed system.
5. Design of processing procedures, computer storage modes, and reporting formats.
6. Design of inquiry and response patterns and procedures.
7. Design of equipment configurations for each inquiry and response system.

8. Design of a departmental organization to operate the system.
9. Calculation of implementation costs, the development of cost/benefit comparisons of present and proposed systems, and the scheduling of the implementation.
10. System review prior to documentation.

The final result of the design is a highly automated information and communications system called ALERT (Automated Law Enforcement Reporting Technique). The system provides for the banking of the majority of the police department record files in both high and low speed computer access, or in high speed microfilm access files. The system also provides for the procedures by which major law enforcement information is input to the files, processed and retrieved. As a part of the system, complete configurations have been prepared for input and retrieval stations and for equipment.

The system consists of seven major blocks, the implementation of five of which will represent a major contribution to the department's ability to store, access, and communicate information to field officers and their command. The system consists of the following major information blocks:

1. Warrants.
2. Deployment, Incidents and Crime.
3. Property.
4. Interfaces (AUTO STATIS and NCIC).
5. Police - Court.
6. Directories and Reference.
7. Administrative.

The first five of the above blocks will substantially, if not completely, consist of computer stored information.

As examples of improved police operations, the following represents some of the benefits to be derived from a fully implemented ALERT system.

A citizen calls the police department to report a crime which has occurred. The call is received by an officer or service clerk in the citizen service section. The information is viewed by the dispatcher on a cathode ray tube display device. When the call is keyed by the service clerk or officer, the available units in the area of the call are automatically computer-selected and the unit numbers are also displayed for the dispatcher. The dispatcher radio-assigns the nearest applicable patrol unit to the call. Dispatch information and time is also automatically entered in the computer when keyed by the service clerk and dispatcher.

Officer "A", responding to the call, receives information that a television set has just been stolen. The officer obtains a description of the stolen property and a limited description of the suspect and the suspect's vehicle. The officer calls the information and descriptions to the Information Center where it is immediately keyed in to the computer system. An "Incident Report" form is afterwards completed by the officer which will be routinely submitted later to the Information Center.

In another area of the City, distant from the scene of the crime, Officer "B" stops a vehicle for a routine check. The officer obtains the driver and vehicle identification and observes a television set on the rear seat of the auto.

His suspicions aroused, the officer inquires by radio to the Information Center, giving the descriptions of the vehicle, its occupant, and the television set. This information is received by a service clerk in the Information Center who keys the inquiry into the computer system.

The computer compares the inquiry data to the information input only minutes before by the officer receiving the original call.

Officer "B" is advised by radio that the television set was reported stolen some minutes before by a person answering the description of the person in custody, driving a similar vehicle. The response also advises the officer to use caution and causes the dispatch of another unit to assist in the event of an arrest.

In the City of Phoenix, as in most cities today, from three to ten minutes would be required from receipt of a citizen's call to dispatching of a patrol unit. With the ALERT system, one minute or less would be required.

At present, officers in the field, making inquiries in reference to property which may have just been stolen, could receive no response as the information would not be on file for from eight to twenty-four hours after occurrence. Also, officers making inquiries for information which is on manual file may anticipate a 10 to 30-minute response time. If they have a suspect or possibly an innocent citizen detained, an unpleasant or even dangerous delay is incurred. At the very least, this amounts to extremely inefficient use of the officers' time which could be put to better use. Employing the ALERT system, this inquiry/response time would be reduced to from five minutes maximum to possibly seconds. The impact of immediate input and retrieval of property information, such as just described, in the ALERT system is obvious.

Documentation

The project results were documented in three parts; a project report summary (this document) and a final report of two volumes, the contents of which are:

Volume I

Section A	City Application and Grant
Section B	Project Organization, Staffing and Training
Section C	Study Methods
Section D	Information Elements Catalog
Section E	Project By-Products and Derived Benefits
Section F	Project Critique
Section G	Credits for Assistance

Volume II

Introduction
Chapter 1 - System Description
Section A - Source Data Procedures
Section B - Processing Procedures
Chapter 2 - Demonstration System (AID)
Chapter 3 - System Configurations, Specifications and Implementation
Section A - System Configuration and Equipment Specifications
Section B - System Conversion
Section C - Implementation Schedules
Section D - Police Department Organization and Staffing

Demonstration System (AID)

At an early stage of the project it was determined that the development of a novel system employing the City's computer would be possible with a relatively small expenditure of design and programming time.

This proposed system offered a number of advantages and features:

1. Currently available data (through dispatch punch cards) could provide a data base.
2. Computer time to process the system would not be significantly greater than the present police department production time.
3. It would provide a significant improvement in the information available for command officers.
4. It could be easily fitted into the ultimate design of the ALERT system.

This system, called "AID" (Analysis of Incidents and Development), provides field commanders of the department with the ability to assign police personnel to all areas of the City based upon computer predictions of manpower needs. To achieve this capability, a data base was compiled by creating a punched card ("Dispatch Card") each time a police unit was dispatched on a call or on a citizen's request for service. Based on 12 months (or longer if desired) previous history of these dispatches, command officers may request a computer printed map indicating for any day, shift, beat, etc., the percentage of police manpower which would be required in any area of the City at any time of day. Twenty-one of these maps can be produced for any forthcoming week, one for each shift of each day.

Also, by this same system, reports and graphs may be produced, either on request or cyclically, to provide statistical data as to crime volumes, time of occurrence, and locations which will assist the department command in efficiently deploying manpower.

Certain other required statistical reports can also be produced by the system, such as the FBI Uniform Crime Reports, City administration reports and others.

This system is fully programmed and in operation. The final report identifies program numbers for each process and these are available to interested law enforcement agencies.

System Implementation

It is estimated that the system can be fully implemented in four years (and in less time if large amounts of implementation capital are available). The total conversion cost is estimated at \$575,000 and the annual operational costs of an implemented system would be approximately \$1,127,000. This compares with the projected cost of the present system of \$1,194,000. The costs are only estimates and final costs will have to be calculated at the end of an implementation study.

An implementation schedule (including progressive costs along the schedule continuum) has been provided in the final report for each major block of the ALERT system. Each block can be separately implemented as manpower and equipment become available.

The final report also provides the general equipment specifications for each major configuration of the system. These specifications include equipment descriptions, processing speeds, special features and controls, and approximate rental costs.

Regardless of any potential cost savings, a considerable number of benefits would accrue as the result of the system implementation:

1. There will be a significant reduction in personnel required for functions that the ALERT system will affect.
2. There will be greatly increased efficiency realized in the input and retrieval of information.

3. More effective field operations will be attained as the result of more rapid and accurate dissemination of information.
4. The ALERT system will have the capability to absorb the increases in information volume without the proportionate increase in cost required by manual systems.
5. Officers in the field will realize more available time for crime preventive work as a result of time savings in field inquiries and responses.
6. Less time will be required in detaining subjects for records checks creating greater safety for the officer and less unnecessary delay for the citizen.
7. A closer records and information relationship with other agencies and jurisdictions will be achieved with implementation of the ALERT system, resulting in improved intra-agency cooperation and coordination.
8. More efficient police department administration will be realized through improved information availability.
9. A substantial amount of building space now occupied by some 290 files can be made available for other purposes. Not all separate division and bureau files will be eliminated, however, the justification for other than administrative, personnel, budget and similar files will have disappeared.
10. Possibly the greatest overall benefit to be realized would be to provide better services to the public through anticipated reduction in crime, preservation of the peace, and greater protection of life and property resulting from a more efficient police department.

END