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INDIVIDUAL TECHNICAL ASSISTANCE REPORT

In Response to a Request for Technical Assistance

by the

Erie, Pennsylvania, Police Department

August 1, 1973

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ACQUISITIONS

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Prepared by:

Public Administration Service
1313 East 60th Street
Chicago, Illinois 60637

(Per Contract J-LEAA-015-72)

I. PRELIMINARY INFORMATION

A. Consultant Assigned:

Dr. George T. Felkenes
University of Alabama
Birmingham, Alabama

B. Date Assignment Received:

June 22, 1973

C. Date of Contact with LEAA Regional Coordinator:

June 22, 1973

D. Dates of On-Site Consultation:

July 1-3, 1973

E. Individuals Contacted:

Mr. Richard S. Morelli, Police Planner
Mr. Jack Krupey, Police Planner
Dr. Robert Rhodes, Police Planner
Mr. Joseph Sinotte, Director, Erie Department of Public Safety
Mr. Samuel Gemelli, Chief of Police, Erie Police Department
Lieutenant Jerry Kubeja, Statistician, Erie Police Department
Mr. Jim Bromba, Erie Planner
Mr. Vincent Rapp, Erie Police Planner
Mr. Herbert Mossman, Honeywell Representative
Mr. Frank Fowler, IBM Representative
Mr. Tom Tory, UNIVAC Representative

II. STATEMENT OF THE PROBLEM

A. Problem as per Request for Technical Assistance:

Technical assistance in planning for the implementation of a proposed computerized records system.

B. Problem Actually Observed:

As stated.

III. FACTS BEARING ON THE PROBLEM

See attached Consultant's Report.

IV. DISCUSSION OF POSSIBLE COURSES OF ACTION

See attached Consultant's Report.

V. RECOMMENDED COURSES OF ACTION

See attached Consultant's Report.

CONSULTANT'S REPORT

I. THE FINDINGS AS TO THE NATURE OF THE
PROBLEM OR TASK THAT IS
THE SUBJECT OF THE ASSISTANCE PERFORMED

The Northwest Regional Office, Pennsylvania Governor's Justice Commission in Erie, is currently working with the City of Erie Police Department in the development of plans and specifications for a computerized police information system which will be developed into a subgrant application. Preliminary specifications were drawn up pertaining to what the proposed system is to provide. The Consultant was asked to furnish advice regarding both the nature of the proposed system and the approach to implementing it. Suggestions were sought regarding the types of tasks that may be performed by a systems analyst.

II. FACTS BEARING ON THE PROBLEM INCLUDING SUCH BACKGROUND AND HISTORICAL MATERIALS AS MAY BE PERTINENT

Police planners in the Northwest Region Office over the past several months have been examining the feasibility of implementing a computerized records system for the Erie Police Department (EPD). The initial conception has been altered so that it now includes the concept of a total police information system which will fully support the officer in the field by allowing fast retrieval of information contained in the Police Department's files.

During the site visit, it was determined that police planners have been in contact with several computer hardware vendors: UNIVAC, Honeywell, and IBM who have assisted the planners in formulating their thinking regarding the proposed system.

The Police Department now makes use of an IBM 402 computer, one-card sorter, and three key-punch machines. One police lieutenant is charged with the responsibility of compiling departmental statistics, operating the equipment and compiling the necessary reports. He is assisted by three key-punch operators who are located throughout the Department. Little in the way of management information is now generated by the almost totally manual system now in operation. One person, the above-mentioned statistician, is apparently the sole person in the office who has any knowledge of ADP and its applications.

During the on-site visit, the Consultant attended a meeting in the office of the Director of Public Safety at which the Northwest Region planners presented their ideas regarding the feasibility of the proposed police information system, sources of funding, and general acceptability of the concept. The idea was in general accepted by the Director of Public Safety and the Chief of Police, both of whom indicated that they will seek the necessary support and approval in the city hierarchy. The remainder of the site visit was devoted to interviews with the regional police planners and three computer vendor representatives.

III. AN ANALYSIS OF PROBLEMS AND DEFICIENCIES AND POSSIBLE COURSES OF ACTION

Before any kind of computerized information system is inaugurated, a great deal of prior planning must occur. In some police agencies a lack of prior planning has resulted in confusion, delay, excessive costs, and dissatisfaction. One absolutely essential step that must be taken is hiring a qualified systems analyst at least two to three months prior to the determination of whom the system vendor will be. The systems analyst should be consulted during the final selection process. By having him on the staff prior to the final choice, he will have been able to become familiar with the goals and needs of the Department, especially in the area of the priorities for translating current manual files into computerized system information.

Based upon a quick review of current EPD records and various comments received from local personnel, the current records system has certain weaknesses which can be grouped into four broad categories:

1. Duplication.
2. Inadequate clerical support.
3. Very limited information exchange.
4. Document and case status control.

Each of these areas affects the efficiency of the current police system. The EPD is in short not receiving the benefit that it should in terms of line officer inquiry information and management controls from records contained in a modern police agency. The systems analyst must be given an opportunity to survey what the EPD now has, what the command personnel desire, what hardware and software can best do the job, and finally to mold these complexities into a total information system which can produce the desired results.

Once the vendor is selected, the systems analyst will be able to work closely with vendor engineers during the time between the award of the contract and the receipt of the equipment. Conversion of the Department's files will also occur simultaneously within this period. Once again, this is crucial because of the time involved in converting the 150,000 name cards to key-punched cards for ultimate acceptability by the system. The systems analyst will be able to ensure the smooth operations of this function, which should consume hundreds of hours. This same conversion will be required for other files which will be part of the EPD information system.

As a last major point, the systems analyst will serve as the chief trainer for the Police Department, the Department of Public Safety, and the City in the successful implementation of the total system. He can also serve as the liaison officer between the Department and all other agencies and persons who have an interest in the total system.

By way of summary, the EPD's manual system does not provide for the maximum use of information, nor does it permit the effective use of manpower at all times. These weaknesses grow as volume grows. The Erie Police Department's information system is now at a point where increased volume will cost dearly both in clerical logistics and operational capability.

The present system with its manual limitations is adequately designed but, from the information received, leaves much to be desired in the retrieval of required information. Today, however, a police information system has some added problems which have to be solved. The system must address itself to the problem of deterring and preventing crime. To accomplish this, the police information system has to satisfy operational, management, and analysis needs. This requirement cannot be met with a totally manual system.

Police Department Information System

A system is recommended which provides a way to collect information and at the same time produces computer usable data. EPD should give a high priority to developing a system which captures the information for computer use as the various police input reports are typed. To accomplish this, the Department might install a report dictation system in which, as reports are typed by clerical personnel, computer tapes are prepared at the same time. Development of a field investigation form to correspond to computer usage would be a significant step in freeing the field officer from lengthy report preparation.

The Central File Concept

By keeping all police records in a central file, two basic requirements are provided. Record security and control make it easier to maintain information retrieval functions at a faster and more accurate level of performance. A police department requires a sophisticated filing process because information is used in so many ways. From a control viewpoint, all police information is linked by numbering systems for crime and noncrime incidents and for persons arrested. An indexing system is necessary to allow access by incident number or identification number. There is also a need for indexing techniques which allow a name search which would link a particular arrest with all previous arrests and other criminal information on the individual. The same name should also provide an incident number which corresponds to the case in which the individual was involved. The working need for fast, accurate retrieval is paramount in a functioning automated police information system.

These requirements are best met from a centralized base. As a general rule, four files comprise the major portion of a filing system. They are:

1. Master name index file.
2. Radio ticket file.
3. Offense report file.
4. Arrest file.

In addition, there are several subsidiary index files which are needed such as a warrant control file and various methods to log outgoing warrants and subpoenas. The Erie Police Department has these files within its records system at present.

It is recommended that all accident and offense reports be filed by complaint number. All supplemental reports pertaining to the incident, offense, or accident are attached to the original offense report. The complaint number ties these reports together.

By filing the offense report by number, it is easily accessible by number; however, other methods are necessary. For this reason there is a need for a master name index file, which is a file of 3 by 5 index cards which contains pertinent information concerning the person and the incident in which he was involved. These cards are completed on all victims, witnesses, and suspects involved in an incident and stated on the report. The 3 by 5 file is the source for the computerized master name index.

A 3 by 5 card can be accessible by name. The information will refer to either the offense or an arrest file by both the case number and identification number. A name file, such as that suggested, containing the names of all persons who have come in contact with the police, requires continual maintenance. By capturing information at its source for computer processing, all of the data which are inputs for the computer can be verified and entered for storage and retrieval. The computer can then be programmed to print master name cards if the Department desires to maintain a manual file. By eliminating the clerical processing of 3 by 5 cards, more time can be spent on the filing and maintenance of files in central records.

The above discussion is only fragmentary but serves as an introduction to the advantages of a computerized system.

One thing is essential to the proper functioning of the police information system: central records should be a permanent central depository for all police record information. Although this does not eliminate the filing requirements of other operating divisions, it does eliminate much filing and clerical work. Converting the present manual file system to a computerized system will be a detailed, time-consuming task. The proposed systems will contribute immensely to the effort.

IV. RECOMMENDED COURSE OF ACTION WITH REASONS FOR CHOICE OF THE PARTICULAR ALTERNATIVE

Preliminary Police Information System Performance Specifications

The general specifications drawn up by Northwest Region police planners is shown in Appendix A. In addition, the system should have the capability of meeting the following requirements:

1. Daily reports:
 - a. Stolen property.
 - b. Warrant directory.
 - c. Radio log.
 - d. 3 by 5 cards for central records on name, suspects, location, property, and type of crime.
 - e. Daily case register.
2. Reports:
 - a. Late reports.
 - b. Uniform crime reports (monthly or more frequently if desired).
 - c. Detective case loads.
 - d. Case status reports.
 - e. Traffic statistics (accident analysis, citation analysis, National Safety Council Report).
3. Management reports:
 - a. Beat analysis.
 - b. Manpower distribution.
 - c. Work or response time by offense categories.
 - d. Time spent on noncrime activities.
 - e. Case loads by shift, day, or division.

- f. Management reports should be furnished in a variety of ways: matrix, graphic, tabular, or geographic.
4. The system must be able to accept either tape input transactions or cards.
5. There must be an editing run capability once input information is received. This process is designed to detect all errors in the update information.
6. A minimum of two terminals is necessary, one each at the complaint desk and traffic bureau. Terminals having a usual capability are preferred such as the IBM 3270.
7. Terminals should be leased, not bought, and monthly rental should include service.
8. Any system must have the capability of growth in information storage and the immediate retrieval of information. A five-second retrieval delay should be the maximum allowed.
9. Police information must have an on-line capability.
10. Magnetic disc files are preferable as the primary medium of storage. The primary advantage is direct access to information at electronic speeds.
11. Once a priority inquiry code is established for certain kinds of inquiries, the system must have the capability of automatically answering the highest priority of the pending inquiries.
12. A systems analyst should be employed. The specifications for his job include the following:
 - a. To analyze systems problems and develop problem solutions.
 - b. To conduct systems studies and gather data for analysis.
 - c. To analyze documents, files, reports, and work flow.
 - d. To organize information into accessible work files.
 - e. To document procedures and operating methods.
 - f. To design system improvements and identify data processing applications.
 - g. To develop and recommend methodology for implementing systems.

- h. To define input/output specifications and file organization.
- i. To design conversion procedures and coordinate all efforts with the systems analyst and users.
- j. To be competent as a computer programmer.
- k. To have a working operational capability of related data processing equipment.
- l. To operate computers.
- m. To be familiar with flow charts, PERT charts, and various coding forms.
- n. To possess skills, knowledge, and abilities in COBOL, assembler language, teleprocessing, multiprogramming, and operating systems.

The EPD or regional police planners should contact one of the local vendors to search for a systems analyst. They usually offer this service. As a service they should also administer and grade the Programmer's Aptitude Test to candidates who might show promise. Because the systems analyst will be on board before the hardware is selected, one or two of the vendors might also serve as consultants to the selection panel.

It is also desirable for the systems analyst to have some knowledge of the operations of a police department and the criminal justice system although this is not a primary consideration. A knowledge of computer security procedures is beneficial.

Future Developments

The criminal justice system is made up of several independent governmental agencies. They are the police, corrections, courts, and prosecution. Each is independent in function, and there is no governmental hierarchy which controls these agencies. The direct relationship which connects the agencies is information and an interest in persons arrested and awaiting trial and sentencing.

Basically, each agency uses the same source documents; each needs index files listing persons processed within the agency; each maintains some kind of internal control system; and because each has a part in processing arrested persons, there should be an information exchange between all agencies.

The current system requires a little information exchange, and from the information available to the Consultant, there is not much of an attempt to keep information up-to-date by continuous data exchange. At best, the information exchange between agencies can be described as a unilateral exchange.

The present police information system in Erie is severely restricted by its manual nature. Increased volumes over the next 5 to 10 years will severely tax what is in existence.

Systems Philosophy

All activities within the criminal justice complex are generated by a previous activity of some other agency. For example, there cannot be a trial for the kidnapping of John Doe until police officers apprehend an individual whom they believe may have committed the crime. The same concept holds true for juvenile cases, traffic violators, and misdemeanor incidents. If the police agency takes no action, there will normally be no action in the courts, corrections, or prosecution components.

An efficient criminal justice information system has to take advantage of modern information processing technology by developing an interagency working relationship which permits court records, court dockets, and case status to be part of the system. The prosecutor needs case status reports, arrest information, and personal information on arrestees and suspects. Corrections agencies need most, if not all, of the same information if they are to achieve their objective of rehabilitation.

It is recommended that the proposed police information system now being discussed in Erie have the capability of expansion within the next 5 to 10 years to encompass a total criminal justice information system. The development of the system must have this goal in mind, LEAA funding sources should stress this ultimate goal, and hardware acquisitions should be planned with a view toward future development into a criminal justice information system rather than solely toward a police information system.

Purchasing vs. Leasing

It is recommended that EPD study carefully whether it should purchase or lease equipment. Governmental agencies tend to purchase rather than lease because of high leasing costs. Within a period of five to eight years, purchasing permits total acquisition. Should new hardware be needed, there are computer vendors who purchase used computers for resale. In any event, the advantages and disadvantages of leasing versus purchasing should be carefully weighed prior to or within a year of acquisition from the selected vendor.

It is also recommended that a complete management survey be conducted in the EPD. The Consultant was frequently advised of this need by the various interviewees, although little in the way of substantive impressions was developed because of the length of the visit. However, the time spent in central records did lead to a validation of this suggestion.

Consideration should also be given to whether vendors have in their system prepackaged law enforcement reporting modules. Such a package can be adopted for or adapted to Erie needs. In any event, such packages should be considered parts of the police information system which a vendor is attempting to sell or lease.

Appendix A

PRELIMINARY COMPUTER SYSTEM PERFORMANCE SPECIFICATIONS
FOR THE ERIE POLICE DEPARTMENT

1. The system must have capability to inquire into files 24 hours/day, 7 days/week, except for routine maintenance periods.
2. An inquiry via terminals must be able to interrupt batch programs in progress, complete the inquiry, and return to the point in the batch program at which the latter was interrupted.
3. The system must have the ability to handle two or more terminals (though not simultaneously).
4. The programmer must have the capability to exclude access to certain kinds of programs or data files on selected terminals and allow access on others. Such exclusive access must be a function of the hardware and not merely a "password" known only to those operating a given terminal.
5. A single inquiry shall in no case take in excess of 15 seconds from the time the inquiry data is entered until the answer begins to appear.
6. The system must have the capability to compile into machine language source programs written in ANS COBOL.
7. Several programs must have access to a single data file, including the inquiry program(s).
8. Storage capability must be adequate to accommodate 10,000 case records of 250 alphabetic or numeric characters each for a Criminal Case History (CCH) file (to include court records as well as police records).

In addition, the following files must be possible to maintain on-line concurrent with CCH.

- a. Outstanding warrants file (3,000 by 150 characters each).
- b. Outstanding court case file (3,000 by 150 characters each).
- c. Offense code directory (1,000 by 50).
- d. Personnel I.D. directory (500 by 30).
- e. Monthly criminal complaint file and arrest file compatible with UCR reporting requirements.

9. The system must be able to assess or sort records sequentially according to any specified numeric field or alphabetic field.
10. The system (including peripherals) must be able to sort punched cards according to any specified "column" or "character" or "field."
11. It must be possible to update all files by means of batch mode. It must be possible to update (replace) only certain specified portions of each specified record without reentering the entire existing record.
12. It must be possible to enter onto a record via a terminal a two-digit field to be used exclusively for this purpose. This field will indicate by code that a certain item of the record is obsolete and will be updated in a subsequent batch run.
13. The system must be equipped with a card reader, card punch (with interpreting on computer or peripherals), and line printer. The card reader and punch must handle standard 80-column cards to allow interface with other computers.
14. The system must be capable of the following tasks:
 - a. Producing uniform crime reports for Pennsylvania and the FBI from data files.
 - b. Maintaining a criminal case history file of 10,000 offender-offenses.
 - c. Maintaining an accident report file and preparing reports for the National Safety Council.
 - d. Maintaining records of unpaid traffic citations.
 - e. Maintaining records of all radio dispatches for a period of one year.
 - f. Preparing reports of work load for each police officer.
 - g. Preparing reports on crimes reported in each section of the City (as coded).
 - h. Preparing reports by type of action pending or most recently completed at any point in the progress of cases through the police or courts (also by date if necessary).
 - i. Preparing reports on District Attorney case work load status.
 - j. Preparing reports by grouped crime types (groups of codes), by month (or group of months), time of day (hour), day of week, and location (zone).
 - k. Translating numerically coded information into a unique alphabetic field for readout of information on case files (e.g., crime code into crime name).

- l. Adding to one file by transferring cases that meet certain criteria from another file (e.g., transfer of case from "reported crime" file to "outstanding warrants" file upon issue of a warrant).

Other System and Contract Specifications

1. Maintenance must be available on 4 hours' notice, 24 hours per day.
2. All routine maintenance must be provided by the vendor at no additional charge or for a fixed monthly fee.
3. Systems engineering and programming assistance must be available through the vendor. This shall include testing and debugging.
4. Training for Police Department personnel in the use of equipment will be available from the vendor.
5. Equipment must be available for installation within four months of award of contract.
6. Equipment must be capable of expansion of magnetic on-line data storage capability, memory capacity, and number of terminals.
7. The terminals must provide edit capabilities to correct input messages prior to transmission.
8. Terminals will have hard-copy capability.
9. The system must provide a control language that is fully documented and can be read and interpreted for analysis by the Erie Police Department or its representatives.
10. The system must provide test and debug routines.

END

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