LAW ENFORCEMENT ASSISTANCE ADMINISTRATION (LEAA)

POLICE TECHNICAL ASSISTANCE REPORT

SUBJECT	Records System Assessment and Development of Specifications for a Computer-Based System
REPORT NUMBER	77-062-155
FOR	Nashua, New Hampshire, Police Department Population 67,000 (1977) Police Strength (Sworn) 127 (Civilian) 19 Total 146 Square Mile Area 31.8
CONTRACTOR	Public Administration Service 1776 Massachusetts Avenue, N.W. Washington, D.C. 20036
CONSULTANT	Michael R. Stewart
CONTRACT NUMBER	J-LEAA-002-76
DATE	March, 1978

TABLE OF CONTENTS

I. INTRODUCTION

This report was prepared in response to a request from the Nashua, New Hampshire, Police Department for technical assistance in examining their existing records system and its problems and in determining whether the installation of a computer-based system could alleviate these problems. The department also requested assistance in developing hardware specifications for the system.

The consultant assigned was Mr. Michael R. Stewart, and others involved in processing the request were:

Requesting Agency:	Chief Craig D. Sandler Nashua Police Department
State Planning Agency:	Mr Ronald J. Curran Deputy Director, New Hampshire Governor's Commission on Crime and Delinquency
Approving Agency:	Mr. Robert O. Heck Police Specialist LEAA Office of Reginal Operations

During the consultant's on-site visit to the Nashua Police Department, a thorough examination was made of the entire record system. This examination involved analyzing the capture and flow of arrest and investigative information from the field; the management review of this information; the processing of the data by the Records Bureau and other units within the department; and finally the distribution and use of the data generated by the system. Included in this analysis was the determination of file update volumes and sizes for the name index functions as well as investigative and arrest data. Purge criteria and practice were also examined for the system.

In addition to the systems analysis that was performed, interviews were conducted with key department personnel to further document problems with the records system. The interviews served in making a determination regarding the use of information generated and in identifying additional data that is needed but that is not being supplied by the current system. The interviews were helpful in providing a further understanding of the operation of the existing system.

The following persons were contacted at the Nashua Police Department:

Chief Craig Sandler
Deputy Chief Belanger
Administrative Assistant Walter Bausha

II. ANALYSIS OF THE PROBLEM

The Nashua Police Department has worked extensively on a manual records system in an attempt to provide for the needs of the department. This manual system has been found by departmental personnel to be growing less adequate because of the increase in calls for police service. In 1972, requests for police service numbered approximately 29,000; these increased to approximately 44,000 in 1976. Part I offenses for the same period in creased over 200%.

In an attempt to seek relief in the form of upgrading the records system, the Nashua Police Department has examined computerized operations. The majority of the problems experienced are inherent in manual records systems that deal with police service volumes of the magnitude experienced by the Nashua Police Department.

Due to the volume of police activities, substantial man-hours are required to prepare and process operational and statistical data requirements of the system. The current master name index file contains approximately 178,000 index cards with an update volume of 9,000 arrestees and 46,000 complainant/victim cards per year. Considerable time is required to manually type and file each of the name entries, and filing errors are substantial due to the sheer volume of this file.

The offense/incident file is maintained in an active status in the Records Bureau for two years and contains a total of 85,000 records. The current update volume for this file is sequenced numerically, and filing errors are less than the alpha-indexed name file; however, filing errors do exist. The offense/incident reports generated by the department support a current population of approximately 67,000.

The large size of the name index file is primarily due to lack of purge criteria. Criteria have not been established due to the difficulty and time-consuming requirements for manually reviewing the file. Because alphabetical indexing is used, current data is merged with obsolete information, and the only method of purging is a review of each name index record. Offense and incident reports are purged from the active file every two years and transferred to microfilm. Plans currently are to reduce the period of active file status as the microfilm backlog is eliminated.

The dissemination of information is difficult and limited because the Records Bureau does not operate 24 hours a day. The only way that the information can be accessed, when records personnel

are not present, is for other department personnel to enter the records system and attempt to retrieve the information required. This practice is not only inconvenient for department users but creates a system security problem in terms of controlling record updates, modifications, and deletions. Additionally, file errors can be expected when untrained personnel pull information and files from a manual system. Other problems experienced in the dissemination area include the need for dispatchers to receive timely information for transmission to field units. This process currently involves contacting records divisions personnel, when they are on duty, to obtain the necessary information. The problem is further complicated when records personnel are not on duty.

The current manpower to support the manual records system is insufficient to provide the full battery of needed management information and operational data. The need for this information has been defined by department users, but implementation has not been possible due to the burden it would place on the manual system. Additionally, the management reports needed require processing that would be operationally feasible only on a computer. Another limitation created by the manual system is the timeliness of statistical reports. Currently, time requirements for generating statistical, department-level, and Uniform Crime Reports are such that a considerable time lapse is experienced from the point of event occurrence to the production of the statistical documents.

Other problems experienced in the current manual system involve slow access into the manual files and duplicate data entry. Data that is generated to support the manual system is duplicated in numerous areas because of the need to contain information in more than one format. Summaries of the offense and incident reports are currently generated in duplication of the original report for the purpose of supporting the tabulation of statistics. Another major example of this type of duplication is the entry of names on reports, logs, and index cards. Some of this duplication could be eliminated by using an electronic means of data capture as opposed to the paper storage of information.

III. FINDINGS AND CONCLUSIONS

The Nashua Police Department manual records system is well run but inadequate to cope with the entire needs of the department. The major problem centers around system limitations that are inherent in manual systems in agencies of this size. The analysis indicated that backlogs are created primarily because all information is processed manually, and in those areas where considerable manpower is required to perform the task, processing delays are created. Specific findings and conclusions of this analysis are as follows:

Statistical reports are limited and untimely.

The police department currently has limited statistical reports which identify general department activity but do not define manpower, allocation needs, or provide any crime analysis capability. No reports are currently generated to provide for geographical analysis of crime patterns, time of day activity analysis, patrol car alignment analysis, or preventive enforcement data analysis. The reports that are generated are done with considerable delay due to the massive task of manually tabulating and coding field data.

Alpha file errors exist.

Due to the massive size of the master name index file and the organization of the file by alphabetical characters, file errors have had an accumulative affect on accuracy. Errors in this file are cumulative because of the difficulty in verification and due to the number of people that have access to the file. The only effective way to verify a manual file is to start from the beginning and pass through the entire file checking for misplaced records. In a manual file of this size this is a very formidable task and cannot be conducted frequently enough to maintain the desired level of accuracy.

Periodic purge of the master name index file is not conducted.

Purging of the alpha-file has not been practiced due to the manpower requirements necessary to examine each name index card to make a determination as to whether a purge should be made.

Monitoring case status is difficult.

In order to determine status of a specific case the master file must be reviewed or the appropriate investigating unit contacted. Currently there is no means for operationally monitoring the progress of an investigation without a complete review. Accordingly, there are no statistical reports that summarize case status throughout the department.

File sizes are too large to be efficiently processed on manual basis.

Due to the volume of calls for service answered by the department, the volumes of data being processed manually and stored are excessive for current manual procedures. Due to file size, the cross-indexing of investigative report information manually is not feasible. This limits the use of the data to investigators who might otherwise obtain valuable leads from information that is indexed or accessible in a variety of different ways. The master name index file size slows down the manual filing process as well as eliminates any possibility for searching the file on identifiers other than name. This limitation exists with all the files that are maintained manually.

Dissemination of operational data is not timely.

File information contained in the Records Bureau is difficult to obtain on a timely basis because it must be retrieved manually. Since the Records Bureau does not operate on a 24-hour-a-day basis, accessing file information is extremely difficult when records personnel are not available. The need for retrieving file information manually from the Records Bureau, which is physically located in a separate area from dispatch, limits the timely dissemination of data to patrol officers in the field. Dissemination is further limited because non-records personnel do not have full knowledge of how to utilize the record system manually and may not fully benefit from the information that is contained in the files.

Operational data necessary to support field and administrative operations is inadequate.

The current manual system does not have the ability to provide vital information such as local warrant/wants, local stolen car inquiries, local stolen property information and gun registration information that is needed to support field operations. This information along with data concerning arrestees and other investigative information should be available to the dispatcher for rapid dissemination to field units.

Microfilming of active records could create future update problems.

The department currently intends to microfilm certain active records once the microfilm backlog has been dealt with to reduce file size. This practice has not been initiated and, if it is, could create considerable difficulties because of the requirements of reel and cartridge microfilm systems for splice update. To eliminate or minimize the need for splicing new frames into a record, this practice should be reviewed relative to microfilming only records that are declared inactive.

The new police department facility to be constructed will eliminate the benefits of locally sharing the city computer.

After the police department moves operations to the new facility that is planned, the distance between that facility and the existing city computer will be beyond the maximums allowable for local computer processing. Because of the distance involved, use of the city computer would require using telephone lines and data sets in a telecommunications environment to provide for the necessary hookup. This configuration would eliminate the possibility of interfacing with other criminal justice computers directly from the police department. Additionally, this configuration would place the department in a position of contending for file access, space, and time with other city users. This is of special concern related to time-critical police files. Another major problem with this type of configuration is the considerable cost associated with supporting the telecommunications portion of the system. This approach would not be an efficient or cost effective solution to the Nashua Police Department's problem.

IV. RECOMMENDATIONS

The analysis of the Nashua Police Department records system clearly indicates a number of problems that are the result of manually processing large quantities of data. Because of these problems, it is strongly recommended that the department consider implementing a computer-supported information system. This section contains recommendations that will assist in establishing a computer-based system and additionally includes specifications that can be used in obtaining the necessary hardware to support the system. This section documents recommendations on the general and specific levels and provides a general action plan to carry out these recommendations.

General Recommendations

A. Install a computer system within the Nashua Police Department facilities to provide timely operational and statistical data.

B. Establish and activate file purge procedures to reduce the size of files.

C. Modify microfilm procedures to microfilm only in active records.

Specific Recommendations

A. Install computer hardware that is physically located within the police department and has the following minimal features:

1. Capability for telecommunications interface to other computer systems.

2. Central processor unit with adequate core to support multiple function processing.

3. Central processing unit with power fail/auto restart protects against power losses and variations.

4. Capability to support multiple CRT-type computer terminals.

5. Capability for the installation of terminal lockout procedures to limit terminal locations that can update, modify or purge data.

6. Minimum CRT screen size of 1920 characters.

7. Capability to support multiple printers.

8. Capability to support multiple disc drives.

9. Minimum disc storage capacity of four million characters per drive.

10. On-line disc storage capability adequate to store all name and other required operational data (minimum eight million).

11. Removable disc mass storage devices to contain off-line historical files.

12. A minimum of four CRT-type terminals for the initial installation.

B. The computerized system should support the following:

1. Offense report information.

2. Arrest information.

3. Name indexing.

4. Dispatch operations.

5. Resource allocation.

6. Local warrants/wants.

7. Local stolen property including bicycles.

8. Local stolen and recovered vehicles.

9. Department equipment inventory.

10. Departmental fiscal accounting.

11. Recovered property and evidence.

12. Gun registration.

13. UCR reports.

14. Departmental activity reports and other management information.

Action Plan

It is strongly recommended that the entire system be designed initially with implementation limited to those applications that budget will allow. The remaining applications should be added as funding permits. It is vital that the requirements analysis and needs determination be identified for the entire department and that an overall system be designed to meet each of these needs. After this is accomplished, establishing priorities for the applications that are most needed can follow, and the implementation of these applications can occur as rapidly as funding will allow. The approach of designing the entire system before any application is implemented will eliminate a fragmented and complicated system. This approach also guards against incapabilities and redundancies that might exist if applications are designed separately.

It is recommended that a project team be established as soon as resources permit and the project is initiated. The project team should consist of knowledgeable representatives from the department and competent professional software consultants experienced in police department requirement analysis, system design, programing, and implementation. The project team should examine the department's needs and define the requirements for the computerized system. Other computerized police department systems should be examined to identify features that may be useful in meeting requirements of the Nashua Police Department, and these features should be integrated into the design as required. The design should reflect the specific requirements of the department, and, as required, custom design work should be generated to insure total system usefulness and efficiency. The department should not transfer or implement features from other systems that do not fully meet the requirements for which they are being installed. The economies of using features from other systems are quickly lost if they do not efficiently accomplish the task at hand.

It is recommended that the basic computer system be obtained with minimum components necessary to support the initial applications. Hardware beyond that needed to support the low initial file volumes will create an unnecessary initial cost burden. The system implementation plan should include a hardware acquisition schedule to assist in the timely installation of needed hardware.

It is recommended that the professional software consultants be involved in the development of user manuals as well as the initial training of personnel. It is vital that the users of the system understand and are able to fully utilize all features contained in the system. Training of user personnel should be an on-going function supported by department personnel after the initial installation. Checks should be made with operational personnel on an on-going basis to insure that the system is being fully used and is meeting the needs of operational and administrative personnel.

END