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Data Processing and Information Management in the City of Omaha, Nebraska: Analysis and Recommendations

Donald F. Norris

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DATA PROCESSING AND INFORMATION MANAGEMENT
IN THE CITY OF OMAHA, NEBRASKA:
ANALYSIS AND RECOMMENDATIONS

By
Donald F. Norris



Center for Applied Urban Research
University of Nebraska at Omaha



June, 1982



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June 30, 1982

Hon. Michael Boyle, Mayor
City of Omaha
Omaha-Douglas Civic Center
1819 Farnam Street
Omaha, NE 68183

Dear Mayor Boyle:

I have the pleasure of delivering the final report of my analysis of the city of Omaha data processing/information management system. I look forward to meeting with you and Larry Primeau to discuss the findings and recommendations contained in the report.

If the Center for Applied Urban Research can be of further assistance in this or other areas affecting city government in Omaha, please call upon us.

Best personal regards,

A handwritten signature in black ink, appearing to read 'Donald F. Norris'.

Donald F. Norris, Ph.D.
Senior Research Associate

cc: Larry Primeau

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Data Processing and Information Management
In the City of Omaha: Analyses and Recommendations

EXECUTIVE SUMMARY

The city of Omaha has an extensive and complex data processing system. It is so large, in fact, that no single person inside or out of city government is fully knowledgeable about it.

The system as it exists today cannot be described as an information management system as it is neither coordinated nor comprehensive. It consists instead of numerous components that have come together over time without the benefit of an overall plan or clear policy direction. The system is rarely viewed from a citywide perspective or from the perspective of providing information required by management for operational and planning purposes. Rather, it is viewed from the perspective of individual departments or divisions as a component of city operations that collects something called data and produces something called reports.

The fact that the current, mostly manual, often cumbersome and inefficient data processing systems work as well as they do can be attributed to the persistence and hard work of the men and women in city government in Omaha. These persons are aware of the handicaps under which they labor, lacking modern tools to do their jobs. They can be expected to support improvements in the city's automated systems.

Several issues that adversely affect information management

on a citywide basis in Omaha are identified in this analysis. Recommendations made to address them include:

- * hiring a qualified management information system director
- * providing for clearly delineated departmental responsibility and budget for information management
- * training all levels of personnel in various areas of computer technology and information management.

In addition, the analysis determined that the following new or enhanced automated systems should be implemented for citywide application:

- * integrated financial management system
- * equipment management system
- * personnel management system
- * complaint handling system
- * enhancements to various geographic data bases
- * enhanced word processing capability.

The first year cost of these recommendations, insofar as estimates could be made, is projected to be in the range of \$275,000 to \$300,000.

Citywide findings are followed by a review of the current status and future requirements for automation in all eight city departments and for the CETA program, public library, municipal court, city clerk, city council, and mayor's office. These recommendations are too numerous to be presented in an executive summary. However, the study found numerous cases of overlapping information management requirements among existing and potential city users and strongly recommends cooperation among and within departments to meet future automation requirements.

Finally, recommendations are made regarding four additional issues affecting information management in Omaha. These are:

- * sell or otherwise dispose of the NCR computer hardware and Moore Data Systems, Inc., financial management programming purchased in 1981 for the finance department
- * expand and make permanent the city data processing committee recently appointed by the mayor
- * negotiate a written contract with the Douglas County Systems and Data Processing Center covering all data processing services provided by the county to Omaha
- * for a more effective long-term data processing relationship, negotiate an intergovernmental agreement with Douglas County for ownership and budgetary and policy control of the center
- * work cooperatively with OPPD to facilitate future joint use of powerful and sophisticated computer graphics and mapping system.

Omaha has myriad information management requirements. Some of the automated systems needed to meet these requirements will replace or enhance existing cumbersome or antiquated systems. Others will provide city users with first-time automated capabilities.

The city should expect to spend considerable time, manpower, and other scarce resources over the next three to five years to develop or otherwise acquire and implement these systems. The time spent and cost incurred, however, will prove worthwhile in terms of improved information availability and quality. Finally, many of the recommended systems can be expected to have clear pay-backs through direct savings and cost avoidance, improved information reliability, and improved decision making.

Data Processing and Information Management
In the City of Omaha: Analyses and Recommendations

PRIORITY RECOMMENDATIONS

Presented herein is a summary in priority order of the principal recommendations made in this study for citywide automation and for automation in the major city departments. Detailed discussion of these and other recommendations covering all departments of city government can be found in the text of the report.

Codes to the left of each recommendation indicate the suggested priority for that recommendation. The codes are:

- 1 - Immediate priority (next 12 months)
- 2 - Second priority (13 to 24 months)
- 3 - Future consideration (3 to 5 years)
- 4 - Continuing concern

CITYWIDE MIS PRIORITIES

<u>Priority</u>	<u>Recommendation</u>
1	MIS Director
1	Integrated Financial Management System
1	Equipment Management System
2	Personnel Management System
2	Complaint Handling System
3	Word Processing Enhancements
1,4	Geo-based Systems Enhancements
1,4	Training

DEPARTMENTAL MIS PRIORITIES

Finance Department

- 1 Hire a permanent finance director.

Personnel Department

- 1 Conduct a management analysis of personnel functions, structure, organization, staffing, and rules and regulations.

Public Safety Department

- 1 Study the feasibility of CAD system (police, fire, communication).
- 1 Study the use of improved technology in the police department.
- 1 Provide automation for several fire department activities, e.g., fire ticket and related reporting.
- 2,4 Seek enhancements to the criminal justice information system (police).
- 2,4 Enhance current automated systems in the fire department.
- 2 Assume responsibility for automation of rescue squad data.
- 2,4 Expand use of geo-based processing in all divisions.
- 2 Automate communications cards, dispatch cards, and data on these cards. (communications).
- 2 Provide for manpower and workload analysis and manpower allocation capability (police, fire, communication).
- 2 Improve crime and fire reporting and data analysis (police and fire).
- 3 Implement a microcomputer system in civil defense.
- 3 Automate weights and measures functions.

Public Works Department

- 1 Enhance several existing systems (e.g., sewer inventory, street inventory, traffic accident, plant maintenance and inventory, plant automation).
- 1,4 Integrate geographic data bases.
- 1 Solve data entry problem re. traffic accident inventory system.
- 1 Expand the use of word processing.
- 1,2 Provide initial automation of various systems or functions (e.g., bridge inventory, construction inspection records, traffic signals inventory, parking meters inventory, repair orders, work scheduling and analysis).
- 2 Enhance inquiry capabilities to all data bases and systems used by department.

- 2 Implement microcomputer based systems for various divisions and functions within the department.
- 2 Redesign various forms including current work order systems.
- 2 Provide for on-line access to various systems by all divisions and from district yards.
- 3 Implement computer aided graphics and mapping.
- 3 Acquire modeling/forecasting capabilities.
- 3 Enhance and/or expand in-plant automation and reporting.
- 1,4 Develop and maintain a catalog of programs and systems, user's manuals, and logs of hardware and software problems. (This recommendation should apply to all city data processing users.)

Parks, Recreation and Public Property Department

- 1 Develop an automated parks and facilities inventory.
- 1 Develop an automated facility and program scheduling capability.
- 1 Automate scheduling, allocation, and control of manpower resources.
- 1 Secure improved utility reporting from the finance department.
- 1 Implement an automated vandalism reporting system.
- 1 Implement improved, automated cash control system.
- 1 Acquire a fully programmed microcomputer system for various uses by the auditorium, stadium, Orpheum division.
- 2 Automate the billing and accounting functions of the marina.
- 2 Implement an automated system for collecting and analyzing user statistics.
- 2 Explore expanded uses of and enhancements to the automated HVAC control system in the city/county building.
- 2 Establish an automated weed and litter control file.
- 3 Enhance the forestry division's tree census.

- 3 Enhance the forestry division's production reporting system.
- 3 Improve the department's use of word processing.

Housing and Community Development

- 1,4 Automate and integrate all geographic data bases.
- 1 Automate the monitoring and reporting of all CDBG funded projects.
- 1 Develop and implement an automated system for monitoring and reporting on rehabilitation projects.
- 1 Install a CRT with on-line access to the Douglas County and HDR Systems computers.
- 1 Improve the department's statistical analysis capability.
- 2 Automate the LRU land inventory and the department's inventories of housing conditions and lot surveys.
- 2 Automate the inventory of all property owned by the department.
- 2 Automate mailing lists used by the department and enhance departmental use of word processing.
- 2 Provide enhanced access to and manipulation of census and related data.
- 2 Automate more fully the functions of the permits and inspections division.

Planning

- 2 Develop an automated land use data base and analytical capability.
- 2 Acquire an improved statistical analysis capability.
- 2 Acquire improved access to census and related data.
- 2 Acquire improved population, growth, and environmental analysis capabilities.
- 2 Implement improved departmental record keeping with automation.
- 2,4 Secure enhancements to various files and data bases.

- 3 Enhance the use of word processing.
- 3 In cooperation with other departments, secure engineering analysis, computer aided design, and interaction mapping/graphics capabilities.

Law Department

No priority 1 or 2 recommendations.

Municipal Court

- 1,2 Enhance existing systems or expanding automation to additional areas in the court.

CETA

- 1 Investigate alternative means of automating client files and monitoring and reporting functions.

Human Relations

- 1 Investigate alternative means of automating case files and monitoring and reporting functions.

Economic Development

No priority 1 or 2 recommendations.

Municipal Library

- 1 Undertake detailed analysis of automation requirements, alternatives, and costs for on-line book ordering, circulation control, card catalog, and automated book stock and history systems.

City Clerk

No priority 1 or 2 recommendations.

City Council

- 2 Install CRT and printer in council suite.
- 1,2 Involve council in developing specifications for major systems to be acquired by the city.

Mayor's Office

- 2 Install CRT(s) and printer(s) in the Mayor's office.

Additional Considerations

- 1 Dispose of the NCR/MDS system.
- 1 Develop functional requirements for various software systems recommended in this study and evaluate alternative means of implementing them.
- 1 Expand the city's management information committee and make it a permanent body.
- 1 Negotiate a data processing service contract with Douglas County.
- 2,3 Negotiate an interlocal agreement with Douglas County concerning the ownership, policy direction, administrative oversight, and financing of the Douglas County Systems and Data Processing Center.
- 3 Work cooperatively with OPPD and other potential users in the implementation of the OPPD graphics/mapping computer.

Data Processing and Information Management
in the City of Omaha, Nebraska:
Analysis and Recommendations
(June, 1982)

I. INTRODUCTION

A. Purpose and Scope of the Study

In September, 1981, the Center for Applied Urban Research at the University of Nebraska at Omaha submitted a proposal to the city of Omaha to conduct a study of the city's information management/data processing system. After refinement, the proposal was accepted by the city and became the basis for an agreement dated October 28, 1981, under which CAUR would provide consultative services in the area of data processing to the city of Omaha.

The purposes of the study are:

1. to analyze current data processing/information management activities in Omaha city government. This analysis would provide a base-line description of all currently automated data processing/information management activities in the city. It would cover all departments, divisions, and functional areas of city government. Where available, data concerning data processing/information management costs would be provided.
2. to determine future citywide and departmental requirements for information management technology and systems. This effort would help the city to establish in priority order both short-term and mid-range information management system goals and objectives for application citywide and in individual departments.
3. to assess the feasibility of the alternative systems capable of meeting identified needs. This would include a review of financial, personnel, management, and political factors affecting the effective use of computer technology in Omaha and would attempt to determine the principal factors limiting future computer use.

4. to identify feasible alternative methods of acquiring the required systems. As originally envisioned, this section of the study would present a limited range of potentially available options for consideration. These options might include use of the city's NCR 8555 hardware and associated financial management software, the Douglas County Systems and Data Processing Center, outside vendors, "personal" computers, etc., which would enable the city to achieve levels of automation recommended in various functional areas.

5. to make recommendations for future action. These would include suggested specific future steps in priority order the city should take, as well as a recommended schedule, to achieve its information management objectives.

The study began in November of 1981 with a meeting between the CAUR analyst and the data processing evaluation committee appointed by the mayor. Interviewing and data collection efforts in the various departments of city government also began in November and continued throughout the months of December, January, and February. Analysis of the data and development of this report began in February.

One of the initial findings of the study was that some city departments had well-developed plans to enhance existing information management systems or to develop or acquire new systems. Clearly, an organization as large and complex as the city of Omaha cannot be expected to stop all data processing plans for several months while a data processing requirements study is being conducted. At the same time, however, departments within city government cannot be allowed to continue pursuing departmental data processing objectives without a centralized management focus. Consequently, during the early stages of the study, the chief aide to the mayor, Mr. Larry Primeau, required that all departmental requests for new data processing systems or enhancements to existing systems be made to and approved by his office.

Among his other responsibilities, Mr. Primeau had been charged by the mayor with the responsibility for coordinating the study and had been designated as the city's data processing coordinator during the study.

A preliminary investigation of city needs had revealed what appeared to be three important citywide information management requirements: 1) an integrated financial management system, 2) equipment management, and 3) cost accounting. At the same time, department level data processing requests and projects in the traffic engineering division and the planning department and automated systems in use or under development by OPPD and the Douglas County Systems and Data Processing Center that had potential applicability to Omaha city operations had also been identified.

The nature of the study, the nature of the citywide requirements, and the potential effects of departmental requests dictated that they be accorded due attention by the analyst. As a result, throughout the period of the study, a major part of the analyst's effort was devoted to meetings involving city departmental personnel, Mr. Primeau, county data processing system management personnel, and, in the case of one system under design, an outside contractor. These meetings were held to discuss requests for programming or systems development and to provide guidance to the city regarding both current and future impacts of these activities on data processing/information management in Omaha.

B. Method and Limitations

The methods employed for this study involved standard techniques for institutional analysis used by both private consultants and academic researchers. First, each department in city government was asked for specific data on:

1. the major functions, programs, and activities
2. a list of computer programs currently used
3. a list of computer programs currently in development
4. a list of plans and desires for computer programs or applications.

Several departments provided adequate information including volumes and frequencies of activities, lists of programs, cost data, lists of system needs, and other valuable information. Other departments provided none of the requested information in an organized manner, had difficulty answering certain of the questions, were unable to provide accurate data or even reliable estimates in some areas (e.g., numbers of files and records, cost information, etc.), and had few suggestions, if any, regarding future departmental requirements.

A second element in the study involved collecting and reviewing a variety of documents. These included:

- * City Charter
- * current (FY 1982) budget
- * most recent (FY 1980) audit
- * list of programs on the Douglas County computer
- * list of programs on the financial department computer
- * data collection forms, computer input and output documents, and printed reports

- * report by Peat, Marwick and Mitchell
- * report of the Economy Task Force
- * needs assessment report by the Capital Improvement Task Force
- * numerous reports and other documents provided by individual departments and divisions.

Third, interviews were conducted with the mayor and his staff and with the department heads and division managers of every department in city government. Some of these interviews were relatively brief, lasting an hour or so. On the average, however, the interviews required about three hours. In some departments, the interviews were quite lengthy and had to be conducted over a period of two or three days or more. In all cases, the interviews attempted to verify, clarify, or expand upon written materials provided by the department, to fill data needs of the study in the four areas listed earlier (especially in the absence of written departmental responses), and to probe for problems, issues, and possibilities not otherwise covered by written materials. In addition, an effort (not always successful) was made to gather the following information: volumes and frequencies of activities, current data processing use, current and future data processing plans, and current data processing costs.

The principal limitation of the study is that it relied extensively upon the departments to provide required information. As will be seen in Chapters III and IV, information for some departments is better (or worse) than for others. Where important information is lacking, this report has attempted to provide estimates or has noted the problem.

An important point to keep in mind insofar as future information management in Omaha is concerned is that all departments should more carefully and consistently collect and maintain information about their activities regardless of whether this information is computerized. Reliable, accurate information is essential to good decision-making, including the making of decisions about whether and how to computerize.

II. INFORMATION MANAGEMENT ISSUES IN OMAHA

A. Information Management

Data processing can be understood as the collection, storage, and manipulation of facts and figures in order to produce useful information. Data processing becomes information management when (1) data are collected, aggregated into common groups, and reported for analytical or decision-making purposes, (2) the right data are collected so that the information produced is complete and accurate, and 3) the information produced is presented in the proper form, on a timely basis, and to the correct person(s) in order to support the making of decisions about the organization's activities.

In order for a local government effectively to enter the world of information management, as distinct from that of data processing, at least two conditions must be present: (1) the management of the local government must determine its minimum requirements for information needed to make decisions and take action, and (2) those requirements must be effectively translated into data collection instruments and processes, methods of storing and manipulating the data, and meaningful output. Data processing is part of an organization's overall information management operation, but data processing alone is not information management.

A great deal of data processing and relatively little infor-

mation management occurs in city government in Omaha. All departments produce and use data, and most turn some of these data into useful information. However, neither at the level of a single department nor at the citywide level does a significant amount of information management occur.

Two of several possible examples are cited to show what is meant by the absence of information management. The first major department interviewed during the study was the parks department. The director and his division managers repeatedly pointed out that the current accounting and reporting systems cannot provide them with an accurate picture of the cost of maintaining a particular park, golf course, or other facility under their control. Yet, they also recognize that cost accounting information is essential to the efficient day-to-day operation of the department as well as to long-range planning and feel handicapped that such information is not available to them.

A second example is provided in the work of the Capital Improvement Task Force. In order to determine the city's priorities for capital improvements, whether for new facilities or the repair of existing structures, the city needs to know such things as facility age, original cost, type and cost of prior maintenance, anticipated useful life, and other items. For most capital facilities, improvements, and structures in Omaha, the task force found that only partial data exist to address these questions, that these data are often accessible only after great effort, and that the data then must be aggregated and analyzed manually. Hence, decisions regarding capital improvements are often made without adequate information.

Most departmental and divisional management personnel interviewed were quite cognizant of the need for adequate information and were aware of its absence in key areas of their responsibilities. Many also expressed frustration because of the lack of adequate information with which to do their jobs.

B. Centralized Authority and Responsibility

The city of Omaha currently has no single, centralized focus of responsibility and authority for information management. As a result, individual departments pursue (or do not pursue) information management solutions independently. This is frequently done without due consideration of the implications of these actions on other departments or on citywide information management. Various problems, ranging from the fairly minor to the more serious, have arisen as a result.

For example, until very recently the police department had refused to allow fire department arson investigators direct access to the automated criminal justice information system from a terminal in the fire department. Instead, fire personnel had to use terminals in the police department whenever they needed access to this data base. A more serious problem involves the purchase of a computer system for automated financial management functions by one department without considering citywide needs or the needs of other departments.

Other problems, such as whether two departments can or will work cooperatively in a matter of data entry, can also be cited.

The continued absence of central authority and responsibility for information management in Omaha can be expected to produce results similar to these in the future.

C. Control by a Single Department

The finance department has historically exercised considerable control over the data processing in Omaha city government. This control has had at least five characteristics.

First, in some cases the finance department effectively halted action by other departments to implement automated systems. For example, in 1980-81 the parks and public works departments examined the possibility of acquiring an automated equipment management system. This project was halted by the finance department in early 1981.

Second, in other cases the finance department has played little or no role. As far as this study could determine, the finance department was not involved at all in the development of an automated inventory and preventative maintenance system for the Papillion Creek waste water treatment plant or the computerized criminal justice information system.

Third, all programming, reports, etc., on the city's NCR 499 hardware are controlled by the finance department. Although many of the operating departments are not satisfied with the various outputs from this system, they feel they have little influence over what is produced. One example is the monthly utility report initiated in 1981 by the finance department. Finance department personnel did not consult with the operating departments in the development of this report. As a result, the departments that receive this report feel that it is not fully adequate as a management information tool.

Fourth, until recently one programmer/analyst position in the finance department has been used as liaison between city depart-

ments and the Douglas County Data Processing Center. Requests from the departments for enhancements to existing systems as well as for new systems were channeled through this position for coordination. Interviews in the departments have revealed that this position and its coordinative function gave the finance department extensive control over departmental data processing priorities and systems.

Finally, the finance department controls the city's data processing budget. This includes all budgeted costs associated with operation of the NCR 499 hardware and all costs incurred by city departments for computing done at the Douglas County Data Processing Center and other providers of data processing services. Except for the CETA program that constitutes the sole city department or functional area having its own data processing budget, all data processing operational costs are part of the finance department budget.

Funds to pay for programming, the purchase of new systems, for modifications to existing systems, and the procurement of consulting services, however, generally come from departmental budgets. Even here, however, the finance department has exercised control over departmentally set priorities.

D. Lack of Departmental Responsibility

The role of the finance department in data processing, however, does not fully explain other departments' relative failure to take action. In fact, some departments have moved effectively into the area of information management on their own initiative. One of several examples that can be cited is the police division and the on-line criminal justice information system. Another

example is found in several systems that have been developed for the public works department.

Nevertheless, most departments have undertaken little data processing/information management. The principal reasons for this appear to be:

- 1) Data processing is seen as the finance department's responsibility.
- 2) The departments have never been charged with specific data processing responsibilities; hence, they cannot be held accountable for doing nothing.
- 3) The departments do not have their own data processing budgets; hence, they have no independent financial ability nor accountability for data processing.
- 4) Omaha has neither citywide nor departmental data processing objectives nor a plan for implementing specific systems; hence the departments historically have received little guidance from top city management in the area of data processing.

E. Reliance on Outside Suppliers

The great majority of the city's data processing is done at the Douglas County Systems and Data Processing Center. The remainder--except for that done on the finance department's NCR 499 hardware--is provided by outside vendors. At this writing, those vendors are HDR Systems, Inc. of Omaha and Northwest Computer Systems of Minneapolis (a subsidiary of the U.S. National Bank). HDR Systems provides consulting assistance in development of a sign inventory system and on-line computing for an inventory and preventative maintenance program for the

Papillion Creek waste water treatment plant. Northwest Computer Systems runs the city's payroll system.

Omaha's data processing future will continue to involve outside suppliers of both consultative services and computing capability. These services are often desirable and can be cost-effective. The reason the issue of outside suppliers is raised here is that Omaha relies perhaps too extensively on the advice and guidance of consultants, outside vendors, and the Douglas County Data Processing Center.

The city needs to be aware that in all cases it receives assistance and advice from organizations with distinct pecuniary or other interests in the outcome of that assistance and advice. More important, even if the service and assistance provided is the best available, the city has no independent check on its accuracy, completeness, or value. Dependency of this sort can be unhealthy, in part because the city must rely on the skill and judgment of persons and agencies whose first loyalty is not to the city and in part because the outside suppliers are forced into the position of making decisions in areas and for an organization in which they have no authority.

None of this should be read to imply that the city's current suppliers of data processing services are less than honest and professional or that they are providing improper or excessively costly services. Rather, this is a cautionary note and a suggestion that the city consider securing its own data processing expertise. In this way the city will be better able to judge the value of the services and counsel it receives from outside suppliers.

F. Lack of User Knowledge

Omaha has at least two types of data processing users: middle and upper management personnel and what may be called "end-users." Each user class has different requirements for information, for the way information is produced, and for the uses to which it is put.

Management requires summary reports and on-line inquiry capability for program and budget status determination, analysis, and control, to evaluate unit productivity, and to perform manpower allocation.

End-users are typically staff persons who use computer technology as one of many tools available to perform their jobs. One example would be a payroll clerk recording employee hours on computerized payroll records through a computer terminal instead of writing or typing the same information on time sheets. Another example would be a warehouse or storeroom operator inquiring into an inventory data base to determine the number, value, location, and average cost of a particular item in stock.

In Omaha, both management level personnel and end-users would benefit substantially from training in four specific areas of information management and computer technology:

1. Computer Technology. Few management or user personnel interviewed during this study were especially knowledgeable about computer technology. This is not surprising, for very few persons in society in general are knowledgeable on the subject of computers, and computer technology itself has changed tremendously over the past few years.

Nevertheless, a basic knowledge of computer technology is important in making decisions regarding whether or when and how to use computers in city government. Training in this area might include knowledge of how computers work, what they can and cannot do, what activities are well-suited for computerization, areas in which computers should be avoided, and the technical requirements and limitations on the effective use of computer technology.

2. Management Requirements. As a result of decisions made over the past several years, Omaha's departments have a wide variety of computer programs and data bases available to them. Unfortunately, many of the decisions leading to application programs and establishment of data bases were made without advance determination of a department's or division's management information requirements and without a determination of either the long-term departmental or citywide implications of the program or data base.

Data processing is not or should not become an end in itself. Instead, data processing should have as its goal the production of useful information. This goal cannot be achieved unless appropriate management decisions are made regarding what information is necessary, the format and frequency in which the information is to be produced, who is to use the information, and what means will be employed to evaluate its effectiveness or utility.

Here are two examples from Omaha. The traffic engineering division is currently participating with Douglas County in a joint project where an outside vendor will design an automated street sign inventory system for the city and county. The system

will eventually run on the Douglas County computer. By the first meeting of the county computer center management personnel, vendor representatives, and representatives of the city traffic engineering and county highway departments, these user departments had not determined their management information requirements for this system nor had any such requirements been transmitted to the vendor. (Of course, the vendor had not asked that any such requirements be developed.) The vendor's work to that point had been based on his knowledge of the problem and how computer technology could be used to address it and his view as to what this system should include. What Omaha required from the system--raw data, hard-copy reports, on-line inquiry capability, etc.--had not been determined by Omaha.

A second example involves the CETA program which currently rents (\$3,000 per month) an IBM System/34 minicomputer. The software on the system was acquired from another city and installed by IBM personnel and CETA programmers. A major issue which CETA continually faces is that of programming for this system. Had CETA management information requirements been more effectively researched and determined in advance, the continuing need for programming assistance would have been substantially reduced.

At the time this report was written the CETA program planned to terminate the rental of the computer system. Excessive cost was evidently the reason for this decision. Now, of course, other decisions will be required--namely, how to get the necessary work done without this system. Here again, advance

determination of management information requirements would have been most helpful.

3. Evaluation of Alternatives. During the course of this study, the mayor's office received several requests from operating departments for new programming or enhancements to existing programs. In some cases, the requesting parties had not developed adequate justification for their requested data processing solutions.

Soon after his designation as city data processing coordinator, Mr. Primeau developed guidelines for the submittal of requests for data processing systems or programming. These included the following issues which should be addressed in any such request:

- * What management information problem or issue will be solved or addressed by the proposed data processing solution?
- * What feasible alternative solutions (including doing nothing) are available to the city?
- * What are the principal costs and benefits associated with each of the major feasible alternatives?
- * Which alternative is recommended and why?

Determination and evaluation of feasible alternative courses of action can be an effective tool in any problem solving endeavor. A process such as the one instituted by Mr. Primeau will help to avoid potentially costly and ineffective data processing choices from being made and to ensure that cost-effective alternatives are selected. Attention should be given to training all middle and upper level management personnel in methods of cost-effective analysis.

4. Information Availability. The city of Omaha stores and has access to myriad data files and records. These are available on its NCR 499, the county computer system, the HDR computer, and at Northwest Computer Systems.

Among the data files available with information relevant to both citywide and departmental needs, the following appear to be of particular value:

- * DIME file
- * Street inventory file
- * Real property file
- * Criminal history file
- * Commercial buildings, contents, hazardous materials file
- * Permits and inspections file
- * Files containing police, fire, and rescue calls for service
- * Financial management information records
- * Payroll file
- * Personnel records
- * Traffic accident file.

In addition, numerous systems and applications programs have been developed on the county computer system and are in use by either city or county departments. The following--not all of which are in use by the city--appear to have potential applicability to meet citywide or departmental information management requirements:

- * cost accounting programs
- * systems to produce mailing labels

- * accounting systems
- * payroll systems
- * purchase order/inventory system
- * personnel system
- * engineering and statistical applications
- * fixed equipment inventory system.

These files and applications systems are listed here for two reasons. First, they suggest that a broad range of application programs and data bases and files has been developed for use in government in Omaha and Douglas County. Second, local few city departments are aware that such a wide variety of data bases and files and application programs is available to them.

G. Summary

This chapter has identified several important management issues concerning data processing and information management in Omaha. The most important of these is that historically the city has not considered data processing in terms of the management of information. When data processing is defined in terms of itself--i.e., collection, storage, and manipulation of unrelated facts and figures--and management requirements for information are not defined and applied, the result is often fragmented, inconsistent, and inefficient. This is the case in Omaha today. In addition, the perspective on data processing that currently exists emphasizes departmental rather than citywide information management needs and objectives.

Until the fall of 1981 no central point of authority and responsibility for data processing existed in the city. The

finance department emerged as the predominant decision maker regarding data processing and determined or strongly influenced what other departments could do. For their part, the other city departments, with one or two exceptions, did little to change their subordinate role.

Because it lacks a technically qualified centralized data processing authority, Omaha has relied heavily on outside suppliers of data processing services for assistance and guidance. This situation is unhealthy for both the city and the providers of this assistance.

Finally, both management and end-user personnel in Omaha could benefit from education and training in at least the following areas: the basics of computer technology, management requirements for effective data processing, methods of cost-effective evaluation of data processing alternatives, and knowledge of the application programs and data files currently available to city users on the major data processing systems used by the city.

The purpose of this chapter has been to identify major issues and problems associated with information management in Omaha. Therefore, as with any problem finding report, it has a rather negative hue. The intent of this report, however, is not to leave the impression that data processing/information management in Omaha is characterized by such serious problems that unless drastic action is taken crises will occur.

Certainly deficiencies exist in the city's information management system, and some but not all of the issues identified

here have the potential to become serious detriments to effective information management. At least four strong, positive factors are at work to influence the future of information management for Omaha. These include:

- * a city administration committed to effective information management

- * capable, professional departmental management personnel who are acutely aware of the limitations of current data processing capabilities and are interested in and supportive of efforts to improve the city's information management capabilities

- * capable, professional middle level management personnel and end-users who are interested in and highly motivated to their jobs and who want modern tools to do the best job possible

- * the availability of a wide range of data files and application programs actually in use or potentially applicable by city departments.

These factors, especially when combined with action on the recommendations presented in the following chapters, can be expected to improve substantially the future of information management in Omaha.

III. PRIORITY CITYWIDE INFORMATION MANAGEMENT REQUIREMENTS

This study has identified seven citywide concerns for information management. In priority order for attention by city officials these are: correction of key management deficiencies; implementation of automated financial management, equipment management, personnel management, and complaint handling systems; enhancements to and maintenance of the DIME file and related geographically based systems; and upgrading of the city's word processing capability.

These are discussed in detail in the following sections.

A. Management Issues

As soon as practicable, the city should address three management issues relating to data processing and information management. These are the hiring of a qualified management information system director, establishment of departmental information management responsibilities and budgets, and development of data processing and information management training programs for management level and user personnel.

1. MIS Director. A major factor contributing to the relatively low level of data processing use in Omaha is that the city lacks a position with responsibility and authority for this complex and sophisticated function. In the absence of such a position, no one person is responsible. In Omaha, this has meant two things: 1) the absence of a central locus of responsibility

and authority for citywide information management and 2) the primacy of the city finance department over other departments in data processing.

A suggested job description for the position of management information system director for the city of Omaha is provided in Figure III-1. The anticipated salary required to attract and retain a qualified person for this position is expected to range from \$35,000 to \$40,000 with total annual compensation amounting to between \$45,000 and \$50,000.

Reaction within city government to the initial draft of this section revealed concerns regarding the recommendation that the MIS director be on the mayor's staff as part of the non-classified service. These concerns were: that a qualified professional could not be attracted to serve without civil service protection; that a "political" rather than technically proficient person could be hired as MIS director; and that a change of administration could result in the removal of even a highly qualified person and hence severe disruption of the progress made to enhance and upgrade Omaha's computerized capabilities and systems. The principal reasons behind the recommendation are: that hiring an MIS director on the mayor's staff will be much more expeditious in the short-run than going through lengthy, cumbersome civil service procedures; that the need for the position is sufficiently great to warrant such quick action; and that the MIS director should be responsible to the city's chief executive.

These reasons and the concerns expressed by city staff in review of the draft of this report express two different,

FIGURE III-1
SUGGESTED JOB DESCRIPTION
MANAGEMENT INFORMATION SYSTEM DIRECTOR

The director of the management information system for the city of Omaha will be a member of the non-classified service and will be appointed by, serve on the staff of, and report to the mayor.

The director's primary responsibilities will be to:

- 1) supervise establishment of the city's management information system
- 2) coordinate and facilitate citywide and departmental information management and data processing activities
- 3) ensure the implementation of the city's recently completed data processing plan, including acquisition of prioritized hardware and software systems
- 4) direct the continuing analysis of citywide and departmental requirements and priorities for automation and ensure the integration of these requirements into the data processing plan
- 5) review and approve the acquisition of new automated systems and modifications to existing systems
- 6) work cooperatively with departmental management, users, and the Douglas County Data Processing Center
- 7) serve as chair of the city's management information advisory committee
- 8) undertake such additional data processing and management information responsibilities as the mayor may from time to time direct.

This position requires no direct system design or programming or facility operation activities. The management information system will have no employees other than the director and support staff provided out of the mayor's office, as all data processing services outside of the finance department are provided by non-city agencies or vendors. The director, however, must be able to develop system requirements, supervise and review system design and programming, and evaluate proposed software packages or other data processing solutions.

FIGURE III-1 (continued)

The following are the minimum requirements for the position:

- 1) Ten years' experience or equivalent in the field of automated data processing and management information systems, including five years' experience or equivalent in a responsible position in a local government of at least 100,000 population.
- 2) Bachelor's degree from an accredited four-year college or university with major course work in business administration, public administration, computer science, or related field. A master's degree is preferred.
- 3) Knowledge of and demonstrated ability in all aspects of automated data processing, including the operation of electronic computers and peripheral hardware, systems and application design and programming, data communication, and distributed processing.
- 4) The ability to establish and maintain effective working relations with end-user departments and personnel, departmental middle and upper management, and data processing service providers.

although not necessarily opposing points of view. Both should be given due consideration in the implementation of the recommendation to hire an MIS director.

2. Departmental Responsibility and Budgets. Second in importance to the effective management of information in the city of Omaha after the hiring of an MIS director is the establishment of department responsibility and budget for data processing/information management. At the present time neither exists.

The absence of a clearly delineated department responsibility and budget has led to abrogation of their roles in information management by most departments. In addition, the absence of departmental responsibility and budget has meant that standards

of performance or generally understood sets of expectations for information management do not exist. Thus, determining responsibility or holding the departments accountable for taking or failing to take action in this area is not possible.

In FY 1980-81, Omaha spent \$943,674 for data processing at the Douglas County Systems and Data Processing Center. (See Figure III-2.) The total cost of data processing and related services, including the cost of data entry and other manpower requirements and the annual cost of all contracts and charges for all data processing services, is not readily available. In part this reflects the fragmented nature of and lack of accountability for data processing in Omaha. Total cost would be considerably higher than the amount spent with Douglas County and would include those associated with data processing or consulting by:

- * HDR Systems, Inc.
- * Northwest Computer Systems
- * the finance department's computer equipment
- * the CETA program's computer equipment
- * all data entry costs.

Annual departmental data processing budgets should be established as part of the city's budgetary development, review, and accounting process. Each department should maintain a continuing and up-to-date record of all data processing costs. In this way the departments will know the cost of their data processing and information management activities, and all of these costs can be charged to the departments' budgets. The departments will thus be forced to wrestle with the relative value of existing automated systems (and the information they provide)

 FIGURE III-2

 DEPARTMENT DATA PROCESSING COSTS
 TO DOUGLAS COUNTY DATA CENTER
 FY 1980-1981

<u>Department</u>		<u>Amount</u>
Public Safety		\$495,260
Police	\$417,572	
911	\$55,955	
Fire	\$21,553	
Municipal Court		\$208,701
Public Works		\$154,407
Sanitation	\$97,352	
Other public works	\$57,055	
Housing and Community Development		\$ 40,046
Finance		\$ 26,510
Finance	\$14,096	
Property	\$12,414	
Planning		\$ 9,414
City Prosecutor		<u>\$ 9,336</u>
	TOTAL	\$943,674

and will be in a favorable position to begin making cost-effective decisions about both existing systems and new or desired capabilities.

Related to the issue of budget is the issue of responsibility. Users should be able to exercise ultimate control over data processing/information management systems that affect them. In a large, complex organization such as the city of Omaha this is rarely as simple as it sounds. Frequently the same files, records, data, and programming have multiple users. Here, cooperation and compromise are essential, but the principle

remains the same: users should exercise control over the way the technology affects them.

In order for user departments and personnel to manage the technology to ensure that the information they require is provided in an acceptable format and time-frame, they must establish clear management information requirements for all systems. To fail to do so is to court excess costs and produce information of little utility.

Management information requirements do not arise like crocuses in springtime. They are the product of a lengthy, detailed, and often frustrating process by which upper and middle level management personnel working with end-users determine the specific information required to make decisions about particular functions in an agency or operation.

A brief but simple example may help to explain this process. In order to ensure that productivity standards are met by street maintenance crews, a department manager decides that for all crews and for each day worked a report containing the following minimum information is required:

- * crew size
- * type of work assigned
- * type of equipment used
- * productivity factor by type of work
- * actual time spent on each type of work.

Basic data to provide this information can be collected relatively easily by crew chiefs using a brief data collection form transmitted at the end of each day by the department's administrative unit for data input. Next, the manager decides

whether daily, weekly, or monthly productivity reports or exception reports or some variety thereof are required.

Taking this example one step further, management at the next higher level in the organization decides that cost analysis is required for all street maintenance work. The need for cost analysis data can be met by adding a few data collection requirements to those needed for productivity analysis. These might include:

- * name and employee number of all employees, listed by crew and by job

- * number of hours of use of each piece of equipment also listed by crew and by job.

The assumption is made in this example that the organization's financial management, equipment management, and payroll systems are automated and fully integrated so that its computer can access such things as salary and fringe benefits for all employees and hourly equipment costs for each piece of equipment. The assumption is also made that an organizational or departmental overhead factor has also been determined and that the computer has access to this factor.

These data, properly entered into a computer system programmed to provide information on the productivity of street crews as well as the total cost of street repair activities, can be of great value to the management of the organization. With these data management can know within acceptable margins of error:

- * the amount of time required by street crews to perform a variety of types of maintenance work

* individual and crew productivity measured against established productivity factors

* the total cost of repairs of various types (including wages, benefits, equipment, and overhead).

This information will then enable management to address such issues as productivity improvement, nominal crew size chargebacks to proper funds and accounts, and implementation (and testing) of various cost-saving techniques.

The key to these results--this enhanced management capability--is that management decides what information it requires to manage properly and sets about in a systematic fashion to develop the systems necessary to provide that information.

In Omaha, a process similar to that outlined in this example is underway involving management personnel from the public works and parks departments, and police and fire divisions. Their purpose is to establish management information requirements for an automated equipment management system. The process these departments cooperatively have initiated or one similar to it--lengthy and frustrating though it may be--is strongly recommended for all data processing users in the city for determining whether to enhance existing systems or acquire new ones and whether existing systems meet management information requirements.

3. Management and User Training. One of the first responsibilities of the MIS director should be to address the training needs of all levels of personnel in Omaha who will use computer technology. These range from data input personnel to middle and upper management to department directors. The areas in which training should be considered are those discussed in Chapter II

and include:

- * knowledge of data bases, files, and automated systems and their full capabilities available to city departments on the Douglas County computer
- * detailed user training for selected files and systems
- * training in the basics of computer technology--how computers work and what computers can and cannot be reasonably expected to do cost-effectively for local government
- * methods of developing management requirements for automated systems and of evaluating programming designed to meet those requirements
- * methods of performing cost-effective analysis of existing and proposed computerized alternatives.

Some of the training recommended here can be provided by the Douglas County Systems and Data Processing Center, some by or through the city personnel department, and some by outside organizations. Regardless of who provides the training, the point is to ensure that adequate initial training and periodic retraining in data processing and information management are available to Omaha city staff and management.

An automated information management system is a complex, fascinating, and ever-changing beast. No one can or should be expected to be fully versed in it without continuing assistance and education.

B. Integrated Financial Management System

1. Overview. The top priority for automation in Omaha city government is a fully integrated financial management system. Omaha should immediately begin the process of determining the management requirements for and acquiring and implementing an automated, fully integrated, on-line, real-time financial management system (IFMS).

To quote the city's auditors, Coopers and Lybrand:

Presently the City's accounting system is automated in only a few areas. The automated areas include payroll processing (through a service bureau), encumbrance accounting, expense distribution, and budget control. Based on our understanding of the City's accounting systems obtained as an integral part of our audit examination, we believe that management information and control as well as overall operating efficiencies would be enhanced if the City's accounting processes were combined into a single automated system. (Management letter, September 10, 1981)

The auditors went on to say that implementation of a properly structured IFMS should serve to resolve some of the accounting deficiencies noted during their audit. In addition, the acting finance director told the researcher that the department wants to be able to do several things to be in compliance with generally accepted accounting practices but cannot without advanced computerized capabilities.

2. Current Situation

a. Overview. The city finance department with a staff of 67 employees performs most of the financial management functions expected in an organization the size of Omaha. These include budgetary accounting, accounts receivable, accounts payable, payroll (though a computer service bureau), purchasing, property control, city cashier, several billings, accounting for federal grants, investment management, cash management, debt management, and insurance management. The department also operates in three areas which, strictly speaking, do not involve financial management. These are data processing, word processing, and printing. The finance department has only limited capabilities in the areas of cost accounting and cost-effective

analysis, due primarily to the antiquated and inefficient automated financial management systems. Furthermore, the department does budgetary accounting only to the departmental and line item levels--also due to limited computerized capabilities.

The following narrative addresses the major functional areas in this department in terms of current use of automation. A complete list of automated systems, provided by the finance department, is included in Figure III-5 on page 50.

b. Principal Functions. A variety of accounting and related financial management functions is performed by the finance department. Some are performed with the aid of computer technology (either the in-house NCR 499 based system or a service bureau), and some are performed with pad, pencil, and calculator. Table III-3 provides a listing of the department's principal functions together with a notation of whether they are automated or manual. The listed automated systems all operate in batch mode and often require manual coding operations and manual transfers of data. They are not integrated into an overall, comprehensive financial management system. Finally, none of the automated systems is considered adequate for Omaha's requirements for financial management information efficiency or effectiveness.

(1) Budgetary Accounting. The current city budget is approximately \$163 million including federal grants, and the city's fiscal year is the calendar year. The budget is a line item budget using a five digit chart of accounts developed by the accounting firm of Peat, Marwick and Mitchell in

FIGURE III-3
 AUTOMATION STATUS
 PRINCIPAL FUNCTIONAL AREAS
 OMAHA FINANCE DEPARTMENT

<u>Activity</u>	<u>Mode</u>
Budgetary accounting	A-NCR 499
Project accounting	A-NCR 499
Payroll	A-Service Bureau and NCR 499
General ledger	A-NCR 499
Accounts payable	A-NCR 499
Billings	A-NCR 499
Accounts receivable	A-NCR 499
Cash collection/control	M
Investment management	M
Debt management	M
Property control	A-NCR 499
Purchasing	M

(A-Automated; M-Manual)

1955 and modified several times since. The city uses six separate bank accounts although all city funds except for one grant account are on deposit with the U.S. National Bank.

The department does only limited cost accounting for projects or activities below the departmental level, very little cost-effectiveness analysis of programs, no capital asset accounting, and maintains only a partial capital asset inventory. It does no revenue or expenditure forecasting or modeling.

Annually at budget preparation time, the finance department provides printouts and budget request forms to operating departments listing actual financial history for four years and the current year's budget (all at the line item level) for purposes of developing the next year's budget requests. In addition to these data and reports, the finance department provides semi-monthly, monthly, and quarterly reports to the operating departments. These include:

- * budgetary status (monthly)
- * personnel costs (after each payday)
- * utility report (monthly)
- * revenue report (quarterly).

Most operating departments in the city felt these reports were inadequate for their management information requirements because:

- * Budgetary status reports are not timely, do not report at an adequate level of detail or disaggregation, and may not include all expenditures and encumbrances made during the previous month.
- * Personnel costs are not reported at an adequate level of detail and disaggregation.
- * Utility reports are not verified by amount or by meter, and meters are not aggregated by facility.
- * Quarterly revenue reports are not timely.

(2) Project Accounting. Six departmental personnel are involved in the accounting of \$29 million (1980) in federal grant funds and in monitoring contractors' activities under these funds. They are aided by the city's NCR 499, but the bulk of their efforts involves the manual transfer and recalculation of data from reports prepared on the NCR 499 to

a grants accounting format and seeing that these figures are re-entered on the NCR 499 and produced as project accounting reports. This is done for each grant and project.

(3) Payroll. Payroll is run under a four-year contract with Northwest Computer Systems, a subsidiary of the U.S. National Bank. Employees paid include:

- * 2,700 regular city employees
- * 300 part-time or seasonal city employees
- * seven city council persons
- * 80 municipal court employees
- * 1,000 city pensioners.

Payrolls are made as follows:

- * city employees--twice per month on the 7th and 22nd
- * court employees--twice per month on the 15th and 30th
- * city council--twice per month on the 15th and 30th
- * pensioners--once per month on the last day of the month. (About 30% of pensioners' checks are paid through automatic deposit. No other automatic deposits are made.)

The city has no capability for an exceptional payroll (e.g., a termination pay check). The payroll system accommodates 24 types of deductions, 12 types of pay, and five types of leave.

A payroll ledger is prepared by Northwest Computer Systems and transmitted to the payroll division where it is keypunched and transferred to the city's accounts payable ledger. Northwest Computer Systems provides check reconciliation. The current cost of this service is \$0.55 per

check for an annual total of approximately \$47,300 (for an estimated 86,000 checks). This cost can be expected to increase if for no other reason than to cover cost increases that will be experienced by Northwest Computer Systems. In 1980 this cost was \$.38 per check.

The payroll division with six employees performs the following functions to enable the service bureau to print the checks and/or as a necessary follow-up:

- * transfers data from payroll ledger to city accounts payable ledger (keypunch operation)
- * prepares payroll reports by department (from city ledger)
- * calculates and makes all deduction payments from the payroll ledger (manual operation)
- * verifies payroll and makes corrections (manual operation)
- * manually codes input data for the service bureau (requires two persons full time with assistance from four additional persons at peak times)
- * prepares other reports (taxes, FICA, UC, WC, wage verification reports, deduction requests, and ledgers).

In addition to these payroll functions, the department's processing division prepares payroll for 300 persons in the CETA program on a weekly basis. The division charges CETA \$1.35 per check for this function.

(4) Cashier. This is a completely manual operation through which passes all cash collected each day by city offices and operations. It uses neither cash registers nor CRT's. Instead, bills and receipts (cash and checks) received are physically paperclipped together and placed in boxes on cashiers' desks and are tallied at the end of the

day. Receipts are deposited with the county treasurer, and a copy of the deposit slips is transmitted to the data processing section for input into the accounts receivable program. Daily collections vary widely--from a few hundred dollars to tens of thousands. One day during the week of the interview \$73,000 was received. Cash collection in other city departments and offices is also manual, in some cases using cash registers with daily tallies and daily deposits to the cashier's office.

(5) Property Control. This division is responsible for four major city inventories covering items of \$50.00 or greater in value. These inventories include:

- * furniture and tools (95% accurate)
- * police vehicles (100% accurate)
- * city vehicles (100% accurate)
- * non-titled equipment (25% accurate)
- * real estate inventory (principally city owned right of way leased for parking, storage, fences, walls, edges, and CETA property).

(Estimates regarding the accuracy of the inventories were provided by the division head.)

The city's inventory of real property is maintained by the finance director as part of the insurance management program.

Property control is not integrated with the purchasing function nor is it part of the flow of purchase order information. Instead, the purchasing division sends notices to property control when items covered by the listed inventories have been purchased. Coding sheets are then prepared for

entry into the NCR 499 batch inventory system. This system provides an end of the year citywide inventory report and lists to be used to take the physical inventory.

Individual departments maintain inventories of:

- * expendable supplies
- * small tools and equipment (less than \$50.00 in value).

The fire division maintains a separate inventory of equipment on each fire vehicle. The public works department maintains an inventory of all radio equipment, except police radios, owned by the city. Each of the city's four garage operation maintains separate vehicle, equipment, and parts inventories. Inventories of expendable supplies are also maintained by the departments.

All items of \$50.00 or greater in value that are lost, stolen, or damaged and those intended for surplussing are supposed to be reported to property control for appropriate action and recording on the inventory system. This does not always occur.

(6) Purchasing. The purchasing function in Omaha is completely manual and excessively cumbersome. It relies on a seven part requisition form and several sign-offs by authorized personnel. According to the Economy Task Force, "The purchasing division issues about 16,000 purchase orders per year" of which "30% are classified as 'emergency purchase orders'." The number of requisitions issued per year by the operating departments is not known. The Economy Task Force criticized several elements of the purchasing system

including lack of coordination and centralization of buying, absence of adequate control over specifications for the purchase of goods and services, and absence of ability to move surplus equipment from one department to another.

Additional findings of the present analysis are:

* Purchase order numbers are not assigned to contracts.

* The division has no effective method of determining the status of a particular requisition or purchase order.

* Purchasing is not integrated with other financial management functions.

(7) Billings and Accounts Receivable. The finance department's data processing division is responsible for a large number of billings for various city departments. These billings include regular annual billings and others are billed per month as required. The principal billings include:

* liquor and beer license tax (about 2,000--in February)

* signs and reinspection fees

* various licenses and certificates

* building inspections

* weights and measures accounts (1,050 bills--in December)

* area-way and subway fees (5,000 to 6,000--in March).

In addition to billings, the division also produces billing registers and ledgers and three times per month reconciles receipts against the accounts receivable file on the NCR 499. Quarterly it prepares revenue reports for the departments.

Funds received by the city either arrive directly at the finance department office, at one of many city departments or offices, at the city cashier's office, or at the county treasurer's office. All receipts are deposited through the county treasurer. Accounting for all receivables (whether tax receipts, grants, governmental transfer payments, or receipts from billings) is performed by this division on the NCR 499 equipment.

(8) Accounts Payable. The data processing division is also responsible for accounts payable. Approved invoices are received by the division and paid using the NCR 499. Checks are written daily, a check ledger produced, and check reconciliation performed on the NCR 499. About 30,000 checks were prepared in 1981.

(9) Investment and Debt Management. Investment management is a completely manual operation in Omaha. Investment of general and miscellaneous account funds is handled by one staff person (requiring an estimated 40% of a person-year) and investment of sewer revenue funds is handled by another staff member (requiring an estimated 10% of a person-year). In 1981 the investment of idle funds produced approximately \$6 million for the city. Another estimated \$150,000 could have been earned if the transfer of funds between the county treasurer's office and the city's investment accounts could be expedited. Currently all funds lay over in the treasurer's office at least one day prior to deposit in city accounts, thus losing the earning opportunity associated with

a more expeditious deposit.

Debt management is also a fully manual operation in which a staff person using ledger sheets monitors the city's bond and other debt payment requirements and monitors cash availability from investments and receivables, projects cash requirements for debt payment, and monitors the payment of debt requirements.

(10) Data Processing. The finance department data processing division is responsible for a variety of financial management functions using NCR 499 based batch mode data processing equipment. All computer hardware used by this division is listed in Figure III-4.

The data processing staff includes the following personnel:

- One supervisor
- Two systems analysts/programmers
- Two keypunch operators
- Two fiscal analysts
- Three clerks.

In addition, the division has three budgeted positions that have not been filled due to the current city hiring freeze.

Programmers in the division are trained in the NEAT/3 and NEAT/AM programming languages for the NCR 499. The division supervisor indicated they have also been trained in COBOL, although they have not used it in several years.

In 1980 the division began developing in batch mode on the NCR 499 a vendor file (by vendor name and by account).

 FIGURE III-4

 OWNED AND LEASED DATA PROCESSING EQUIPMENT
 OMAHA CITY FINANCE DEPARTMENT

Owned Equipment

<u>Quantity</u>	<u>Item</u>
2	NCR 499 Minicomputer, 32KB, 2 cassette handlers each
1	NCR 349 300/LPM line printer
1	NCR 368 card reader, 300 CPM
1	NCR 378 card punch, 13 CPM (while printing), 26 CPM (punching only)
3	IBM 129 card punch
1	IBM 083 card sorter, 1,000 CPM
1	Burroughs 482 high speed check signer
1	Standard register 1530 burster (bursts computer paper and other forms)
1	Standard register 1800 decolorator (separator) (pulls carbons, trims edges)

Leased Equipment

<u>Quantity</u>	<u>Item</u>
1	NCR 656 fixed/removable disk drive, fixed disk-4.7 MB, removable disk-4.7MB (total - 9.4MB), \$400 per month (\$4,800 per year) rental, including maintenance.

Maintenance Cost 1981/Owned Equipment: \$7,000

The eventual aim is to create a five-year vendor history file. The file is updated monthly and can be accessed through a monthly printout. It is not integrated with the purchasing system.

Two problems should be noted regarding the city's NCR 499 hardware. First, this equipment is essentially antiquated, its useful life is limited, and it is being used at or beyond its original design capabilities. Consequently, increasing maintenance problems and costs may be expected in future years. Second, according to the data processing supervisor, when the outside temperature is in the 70's, the data processing room is in the 90's. When this occurs, the hardware begins to experience heat related failures, and data processing personnel are subjected to an uncomfortable working environment.

(11) Insurance Management. The city is mainly a self-insured entity except for fire and extended coverage insurance (with a \$100,000 deductible) on all city owned facilities, valuable papers insurance for the library, and boiler and machinery insurance at 36 locations. Omaha has two liability funds out of which adverse judgment settlements and awards are paid. A physical inventory of all city property was prepared in 1976-1977 by Alexander and Alexander, the city's insurance broker, and has been updated annually since.

The insurance management program is a manual operation. All record keeping, reporting, claims handling, analyses, and

other functions--when performed--are manual. Little or no integration seems to take place with other financial management functions (e.g., inventories of value, employee benefit programs) or safety and loss control activities. The city attorney's office handles claims processing. Employee benefit and insurance programs (life, health, dental) are handled by the personnel department.

3. Financial Management Requirements. The estimated cost for a fully integrated financial management system (IFMS), including the payroll component, is \$200,000. (The estimated cost of a payroll system is \$50,000.) Development of detailed requirements for an IFMS is beyond the scope of this analysis. Moreover, these requirements should be developed through a process involving not only the finance department but also representatives of the mayor's office, the city council, and the director or designee of each department in city government. In this way, comprehensive management information requirements for an IFMS that will meet the needs of all departments and elected officials will be developed.

a. IFMS Outline. Although detailed requirements cannot be provided here, the outline offered here suggests at least the major functions to be included in an IFMS. The system outlined below will not function on the city's NCR 499 equipment but will require a small to medium sized main-frame computer.

An automated financial management system to meet Omaha's needs should be a fully integrated system designed around a general ledger accounting subsystem. All subsystems should auto-

matically update the general ledger and all other affected subsystems. The IFMS system should be a full encumbrance accounting system and should conform to both GAAP and GAFFR standards. The system should be transaction oriented (e.g., any transaction entered should update all affected records and files), and should operate in an interactive, on-line, real-time, multi-programming mode. It should include at least the following major subsystems:

- (1) Standard chart of accounts (_____ digits)
 - * line item accounting and budgeting
 - * fund accounting and budgeting
 - * program/project accounting and budgeting
 - * encumbrance accounting
 - * accrual accounting
- (2) Accounts receivable
 - * cash collection and control including CRT's, electronic cash registers or OCR devices linked on-line at all major points that receive cash
 - * cash distribution
 - * billing/invoicing
- (3) Accounts payable
 - * check preparation
 - * check reconciliation
- (4) Cost accounting
 - * by fund
 - * by line item
 - * by program/project

- (5) Purchasing
 - * purchase order and requisition issuance and control
 - * inventory control
- (6) Capital assets
 - * capital asset inventory
 - * capital asset depreciation
 - * capital improvement budgeting
- (7) Forecasting/modeling
 - * revenue (all sources)
 - * cash requirements
 - * indebtedness
 - * investments
- (8) Grant management
- (9) Investment and debt management
- (10) Risk and insurance management
- (11) Reporting requirements

(These should be developed cooperatively among the finance department mayor's office, city council, and department heads.)
- (12) Vendor files
 - * by vendor
 - * by item/category
 - * by department/division/project
 - * _____ year history
- (13) Auditing requirements
 - * transaction files
 - * trial balances
 - * audit trial

b. Payroll Outline. Another major element of a complete IFMS is a payroll subsystem which should function as if it were a stand-alone system but which should be fully integrated into the IFMS. The payroll subsystem should accommodate the budgeting, accounting, forecasting, and auditing requirements of the IFMS accounting system.

An acceptable payroll system should include at least the following components:

- (1) Payrolls
 - * weekly (52 periods)
 - * bi-weekly (26 periods)
 - * semi-monthly (24 periods)
 - * monthly (12 periods)
 - * exceptional
- (2) Deductions
 - * all standard deductions
 - * up to _____ additional deductions
 - * automatic deduction payments to all payees
- (3) Types of pay
 - * regular
 - * overtime
 - * military leave
 - * annual leave
 - * medical leave
 - * WC/IOD
 - * _____ additional categories

- * leave without pay (with benefits)
- * uniform allowance
- (4) Types of benefits (deductions and reporting)
 - * capability to handle up to _____ benefit programs
- (5) Automatic deposit capability
- (6) Specific accounting requirements
 - * by line item
 - * by department
 - * by position
 - * by program/project
- (7) UC, WC, IOD reporting and payments
- (8) EEO reporting
- (9) Labor negotiations
 - * labor cost comparisons
 - * labor cost forecasting/modeling.

C. Equipment Management System

1. Current Situation. The second priority for citywide automation is an on-line equipment management system. The city of Omaha currently has four facilities for the repair and maintenance of vehicles. These are the public works central garage, the parks department central garage, the police division garage, and the fire division garage. All four perform essentially similar functions although the types of vehicles and equipment in each department are somewhat different. Currently, equipment management for all vehicles, fuel control, and parts and inventory control in all four departments are completely manual operations. See Figure III-7 on page 60.

 FIGURE III-5a/

 CITY OF OMAHA
 DATA PROCESSING SOFTWARE
 CITY FINANCE DEPARTMENT

 A. JOBS PERFORMED ON NCR 499 SYSTEM

- Monthly Budget Status Report (including Federal)*
- Monthly Detail List of Expenditures*
- Monthly Detail List of Outstanding Encumbrances*
- Quarterly Allotment Report*
- Quarterly Personal Services Report (P/R)
- Monthly Travel and Subst. Report*
- Monthly and YTD Federal Acct. Summary Report*
- Daily Warrant Writing and Enc. Liquidation
- Encumbrances Input Bi-Weekly*
- Daily Magnetic Ledger Posting from Expenditure and Encumbrance Cassettes and Source Documents (Journal Entries, Cashier Reports, Treasurer's Reports)
- Monthly, or as required, Trial Balances from Ledger Cards
- Special Reports extracted from Budget and Federal Master files and/or Expenditure or Encumbrance files*
- Work Papers for following year Budget (Budget Requests)
- Retirement Files for Civilian and Police & Fire Active Employees
- Update Quarterly for new and deleted employees and any changes necessary, i.e., vested, etc.
- Year-End Update Retirement Files with Years, Gross Pay and Contributions to Funds. Run Special Reports for Comptroller and the Payroll Division, along with Status Reports of each employee's account on specific forms.
- Savings Bonds - Run Update Files each pay period - Print Bonds, Print Current Account Balances showing each employee's account and totals for General Ledger Balance and record of Bond Purchases for each payroll period.
- SID files (4 Separate Files), Updated Quarterly and Printed - Complete Status, 6 year comparison, 25 year forecast of amounts due, information data on bonds and detail data of the SID as given to Data Processing (runs as one report).
- Five (5) Year Comparison of Expenditures by Budget Accounts and Expenditure Codes, Five (5) Year Comparison by Expenditure Codes and List of Accounts that make each total*

 a/

Information for this table was prepared by staff of the data processing division, city of Omaha finance department.

*These items are included in the automated financial management system purchased in 1981 from Moore Data Systems.

FIGURE III-5 (continued)

- Annual List of Detail Expenditures by Account Numbers and Expense Codes for Audit Reference*
 - Monthly Report of Towed-In Car Sales (Escrow Account - General Ledger Only). Detail for each vehicle, totals by sales; refund and date amounts to go to Revenue if not claimed by vehicle owners.
 - Monthly Report of Bid Deposit (General Ledger Only) - Detail for each Deposit and Refund. Totals must agree with General Ledger.
 - Investment Funds for Civilian and Police & Fire Retirement Systems, by Fund and Fund Managers - Update Quarterly-- Detail transactions, Summary Report and Consolidated Summary Report. 4 separate files at present, but run as one report.
 - Detail Report of Utilities used by City by each location - Amount used and Amount paid by month and updated by months for YTD usage and cost by each location.

 - CETA Client Allowance Payroll System
 1. Process + 500 Time Sheets (Weekly)
 2. CETA Client Payroll Listing (Weekly)
 3. CETA Client Allowance Checks (Weekly)
 4. CETA Client Check Register (Weekly)
 5. CETA Client Terminations for Submission to State of Nebraska (Weekly)
 6. CETA Client Master File Printouts (Weekly)
 7. CETA Client Man-Hours Statistics (Monthly)
 8. CETA Client Year-to-Date Check Register (Monthly)

 - Active Personnel System
 1. Edit Input Prior to Submission to Douglas County (Twice a Month)
 2. Labels on New Employees for Payroll (Twice a Month)

 - Check Register EDP System*
 1. Monthly Check Registers by Payee Order

 - Outstanding Checks EDP System
 1. Process Returned Checks (Daily)
 2. Outstanding Checks A/O End Each Month for Balancing

 - Support of Treasurer's Report
 1. Daily Listing of Returned Checks by Type (Fund)

 - Employee Insurance System
 1. Term Life Report (Monthly)
 2. Paid-up Life Report (Monthly)
 3. Participants in Alpha Order
-

FIGURE III-5 (continued)

- Weights/Measures EDP Billing System
 1. Print Annual Bills
 2. Produce 6-10 copies of File by Street for Weights/Measures Inspectors
 3. Print Paid Receipts on Daily Basis
 4. Print Current Status of Payments, Monthly at first, and then as all are Received

 - Outstanding Municipal Bonds and Coupons
 1. Produce Monthly Outstanding Bonds & Coupons for Balancing
 2. Produce Monthly Returned Bonds & Coupons Listing

 - Outstanding Building Commission Bonds & Coupons
 1. Produce Annual Outstanding Bonds & Coupons for Balancing
 2. Produce Annual Returned Bonds & Coupons Listing

 - Police Labels, Master List & Update
 - Blue Cross/Blue Shield, Police, Fire and Civilian Lists
 - P & I New Sign Permits - Print Permits
 - P & I Deposit Tickets, Ticket and Revenue Lists, 3 separate monthly reports
 - Special Deposit Tickets, Balance Listing, Monthly Report
 - Vendors - Update List*
 - Vendor Warrants - Update*
 - Vendor Warrants - List Once a Year or as Requested*
 - Human Relations - Update Master List and Labels
 - Revenue Trial Balance - Update & List
 - Revenue Projections - For end of year, for next year*

 - Inventory Fixed Assets:
 1. Update listing as requested

 - Inventory Vehicles:
 1. Police & Fire - Update list as requested
 2. Civilian - Update list as requested
 3. Non-Titled - Updated list as requested

 - Certificates:
 1. Leases - Work List
 2. Street Cuts
 3. H & P, Assembly and Elevator Inspection
 4. Sign Permits
 5. All Others

 - Accounts Receivable:
 1. Billing - Update and List
 2. Cash list - Print
-

FIGURE III-5 (continued)

3. Cash 2nd - Update and Print
4. Adjustments - Update & Print
5. Accounts Receivable Listing
6. Monthly Balance List
7. Summary Balance List
8. Zero Balance List
9. 2nd Notice & Prior Delinquent List
10. Special Delinquent List
11. Quarterly Cash List

-- Special Listings or Reports

1. Blue Cross/Blue Shield - By Employee SSN, By Employee Number
2. Parking Leases for 911
3. Area Way/Subway Auditor List
4. Area Way/Subway Cashiers List
5. Labels
6. 1099 Interest
7. 1099 Misc.
8. Leases, Parking old and new rates

B. SYSTEMS (JOBS) ON HDR COMPUTER

1. Planning Department
 - a. Environmental Analysis
 - b. Historic Preservation Data
 - c. Park Planning Analysis
2. Housing & Community Development Department
 - a. Population and Housing Estimation
3. Parks & Recreation Department
 - a. Forestry Crew Production Reporting
4. Public Works Department
 - a. Sewer Treatment Plants Inventory Control
 - b. Sewer Treatment Plants Maintenance and Preventive Maintenance Scheduling and Control

C. PROGRAMS AT NORTHWEST COMPUTER SYSTEMS

1. Finance Department
 - a. City Payroll System - Four (4) year contract with U.S. National Bank to terminate at end of 1984.
-

FIGURE III-6
CITY OF OMAHA
PAYMENTS TO
DOUGLAS COUNTY DATA PROCESSING CENTER
1977 - 1981

<u>Division</u>	Actual				
	<u>1977</u>	<u>1978</u>	<u>1979</u>	<u>1980</u>	<u>1981</u>
Municipal Court	198,055	204,041	242,031	209,576	253,709
Housing and Community Development	25,525	24,833	31,085	36,327	34,507
Law	-	3,197	10,323	9,529	9,117
Personnel	4,725	3,889	4,140	3,407	4,350
Planning	7,968	10,385	9,241	10,802	10,967
Finance	20,515	10,098	14,781	10,610	13,600
Parks, Recreation & Public Property	6,200	7,005	6,731	13,987	15,958
Public Safety	322,189	429,696	413,891	458,925	441,318
Public Works	<u>103,399</u>	<u>108,023</u>	<u>137,050</u>	<u>147,320</u>	<u>225,000</u>
Total	<u>688,576</u>	<u>801,167</u>	<u>869,273</u>	<u>900,483</u>	<u>1,008,526</u>

SOURCE OF FUNDS

<u>Source</u>	<u>1979</u>	<u>1980</u>	<u>1981</u>
	<u>Actual</u>	<u>Actual</u>	<u>Budgeted</u>
General	705,686	709,946	769,926
Street & Highway Allocation	66,650	83,012	100,000
Special Assessments	12,653	12,310	13,600
Sewer Revenue	57,942	95,215	125,000

Consolidation of all garage functions in Omaha is technically feasible. Indeed, the Economy Task Force made such a recommendation in 1980. This report does not take a position on the issue of consolidation of the garage function. It does, however, cite two concerns with regard to the Task Force recommendation.

First, to consolidate the garage function would require a large initial capital expenditure for construction of either a wholly new facility or to upgrade and expand of one of the existing facilities. Funds for this purpose may not be readily available. Consequently, such a recommendation is likely to be moot.

Second the four departments in question unanimously feel that such a consolidation is not viable. They feel, for example, that the issue of assigning the proper priorities to the repair of critical vehicles (e.g., police cruisers, fire apparatus, snow plows) will regularly arise and may not be handled effectively. The departments also voiced concern regarding the availability of the specialized knowledge necessary to repair highly specialized equipment in a generalized garage operation.

For the purpose of the automated equipment management system recommended here whether the garage functions ultimately are consolidated is irrelevant. The recommended automated system should operate for a single garage operation as well as for multiple garages. All data required for and all functions derived from the system will be the same regardless of vehicle or equipment type or departmental assignment, and the system can be used just as well by many departments as by one.

The report of the Economy Task Force presented several reasons for consolidating the garage function into one operation. These reasons are valid today for the implementation of an automated equipment management system. Essentially, they involve improved equipment effectiveness, efficiency of garage operations, cost reduction, and/or cost avoidance.

Among the more important functions that should be considered for an automated equipment management system, the following deserve particular attention:

- * vehicle depreciation and replacement scheduling
- * standard vehicle specifications and analysis of performance against specifications
- * integrated vehicle management utilizing both central and satellite facilities for maintenance
- * preventative maintenance for all vehicles and equipment.
- * establishment of a vehicle pool for intermittent use by city employees
- * detailed cost accounting for all vehicles and equipment, by department, by program or project, and other relevant criteria
- * coordination (preferably through an automated purchasing system) of the purchasing of parts and equipment as well as interdepartmental transfers of the same
- * establishment of a charge-back or billing system for all maintenance work (preventative or scheduled, emergency, repairs by others, etc.)
- * fuel inventory and control of fuel dispensing as well as the use of all city fuel stations by all vehicles regardless of departmental designation
- * improved decision-making regarding the surplussing of vehicles, the transfer of vehicles to other departments/functions, and the purchase of replacement vehicles.

An automated on-line equipment management system can be expected to cost Omaha in the range of \$75,000 to \$100,000. Based on experience in other cities, this system can be expected to pay for itself within two years of being fully operational as the result of savings or cost reductions resulting from improved equipment, fuel, and parts management.

2. Equipment Management System Outline. The development of detailed requirements for such a system is beyond the scope of this study. Moreover, a task force involving the public works and parks departments and police and fire divisions, under the leadership of the public works director, is currently at work determining these departments' management requirements for such a system. The intent of this task force, other things being equal, is to work cooperatively with Douglas County user departments for possible joint acquisition and use of such a system. This analysis explicitly supports that direction.

As an aid to the task force's efforts, the following outline of minimum functional requirements for an equipment management system is offered.

a. Equipment

- * detailed description of all vehicles and equipment
- * unique equipment identifier
- * status and condition reports
- * depreciation schedule
- * assignment (location/staff)
- * equipment specifications

b. Maintenance

- * record of all repairs (preventative maintenance, emergency, vendor, warranty)
- * _____ months' history on-line
- * _____ months' history on tape
- * billing to departments
- * preventative maintenance scheduling

c. Parts Inventory and Control

- * detailed parts inventory
- * integrated with purchasing system
- * critical reorder parameters
- * parts control (receipt, issuance, charging, transfer, return)
- * handles both used and new parts

d. Work Orders

- * labor and parts
- * updates equipment, maintenance parts, and performance auditing files

e. Fuel Inventory and Control

- * detailed description, inventory status, all fuel dispensing stations
- * fuel dispensing records
- * fuel use by vehicle (and other criteria)
- * integrated with purchasing
- * critical reorder parameters

f. Productivity/Performance Auditing

- * performance standards
- * performance reports (actual vs. standards, by type of activity, by repair facility, by employee)

This system should be interactive, on-line, transaction oriented and fully integrated and should be integrated with all appropriate subsystems of the IFMS (e.g., cost accounting, purchasing). It should produce regular required reports which to the maximum extent possible should be exception reports and should be available on-line. The system should also provide users an inquiry capability using English language commands and have the ability to produce unique reports.

D. Personnel Management System

1. Current Situation. The third priority for citywide automation in Omaha is an interactive, on-line, transaction oriented personnel system that is fully integrated with the payroll and financial management systems.

The Omaha personnel system is a paperwork monster. It makes minimal use of computer technology (See Figure III-8), and paperwork management requires considerable effort from personnel department employees. Data needed for reports or analyses must be collected by searching through volumes of paper files and records. As a result, the department lacks the type of analytical capability required for an organization the size of the city of Omaha. In addition, the report of the Economy Task Force found that:

Many of the personnel administrative processes appear to be cumbersome, redundant, and unnecessary, and Personnel support systems...are not systematic in design and need to be integrated.

Finally, personnel functions are duplicated in almost all other city departments.

 FIGURE III-7

 EQUIPMENT AND EQUIPMENT MAINTENANCE IN OMAHA

 A. Public Works Department

Central garage	
Satellite facilities	Management systems
Central parts inventory	completely manual
Vehicles--401 rolling vehicles	
594 pieces of equipment	
100,000 parts in stock	

 B. Parks Department

Central garage	
Satellite facilities	Management systems
Central parts inventory	completely manual
Licensed vehicles--204	
Non-licensed vehicles--113	
Numerous other equipment	
8,400 types of parts in stock;	
75,000 parts in stock	

 C. Police Division

Central garage	Management systems
Central parts inventory	completely manual
Vehicles--223	
Over 3,800 parts in stock	

 D. Fire Division

Central garage	Management systems
Central parts inventory	completely manual
Vehicles--102 active	
111 reserve	
300 to 500 different types of parts;	
total inventory of new and used parts	
unknown	

 F. Fuel Control

By department	Management systems
little interdepartment fuel transfer	completely manual

FIGURE III-8

AUTOMATED SYSTEMS USED BY
THE CITY OF OMAHA PERSONNEL DEPARTMENT

A. Unique Requests--processed by city finance department on NCR 499 equipment.

- Examples:
1. Sick leave utilization study
 2. Analyses of surveys of employees
 3. Prepare input on job tests for further processing at UNO

(Cost: included in finance department budget)

B. Personnel System--consists of three files: Active Personnel, Retired Personnel, Job Applicants.

1. Active Personnel--coding in personnel department, keypunch for input in finance department, batch processing on Douglas County computer. Thirty-four separate batch activities, including producing several reports, are performed on data in this file. Reports are generally either twice weekly, monthly, or annually.

2. Retired Personnel--coding in personnel department, keypunch for input in finance department, batch processing on Douglas County computer. Four regular functions (all quarterly) are performed on the data in this system.

3. Applicant File--coding in personnel department, key punching in finance department, and batch processing done monthly or annually. Six major functions are performed on these data.

(Cost: \$4,350 in 1981, \$3,400 budgeted 1982. Estimated personnel costs for coding and key punching--\$14,029.32 for 1981.)

The findings reported here are shared by administrators in the personnel department and other city departments who recognize the limitations under which the personnel department works. That the personnel system works at all is no small tribute to the employees of the department.

This study strongly recommends an automated personnel system for Omaha. At least one important caveat, however, is in order. Manual systems that are poorly designed or otherwise inadequate should almost never be automated. Computers are only machines, but they are machines that are incredibly fast and accurate. Thus a bad manual system, if automated, becomes a bad system that is very fast and that computes, retains, and transmits bad data.

Omaha should either undertake major revisions to its personnel system prior to automation or implement a wholly new system that has been designed to meet city personnel management requirements. To this end, and under the mayor's direction, the personnel department is currently seeking an outside evaluation of its functions, procedures, and staffing. This study should be completed prior to automating the personnel system in Omaha.

The major purpose for automating the functions of the personnel department is operational effectiveness. Operational effectiveness subsumes almost every major function currently performed by the department: recruiting, hiring, training, promotion, retention, discipline, managing benefit programs, safety, etc. Automation can provide the department with modern tools needed to perform these functions more effectively. At least a few secondary benefits will accrue. Among these, the following are exemplary:

- * improved record keeping regarding recording accidents and injuries on duty, analyses of which will allow remedial action to reduce injuries and the suffering and associated costs

- * substantial reduction in the amount of staff time required to research records to respond to complaints, law suits, or other requests for information

(Currently this is estimated to require "the vast majority of the time of clerical and support staff" and upwards of 50% of professional staff time.) Automation will promote greater efficiency and effectiveness of staff work and will allow either the addition of functions (e.g., safety and loss prevention) or staff reduction.

* reduction in the amount of time required to process job applications, tests, and other hiring related data resulting in fewer person-hours required to do this work, more efficient notifications of eligibility (or non-eligibility), and the more rapid filling of vacancies.

2. Personnel Management System Outline. Development of detailed specifications for a personnel management system is not a function of this study. That is the job of departmental management together with the top management of other city departments. An automated system to meet these specifications can then be acquired either through modifications to existing programming (purchased from a vendor or other supplier or secured from the public domain) or by having a wholly new system programmed exclusively for Omaha. At the minimum, the following functions, presented in outline form, should be considered for such a system.

a. Employee File

* detailed information on all employees and retirees, including current status and permanent history

b. Applicant File

* detailed information on all applicants

* _____ history on-line

* _____ history on tape

c. Detailed Activity Subsystems

- * Recruitment
- * Application
- * Testing
- * Interview
- * Selection/rejection
- * Hiring
- * Training/education/skills
- * Safety, including injury and death
- * Promotion
- * Classification status/change
- * Pay status/change
- * Disciplinary action
- * Insurance
- * Pension
- * Others as warranted

d. Reports. The employee and applicant files together with the activity subsystems should be used to generate a variety of required reports and analyses. These should include but not be limited to:

- * Active employees - detailed and summary
- * Retired employees - detailed and summary
- * Applicants - detailed and summary
- * Application status
- * Affirmative action (various)

- * Training/skills availability
- * Training courses available/conducted
- * Safety/IOD
- * Position vacancies
- * Positions filled
- * Tests available
- * Test scores
- * Eligibility lists
- * Insurance claims
- * Pension status
- * Job classification
- * Work or performance standards.

e. Inquiry. The system should provide the capability for users to perform unique inquiries using English language commands and to generate unique reports.

f. Analysis. The system should enable users to undertake a variety of statistical or other analyses, including:

- * performance standards vs. actual performance
- * safety and insurance analyses
- * test validity studies
- * forecasting and modeling (e.g., for labor negotiation and budgeting purposes).

g. Document Storage. Finally certain documents currently maintained manually should be computerized or stored in a word processing system:

- * Work or performance standards
- * Job analyses

- * Job classification system
- * Personnel rules and regulations (civil service and those affecting the three bargaining units)
- * Labor contracts
- * Tests
- * All standard forms.

The estimated cost for such a system is in the range of \$50,000.

E. Complaint Handling System

1. Need. Although the city's major line departments (police, fire, public works, parks, housing and community development) perform quite different functions, they share several things in common. One of those is that they receive numerous complaints and/or requests for service from Omahans. In addition to these major operating entities, divisions within them as well as other departments (human relations) and divisions (weights and measures) and the mayor's action office receive complaints and requests for service.

The total volume of complaints and requests for service received by all departments is not known because not all departments or divisions systematically record these data. Nevertheless, an automated, on-line complaint handling system that will meet the requirements of all departments appears warranted for the following reasons:

- * to record complaints and to track responses to complaints
- * to provide information to assist departmental management to allocate available manpower and correct service delivery deficiencies

- * to provide data for identification and correction of known defects in city facilities and operations
- * to identify geographic and other trends regarding service delivery and/or complaints
- * to provide data that will answer inquiries from the public, the news media, and elected officials
- * to provide information to assist elected city officials establish and review the effectiveness of various policies.

In its simplest form, a complaint handling system would enable the departments or the mayor's action office to record and track all complaints and calls for service. It should also be used to augment, although not supplant, planned maintenance (e.g., pothole filling) or service provision (e.g., weed cutting) programs and to measure their effectiveness. All complaints should remain on-line until a response is generated. In this way the status of all open complaints could easily be determined. Once a complaint is closed as the result of a response, it could be placed in a transaction file for reporting and then transferred to a historical (tape) file. Management reports could be generated as frequently as required and could provide a variety of information according to a number of selected criteria.

A complaint handling system should be an on-line system with the capability for the user to perform inquiries across the data base using English language commands and also to generate unique reports. No estimate of cost for such a system can be provided.

2. Complaint Handling System Outline. The types of data required for and reports available from such a system might include the items listed in the outline below. To repeat what

has already been said with regard to other proposed systems, however, the involvement of departmental management to establish requirements for a complaint handling system is necessary before a system is selected or developed. Therefore, this outline must be viewed as no more than a preliminary guide for further action.

a. Complaint File

* complaint record--detailed including time, date, type of complaint, location, complainant's name and address, and name of person and department receiving complaint

* action record--detailed including department responding, action taken, time and date (and location if different)

These records are envisioned as two parts of a single form for either manual completion or input directly on a CRT screen.

b. Complaints Received by

* department

* division

* unit

* mayor's action office

* city council

* any physical location

* referrals from receiving party to proper responding unit

c. On-line Records

* all open complaints with status

d. On-line Inquiry

* open complaints by type, department, location, other criteria

e. Reports

* all complaints received/time period

- * all complaints closed/time period
- * all complaints open/time period
- * complaints by type, department, action, location, other criteria.
- * response time.

F. DIME File and Other Geographic Data Bases

The city of Omaha is a participant, along with Douglas County and the Metropolitan Area Planning Agency, in development, support, and use of an automated, on-line geographic data file which runs on the county's IBM 3031 computer. This system, known as GBF/DIME (for geographic based file/dual independent map encoding), is a file in which the entirety of Douglas County has been subdivided into commonly used geographic entities. At the lowest level, these geographic entities are census blocks. The blocks can be aggregated to the level of census tracts and also to the level of the city map or the county map.

The DIME file can be used to identify geographic areas, and, through use of a program known as ADMATCH (for the matching of street address to census blocks), it can access geographically based data from other files on the county's computer system. Information accessed in this manner can be disaggregated to the level of the least common denominator (e.g., the block--providing it has been entered with block identifiers), aggregated to the tract and map levels, and used for analytical and comparative purposes.

In addition, data from a a variety of geographically based files (e.g., police cruiser district data, fire district data, permit and inspection records, etc.) can be coded for input so as

to be accessible later in a format consistent with DIME file capabilities. This would allow data to be accessed by geographic parameters different from those on which they were originally collected. For example, police cruiser districts are not consistent with census tracts, but data collected in cruiser districts, if properly encoded, could be retrieved by census tract. In this way, data originally collected on one geographic basis can be manipulated and analyzed along with data originally collected on a different geographic basis in order to provide valuable management information. One example might be the correlation of crime data collected by police cruiser district with socio-economic data by major and minor census division.

The DIME file is one of the most significant and far reaching automated systems currently available to Omaha and is likely to remain so. Its potential, however, has barely been tapped by city users. To begin with, it has not been well-maintained by the city. Only within the last few months has a concerted effort been made to correct and update the city's basic geographic data in the file. This effort should be completed in the summer of 1982. Second, few of the city's geographically based files have been developed so as to be consistent with or to be accessible through the DIME file.

Two examples are data kept by police cruiser district and the public works department's sewer inventory file. Third, few departments or users are aware of the capabilities of the DIME file for data manipulation and analysis purposes.

Among the early tasks for the city's MIS director should be a

review of the DIME file and its capabilities. The director should also take steps to ensure proper training in its use for all possible city users, to review all geographically based city data files to ensure that wherever possible these are consistent with DIME file use and application, and to insist that geographically based files or application systems be developed so that they are consistent with DIME file and use application.

Currently, the public works department, the Douglas County Data Processing Center, and an outside consultant (HDR) are developing a street sign inventory for automation on the county's IBM system. This application is being developed in a manner consistent with the DIME file. As a spin-off of this effort, the public works department's street inventory is also being modified so that it will be consistent with the DIME file. These and similar efforts should continue.

The complaint handling system is an excellent candidate for geographic base application in a mode consistent with the DIME file. Other potential applications, including both new programming and enhancements to existing systems that should be consistent with DIME file use and application, include:

- * parks inventory (new)
- * sewer inventory (existing)
- * P/I files (new)
- * SID data (new)
- * crime and associated data (existing)
- * fire calls and associated data (new)
- * industrial waste files (existing)

- * sanitation complaints (existing)
- * capital assets inventory (new)
- * a variety of data of interest to the planning and housing and community development departments (new).

These files and data bases, many of which are already on the county computer system, should continue as stand-alone files and should remain the responsibility of the respective operating departments. They should also have the capability of being accessed through the DIME file.

In addition, the city should pursue, jointly with the county and MAPA, enhancements to the DIME file itself. Two of these come to mind:

- * interactive graphics--especially for the development of maps and the graphic display of data
- * enhancement of the DIME's current, somewhat limited, set of geographic identifiers to include full block, block aggregations not consistent with census tracts, and parcel and parcel aggregations.

G. Word Processing

"Word Power" is a division of the finance department that provides composition and word processing support to city departments. Word Power is staffed by four corresponding secretary I's, two corresponding secretary II's, one graphics operator, and one supervisor. The equipment used by Word Power includes six Xerox 850 memory typewriters, one IBM mag-card composer, and Dictaphone recording equipment (which is part of a citywide dictation system as a built-in capacity of the city hall telephone system).

According to the supervisor, 80% of the work of the division

is generated through the Dictaphone equipment and the remaining 20% is from hard copy draft material. Of the dictated material, 25% is typed on standard forms and 75% is open narrative. Nearly half of the open narrative receives second or third drafts after revision by authors. Ten to 15% of the workload of the division involves actual composition of letters from instruction or rough draft dictation.

Prior to January, 1982, the supervisor indicated that Word Power's workload was constant and relatively heavy--enough to keep all staff fully occupied. In January on instructions from the finance department Word Power began to bill all users for all work at a cost of \$18.00 per hour (covering both personnel and equipment costs). After this charge went into effect, Word Power's work load decreased noticeably.

The workload data presented here are based on estimates provided by this division. The division at one time kept records on workload and flow and performed work analysis. However, such record keeping and analysis was stopped under direction of the previous finance director. A strong recommendation is made that a system of record keeping and work and performance analysis be instituted in this division. Data from such an effort will be extremely valuable should the recommendations made here regarding needed enhancements to this division be pursued.

Word Power has developed a users' manual for the word processing system, including use of the Dictaphone equipment and standard forms used by each department. Manuals have been distributed to all user departments. User training is also pro-

vided by Word Power although not all departments avail themselves of it. The recommendation is made that all personnel who are in a position to use Word Power receive both initial training and periodic retraining in the use of the system. This should be compulsory training aimed at developing efficient users and should be coordinated through the personnel department.

The word processing equipment used by Word Power is not representative of the current state-of-the-art and has two significant deficiencies that inhibit a more efficient operation of the Word Power division. These are: 1) the Xerox 850 equipment is essentially a memory typewriter. This means that simultaneous input and output cannot occur. When the operator is inputting material, the machine does not print. When the machine is printing, input activity cannot occur. Second, the screen on this system can display only part of one line of type at a time.

State-of-the-art equipment features standard 12" CRT screens that display a full 8½" x 11" page of material. For editing, verification, and proofreading, such a capability is clearly preferred. In addition, state-of-the-art equipment will allow simultaneous input and output. Indeed, some equipment can support several CRT's and printers all working simultaneously on different jobs.

Furthermore, state-of-the-art equipment would allow word processing terminals and printers to be placed, as required, in the major department offices and enable departmental rather than centralized word processing staff to do departmental word processing. Such equipment could feature modular or stand-alone

word processing units, a local network of word processing equipment, or centralized or distributed word processing equipment connected to the processing power and data files on a larger computer system. (The latter configuration is essentially the type of system Douglas County has recently implemented in offices in the county building.)

The Word Power division has experienced two hardware problems that require attention. The first relates to environmental conditions, namely heat and static electricity. The Word Power room becomes overheated, machines cease operation, and static electricity build-up causes interference with equipment function. Simple solutions exist: 1) independent HVAC control (thermostat) or an independent HVAC unit for this room to keep the ambient temperature in the normal range for equipment and operators, 2) static pads under all equipment, and 3) proper humidification. In regard to the latter, a portable room humidifier sits empty in the Word Power room. The analyst was told that it does not work properly, and that in order to keep it filled with water, word processing operators are required physically to carry buckets of water to it.

The second hardware problem has to do with disk drive failure. The Xerox 850 system is a floppy disk system. During the three years this system has been in the Word Power division, three disk drives have failed (burned out). The city evidently had neither secured a replacement guarantee for equipment failure nor a maintenance contract to provide replacements in the case of equipment failure. Furthermore, the city has not received from

the vendor a diagnosis of the reason(s) for the disk drive failures. The issue of disk drive failures should be addressed with the vendor.

The overall recommendation of this section is that Omaha undertake a thorough analysis of its word processing requirements and acquire and implement a state-of-the-art word processing system (hardware and software) to replace the equipment now used by Word Power. A variety of issues including system size and configuration, types of software, whether centralized or distributed word processing, and, of critical importance, whether to acquire stand-alone systems or a word processing capability integrated with the city's data processing system should be addressed during this analysis. This study should be undertaken either by the city's MIS director or by an outside consultant. Cost estimates for various alternatives should be provided as the result of the study.

H. Summary

This chapter has presented findings and recommendations, in priority order, regarding citywide data processing/management information requirements for the city of Omaha. Briefly summarized these are:

1. Management Issues

- * Hire a management information system director.

- * Establish departmental budgets and responsibilities for data processing and information management.

- * Provide training for management and end users in information management technology, systems, and capabilities.

2. Financial Management

- * Acquire and implement an automated, fully integrated on-line financial management system.
- * Involve the finance department and user departments in development of management information requirements for this system.

3. Equipment Management

- * Acquire and implement an automated, on-line, fully integrated equipment management system.
- * Involve user departments through a currently operating committee to develop management information requirements for this system.
- * Work cooperatively with Douglas County users toward joint acquisition of such a system if the same proves practicable and cost-effective.

4. Personnel Management

- * Undertake a thorough analysis of the city's personnel system and recommend improvements to its functions, rules and regulations, processes and procedures, and staffing.
- * Involve operating and staff departments with personnel department management to determine management information requirements for an automated personnel management system.
- * Acquire and implement an automated, fully integrated personnel management system consistent with those requirements and with the findings and recommendations of the earlier study.

5. Complaint Handling System

- * Involve user departments, the mayor's action office, and the city council in development of management information requirements for an automated complaint handling system.
- * Investigate the availability of existing complaint handling systems for adaptation and implementation in Omaha, or contract with a software supplier or the Douglas County Data Processing Center to develop and install such a system.

6. DIME File and Other Geographically Based Systems

* Ensure the continuing updating of the city's portion of the DIME file.

* Ensure the integration of all city geographically based data files with the capabilities of the DIME file.

* Promote enhancements to the DIME file to enable aggregations and disaggregations of data at levels not now permitted.

* Ensure user training in the capabilities of the DIME file and related geographically based files.

7. Word Processing

* Undertake a thorough analysis of the city's word processing requirements.

* Based on this analysis and, with involvement of user departments, acquire and implement an enhanced word processing capability using state-of-the-art equipment.

Costs

Preliminary cost estimates for some of these recommendations include:

<u>Item</u>	<u>Preliminary Cost Estimate</u>
MIS director	\$45,000 annually (salary and benefits)
Information management training	\$5,000 to \$25,000 first year \$2,000 to \$5,000 per year thereafter
Automated IFMS	\$150,000 initial cost (software only)
Automated personnel system	\$7,500 to \$25,000 study of personnel department \$50,000 initial cost (software only)
Complaint handling system	No estimate--varies widely depending upon requirements.

DIME and related	No estimate--varies widely depending upon systems/files addressed
Word processing	\$7,500 to \$25,000 study of requirements
	No estimate of system cost--varies widely depending upon requirements

All automated systems have the following types of costs associated with them:

- * initial software acquisition or programming
- * continuing software maintenance
- * initial hardware configuration (CRT's, printers, and CPU, disk and tape requirements)
- * additions to initial hardware configuration
- * continuing hardware maintenance
- * processing or transaction costs
- * on-line and off-line storage
- * communication (communication hardware and software, controllers, modems, line costs)
- * the elusive and often deceptive cost of personnel who collect, input, edit, and verify the data for automated systems. (Costs of programming are included under software categories.)

The preliminary cost estimates presented here should be viewed in the perspective of the total cost picture. Firm cost estimates, especially of those covering the expected useful lives of automated systems, can be made only if greater detail is developed than possible within the time and budget allocated for this study. Such detail includes such things as hardware, software, and communication and is based on more specific estimates of

volumes and frequencies of activities (numbers and amounts of transaction).

Cost, however, is only one side of a distinctly two-sided coin. The other side is benefit. Benefit can be understood as one or more of the following: improved service delivery, improved decision making, and reduced cost. In the case of every system recommended, all three types of benefits can be expected.

Two things are clear from this study. First, it is a tribute to the persistence and hard work of the current city staff that existing, mostly manual, often cumbersome and inefficient information systems work as well as they do. These persons are well aware of the handicaps under which they work, lacking modern tools to do their jobs. These efforts cannot be expected to enable the city to continue providing the best possible public services to its residents over the long term. Second, the direct benefits of improved decision making, service delivery, and reduced costs that can be expected from the actions and systems recommended here should provide sufficient calculable pay-back in the short run to justify their implementation.

IV. DEPARTMENTAL INFORMATION MANAGEMENT REQUIREMENTS

As a part of this study, eight major departments (finance, personnel, public safety, planning, law, public works, housing and community development, and parks, recreation, and public property), three programs (CETA, human relations, and economic development), the municipal court, the public library, the city clerk's office, the city council, and the mayor's office were reviewed to determine their current usage of and future requirements for automated systems. As will be shown in the findings and recommendations that follow, a greater proportion of the time and effort of this study was spent on the smaller departments and programs and independent entities.

A. Finance Department

The automation requirements of the city finance department were presented in Chapter III as the recommended first city-wide information management priority. These requirements will not be repeated here. Instead, three issues related to the implementation of automated systems by this department will be discussed. First, as a general rule the management information requirements of an organization are heavily influenced by the organization's top administrator, and a change at the top can dramatically affect those requirements. In a department like finance, the director can be expected to have considerable influence on such things as relations with other departments in city government,

the department's choice of specific accounting techniques, schedules for implementing automated systems, and many others.

Currently, the finance department does not have a permanent director. A permanent director should be appointed as soon as practicable. Acquisition of an integrated financial management system without the permanent department head's input could result in problems and delays during the process. Also costly changes could be required to the system after implementation. Conversely, a permanent director, particularly one with a background in automated financial management technology, could provide significant direction to the automation of Omaha's financial management system.

A second issue is that the city must decide soon whether to automate its financial management functions on an in-house computer, on the Douglas County computer system, through an outside data processing provider, or in some combination thereof. Once this decision is made, the proper staffing of the finance department to accommodate the selected mode of data processing should be addressed. Use of an in-house computer almost certainly will mean hiring and supporting a staff of data processing programmers, analysts, and computer system operators. The staff now in charge of the NCR 499 based system, given their current training and experience on a small batch-oriented system, cannot reasonably be expected to provide the support required for a much larger, multiprogramming, on-line, real-time system. At the very minimum, additional staff will be required, and existing staff will require additional training.

Use of the Douglas County Data Processing Center or of financial management will change the nature of the staffing question, but staffing will still have to be addressed. In any event, the department's future data processing staffing requirements can be determined only after a decision has been made regarding the mode under which the city's financial management functions will be automated.

The third issue addressed here concerns scheduling the implementation of the IFMS. All of the subsystems of this system cannot be implemented simultaneously. Indeed, to attempt to do so would be courting disaster. Hence, the finance department's top managers (in conjunction with the mayor's office and user departments) should develop an implementation schedule to ensure that the most important elements of the system are implemented first, to maintain an orderly implementation process, and to provide guideposts against which to measure implementation progress and effectiveness. Naturally, the time to develop such a schedule is after decisions have been made regarding the specific IFMS to implement and the computer system on which it will be implemented.

Findings and recommendations concerning the city's NCR/Moore Data Systems in-house computer and financial management programming are presented in Chapter V. That discussion should be of assistance in addressing the issue of where to computerize the city's IFMS.

B. Personnel Department

Recommendations for automating the city's personnel functions were also presented in Chapter III and will not be repeated here.

Two related issues, however, will be discussed. These are integrating the personnel system with the financial management system and the need for a management analysis of the personnel department.

Many personnel actions in a local government (e.g., change in pay classification) are closely linked with financial management activities. Therefore, this study recommends that the personnel and financial management systems be fully integrated and transaction oriented. In this way, for example, the cost accounting subsystem of the IFMS could access data from time and attendance records which are part of both the personnel management system and the payroll subsystem of the IFMS. Action on any one of these system (e.g., a change in pay rate on the personnel management system) would automatically update other affected subsystems (e.g., the payroll system).

Second, the implementation of an automated personnel management system should await completion of a management analysis of the functions, structure, procedures, rules and regulations, and staffing of the personnel department. Once such a study is completed and decisions made regarding the implementation of its recommendations, specific functional and management information requirements for an automated personnel management system can be developed. To develop requirements for an automated system prior to this study is not recommended as the findings of the study may significantly affect the personnel department and the ways in which it does its work.

Naturally, a cost estimate for an automated personnel manage-

ment system can be developed only after the functional requirements for the systems are known.

C. Public Safety Department

The public safety department is made up of five divisions: police, fire, communications, civil defense, and weights and measures. All are essentially separate operating entities and will be discussed separately.

1. Director. The principal functions of the office of director of this department, unlike that of the directors of other city departments, are largely administrative and coordinative. The director also functions at a policy level as part of the mayor's staff. Actual operational management for the divisions within the public safety department is performed by the heads of the divisions. As such, this department director receives very little operational level data from the information management systems available to the divisions in the department. Currently, the director receives basic financial management reports from the finance department but no other regular reporting from automated systems.

This situation is unlikely to change, even with the advent of additional automated systems in the department. Summary and on-line reports from the division as specified by the director and on-line inquiry capabilities (e.g., budgetary status) should serve the director's office adequately as long as the office continues to function in its present capacity.

2. Police. The Omaha police division with 550 officers and 144 civilian employees is the single largest user of computer

technology in city government. The principal system used by the police division is an extensive and complex criminal justice information system which runs on the Douglas County computer. This system operates 24 hours per day 365 days per year.

The 1982 budget for automation in the police division is \$399,477 out of a total division budget of \$19,210,221. The principal uses to which the police division puts this system are:

- * entering data and inquiring against the stolen property file
- * making NCIC record checks
- * entering data and inquiring against records of persons
- * making auto license inquiries
- * making warrant inquiries
- * developing officers' daily reports
- * developing statistical reports.

A complete list of major programs used by the police division, including monthly frequencies of use, is included in Figure IV-1.

The police division has a data review section, consisting of 15 civilians and headed by a police sergeant, for the purpose of entering data into the criminal justice information system. Two of these positions are funded by a federal grant and are considered in jeopardy due to cutbacks in such funding. The unit operates seven days a week, 24 hours a day in cramped, aesthetically barren quarters and is in need of at least one additional CRT.

Police officers in the field access data in the criminal justice information system via police radio by using communications channel 4. Two civilian employees in an office adja-

FIGURE IV-1

OMAHA POLICE DIVISION
PRINCIPAL COMPUTER PROGRAMS USED
1981

<u>Program Number</u>	<u>Name</u>	<u>Mode</u>	<u>Frequency Per Month</u>
LCJSCTP	State Switcher	On-line	76,500
TPIOB05I	Address Look-up	On-line	1,400
LPSCT15	Build Arrest Stats	On-line	1,400
LPFOCT15	Build Office Daily	On-line	5,400
LCJBCT1	Set/Post Bond	On-line	1,200
LPFICT9	Booking Name Update	On-line	1,500
LPSCT1	Build RB Index	On-line	10,500
LPSCT5	Build Stat-Reports	On-line	8,700
			8,600
LASRCT4	Clear Stolen Auto	On-line	300
LGSACT10	Enter Stolen/Pawn Property	On-line	6,800
LASRCT4	Enter Stolen Auto	On-line	500
LPFICT5	Change Name Record	On-line	8,000
LPFICT5	Format New Name	On-line	1,600
LPFICT8	Format New Past Records	On-line	8,200
LCJJCT1	Release Prisoners	On-line	1,000
LCJJCT2	Print Jail Census	On-line	1,000
LCJSCTP	NCIC/S Checks	On-line	7,600
LCJOCT2	Booking	On-line	1,500
LPFICT2	Load New Past Records	On-line	7,900
LPFICT8	Change past Records	On-line	700
LMCTCTP	Locate Warrant	On-line	800
LPSCT15	Reports by District/Shift	On-line	1,700
LGSACT15	Stolen Property Search	On-line	25,200
LPFICT2	Phonetic Name Look-up	On-line	67,500
LPSCT20	Update Officer Case-load	On-line	4,300
LPFICT2	Past Record Look-up	On-line	25,000
LGSACT35	Query-Stolens-by RB No.	On-line	2,500
LPSCT1	Query Stats RB No.	On-line	2,700
LPSCT5	Display RB No. S	On-line	5,300
LASRCT4	Auto License Look-up	On-line	21,000
LMCTCTP	Local Warrant Inquiry	On-line	6,700
LMCTCTP	Local Warrant inquiry (License)	On-line	2,200
LGSACT10	Update Stolen/Pawn (Property)	On-line	7,900
LPFOCT15	Query Officer Daily (New)	On-line	
LPFIC06	Confidential Report	Batch	30
LPFIC06R	Create Confidential Report	Batch	30
LPFIC11G	Select Stolen Autos	Batch	90
LPFIC12G	Send Stolen Auto Report	Batch	90
LPFIC33I	Drivers License Update	Batch	8

FIGURE IV-1 (Continued)

<u>Program Number</u>	<u>Name</u>	<u>Mode</u>	<u>Frequency Per Month</u>
LPFIC13	Merge Duplicate Names	Batch	4
LPFIC14	Update Ticket Warrants	Batch	4
LPFIC16	Update On-Line Case DB	Batch	4
LPFIC17	Delete Merged Dup. Names	Batch	4
LPFOC30	Field Officer Daily Report	Batch	30
LPSAC50	Pawn Listing	Batch	24
LPSAC60	13-day NCIC/S Pawn Recheck	Batch	30
LPSAC65	Print NCIC/S 13-day Report	Batch	30
LPSAM75	Stolen/Pawn-Outstanding Report	Batch	1
LPSAC80	Delete Pawns Over 90 Days	Batch	1
LPSAC91	Purge and Re-initialize Pawn DB	Batch	1

All listed programs are run on the Douglas County computer.
Source: Omaha Police Division

cent to the data review section receive police officer inquiries via channel 4. These employees have access to the criminal justice information system via two on-line CRT's. These personnel can also access information on the state crime information computer which is part of the NCIC or National Crime Information Center Network.

Computer hardware in the police division is listed in Figure IV-2.

All hardware except for three printers at the front desk is rented from Douglas County, and its cost is included in the division's overall data processing budget.

Interviews with departmental management prior to the selection of the current police chief revealed the following information management needs:

FIGURE IV-2
COMPUTER HARDWARE
OMAHA POLICE DIVISION

<u>No.</u>	<u>Hardware</u>	<u>Location</u>
4	CRT	Data Review Section
1	CRT	Property
2	CRT	Booking
2	CRT	Communication Channel 4
1	CRT	Want Section
1	CRT	NCIC/Communication Channel 4
4	CRT	Front Desk
1	CRT	Pawn Shop Unit
2	CRT	CID
1	CRT	Accident Investigation
1	CRT	Analysis/Statistics
1	CRT	Tow Lot
1	Printer	Data Review
1	Printer	Want Section
1	Printer	NCIC
1	Printer	CID
3	Printers	Front Desk

* equipment management system (see Chapter III)

* cost accounting system (see Chapter III).

Currently, the police equipment management system is totally manual. It involves the police garage maintenance operation and parts and inventory control for a fleet of 104 police cruisers, 74 unmarked vehicles, and 47 other vehicles. Figure IV-3 contains a list of police vehicles and equipment. The division has no cost accounting system or capability.

No additional information management requirements except continuing enhancements to the on-line criminal history/information system were suggested during the initial interview.

Soon after the current chief of police reported for duty, he was interviewed regarding his view of the department's infor-

FIGURE IV-3
OMAHA POLICE VEHICLES

<u>Number</u>	<u>Type</u>
104	Marked cruiser
74	Unmarked vehicle
5	Jeep DJ5
5	Van
3	Pickup
2	Wrecker
19	Motorcycle
4	Cushman three wheeled vehicles
1	Bus
1	Motor home
2	Trailer
<u>1</u>	Ambulance
Total	223

mation management needs. He mentioned three specific systems that offer automated capabilities that could be of value to police operations in Omaha. The specific systems were:

- * the automated record system of the Baldwin Park, CA, police department
- * the management information system of the Glendale, CA, police department
- * the CAD (computer assisted dispatch) system of the Las Vegas Metro police department.

The potential application of these systems, or elements of them, should be investigated as possible enhancements to the existing automated criminal justice information system.

The chief feels, and this analysis concurs, that data currently collected by the division could be used more effectively to facilitate at least three important management functions including:

- * manpower utilization analysis
- * manpower allocation
- * detailed crime analysis and reporting.

Currently, none of these functions (to the extent they are performed at all) makes any extensive use of the computerized facilities available to the division. The first step in performing these functions using automation will necessitate development of detailed management information requirements for each area. A brief example may be helpful.

Currently, crime and other data collected by the police are stored on the Douglas County computer. These data can be accessed using various geographic parameters. In order to determine if cruiser districts are appropriate in size and manpower, police management should regularly review crime data, calls for service, and time spent by officers in all categories of activity. These data should be available by cruiser district as well as other geographic units. In this way, police management could determine such things as whether existing district boundaries are appropriate, whether current manpower allocations ensure that adequate personnel are deployed in each district in each shift, and whether other geographic units (e.g., neighborhoods, specifically targeted areas, etc.) receive adequate police protection or have problems warranting special attention. They then could adjust manpower deployment to accommodate identified needs. As far as practicable, reports of this sort should be daily on-line reports available via CRT inquiry by each shift commander.

Like other departments in city government, the police division is drowning in paper, and additional hard copy computer reports can be expected to be lost or ignored. Daily decision-making in such areas as manpower allocation, crime suppression, and crime prevention should make maximum use of the on-line reporting and analytical capabilities of the computer. Without such reporting, decisions that are required daily often will be delayed until they are no longer practical.

The final recommendation for the police division from this analysis echoes a finding made in 1980 by the Economy Task Force:

Division offices function with 1950's technology. Technology available in the administrative area has been superseded by the explosion in electronic equipment, such as word processing, electronic filing, up-datable microfilm, electronic mail, and on-line dictating equipment.

A cursory review of departmental administrative activity suggests several areas in which automated technology such as that suggested by the Economy Task Force could facilitate both administrative work and the work of line officers. However, detailed recommendations in these areas are beyond the scope of this report. The recommendation is made that the chief of police create a task force on technology within the division to evaluate in detail the application of microfilm, electronic filing, word processing, computer aided dispatch, and other relevant technologies. The task force could also function as focal point for the development of detailed management requirements for improved departmental use of the existing computerized criminal justice information system as well as enhancements to that system.

3. Fire Division. The Omaha fire division is the second largest unit of the public safety department with 542 fire-fighters, 18 civilian employees, 104 vehicles, and a 1982 budget of \$14,598,389. The division has 18 fire stations throughout Omaha and responds to about 6,000 fire calls per year. The division's emergency medical units (or rescue squads) respond to between 14,000 and 15,000 calls for medical assistance per year.

At the time of the interviews for this study, the division made very little use of automated information management technology. Figure IV-4 contains a list of the division's automated systems. Basic data about fire calls are reported on what is known as a "fire ticket," and fire ticket information is entered into the Douglas County computer system. However, according to the fire chief, these data are used primarily for arson investigation purposes. Other reports using data from the fire tickets are prepared manually, requiring one full-time position in the division.

The division makes use of the Douglas County computer system for three functions. First, arson investigators access data from the fire tickets and from initial arson field reports (also entered into the Douglas County computer) to assist in arson investigations. Second, the division is developing a hazardous materials and building characteristics file for all commercial structures in Omaha. (This file is more than 75% complete at present and includes data on 14,000 of 18,000 such structures in Omaha.) This file allows fire dispatchers to access critical information about commercial structures via CRT and to relay this

FIGURE IV-4
 AUTOMATED SYSTEMS
 OMAHA FIRE DIVISION

<u>System</u>	<u>Description</u>	<u>Mode</u>	<u>Computer Facility</u>
PFDP	Building characteristics and hazardous materials and conditions in commercial buildings	On-line	Douglas County
PFDA	Arson file; arson data and reporting	On-line	Douglas County
	Rescue squad data and reports	Batch	State Health Department

information via radio to firefighters en route to or at the scene of a fire.

The final use of information management technology made by the division involves the recording of rescue squad data on a three-part form. The form is initiated by rescue squad personnel and completed by personnel at the receiving hospital. It is then forwarded to the State Health Department for entry into its computer and for periodic reporting.

The following additions or enhancements to the division's information management capabilities are recommended:

* The division should have direct CRT access from the fire division headquarters into the criminal justice information system for arson. (This system has been implemented in part as the result of this study.)

* The division's fire ticket reporting system should be automated. All data from this system should be computerized, eliminating the need for manual recording of the data in the division's log book (currently requiring an estimated two person-hours per

day). These data should be integrated with the arson file and should produce all required reports for the division. (This system is currently being implemented with an estimated date of completion, July, 1982.)

Division personnel should have the capability to inquire into this file using common English language commands and also to produce unique reports from it. In addition, automation of these data should enable the division to undertake statistical analysis of fire call/incident data and to perform manpower utilization analysis and allocation.

* The division should participate with other city users in developing/acquiring an automated equipment management system. (See Chapter III.)

* The arson bureau should refine its reporting and analytical requirements and seek to have these refinements implemented by the Douglas County Data Processing Center staff. Where feasible, the arson file should be integrated with the criminal justice information system to facilitate arson investigation and analysis tasks.

On a related matter, the head of the arson bureau indicated interest in accessing a national property loss insurance registry that provides data on fire losses of over \$1,000. This should be pursued.

* The division should investigate the use of microfilm/microfiche or entry and storage into the county computer of some 20 file drawers of historical arson reports and of a 3" x 5" card file of names of persons from arson reports. At present, these records must be searched manually. (Since July, 1981, arson data have been entered on-line to the county computer.)

* The hazardous materials and property characteristics file is an excellent example of this division's foresight and desire to provide firefighters with essential information to do their jobs. Several refinements/enhancements to that system should make it an even more valuable aid in fire suppression and prevention.

First, the division should establish a task force together with representatives of other city departments that has responsibilities to perform inspections of commercial structures and facilities and those concerned with hazardous substances to facilitate the automation and integration of data from these activities. For example, a great potential apparently exists for unnecessary duplication and possible loss of valuable data for firefighting purposes. This is the result of several, unrelated data files in the city

including the hazardous waste inventory developed by the public works department, various files and records in the permits and inspections division, records from some of the fire division's 32 permitting functions, fire prevention inspection records, and hazardous materials/property characteristics file. A concerted effort by all parties involved should be made to reduce duplication and promote integration of data collection for these purposes.

The design of an integrated property characteristics and hazardous materials file is beyond the scope of this report. As in other cases, detailed specifications for such a file are best developed by those who will use it. The fire department's priority attention should be given to determining whether such a system is feasible and how to proceed to establish it. Interdepartmental cooperation will be required to establish and maintain the system.

* In a closely related area, the division should immediately discuss computerizing all data from the 32 permit and inspection functions it performs. Needless to say, management information requirements should be developed and the potential of integrating these data with other computerized systems thoroughly investigated prior to the acquisition or programming of a system.

* Interviews in the department revealed two deficiencies with regard to the computerization of rescue squad data. The only reports available to the division are those provided by the State Health Department. Rescue squad officials would like to have additional data and reports including performance evaluation data, statistical analysis of squad activities, and manpower utilization analysis and allocation capabilities. Computerization of rescue squad data is currently made possible through a federal grant that is expected to terminate relatively soon, perhaps within the year. The city should be in a position at that time to handle rescue squad data on its own including input and reporting on all rescue squad calls. Planning for assumption of this responsibility should begin now.

* All fire prevention activities should be fully computerized. These would include fire inspection records (which should be integrated with other files per recommendations already made), the prioritization and scheduling of inspections, the targeting of high risk areas and structures for inspection, follow-up and analysis of inspections, and manpower utilization analysis and allocation.

* In all of its efforts relative to automation the division should pay particular attention to geography.

The Douglas County computer system through the DIME file has a powerful tool for collection, storage, and analysis of geographically based data, but very few departments or divisions within city government make use of this tool. The fire division is no exception.

All fire or related data entered into the Douglas County computer system should use common geographic identifiers to enable the division and other city users to access these data. Changing the geographic boundaries of the fire zones to make them consistent with the DIME file's census blocks or tracts is not necessary, but the fire zones must be an integral part of the DIME file's system of geographic identifiers. In this way, data entered on the basis of fire zones can be accessed using police cruiser districts, census districts, census blocks, or other geographic parameters.

* Computer assisted dispatch that should be considered by the division will be discussed in the section of this report on the communications division.

* Interviews in the fire division revealed concerns about computer hardware currently in use. Particular attention should be given by the division to response time adequacy on its CRT(s) and the adequacy of a single thermal printer in the administration office. This analysis concluded that hardware currently in use is barely adequate for the division's needs. The addition of new or enhanced automated capabilities will necessitate additional hardware in the division. Like all city departments this division should keep a log of all hardware and software problems and failures. Data presently available do not permit conclusions to be drawn with regard to either hardware or software problems.

4. Communications Division. The major functions of the communications division are the 911 telephone system, and police, fire, and emergency medical dispatch. The division's current strength is 31 communications operators, five supervisors, and three administrators. Authorized strength includes three additional operators and one additional supervisor. The division's 1982 budget is \$1,149,581. In November of 1981 alone over 37,000 calls (for an average of 52 calls per minute) were handled by the division.

The division receives 911 calls for all of Douglas and Sarpy Counties and for a number of subscribers in southern Washington County. Calls are also received and transferred to the Nebraska State Patrol. In November, 1981, fire/rescue transmissions totalled 20,467 and police transmissions 243,050. The 911 system is based on Northwestern Bell's Omaha coverage area. (See Figure IV-5.)

The 911 center is physically divided into three areas, each with multiple consoles. Each console can receive as well as transmit. Console area one receives all incoming calls and transfers them to either area two for Omaha police dispatch, to area three for Omaha fire/rescue dispatch, or directly to one of the other governmental units served. Upon receipt of a call in area one, the operator executes a communication card (either a police, fire/rescue, or information card). The police and fire/rescue cards are routed via a conveyor system to the police or fire/rescue dispatchers in areas two and three. Information cards are placed in a file drawer.

Console area two is staffed by three Omaha police dispatchers. They receive calls and cards forwarded by area one operators, handle the dispatch function, and complete the police dispatch cards (e.g., by adding type of call, time in/out of service, etc.). One of the consoles in area two has a CRT with on-line inquiry capability into the criminal justice information file on the Douglas County computer and a CRT with access to the NCIC system. Both CRT's are used as secondary sources, however,

FIGURE IV-5
911 SUBSCRIBERS

Douglas County

Bennington
Elkhorn
Irvington
Millard (rural)
Ponca
Ralston
Valley
Waterloo
Douglas County Sheriff
City of Omaha

Sarpy County

Bellevue
Gretna
LaVista
Papillion
Springfield
Offutt
Sarpy County Sheriff

police communication channel 4 being used as the primary source for information from these systems for officers in the field.

Console area three is staffed by two Omaha fire/rescue dispatchers who receive fire and rescue calls and cards from operators in area one, perform the fire/rescue dispatch function, and complete the fire and rescue dispatch cards. These operators have CRT access to the fire division's building characteristics/hazardous materials file and relay information via radio from this file to firefighters en route to or at the scene of a fire. Neither police nor fire/rescue dispatchers provide directions or other geographic information when dispatching and generally do not provide address verification.

Interviews revealed that the division does not make extensive use of computerized capabilities available on the Douglas County computer. Figure IV-6 provides a list of the automated systems used by the division.

FIGURE IV-6
COMPUTERIZED SYSTEMS
OMAHA 911 CENTER

<u>Programs</u>	<u>Functions</u>	<u>Figuring</u>	<u>Mode</u>	<u>Computer</u>
LCCC-Law Consolidated	Verify addresses	500/mo	On-line	Douglas County
Communication Center	Check auto registration	75/mo	On-line	Douglas County
	Inquire re. persons	90/mo	On-line	Douglas County
	List dispatched calls requiring report number	90/mo	On-line	Douglas
	Inquire on name for warrants	650/mo	On-line	Douglas County
	Inquire on auto license for stolen or warrant	5,050/mo	On-line	Douglas County

Information dispatch cards completed by area one operators are placed in a card file in the 911 center and are not used again. Fire/rescue dispatch cards are sent to the fire division for review, are returned to the 911 center, stored for one year, and destroyed. The police dispatch card system has recently been revised in order to eliminate duplication and to facilitate the

capturing of data for the police officer's daily report. Data from these cards are entered into the Douglas County computer.

Except for the computerization of data from police dispatch cards and a limited on-line inquiry capability by police and fire/rescue dispatchers, this division makes no other use of computer technology.

The following relatively minor information management needs should be addressed by this division:

- * Automation of data from all information and dispatch cards. In the case of fire/rescue dispatch cards, these data should be integrated with the division's fire ticket and rescue squad reporting/recording systems.
- * Automatic generation of monthly statistics from these data.
- * Workload analysis capability.

A computer assisted dispatch or CAD system is another automation need noted as a result of this study. The report of the Economy Task Force in 1980 also recommended a CAD. The Task Force said:

Findings

The 911 Center uses 10-year old technology. Other problems include lack of citywide police and fire radio coverage, overload of channels, lack of security in police traffic, increasing interference from other stations. Too much manual data and excessive delays due to inability to obtain information immediately are affecting overall efficiency. The system requires 34 persons to operate; with increased work load, six additional will be required, plus three additional for EMS operations. System does not have tutorial output which can be used for training dispatchers and transferring work load.

Recommended Action

Install state-of-the-art equipment including: control center consoles with computer-assisted dispatch built in; police system upgrade (addi-

tional voting [sic] sites, transmitter relocation and communications tower); fire system upgrade (change to UHF channels, base stations, mobiles and portables); digital communication (mobile data terminals and voice security), and status message equipment for both fire and EMS. Cost: \$2,500,000.

Benefits

Provide tutorial output, permitting one dispatcher to perform police, fire and/or EMS dispatching. Automatically route calls to open dispatcher and assign work sequentially to permit better balancing of work load. Allow automatic tracking of vehicles to show exactly where they are at all times. By combining dispatching functions, six operators per shift can handle existing work load plus anticipated work load, for savings of 13 persons plus the elimination of hiring six additional. Eliminate all manual reports and provide management reports on performance of the total system and individual dispatchers.

Hard saving.....	\$300,000
Cost avoidance.....	\$138,000
Total saving.....	\$438,000
	\$200,000*
Per year.....	\$638,000

*System includes mobile data terminal system recommended for Police Division which would eliminate 10 positions for additional saving of \$200,000 per year.

The Task Force also recommended the use of data terminals in police patrol vehicles:

Findings

There are three full-time radio console operators, two on the third floor, one on the fourth [of the police division]. The fourth-floor operator also does reception work. The third-floor operators handle radio calls requesting data from the computer and are continually backlogged, especially at peak time.

Recommended Action

Provide mobile data terminal system for patrol cars which permit direct access to computer, bypassing the radio console. Cost: \$50,000 for base station

and \$5,000 per car unit. Recommend 70 car units = \$350,000. Total cost: \$400,000 + \$50,000 programming = \$450,000.

Benefits

By consolidating third-floor console with fourth-floor console and installing computer terminal in fourth-floor console area, there will be reduction of 10 full positions for annual savings of \$200,000. Total cost \$450,000.

The enormity, complexity, and initial capital cost of such an undertaking as a CAD system must be recognized. The options, however, are clear. The 911 center's workload increases each year. Omaha can either turn to more efficient technology which over time will produce savings through cost avoidance and cost displacement, or the city can add personnel to staff the 911 center.

The type, configuration, complexity, and cost of a CAD system will depend upon the city's management requirements for its 911 and dispatch functions. Hence any attempt to provide a cost estimate here would be fruitless. When all changes required to accommodate a CAD system are included, the estimated costs and savings provided by the Economy Task Force are not surprising. These figures cannot, however, be considered final.

This analysis strongly recommends that the police, fire, and communications divisions form a task force to investigate the feasibility and cost-effectiveness of acquiring and implementing a CAD system. This task force should be patterned after the currently operating EMIS Task Force.

5. Civil Defense. The civil defense division is a relatively small unit with the primary functions of planning for and

ultimately coordinating relief efforts in times of natural disasters or civil emergencies. The division has three employees a (coordinator, assistant coordinator, and secretary) and a 1982 budget of \$95,600. Other than the financial status reports all departments receive from the finance department, this division makes no use of computer technology.

According to the division coordinator, one of his principal information needs during and after an emergency is to know the proper persons and organizations to call upon for assistance. Currently, such information resides on paper files in the various divisions or in the memories of various city personnel.

This study recommends the acquisition of a stand-alone micro-computer system (including programming) for this division for the purpose of storage and retrieval of critical information for disaster relief. Such a system should have the capability to:

- * store and recall information on supplies and equipment of various types required for disaster relief
- * match relief needs against agencies
- * assist in determining evaluation routes
- * list toxic and hazardous materials by type and location
- * list critical facilities, agencies, and populations which require special care during emergencies by type and location.

Such a computer system should have adequate battery back-up in case of extended power failure. It should be capable of use by existing departmental personnel with minimal technical training and should be integrated with the data files and requirements of other civil defense/emergency relief agencies in Douglas County.

Such a system is expected to cost between \$7,500 and \$10,000. It is not considered a high priority within the public safety department.

6. Weights and Measures. The main functions of this division are to inspect over 4,200 commercial weight and measuring devices in the city and to check the accuracy of a wide variety of packaged products sold commercially in Omaha. The division's 1982 budget is \$126,759, and it has a staff of one chief inspector and four inspectors.

The only use made of computer technology by this division, other than financial management reports, is its list of accounts and accounts billing, both of which are provided by the finance department on the NCR 499 equipment. In November the finance department prepares bills for all of the division's accounts (an account is a business that employs a weighing or measuring device in commercial use). The bills are mailed in December and are due in January.

Payment is made to the city treasurer, and a copy of the receipt is transmitted by the finance department to the weights and measures division. The chief inspector then manually notes on the printed list of accounts that payment has been made.

According to city ordinance, all accounts are to be inspected once a year. Some are inspected more frequently. Information from these inspections, information on new accounts, and changes to and deletions of existing accounts are manually added to the list of accounts by the chief inspector. Once a year this manually updated list is given to the data processing section in

the finance department to update the computer file preparatory to the annual billing.

In addition to inspecting weighing and measuring devices, the division makes periodic checks of commercially sold packaged goods. This mainly involves food (e.g., milk and meat) but can involve practically anything sold in a package in Omaha.

Businesses are not billed for package inspections. However, handwritten records of all inspections are maintained in files in the division. These are kept for three years. No summaries or other reports are prepared from either package checking reports or weights and measures inspections. The division feels that the knowledge and memories of the inspectors provide a sufficient means of determining repeat violators, the need for and frequency of reinspection, and the type of follow-up (if any) required.

This division should take advantage of computer technology the following areas:

- * on-line list of accounts with CRT update and inquiry capabilities
- * automatic update of accounts file from accounts payable element of IFMS
- * creation of an inspection file
- * inspection scheduling
- * recording of inspection findings on inspection file
- * reporting on inspection findings
- * analysis and reports (manpower utilization analysis and allocation, overdue accounts, accounts with repeat violations, re-inspection analysis, status of all accounts and re-inspections, and others as determined by division management)
- * cost accounting to set inspection fees.

Automation for this division should await a decision by the city regarding implementation of an IFMS, as several key elements of systems recommended for this division will receive information from subsystems of the IFMS.

7. Summary. Several recommendations for automated systems for the police, fire, communications, civil defense, and weights and measures divisions of the public safety department have been presented. These are summarized in Figure IV-7. Many of these recommendations affect single divisions. Some affect units not only in public safety but other data processing users in city government. All should be considered carefully by department and division level management as they offer a means of improving the cost-effective operation of these units.

D. Public Works

Public works is the second largest department in the city with 623 authorized positions and a 1982 budget of over \$28 million. The department is divided into two large operating units, transportation services and environmental services, and a staff unit, the general services division.

Figures IV-8 and IV-9 show current department uses of information management systems on the Douglas County computer and the 1982 departmental budget and staffing.

Two areas typically associated with city public works, a potable water system and sewer billing, are not found in this department in Omaha. The former is strictly a function of the Metropolitan Utilities District (MUD).

FIGURE IV-7

SUMMARY OF MAJOR PRIORITY RECOMMENDATIONS
AUTOMATED SYSTEMS FOR THE PUBLIC SAFETY DEPARTMENT

Police Division

- * Install equipment management system
- * Install cost accounting system
- * Examine the feasibility of a CAD system
- * Enhancements to criminal justice information system
- * Follow up suggestions made by the chief of police for automated systems
- * Create a task force regarding the use of improved automated technology by the division

Fire Division

- * Provide CRT access to criminal justice information system
 - * Automate fire ticket data and related reporting and analysis
 - * Install equipment management system
 - * Enhance arson bureau automated system
 - * Use microfilm/microfiche for arson bureau records
 - * Enhance/integrate building characteristics/hazardous materials file
 - * Automate and integrate data permitting and inspection functions
 - * Begin planning to assume responsibility for automation of rescue squad data and reporting
 - * Automate fire prevention activities
 - * Expand use of geo-based processing
 - * Examine the feasibility of CAD system
 - * Examine adequacy of existing hardware and start a log of hardware/software problems
-

FIGURE IV-7 (Continued)

Communications Division

- * Examine the feasibility of CAD system
- * Automate all data from all information and dispatch cards; integrate these data with police, fire, rescue reporting, and information management requirements
- * Automate generation of monthly statistics for division
- * Implement workload analysis capability

Civil Defense

- * Use microcomputer for recording, storing, and recalling critical disaster relief information

Weights and Measures

- * Automate, along with IFMS, accounts records and provide capability for recording and analyzing inspection reports, providing scheduling, analysis, follow-up, cost-accounting, and other activities

Regarding the latter, the city collects and treats wastewater and sets sewer use rates, but sewer billing and the collection of sewer use fees are contracted by Omaha to MUD. Approximately 112,500 sewer bills are sent per month (1,350,000 per year) at a cost to the city for billing and collection of \$550,000 or about 41 cents per bill. The collected funds are deposited into the sewer revenue fund and are used to pay operation and maintenance costs and also to defer certain limited capital costs. About \$600,000 per year is paid out of this fund to a variety of city departments (e.g., law, finance, personnel) for administrative expenses.

1. General Services. This division with a staff of 14 provides administrative support to the two operating units within

the department. The general services division receives monthly and quarterly financial reports from the finance department. It also provides entry of data to the Douglas County computer for several divisions. These data generally involve work performed by persons or crews in these divisions.

Approximately 1,700 lines of data are entered per day from four different forms on the single CRT in the division. The division makes extensive use of Word Power for preparation of council documents, standard contract language, and for a variety of standard forms. General services also handles all time and attendance cards from the other divisions.

Information management needs for this division include:

- * redesign and consolidation of forms used throughout the department in order to improve the efficiency of data entry
- * expanded use of word processing, preferably with CRT(s) and a printer in the division office
- * a microcomputer with programming in the following areas: bid tabulation and evaluation, engineering cost estimation, engineering calculations, and statistical analysis
- * an improved cost accounting capability.

2. Transportation Services. This unit is made up of the design, traffic engineering, construction, street maintenance, and central garage divisions.

a. Central Garage. The functions of this division involve the maintenance and repair of all public works vehicles and equipment and administration of parts and fuel inventories. All record keeping and reporting in this division is done manually.

The automation requirements of this division will be fully addressed with implementation of a citywide equipment management system. (See Chapter III.)

b. Design Division. This division is responsible for preparation of all construction drawings, specifications, and cost estimates for street paving projects, sanitary and storm sewer projects, bridges and other special projects. The division is staffed by 20 persons, and its annual design work for street projects involves from \$5 to \$7 million of construction. Additional responsibilities of the division include: review and approve plans for construction of public street and sewers by private firms; maintenance of "as built" records on all public works projects; maintenance of records on all sewers built within a three mile limit of the city; maintenance of 625 quarter section maps of the city showing all public improvements; and negotiating and acquiring temporary and permanent right-of-way easements and acquiring property for public works projects. With the exception of a computerized design aid program on the Douglas County computer, these functions are handled manually. The division also maintains and uses standard plates (drawings), standard specifications, and standard contract and bid documents. None of these is stored in an automated environment (word processing or computer storage).

This design division makes the following uses of automated capabilities on the Douglas County computer system:

- * monthly reports from the department's cost accounting program

- * monthly project scheduling and status and personnel performance reports

- * as needed, on-line use of a limited computer aided design program.

The automation requirements of this division include:

- * a microcomputer system fully programmed in the areas listed earlier for the general services division

- * expanded use of word processing or other automated system(s) for storage and reproduction of all standard instruments used by the division

- * a computer graphics and mapping capability

- * an improved cost accounting capability.

c. Construction Division. The major function of this division is to provide construction management for all city funded projects within city rights of way and easements. Representative types of work include street, sidewalk, sewer and bridge construction, and street resurfacing. The division's construction management activities consist of contract preparation (for some but not all projects), surveying as required for all projects, project inspection, and materials testing and compliance. Special projects include the city's street inventory and the bridge inventory. The division also provides construction design assistance and management for the housing and community development department, inspections of approved curb cuts, and oversight of public works construction in sanitary improvement districts. At the time of the study the division had 38 employees and a budget of \$979,092.

The division makes use of the following automated systems:

- * the street inventory file

- * the departmental cost accounting program.

The division's principal requirements for automation are:

- * expanded use of word processing or other automated capability for storage and retrieval of standard documents, e.g., contracts, insurance requirements, bid specifications, etc.

- * enhancements to the street inventory system to include such features as:

- scheduling for street condition surveys

- inclusion of data from major resurfacing and reconstruction projects as well as minor repair activities

- development of a method to use in conjunction with this file to determine appropriate repair measures to be applied to a street segment and to establish a rational resurfacing and reconstruction program and schedule. (The division head mentioned a program in development by the American Public Works Association to establish a formula to determine what action--e.g., resurfacing or reconstruction--should be taken on a street segment. Acquisition and use of this program or a similar capability should be pursued.)

- addition of valuable historical data to this file. (Data on street resurfacing jobs apparently are kept and stored on paper and microfilm files as far back as 1954. As needed and as manpower is available, data for at least the more important street segments should be added to the file.)

- improved inquiry and unique report generating capability

- a cost accounting program.

- * automation of the currently manual bridge inventory (133 total bridges) to include detailed inspection data and bridge ratings, to assist in determining appropriate actions to take on specific bridges, to establish a rational maintenance schedule, and to maintain historical data. This element should receive a low priority and should be reviewed in department management prior to computerization.

d. Traffic Engineering Division. The traffic engineering division is divided between traffic operations and traffic engineering. The major functions of the operations section

include installation and maintenance of traffic signals; sign production; installation and maintenance of signs, barricades, and pavement marking; and installation and maintenance of and collections from parking meters. For traffic engineering the functions are design of signs, pavement markings, and investigation of the need for new signs, street markings, or street lights; design, installation, and control of traffic signals; traffic engineering, parking, and accident studies; and traffic surveys and studies.

The traffic engineering division uses the following computerized systems:

- * vehicle volume counts

- * the street and accident inventory files. (Both systems are on the Douglas County computer.)

The division is also working in cooperation with Douglas County in the development of a street and traffic sign inventory. This system is being designed by HDR Systems, Inc., and will run on the Douglas County computer.

Finally, the division is involved in a far-reaching program to place traffic signals in the metropolitan area under computerized direction. This is a highly specialized program based upon a defined plan using a dedicated computer in the traffic engineering division. As such it was not considered part of the purview of this study.

The traffic engineering division's requirements for automation include the following:

- * inventory of traffic signals and a program for preventative maintenance on traffic signals

- * inventory of parking meters
- * inventory and control of repair parts for various devices, e.g., meters, signs, signals, etc. (Consideration should be given to use by the division's signal technician of one of the microcomputers recommended for the department for this function.)
- * automatic reporting from the traffic accident file of damage done to street signs, parking meters, and traffic signals to use for claims against persons responsible
- * follow-up on complaints filed against persons doing damage to signs, meters, and signals
- * computerization of all repair orders to include several types of information (type of damage, cause, type of repair, parts/labor required, etc.) with integration of repair order, cost accounting, and parts inventory systems
- * computer-aided design, especially to assist in traffic signal installation design and intersection design. (Consideration should be given to a fully programmed stand-alone microcomputer system.)
- * computer graphics and mapping. (Consideration should be given to a fully programmed stand-alone microcomputer system.)
- * statistical analysis capability
- * enhancements to the traffic accident file including:
 - providing inquiry and report generation capability
 - adding cause of accident to standard report format
 - providing collision diagrams
 - allowing recall of accident data by location within a street segment as well as at an intersection
 - providing additional analytical capability (comparing, locating high incidence areas, sorting for unique conditions/problems, etc.).

One final issue regarding this division needs to be addressed. Currently, both the police division data review sec-

tion and the traffic engineering division enter data (to two separate files) from traffic accident reports. For reasons that have no bearing on the technology in question, these two divisions have been unable to facilitate single point entry of data from these reports. This study recommends that all data required by both divisions be entered on-line on a daily basis to one file by personnel at a single location, either the police division data review section or the public works department. Duplicate files can then be created, if necessary, for use by the police and/or traffic engineering divisions. Cost and manpower implications of this recommendation (e.g., who pays for the data entry) should be worked out between the public works director and the chief of police.

e. Street Maintenance. The principal responsibilities of the street maintenance division are maintenance and repair of paved streets, grading of unpaved streets, street cleaning, and snow and ice removal. The division has 159 employees and its 1982 budget is \$6,081,563.

The division makes use of the following automated systems:

* receives weekly reports from the work request status subsystem of the cost accounting program on the Douglas County computer. (These reports track the status of work requests received by the division and enable division management to know at the end of each week what maintenance items have not been handled. An estimated 100 work requests are received per week, and approximately 500 appear on each weekly report.)

* generates data entered into the Douglas County computer from the division's rundown sheet which lists daily work assignments for all street maintenance crews. The rundown sheet reports on work assigned to crews in the division. It does not report actual work or actual time for each work item. A summary report is generated annually from these data.

The division uses a form entitled work requests which is a complaint/request for service form. What percentage of the division's work is generated thereby or how the work request fits into the division's scheduling of work is unclear. This form is not computerized.

Another form used by the division is the work order. This form is used to record maintenance work actually performed. All maintenance work, however, is not recorded on work orders. For example, every district yard has a complaint truck and crew available for immediate response to the more critical maintenance problems. Little or none of the work performed by these crews is reported on work orders. Work orders are not used in this division for cost accounting purposes, and neither work requests nor work orders are used to record, track, or analyze street maintenance problems (by street, area, type of conditions, etc.) in a systematic way.

The street maintenance division could benefit from automation in the following areas:

- * complaint handling system
- * cost accounting system, e.g., to enable the department to determine its actual costs of maintenance work on state highways for reimbursement purposes. (Currently, the state reimburses Omaha at \$1,150 per lane mile but the department does not know its actual costs for maintenance work.)
- * work order system integrated with
 - complaint handling
 - cost accounting
 - work scheduling and control
 - productivity monitoring

* on-line capability to various automated systems from the district yards for use by the district foreman.

The most important of these as far as the street maintenance division is concerned would be an automated capability to record and track complaints, schedule work, do follow-up status reporting, and analyze work and productivity.

f. Summary--Transportation Services. Several automated systems have been identified that would assist the divisions in transportation services to perform their functions more efficiently and effectively. These systems can be aggregated into four areas: word processing, design aids, work management, and cost accounting. Many of the systems recommended for individual divisions in transportation services can be used by other divisions in the public works department and also by other departments in city government.

* Word processing--Regardless of the technology employed and regardless of whether a stand-alone system in general services or a centralized citywide system is utilized, automated word processing should be used for storage and retrieval of standard plates, contract documents, bid documents, standard specifications, and standard letters.

* Design aids--One or more microcomputer based systems (including software) should be considered for the following activities: project cost accounting, bid tabulation and analysis, engineering design, engineering calculations, statistical analysis, and computer graphics.

* Work management--The following automated capabilities for improved work management should be implemented by transportation services: an automated equipment management system, automation of all construction inspection records, scheduling of street resurfacing and reconstruction, the city bridge inventory, a complaint tracking system, a sign inventory system, automated inventories of traffic signals and parking meters, inventory control for repair parts in traffic engineering, enhancements to the traffic accident system,

enhancements to the street inventory system, computer graphics and mapping, preventative maintenance for traffic signals, a cooperative solution to the issue of data entry from the traffic accident system, and work scheduling, work analysis, and productivity monitoring capabilities.

* Cost accounting--This division along with other units in public works should employ various reporting elements to capture data on personnel time and other costs, equipment use, materials and parts on all work performed, and to apply actual cost factors including fringe benefit and overhead charges to these activities. As recommended in Chapter III, the city's IFMS should have a strong cost accounting subsystem. This study recommends that work reporting modules be fully integrated with the cost accounting program. In addition, the division requires improved financial management reporting from the finance department.

3. Environmental Services. The environmental services unit of the public works department is made up of the solid waste, quality control, sewer maintenance, Missouri River wastewater treatment plant, Papillion Creek wastewater treatment plant, and plant maintenance divisions. These will be addressed separately.

a. Solid Waste Division. The primary responsibility of this division is oversight of the city's residential refuse collection operation, involving receiving and processing refuse collection complaints (five to six per day average) and keeping track of the tonnages the refuse collection contractor dumps at refuse disposal sites.

The division makes use of the following automated systems, both of which are on the Douglas County computer:

* solid waste complaint recording and reporting system that is used to record and follow up on all refuse collection complaints and also as documentation for fines levied against the contractor

* computerization of daily solid waste tickets for recording tonnages of waste collected by the contractor.

These systems appear to be functioning satisfactorily, and no major modifications appear necessary. To the extent a city-wide complaint handling system is implemented, it should be coordinated carefully with the refuse collection complaint system.

b. Quality Control. The primary functions of this division involve permitting, monitoring, and testing of industrial waste discharges into the city sewer system or into private septic systems within the city limits. Approximately 7,000 industrial dischargers are on file with the division, and 5,500 of these are permitted dischargers whose waste contains toxic or hazardous materials.

The division makes use of the following computerized capabilities:

- * a variety of programs on the Douglas County computer for recording information and reporting on the 7,000 dischargers. Company files are on-line and reports are prepared in batch. These files are not integrated with the fire division's building characteristics/hazardous materials inventory or other similar files.

- * a portable CRT with telephone link to the UNO computer for running scientific and mathematical programs

- * use of the public works department's cost accounting program to track direct labor costs regarding testing, monitoring, and other compliance activities.

The division would benefit from the following additional capabilities:

- * the ability to model and forecast changes in sewer use fees and fee structures for various categories of dischargers

- * automation of the sewer fee structure for industrial dischargers

- * mathematical and scientific analysis programs for laboratory work

- * enhanced statistical analysis
- * quality control program for testing laboratories
- * improved cost accounting capability.

c. Sewer Maintenance. The city of Omaha is responsible for preventative and emergency maintenance on all sanitary, storm, and combined sewers in its jurisdiction. This job falls to the public works department's sewer maintenance division. Sewer maintenance work is performed both by crews from this division and by private firms under contract to the city. Storm drain inlets are maintained by the street maintenance division as are sewer lift stations, and force mains are maintained by crews from both the sewer maintenance and plant maintenance divisions.

The sewer maintenance division uses two automated systems:

- * the public works department's cost accounting system
- * the sewer inventory system.

The cost accounting program (CPWA) used by various divisions in the public works department does not perform a full cost accounting function. Instead, it accounts only for direct labor cost and does not report overhead, fringe benefit cost, the cost of equipment use, or parts or materials cost.

Consistently throughout the interviews in the public works department, the need for a full cost accounting system emerged as a priority for automation. As noted in Chapter III, a cost accounting subsystem as part of an integrated financial management system is strongly recommended for citywide application.

The computerized sewer inventory system used by the sewer maintenance division contains basic inventory data including location of sanitary and combined sewers in the city. This inventory is based on sewer segments defined as the length of sewer between two manholes. Manholes form the common geographic identifier or node for inventory. (A summary of this system was prepared by Larry Schall, division head, as a paper for presentation at a recent conference on urban information systems.)

At this writing, all manholes in the system have been assigned identification numbers, and 20% of all manholes and 10% of all line segments have been inventoried. The division has entered into a 10-year program, using remote television cameras and videotaping equipment, to inspect all 15" diameter and smaller sewers. Data from these inspections will be entered into the sewer inventory file.

The sewer inventory system produces four basic reports, three on a monthly basis and one on a weekly basis. Data are entered in the system from a CRT in the sewer maintenance office. The system also produces one quarterly and two annual reports for management review. What information, if any, is available on-line or through inquiry across the data base is not known.

The following enhancements should be considered for the sewer inventory system:

- * on-line retrieval of data and inquiry across the data base via CRT(s) located in the division and in the district yards using several parameters (e.g., manhole number, address or block location, work order number, date, etc.)

- * both upstream and downstream chaining of sewer segments and manholes

- * integration of the geographic nodes of this system with the capabilities of the DIME file

- * integration of this system with city's cost accounting systems and capital asset inventory as soon as these systems are implemented

- * an inventory subsystem to enable the division to know the status of all commodities required for sewer maintenance work and to reorder at appropriate times, ideally integrated with or part of the citywide purchasing/inventory control system.

d. Plant Maintenance. The functions of this division include scheduled maintenance and emergency repairs at the Missouri River, Papillion Creek, and the packinghouse wastewater treatment facilities, operation and maintenance of all pumping stations for the city's combined storm and sanitary sewers, and levee control for 13 miles of Missouri River levees.

The division currently has one CRT and one printer located at the Missouri River wastewater treatment plant that are on-line to the HDR computer. The division uses two automated systems on the HDR computer. These are an inventory program and a preventative maintenance program. The cost of these programs in 1981, including on-line and system development costs, exceeded \$40,000. (Cost data were provided by the plant maintenance division.)

The division would benefit from either transferring the inventory and preventative maintenance programs to the Douglas County computer, changing the method of using these systems to reduce the costs associated with on-line transactions on the HDR system, or securing a replacement for these programs to run on the Douglas County computer or on the Honeywell 716 minicomputer at the Papillion Creek plant. A cost-effective analysis of these

and perhaps other feasible alternatives is required before a decision is made.

The work order used by plant maintenance is one of at least four (and possibly more) different work orders used for maintenance and repair work in Omaha. To begin with a standardized work order format for citywide application, differentiating among departments, divisions, and functional activities should be developed. The work order should collect at least the following types of data: work order number, department/division/unit, crew/personnel, complaint number (if any), date/time work performed, type of work (major/minor categories), equipment (ID number/type, etc.), equipment miles/hours, time work began/completed, and unique conditions. The work order should be an integral part of the cost accounting system and should be fully integrated with the EMIS, IFMS, payroll, and complaint systems.

e. Papillion Creek Wastewater Treatment Plant Division.

Operation of the city's wastewater treatment facility located on Papillion Creek is the function of this division. The plant has an in-house Honeywell 716 minicomputer which is used for:

- * monitoring waste water flows and quality (10 parameters at five points) and producing monitoring reports
- * monitoring and reporting on equipment run-time
- * monitoring and reporting on equipment status.

In addition, the division uses the public works department's cost accounting program and the inventory and preventative maintenance program. (The latter two programs were originally developed for the Papillion Creek wastewater treatment plant by HDR as part of the construction of the facility. They are used

also by the plant maintenance and Missouri River wastewater treatment plant divisions.)

All uses involve on-line CRT's and daily data entry to the in-plant or HDR computers. Cost accounting data are input by the general services division. Reporting and on-line data retrieval are done daily on the in-plant computer, and scheduled reporting is received weekly or monthly from the cost accounting and inventory and preventative maintenance programs.

The Papillion Creek wastewater treatment plant division should consider the following new systems or enhancements to existing automated systems:

- * a full cost accounting capability
- * inventory and preventative maintenance system
- * additional automation of plant operation, preferably through expanded use of the in-plant Honeywell system
- * possible use of the in-plant Honeywell for preventative maintenance, inventory control, and cost accounting functions especially in conjunction with the requirements of the Missouri River plant and plant maintenance divisions.

f. Missouri River Wastewater Treatment Plant Division.

The functions of this division involve operation of the city's wastewater treatment facility on the Missouri River and also the packinghouse waste treatment plant. The division uses two automated systems, the department's cost accounting program and a program for recording and reporting plant data and preparing reports for the city's federal wastewater discharge (NPDES) permits. Both systems are on the Douglas County computer. The system for NPDES permit reporting is a batch system and costs \$5,000 to \$6,000 per year to use. Data are entered monthly via

CRT at the plant and reports are produced monthly. Because it is a batch system, reports are not considered timely or useful. Reporting is now three months behind.

This division could benefit from:

- * a cost accounting system
- * inventory and preventative maintenance systems
- * an in-plant process control computer (A process control computer should be part of the plant's expansion to secondary treatment. The timetable for this expansion is: design study for secondary treatment requirements--1982; first possibility for construction funding--1985. The division should begin consideration of design requirements for such a computer as soon as possible. This computer could be used for a variety of purposes in addition to process control.)
- * work scheduling and analysis
- * an enhanced NPDES reporting system.

Naturally, the requirements of this division should be coordinated with those of other divisions (especially the Papillion Creek plant and plant maintenance) to make maximum use of hardware and software resources. The two plant divisions and the plant maintenance division have a unique opportunity to work cooperatively and possibly in concert with other city users to develop requirements for preventative maintenance, inventory control, cost accounting, and in-plant operation control for eventual automation.

g. Summary--Environmental Services. Several recommendations for automation for these divisions have been presented in this section and include the following new systems or enhancements to existing systems. Many of these recommended new systems or enhanced capabilities will affect or can be shared by other users in the city.

- * a cost accounting system
- * a citywide work order system
- * integration of industrial testing files with several other files
- * a statistical analysis capability
- * a modeling and forecasting capability for sewer use fees
- * automation of the industrial sewer use fee system
- * a scientific and statistical analysis/quality control capability for industrial testing
- * additional automation of wastewater treatment plant operations
- * enhanced inventory control for plants and plant maintenance
- * preventative maintenance systems, especially for plant operations
- * enhancements to the sewer inventory system
- * an enhanced NPDES reporting system
- * a work scheduling and analysis capability.

4. Department Management. Interviews with the department director and city engineers for transportation services and environmental services revealed the following departmental management priorities for automation:

- * improved financial management reporting
- * a cost accounting system, including a project cost control capability
- * an equipment management system
- * a complaint handling system.

Additional priority recommendations presented here are the result of this analysis and of suggestions by department management personnel. Some of these were presented as suggestions for action by individual divisions but appear to have either broader

application or to be sufficiently important to warrant repetition. They include:

- * development of a catalog of programs, systems, files, and data bases in use by the department. (This catalog should be detailed as to the major functions and capabilities of all such systems and reports generated thereby and should be regularly updated.)
- * development of users' manuals for all systems, programs, files, and data bases
- * simplification and integration of data collection instruments (especially work orders and various documents used for or relating to cost accounting)
- * establishment of a system of recording all problems (hardware and software) associated with all automated systems in use by the department with regular follow-up
- * acquisition of a computer mapping and graphics capability
- * acquisition of a computer aided design capability
- * implementation or enhancement of all geographically based systems to a format compatible with and accessible through the capabilities of the DIME file
- * integration of various departmental files with files generated by other users in city government
- * acquisition of an improved statistical analysis capability
- * implementation of preventative maintenance and inventory control systems
- * implementation of additional in-plant automation
- * enhanced use of word processing
- * enhancements to various existing systems (e.g., sewer and street inventories)
- * a work scheduling and analysis capability.

Relative priorities for the implementation of new systems or capabilities recommended herein and for modifications to existing systems should be determined by the department after an internal review of this analysis.

 FIGURE IV-8

 MAJOR COMPUTER PROGRAMS ON DOUGLAS COUNTY COMPUTER
 OMAHA PUBLIC WORKS DEPARTMENT

Program Description

<u>CPWA</u>	<u>Public Works Cost Accounting</u> --Develops direct labor cost for program services provided and is used in the current budgetary processes. This program is utilized by all divisions in this department.
<u>CPWA</u>	<u>Public Works Engineering</u> --Cost development for design and construction engineering of public improvements.
<u>CPWS</u>	<u>Street Inventory</u> --Inventory of the street system within the city limits.
<u>CPWT</u>	<u>Traffic Program</u> --Vehicle count information.
<u>CSSI</u>	<u>Sewer Inventory</u> --Inventory and condition of the city sewer system.
<u>CSSP</u>	<u>Plant Data</u> --Reports generated from this program supply information necessary to comply with state and federal regulatory agency requirements regarding the quality of the treatment process at the Missouri River, Papillion Creek, and packinghouse waste treatment facilities.
<u>CSSR</u>	<u>Cost Recovery</u> --Program tied in with Metropolitan Utilities District information for 111,000 sewer users including commercial accounts.
<u>CSSS</u>	<u>Industrial Sampling</u> --File includes major commercial sewer users and the nature of the wastewater.
<u>CSST</u>	<u>Solid Waste Complaints</u> --Collects data from complaints about refuse collection service and pinpoints missed areas to provide improved service for solid waste collection.
<u>CSSW</u>	<u>Solid Waste</u> --Collects data on and provides determination of the cost of collecting solid waste.

In addition, the department makes regular use of the following programs on the Douglas County computer system.

LASR	Auto Registration
MDSM	Metro DIME File Maintenance
PREM	Property Real Estate Maintenance

Source: City of Omaha public works department

FIGURE IV-9

1982 PUBLIC WORKS DEPARTMENT BUDGET AND
MANPOWER PER DIVISION

<u>Division/Unit</u>	<u>Budget</u>	<u>Authorized Personnel</u>
General Services	\$ 374,416	16
Transportation Services		
Construction	979,092	40
Design	470,802	20
Street maintenance	6,081,563	159
Traffic engineering	2,063,530	53
Central garage	2,529,974	45
Environmental Services		
Sewer maintenance	2,262,923	76
Plant maintenance	(Not listed separately)	
Solid waste	6,265,424	22
Industrial waste testing	375,022	14
Missouri River WWTP	3,486,590	84
Papillion Creek WWTP	3,288,025	76
Packinghouse waste treatment	478,285	18
Total	\$28,655,646	623

Note: This table does not list several funds for construction and related activities which are programmed separately in division or unit budgets. These are estimated at \$10.2 million in 1982.

Source: City of Omaha 1982 Budget.

To the maximum extent practicable, the department should direct its efforts toward use of CRT's on-line to computer facilities for daily reporting, exception reporting, and inquiry purposes. Regular reports that are not required for daily management activities can be printed and produced in batch. Except as essential to effective management functioning, printed reports should be eliminated in favor of on-line reporting capabilities. The department should also insist on the availability of an

inquiry and report generating capability using standard English language commands.

A word is in order at this point regarding the acquisition of microcomputers by the public works and other departments in Omaha. To the maximum extent practicable, all microcomputers acquired by Omaha should (1) be compatible, (2) have the capability to communicate with one another and with the Douglas County mainframe computer, and (3) be purchased after the determination of need and management requirements and the establishment of minimum performance criteria. Consideration should be given to the waiver of the first two of these criteria only for the acquisition of a required special purpose microcomputer for which one or more of the criteria (e.g., compatibility, communication) are not deemed important by the user department and the MIS director. The third criterion should be not waived in any acquisition.

E. Parks, Recreation, and Public Property

1. Overview. The parks, recreation, and public property department (hereafter referred to as the parks department) with an authorized strength of 330 employees and a 1982 budget of \$10.1 million is the third largest department in city government in terms of personnel and budget. This department also has perhaps the greatest number of responsibilities for programs and for city-owned property. See Figure IV-10.

The parks department has seven divisions: golf, parks maintenance, recreation, forestry, central maintenance headquarters, building maintenance, and the auditorium, stadium, and Orpheum

FIGURE IV-10

BASIC FACTS--OMAHA PARKS DEPARTMENT

1982 budget	\$10.1 million
1982 fees (est.)	\$ 2.5 million
Number of employees	330 (approximate)
Park acreage	6,400 acres of park land including: two indoor ice skating rinks nine golf courses 20 swimming pools two camp grounds three exercise trails two dam site lakes one greenhouse
Park programs and facilities	Numerous programs, facilities and structures within parks and on other public properties One central garage and main- tenance facility Auditorium, stadium and Orpheum Theater
Weed and litter control (1980)	\$250,000 billed and \$25,000 collected
Financial management	Essential reliance on manual methods with periodic com- puterized reports from finance department Auditorium, stadium, Orpheum division employs six separate accounting systems Cash collection and control is manual (\$1,000,000 annually from auditorium, stadium, Orpheum and \$2.5 million in fees from other divisions)
Rights of way	1,350 miles
Citywide tree census	All right of way, park, and public grounds trees
Central maintenance headquarters	Manual control over parts and vehicle inventories; manual equipment management system

divisions. It also has a central administrative staff, a park and recreation advisory board, and a municipal dock board.

The parks department makes surprisingly little use of information management technology. Figure IV-11 lists the automated systems used by the parks department.

FIGURE IV-11
AUTOMATION IN THE PARKS DEPARTMENT

<u>Functional Area</u>	<u>System Description</u>	<u>Computer Facility</u>
Financial management	Various financial management reports including: monthly budget status, payroll, and utilities, reports; quarterly personnel cost and revenue reports	NCR 499-- finance department
Word processing	Limited use by all divisions	Word Power-- finance department
Productivity management	Monthly production report (forestry division)	HDR Systems, Inc.
Forestry	City tree census	AGNET/USDA CES (on UN-L computer)
Weed and litter	Inquiry into the real property file for weed and litter address and ownership verification	Douglas County computer

In the financial management area, all city departments including parks receive regular reports from the finance department, including a monthly budget status report, a monthly report of utility costs, semi-monthly payroll reports, and quarterly revenue reports. On an annual basis the finance department also

provides data and budget forms which the parks department uses to develop its budget request for the coming year. These are all produced by the finance department on its NCR 499 equipment. Various divisions as well as the central administration in the parks department make limited use of the word processing center, Word Power, in the finance department.

Other automated departmental functions include a monthly forestry division production report covering the activities of tree trimming crews and a tree census. The former is run on the HDR Systems, Inc. computer at a monthly charge of \$150. The tree census is accessed via a terminal at the Douglas County Cooperative Extension office through the USDA AGNET system on the University of Nebraska computer in Lincoln at no charge.

The parks department makes no use of information management technology, other than the forestry division's two programs and the reports provided by the finance department, and weed and litter address/ownership verification. Yet, the need for automation to enable personnel in this department to function more efficiently and effectively is considerable. In some cases, such as equipment management and inventory control, automation can be expected to have direct, short-term cost pay-backs. In other areas, however, automation is required simply to provide departmental management with adequate information with which to make day-to-day decisions and to undertake much needed long-term planning.

By and large middle and upper level management personnel in the department are aware of the need for automated capabilities

for effective departmental administration. They are also aware of and occasionally frustrated by the existing cumbersome and inefficient manual and automated systems in use in the department.

2. Departmental Automation Requirements. The following automated information management requirements have been identified for the parks department. They are reported by department-wide and divisional need.

a. Department-wide Needs

* Financial management. See Chapter III regarding the citywide need for an on-line, integrated financial management system.

* Cost accounting system. See Chapter III regarding the citywide need for an on-line cost accounting system which is part of the integrated financial management system.

* Equipment management system. See Chapter III regarding the management system which is integrated with the financial system.

* Inventory control system. The department has two expendable inventories. One is associated with the central maintenance headquarters and involves fuel and parts for the repair of vehicles and equipment. The second involves supplies for the various facilities (buildings, parks, courses, the city-county complex) maintained by the department. Both inventory systems are currently controlled manually.

The central maintenance headquarters inventory should be automated as part of an automated equipment management system which is fully integrated with the purchase order, accounts payable, and budgetary and cost accounting modules of the financial management system.

The expendable supplies inventory should be fully automated and should also be integrated with the purchase order and other modules of the financial management system. This system should be integrated with park and facilities inventories recommended below.

Various other items of concern to the department should also be controlled through automated inventory procedures. These include: (a) control over keys (According to departmental management, approximately 1,000 master keys have been distributed citywide.); (b) padlocks at all city pools and other facilities; and (c) supplies and equipment at all parks and other facilities.

* Parks and facilities inventory. The department should implement a fully automated, on-line inventory of all parks and other property and facilities. This inventory should be developed in part on the manual citywide property and facilities inventory maintained in the finance department for insurance management purposes.

A parks and facilities inventory should include a complete listing of all equipment, property, and supplies by park or other facility, and a physical description and estimate of value should be made of all such equipment, property, and supplies. This inventory should be fully integrated with the city's insurance management program, the citywide property inventory, the purchase order system, and other subsystems of the financial management system affecting the acquisition, surplussing, or expensing of equipment and supplies.

The department has begun development of a "comprehensive inspection and checklist for park facilities." This checklist is a good starting point to determine management requirements for a parks inventory system. The department should continue work on this list with the view toward eventual computerization.

Three caveats, however, are in order: (1) the department should coordinate closely with the Douglas County Data Processing Center to ensure that computerization of this inventory is accomplished in a cost-effective fashion; (2) detailed management information requirements (e.g., what management needs to know, how frequently, in what format, for what purposes) must be developed before an inventory document or program is developed; (3) care should be exercised not to create inventory documents or a system so large and cumbersome as to be excessively costly and to go unused.

* Facility and program scheduling. The department could benefit from even a simple automated system for facility and program scheduling. Since this is a highly specialized endeavor affecting primarily one or two divisions, the department should consider acquiring a microcomputer complete with programming for the purpose of scheduling of programs, events, and facilities use. (Estimated cost \$5,000-\$7,500)

* Capital asset accounting system. A capital asset accounting system, including a depreciation schedule for facilities/equipment, should be acquired as part of the integrated financial management system recommended in Chapter III.

* Manpower scheduling. Especially in the areas of park maintenance, tree trimming, right-of way mowing, and weed control, the department could benefit from a computerized manpower allocation and scheduling and work analysis system. Such a system would enable analysis management more efficiently to schedule the work of various crews and to monitor productivity.

* Work order system. See Section D of this chapter regarding the need for a standardized work order system for all repair and maintenance activity in Omaha. The need of the parks department is essentially the same as the public works for such a system.

* CRT. A CRT on-line to the Douglas County computer should be installed in the department's central office in city hall.

* User statistics. The central administration of the parks department as well as the recreation, golf, and auditorium, stadium, and Orpheum divisions could benefit from a program to capture data on users of department facilities and programs and to provide statistical analysis of these data. Such a capability will better enable the department to engage in long-range facilities and program planning and better to determine the cost-effectiveness of its program offerings.

* Cash control. Improved cash control over all revenues but especially those derived from beer and refreshment sales and golf round fees and cart rentals should be implemented throughout this department.

b. Divisional Needs

(1) Administration

* A computer graphics capability to produce charts and graphs for reporting purposes would be helpful to the administration, although it cannot be considered a relative priority within the department.

* The department as a whole could benefit from improved usage of word processing and storage of all contracts, agreements, insurance requirements, and other standard documents.

* The finance department should provide improved utility reports including verification of meters, verification of billings, built-in program parameters to identify billing or listing errors or anomalies, and reporting of meter and billings by facility. This system should be integrated with the financial management and cost accounting systems.

* The department should use the citywide complaint handling system recommended in Chapter III.

* Vandalism reports should be automated.

* Payroll reports should be disaggregated at other than the line item level, e.g., by division and by project, program, or other cost center.

* An automated billing and accounting system for the marina should be examined.

(2) Park Maintenance Division

* This division could benefit from an automated file containing the addresses and names of owners of all properties for which the city undertakes weed cutting or litter removal. This file could be valuable in detecting repeat offenders, collecting fees, and scheduling mowing, and for use by other city departments.

(3) Forestry

* An enhanced tree census including all those owned by the city should be on-line and on a geographic basis compatible with use of the DIME file.

* The production reporting system should be enhanced, possibly as part of a department-wide

manpower allocation and analysis system, integrated with established productivity standards.

* Work orders should be utilized for all maintenance work done by this division on all park property and street trees and this system integrated with the cost accounting system.

(4) Auditorium, Stadium and Orpheum.

* An automated financial management system should be implemented to handle the requirements of each facility.

* The automated financial management system should include a cost accounting subsystem.

* Automated purchasing and inventory control for each facility should also be features of the financial management capability.

* The division should implement an automated facility scheduling capability.

* The division should make improved use of word processing.

* As an alternative to these separate systems, this division should consider acquiring its own micro-computer system for financial management, cost accounting, facility scheduling, and word processing. A fully programmed stand-alone micro-computer for the listed financial management functions and word processing is estimated to cost in the range of \$5,000 to \$7,500.

(5) Building Maintenance. Although a detailed analysis is beyond the scope of this study, a few words are in order regarding the environmental control computer (a Johnson Control JC-80 minicomputer) in use for the Omaha/Douglas Civic Center and the Hall of Justice. This computer was put into operation in 1975 and has enabled the building maintenance division to reduce the actual energy consumption in these buildings since that time. The division estimates that the system has more than paid for itself through reduc-

tions in energy consumption and related cost savings.

Currently, the building maintenance division would like to explore the following enhancements to this system:

- * a preventative maintenance capability for HVAC equipment
- * a cost analysis capability to assist in making repair or replacement decisions on HVAC equipment and to allow per square foot energy consumption and cost analysis
- * possible expansion of the system's energy saving capabilities to other downtown city facilities, e.g., the library.

The division should be encouraged to explore these options and to provide cost-effective analyses of them so that departmental management and the city administration can decide which, if any, to pursue.

The division should also take advantage of the following automated systems as they are acquired or implemented by other divisions in the department:

- * inventory control
- * automated manpower scheduling and analysis
- * equipment management.

(6) Recreation Division.

- * As in the case of the golf division, this division would benefit from improved cash control and reporting all funds collected at satellite location.
- * Similarly, the division will benefit from an automated capacity to collect and store user data and provide statistical analysis of these data.
- * The division should explore increased use of word processing for mailing lists, program announcements, and similar purposes.

3. Additional Findings. The report of the Economy Task Force in 1980 encouraged the city to consider restructuring various fees and charges for activities sponsored by the parks department. The purpose for this restructuring, the Task Force said, would be "to change a revenue consuming activity into a revenue producing activity." Without an automated, fully integrated financial management system including a viable cost accounting module the department will have considerable difficulty establishing reasonable and equitable fees.

Similar observation can be made regarding other departmental information management needs. That is, without effective automated systems in a several areas, the parks department has virtually no basis upon which answer some very important questions. These include:

- * the cost of park maintenance
- * the cost of park vandalism
- * the cost of equipment used in the department
- * whether to repair or replace equipment
- * the effectiveness of various programs
- * appropriate locations for new parks and other facilities
- * the types of facilities most needed and most likely to be used cost-effectively.

The city's auditor in its December 30, 1980, management letter noted, among other things, the need for a fixed asset accounting system. Such a system would be of value to the parks department as it could be used to establish a fixed asset inven-

tory and depreciation schedule and to promote more rational decision making in the area of capital asset replacement.

The Mayor's Capital Improvement Task Force and the city parks plan direct attention to additional decision areas in which automated systems for collecting, storing, and analyzing data to provide management information would be helpful to the parks department. These areas include such things as:

- * cost accounting
- * user statistics
- * long range planning
- * facility programming and scheduling
- * preventative maintenance (facilities and equipment)
- * improved fee structure
- * equipment replacement guidelines
- * capital facility requirements

Finally, as an aid to this analysis the department's parks planner provided a list of needs for automated systems including:

- * storage and indexing of construction warranties
- * data on park facilities in SID's
- * construction cost estimating program/capability
- * an engineering program/capability
- * a record keeping capability for files, etc., of the park board.

Many of the items listed above have been addressed by this analysis, and action on them has been recommended. All should be given due consideration by parks department management.

F. Housing and Community Development

1. Overview. The housing and community development department consists of five divisions including administration, community development, housing, planning, and permits and inspections. In 1982, the permits and inspections division has an authorized staff level of 58 persons and a budget of \$1,202,616. The other departments have an authorized staff level of 25 persons and a \$574,878 budget.

The HCD department is active in a variety of permitting and inspection functions especially those relating to land development and construction, eight neighborhood development programs, four major redevelopment projects, and five commercial revitalization programs. The department makes only limited use of computer technology. The two main uses of automation in this department involve the on-line issuance of permits and the informational use of the DIME and real property files. Figure IV-12 lists the department's major current computer uses while Figure IV-13 provides additional information about HCD activities. The total 1982 departmental budget for data processing is \$51,642. Nearly \$30,000 of this amount is for the on-line issuance of permits.

The HCD department has two on-line CRT's and two printers in the permits and inspections division. The housing planner uses a CRT in the city planning department. The permits and inspections division has recently installed a 3M high speed microfilm storage and retrieval system for permits. These constitute the department's data processing/information management hardware.

FIGURE IV-12

DEPARTMENT OF HOUSING AND COMMUNITY DEVELOPMENT
COMPUTER USE--1982

<u>Application</u>	<u>Description</u>	<u>1982 Budget</u>
PCPI--Permits and Inspections	On-line issuance of 12 different permits. Douglas County computer.	\$29,683
CPHE--Housing Estimates, Planning Division	ADMATCH local data to DIME file. Batch. Douglas County computer.	6,844
HCDR--HCD Rehabilitation	Tracking and monitoring of single parcel or entire neighborhood in rehabili- tation program. In develop- ment on Douglas County computer.	1,432
PRBH--Code Enforcement	In development on Douglas County computer.	8,263
DIME, Real Property, Auto files--Misc. Users	On-line use of files on Douglas County computer.	2,420
Statistics-- Planning Division	On-line statistical analysis capability on HDR computer.	3,000

The HCD department data base is made up of several data bases specific to the major divisions in the department, but no integrated, department-wide data base exists. The first and most significant recommendation of this study for the HCD department is that these data bases be fully integrated within the department and also with other relevant data bases in city government, e.g., real property file, the fire division's building characteristics file, census data, DIME file, and others. Thus, information collected in the HCD department about a parcel of property

as the result of of a particular HCD activity would automatically update other files and be available to other users. Data collected by other users, such as the planning department or the fire division, would update the HCD file and be available to HCD users.

FIGURE IV-13

HOUSING AND COMMUNITY DEVELOPMENT
BASIC DATA

Code inspections per year	3,600
Rehabilitation inspections per year	400
Emergency inspections per year	480
Handyman repair jobs per year	1,000
Historical P/I files	300,000
New P/I records per year	25,000
Historical (inactive) rehabilitation files	500
Active rehabilitation files	250
LRA (Land Reutilization Authority parcel inventory)	1,000

2. Administrative Division. This division makes no independent use of automation, although it receives monthly and other financial reports from the city finance department. The division feels that financial reporting regarding general fund monies is adequate. Reporting on the estimated \$5.7 million in CD grant funds, however, is not, primarily because the finance department is unable to do project cost accounting. Hence, the division must spend considerable time manually preparing reports on the use of CD funds. This division's most critical data processing needs could be handled through implementation of a citywide integrated financial management system which has project cost

accounting capabilities. The division should also have on-line access to various financial data.

3. Community Development. At one time the largest in the HCD department, the community development division is slowly being reduced in size due to cutbacks in federal community development grant funds. The primary functions of this division involve development and implementation of community development plans and projects, monitoring of activities under community development block grant (CDBG) funding, property acquisition, and relocation assistance. The division makes no use of computer technology. Its two greatest data processing needs are:

- * an automated accounting capability for all CDBG funds
- * an automated file with monitoring and reporting for all projects under the CDBG program.

4. Housing Division. The housing division is made up of three principal sub-units: rehabilitation, code enforcement, and condemnation.

At the present time, the division makes little or no use of data processing technology. Its greatest needs appear to be:

- * extensive use of word processing for contracts and other standard documents for rehabilitation projects and code enforcement and condemnation activities
- * an automated capability for tracking, monitoring, reporting, and work scheduling for rehabilitation, emergency repair, code enforcement, and handyman projects
- * an automated complaint handling system
- * automating the Land Reutilization Authority's inventory of 1,000 parcels of land
- * automation of the department's housing condition and lot surveys

- * inventory of all property owned by HCD
- * automation of mailing lists.

5. Planning Division. This division has one employee whose job involves updating the city's housing assistance plan, monitoring and reporting on grantee performance under CDBG funded projects, reporting on the use of minority contractors by the department, and updating the city's housing and population estimates. The two automated systems used by this division are the DIME file on the Douglas County computer and a statistical analysis capability on the HDR computer. The HCD planner uses a CRT in the planning department for access to these computerized systems.

This division's requirements for automation include:

- * enhanced capabilities of the DIME file
- * a CRT and printer in the HCD office with on-line access to the Douglas County and HDR computers
- * an enhanced statistical analysis capability
- * enhanced recording, reporting, and data manipulation capabilities for various monitoring, reporting, and updating functions
- * improved access to a variety of census data and an improved census data manipulation capability.

6. Permits and Inspections Division. This is the largest division in the department. It handles a variety of permits, including such things as building, electrical, plumbing, elevator, sign, and heating permits. Over 300,000 permits are on file dating to the 1800's, and approximately 25,000 new permits are issued each year. The division also performs numerous inspections each year. All inspections and re-inspections are scheduled

and monitored manually, and all inspection reports are manually prepared and stored.

This division uses automation in two areas, including the on-line issuance of permits using the Douglas County computer and a recently installed 3M high speed microfilm system for storage and retrieval of permits.

This division's efforts could benefit from automation in the following areas:

- * automated work scheduling and monitoring
- * automated monitoring and reporting on all inspections and re-inspections and automation of inspection reports
- * integration of all records and files within the division as well as integration, as appropriate, with records and files of other users in city and county government
- * elimination of storage of paper files and records and increased use of computer and microfilm storage
- * enhanced automation of the permitting process to include coordination with other city departments and other functions
- * improved cost accounting, especially for the setting of permit fees and inspection charges
- * automated cash collection and control in the permits and inspections office.

7. Summary. The HCD department's principal automation need involves the integration of a variety of existing data bases. Additional needs include automated systems to promote more efficient scheduling, monitoring, and reporting on the variety of activities performed in the division, improved use of word processing, and improved statistical analysis capabilities.

The automation requirements for this department can be summarized as follows:

Department-wide

- * integration of data bases

Administration

- * improved financial reporting
- * project cost accounting

Community Development

- * cost accounting for CDBG projects
- * recording, monitoring, and reporting on projects funded under the CDBG program
- * LRA file
- * housing condition file
- * lot survey file
- * inventory of property owned by HCD
- * mailing lists

Housing Division

- * word processing
- * recording, monitoring, reporting, and work scheduling for rehabilitation, emergency repair, and the handyman projects, and for code enforcement
- * complaint handling

Planning Division

- * enhanced DIME file capabilities
- * a CRT in the HCD office
- * improved statistical analysis capability
- * enhanced reporting and data manipulation capabilities
- * improved access to census data and improved census data manipulation capability

Permits and Inspections Division

- * work scheduling and monitoring
- * automation of inspection functions and reporting

- * integration of files within the division
- * enhancements to on-line permitting system
- * improved cost accounting
- * automated cash collection and control.

Several of the systems or capabilities recommended here have also been recommended for other city users or for citywide application, e.g., work scheduling and monitoring, integrated financial management system, word processing, statistical capability, data base integration, and others. Care should be taken by the HCD department when implementing these recommendations to coordinate fully with other departments and users.

G. Planning Department

1. Overview. The city planning department, with an authorized 1982 staff of 21 persons and a budget of \$563,998, has a variety of responsibilities in three main areas. These include regulatory functions, long-range planning, and special project planning. Figure IV-14 contains a list of the principal departmental activities by major category.

The principal uses of automation in the planning department involve word processing for regular updating of zoning ordinances and use of several automated systems on the Douglas County and HDR computers. These are listed in Figure IV-15 and include systems to store data on historic structures, on-line use of the DIME and other files on the Douglas County computer, a mailing labels program for zoning cases, and others.

The planning department has contacted UNO's Center for Applied Urban Research regarding future access to and manipulation of a variety of census data for both long range and project

FIGURE IV-14

MAJOR ACTIVITIES OF THE OMAHA CITY
PLANNING DEPARTMENT

Regulatory

Planning board

- zoning/subdivision review
- building permit review
- floodplain management

Zoning board of appeals

- case review and processing

Landmarks Heritage Preservation Commission:

- landmark and district designations

Ordinance updating

Annexation studies

Drafting/mapping

Long Range Planning

Master planning

- land use
- parks
- etc.

Growth management

- urban development policy
- urban in-fill

Environmental planning

- comprehensive environmental impact analysis

Preservation planning

Needs assessment process

Capital improvements program

Data management

FIGURE IV-14 (continued)

- demographic and census data
- mapping

Project Planning

Neighborhood planning

- conceptual and site plans

Downtown redevelopment

- conceptual plans
- government/private sector coordination

Special projects

Graphics

- report layout
 - photography
 - presentation drawings
-

planning purposes. CAUR has proposed providing census data to the planning department at various levels of aggregation including the block and neighborhood levels and in other geographic arrangements as may be required by the city. These data would be provided either in printed reports or on computer tape. CAUR has also indicated its interest in providing analyses of census data to meet the needs of the planning department. Regardless of the outcome of its discussions with CAUR, the department should pursue the acquisition and use of current census information for planning purposes in Omaha.

2. Departmental Needs. During the data gathering phase of this analysis the planning department provided a comprehensive list of automation requirements and desires. The principal systems and capabilities on that list included:

FIGURE IV-15

OMAHA CITY PLANNING DEPARTMENT
AUTOMATED SYSTEMS USE, 1982

<u>System</u>	<u>Description</u>	<u>Cost/UR</u>	<u>Computer</u>
Historic building survey	Stores data and produces reports about historic structures	\$10,000 ^{b/}	HDR
Various files	Provides on-line access to real property, street inventory, DIME files, etc.	<u>c/</u>	Douglas County
DIME file maintenance	Update city's portion of DIME file	<u>c/</u>	Douglas County
Urban development policy update	Uses real estate sales transaction and other files to determine construction activity	\$800	Douglas County
Urban parks, etc.	Estimates potential park users ^{a/}	\$3,000 ^{d/}	HDR
Ponca watershed	Accesses environmental effects of development within Ponca watershed ^{a/}	\$1,500	HDR
Mailing labels	(For zoning cases)	<u>c/</u>	Douglas County

^{a/} In development
^{b/} Design cost
^{c/} No estimate provided
^{d/} Design and one-time use

* land use data base and analytical capability

* statistical analysis capability

* engineering analysis and computer aided design capabilities

* interactive graphics and mapping (Note: The Economy Task Force also recommended a computer aided mapping capability for this department.)

- * improved access to and manipulation capability regarding census data
- * improved record keeping in a variety of areas
- * on-line access to records of other departments
- * automation of planning board case files and zoning appeals cases
- * word processing for a variety of plans and documents
- * enhancements to various existing files and systems
- * capital improvement program
- * improved population and growth analysis capabilities
- * improved environmental analysis capabilities.

Many of the capabilities and systems listed here overlap with those of the parks, public works, and HCD and/or affect manual and automated systems or capabilities of other city data processing users. For example, recommendations have already been made in this chapter regarding computer aided design and mapping for the public works department and also regarding the integration files and records in the HCD department. Therefore, the planning department should coordinate its data needs and requirements for automation, as appropriate, with other city departments and data users. The planning department should also review its desired capabilities with a view toward ranking them in priority order. Certain of these desired capabilities (e.g., land use analysis) will require additional refinement before action can be taken to secure automated systems.

H. Law Department

The law department is made up of two major divisions, city attorney and city prosecutor. The principal functions of this

department include investigation of claims against the city, provision of legal services to the mayor and city council, prosecution of violators of municipal ordinances, provision of legal services to dependent agencies, and research and drafting of bills to be submitted to the legislature. In 1982, this department's budget is \$1,103,198, and it has an authorized staff level of 34 persons.

The law department makes the following uses of automated information management technology:

- * The city prosecutor's office is connected on-line to the criminal justice information system on the Douglas County computer for docketing, case information, and criminal history information.

- * The department receives monthly and quarterly financial management reports from the finance department.

- * The city attorney's office makes considerable use of the Word Power office for contracts, ordinances, council documents, standard letters, and other standard documents.

- * Under a recent agreement with the Omaha Bar Association and the Douglas County Law Library, the department will be able to use the facilities of the West Law legal research computer.

The law department does not appear to have any priority requirements for new or enhanced automated systems. However, consideration should be given by the city prosecutor's division to the following automated capabilities:

- * automated complaint and case monitoring and tracking, integrated with the existing capabilities of the criminal justice information system

- * word processing, also integrated with the criminal justice information system

- * automation and cross indexing of opinions and briefs.

The city attorney's division should consider automated capabilities for:

- * recording and monitoring all claims filed against the city
- * recording and monitoring all claims filed by the city against others
- * recording and indexing of opinions, briefs, legislation, and other documents.

I. Municipal Court

The municipal court is the independent judicial arm of Omaha city government. Its activities are extensive, requiring nine municipal judges, a court clerk, a court administrator, a staff of 63, and a 1982 budget of \$1,245,544.

The court makes extensive use of the criminal justice information system on the Douglas County computer. This system is also used by the Omaha police division, the Douglas County sheriff's department, city and county prosecutors, and the district court. This is a complex, sophisticated system that captures and retains information on all individuals who come into contact with criminal justice authorities in Douglas County. For the municipal court, the system is especially important as it stores information on all cases from initiation through ultimate disposition by the court. The principal subsystems of this system that are used by the court are listed in Figure IV-16.

The municipal court has three divisions: criminal/traffic, civil, and probation. The criminal/traffic division handles traffic and misdemeanor violations and preliminary hearings of felony cases. The civil division hears small claims suits (up to

FIGURE IV-16

OMAHA MUNICIPAL COURT
COMPUTER APPLICATION

<u>Name of Program</u>	<u>Brief Description</u>	<u>Mode</u>	<u>Monthly Frequency</u>
LMCT	Omaha municipal court		
LCJMCO2	Past record updates	Batch	20
LCJMCO5	Registers of actions	Batch	40
LCJMC12	Audit exception report	Batch	1
LCJMDLY	Cash activity and bonding	Batch	20
LCSTCO2	Monthly stats	Batch	1
LCSTC10	Stat audit listing	Batch	1
LMCTC39D	Index cards	Batch	20
LMCTC72P	Warrant reports	Batch	1
LMCTDLY2	Ticket update, etc.	Batch	20
LMCTMO5	Weekly-out-state multiple tickets	Batch	4
LCJBCT3	BA Bonds-updates/postings/release	On-line	2,400
LCJBCT1	BP Set/post bond inf.	On-line	1,340
LCJMTO1	CA Enter arraignment inf.	On-line	3,400
LMCTCTP	CB Cash balance by terminal	On-line	1,400
LCJMTO2	CC Change charge inf.	On-line	2,750
LCJMT16	CG Enter continuance inf.	On-line	1,100
LCJMT13	CIF File case inf.	On-line	2,880
LCJMT20	CJU Update case inf.	On-line	7,950
LCJMT21	CJD Delete case inf.	On-line	330
LCJMT24	CN Witness screen	On-line	3,080
LCJMTO3	CPH Update prelim. hearing inf.	On-line	345
LCJMT33	CTR Update trial inf.	On-line	2,240
LMCTCTP	CW Clear warrants	On-line	690
LMCTCTP	EW Enter warrants	On-line	830
LPFITP1	OFA Inquiry on officer no.	On-line	520
LCJMT45	QAN Inquiry by arrest no.	On-line	520
LCJMT41	QCA Inquiry for case inf.	On-line	1,800
LPFICT2	QD Data no. inquiry on person	On-line	630
LPFICT2	QN Name look-up (phonetic)	On-line	5,500
LASRCT4	QV Inquiry by veh. lic. no.	On-line	1,270
LMCTCTP	TC Ticket continuance	On-line	1,850
LMCTCTP	TCC Ticket payment (moving)	On-line	3,800
LMCTCTP	TCD Ticket disposition (moving)	On-line	1,420
LMCTCTP	TI Ticket inquiry	On-line	5,670
LMCTCTP	TIL Inquiry ticket by lic. no.	On-line	2,900
LMCTCTP	TND Ticket disposition (non-moving)	On-line	1,200
LMCTCTP	TNM Ticket payment (mail)	On-line	2,940
LMCTCTP	TNW Ticket payment (window)	On-line	3,130
LMCTCTP	TTN Ticket transferred to court	On-line	370
LMCTCTP	XW Cancel warrant	On-line	1,100

Source: Omaha Municipal Court. All programs are run on the Douglas County computer.

\$5,000), law suits under \$20,000, and replevin, restitution, garnishment actions, other collection remedies, born out of wedlock, and peace bond cases. The probation division is responsible for pre-trial investigations for the court and also for the supervision of probationers.

Constraints of time and other scarce resources did not permit an extensive analysis of the court's current automated systems or its requirements for additional automation. In addition, any recommendations from this study should be viewed as advisory since the court is an independent branch of city government. Nevertheless, the following are areas that the court could consider for enhancements to existing automated systems and/or the acquisition of new such systems:

- * use of word processing for a variety of purposes (summaries, subpoenas, garnishments, probation department reports, court orders, etc.) integrated as feasible with other systems. According to the court administrator, the criminal/traffic division makes use of the computerized criminal justice information system for automated printing of various documents. Similar capabilities are being considered for use by the civil division when it is automated.

- * automation of cases and actions for the civil division (case files, dockets, docket control, motions, actions, disposition, judgments, etc.). This is currently under consideration by the court with system initiation anticipated for the fall of 1982.

- * automated cash collection and control with daily balancing, depositing, and reporting. This is currently done in the criminal/traffic division and is under consideration for the civil division.

- * addition of complete disposition information (e.g., jail 10 days or fine \$50 and costs) on files on persons in the criminal justice information system

- * complete automation of the activities of the small claims court. This, too, is currently under consideration by the court.

The court has a large number of dedicated long-term employees who, in the view of court management, work diligently to perform their jobs. Many of these persons work with manual systems. Any effort to adopt new or enhanced automated capabilities should be made with the recognition that the use of computer technology may be threatening to long-term employees. Measures should be taken, including direct involvement of employees in systems planning and implementation, to reduce or eliminate fear of the technology and to demonstrate that automation can improve the efficiency and effectiveness of the court and the quality of working conditions.

J. CETA

CETA, or the Comprehensive Employment and Training Act administered by the U.S. Department of Labor, provides funding to the city of Omaha for operation of a variety of employment, training, and related services to groups experiencing severe handicaps in obtaining employment in Douglas and Sarpy Counties. In the period from October 1, 1980, to September 30, 1981, the city received over \$8.6 million in CETA funding. Since that time, as a result of changing federal priorities, CETA funding and hence the size of the city's CETA program has been reduced significantly. The 1981-82 and 1982-83 CETA program budgets are estimated to be \$5.21 million and \$2.5 million, respectively.

At the time of the initial interviews for this study, the CETA program had an IBM System/34 minicomputer with 256 KB of main memory, 128 MB of disk storage, a 300 LPM printer, four CRT's, and a software package for client records acquired from another city and installed by CETA staff with assistance from

IBM. The annual rental cost of this system was \$34,000 (for a five-year cost of \$170,000). Due to reductions in grant funding and program participants, CETA has terminated the rental contract for this system.

This system was too large and expensive to be justified by the CETA program, and termination of the rental agreement was a sound decision. However, this leaves the CETA program with numerous records on current and prior program participants and reporting requirements that must now be handled manually. In November, 1981, the CETA office held two vertical file cabinets containing records of current participants and over 50 file cabinets with inactive records. All records were kept on-line in the System/34, and reports as required were generated therefrom.

This study recommends that CETA management initiate discussions with the Douglas County Systems and Data Processing Center regarding development of an automated participant record and reporting system. At the same time, CETA managers should investigate the alternative of a stand-alone, microcomputer based system (including programming) for participant record keeping and reporting.

The following requirements, excerpted from a memo prepared by the CETA program, should be considered for inclusion in any such system:

1. Participant Records/Reports: Current Uses

* Monitoring all CETA paper work which reflects CETA participant activities

* Compiling statistics for all Department of Labor (DOL) reports pertaining to:

- Sex
- Age
- Education status
- Public assistance status
- Economic status
- Family status
- Ethnic group
- Veteran status
- Handicapped status
- Offender status
- In-school status
- Labor status
- Total participants served
- New participants by quarter
- Participants transferred to other subparts
- Participants carried over from each fiscal year
- Total terminations
- Total number entered unsubsidized employment
- Participants enrolled in classroom training
- Participants enrolled in work experience
- Participants enrolled in career employment experience
- Participant tracking by entry date and time spent in the CETA program

* Compiling statistics for the U.S. Census Bureau pertaining to:

- Name
- Social Security number
- CETA status (active)
- Employment status
- Termination type
- Age
- Ethnic group
- Address
- Telephone number

* Compiling statistics and data for internal management and subcontractors on items identified the second item marked with an asterisk above

* Verification of all information listed on the CETA program application

* Follow-up of all participants entering unsubsidized employment

* Maintenance of all participant records (retention period of five years)

* Tracking of property and inventory

2. Desired Capabilities

- * Capability to handle accounting journals and ledgers for the fiscal department
- * Capability to produce completion rates of participants
- * Statistics on training related placements
- * In-depth screen read-out of computer problems as they occur
- * Staff training to become more "user oriented" (for those individuals outside of the department)
- * Employability development plans of participants on computer
- * Entry of status change notices and CETA program applications by CETA staff assigned to the participant
- * Sufficient edits written for all existing programs and all new programs written in the future
- * On-line inquiry capability.

K. Human Relations

Human relations is a department that generates considerable paperwork. None of its principal functions is currently automated. This department has a 1982 budget of \$338,897 and an authorized staff level of 16 persons. Its primary activities involve enforcement of the city's ordinances against discrimination in employment and housing and monitoring the compliance of contractors and vendors.

In 1981 the department received approximately 300 contacts regarding discrimination in employment, and 214 of these became formal complaints. Approximately 50 contacts regarding discrimination in housing were received and 40 became formal complaints. Department management reported that 1981 showed a 63% increase in complaints received over 1980.

All complaints and all actions taken on complaints are recorded in charge files. These and other files and records are part of a fully manual record keeping system. In addition, all reporting is done manually from these records.

Other activities generating paperwork include:

- * 15 to 20 conciliation meetings per year
- * 90 to 120 fact finding conferences per year
- * 100 to 150 requests for information/interrogatories
- * 150 to 180 regularly used standard forms
- * handwritten summaries and typed excerpts or interviews.

All open records are kept in file cabinets in the department office. Closed records are boxed and stored in the basement of city hall as space is needed.

This department should investigate implementation of an automated recording and reporting system that is integrated with word processing. Among the more important features of this system, the following should receive attention:

- * on-line, cross-indexed files with inquiry capability, predetermined reporting, and case monitoring capability
- * word processing
- * statistical analysis
- * employee performance evaluation (production reports)
- * automated calendar
- * automated scheduling
- * contract compliance file and reporting
- * security considerations.

This system should be comprehensive, integrated, and on-line and should eliminate the need for most paper files and forms and most manual reporting. The department began initial development of detailed requirements for such a system in a memo prepared on December 28, 1981, for this analysis. Department management should be encouraged to enter into discussions with the Douglas County Systems and Data Processing Center regarding its automation requirements. As in the case of the CETA program, this department should investigate other alternative means of automation including a fully programmed microcomputer system.

L. Economic Development

The economic development function is performed by a director of economic development on the mayor's executive staff. The economic development office has data requirements quite similar to many in the planning and housing and community development departments. These include:

- * census information by tract and other subareas of the city
- * employment data by tract and industry type
- * place of work and place of residence data
- * sales tax data.

The office currently uses data from the real property file on the Douglas County computer. It does not, however, have an on-line capability to these files on the Douglas County system and could benefit from on-line access to these and other relevant files.

The economic development director should work closely with the planning and housing and community development departments in the planning and implementation of automated systems dealing with

census and other demographic and socio-economic data, economic data, land and land use data, and statistical analysis capabilities.

M. Public Library

The Omaha Public Library is a quasi-independent agency of the city of Omaha. It is governed by an appointed library board, but its annual budget is part of the mayor's budget and is reviewed and approved by the city council. Library employees are members of the city classified service. The 1982 library budget is \$2.93 million, of which \$2.04 million is for employee compensation and \$399,000 is for books, films, periodicals, and records. The library system includes one downtown library and nine branches and employs a staff of 99 persons.

The library receives regular financial reports from the city finance department. These reports, it feels, do not adequately meet library management needs. In addition, the library makes use of four computerized systems: BATAB, OCLC, on-line terminal access to various data bases, and on-line interlibrary loan capability. See Figure IV-17.

BATAB is a proprietary application system purchased in 1971 from the book supply firm of Baker and Taylor at a cost of \$10,000. (This cost was rebated to the library after the library ordered \$100,000 worth of books through the vendor.) To use BATAB for book orders, library personnel manually complete order cards, the cards are keypunched at the Douglas County Data Processing Center, and a book order on computer tape generated from the cards is sent to Baker and Taylor. Book orders are not

FIGURE IV-17

OMAHA PUBLIC LIBRARY
CURRENT COMPUTER USES

<u>Application</u>	<u>Description</u>	<u>Mode</u>	<u>Frequency</u>	<u>Cost</u>	
				<u>1981</u>	<u>1982</u>
BATAB/Douglas County Computer System	A. Book orders (hard copy and magnetic tape) B. Book budget control C. Book history report (a record of the status of all orders placed since 1971) D. Yearly activity report (statistics, average book prices, etc.)	Batch	Weekly	\$19,085	\$20,300
OCLC/Columbus, Ohio data base terminal	A. Data base use in the book classification process and to produce catalog cards B. Interlibrary loan	On-line	Daily	\$13,100	\$15,600
Data base terminal/ TI 745 (reference service)	Access to various data bases (e.g., DIALOG) used as a source for information.	On-line	Daily	\$ 6,150	\$ 5,000 ^{a/}
Data base terminal/ TI 745 (electronic mail, Lincoln, Nebraska)	Access to interlibrary loan information.	On-line	Daily	N.A.	N.A. ^{b/}

^{a/}Funds provided from federal grant.

^{b/}Contractual arrangement with Nebraska Library Commission.

Source: Omaha Public Library.

limited to Baker and Taylor and may be sent to other vendors. However, these are sent on hard copy and not computer tape. All book order data are processed by Baker and Taylor and the tape updated and returned to the Douglas County Data Processing Center. The center updates the library's order file and produces printed reports. The library pays approximately \$1,600 per month to the county to run this system. No charge is made for the use of the BATAB system by Baker and Taylor.

OCLC (On-line Computer Library Center of Columbus, Ohio) is a not for profit computer library service and research organization whose principal businesses are providing centralized and local turn-key systems to libraries. The Omaha public library accesses this system on-line for the purpose of classifying books and producing catalog cards. Two terminals and two printers are used for the OCLC system. The cost to use this system is estimated at \$1,300 per month. The one data base terminal used by the library accesses various data bases for reference purposes and also interlibrary loan information through the state library commission.

Library management has provided a list of desired items for additional automation. These are shown in Figure IV-18 and include a system entitled LIBRIS and capabilities that library management has entitled bookstock, library use, book lending control, and computerized card catalog.

LIBRIS is an on-line enhancement of the batch BATAB system available from Baker and Taylor. It would enable the library to order books on-line via terminals directly linked to Baker and

FIGURE IV-18

OMAHA PUBLIC LIBRARY
DESIRED AUTOMATED CAPABILITIES

<u>Application</u>	<u>Description</u>	<u>Mode</u>	<u>Frequency</u>
LIBRIS	Enhancement of BATAB in order to provide on-line book acquisition Source of Program: Third party	On-line	Daily
Bookstock Data input document to computer center	Provides bookstock report	Batch	Weekly
Library use Data input document to computer center	Provides statistical report of library use	Batch	Daily
Book lending (circulation) control Data base terminals	Provides automated book check-out, maintains records, provides statistics (similar to CLSI)	On-line	Daily
Computerized card catalog Data base terminals	Provides public access to library bookstock holdings	On-line	Daily

Source: Omaha Public Library

Taylor instead of using the current partly manual, partly card and printout oriented BATAB system.

Bookstock report and library use statistics are automated reporting systems which, respectively, would provide reports on books ordered and in stock and a statistical report on library use. Book lending control would provide a fully automated circulation system. Finally, computerized card catalog would be an automated alternative to the current manual card catalog system.

A detailed analysis of library requirements, including development of software specifications and an evaluation of alternative means of automation in each of the listed areas, is beyond the scope of this analysis. Such a study, however, must be undertaken prior to proceeding with further automation of functions for the library and is specifically recommended, especially for the following systems:

- * on-line book ordering and reporting system
- * on-line circulation system
- * on-line card catalog
- * automated bookstock and history system.

In addition, various statistical and analytical requirements (e.g., library use data, insurance analyses, financial reporting) should be met either through systems recommended for other city users or the acquisition of systems strictly for library purposes.

Finally, like many of the departments of city government, the library maintains its own personnel records. An on-line personnel management system, as recommended in Chapter III, which meets

citywide departmental needs would enable the library and other city departments to dispense with most if not all of these records.

N. City Clerk

The Omaha city clerk's office makes extensive use of the city's word processing center, Word Power, in the finance department but no other use of automated technology. According to the city clerk, no plans have been made for automating any additional functions in this office.

Like the municipal court, the city clerk's office is an independent unit of city government. Hence, recommendations made in this study will be advisory. Nevertheless, several areas exist that the city clerk should consider for automation. These include:

- * automation for the special assessment function, including notifications of hearings regarding special assessments. This would require the cooperation of city departments, the clerk's office, and the register of deeds especially to ensure that all parties interested in a piece of property are notified of any action on that property as required by law. The city clerk strongly supports such an effort.

- * automation of the claims file (The city clerk receives all claims filed against the city.)

- * increased use of microfilm/microfiche storage of documents. The city clerk has in previous years included this in her budget and strongly supports this function.

- * automation of the indexing of all records and documents maintained by this office. The city clerk feels this is an item for future consideration.

- * computer output microfilm for all official documents, including transcripts from the official city journal. This is an item for future consideration.

In general, the clerk's office could benefit from a much more extensive use of automated technologies for filing, record keeping, and document storage and retrieval. However, before any action is taken in this regard, the city clerk should secure an in-depth analysis of the requirements and costs of automation of the department.

O. City Council

As part of this study, Mr. Lou Andersen, assistant to the city council, was interviewed. Mr. Andersen's views of the potential uses by the city council of new or enhanced automated capabilities as well as the council's priorities for citywide automation were most helpful in preparing this section of the report.

Mr. Andersen felt that the council would want on-line access to the city's data base, especially financial and personnel strength and grade information, for direct inquiry and reporting purposes. This access would probably involve one CRT and printer in the council suite on-line to the city's computer system(s). Figure IV-19 contains a list of automated systems and capabilities Mr. Andersen feels the council would request in order to enhance its programmatic and budgetary oversight responsibilities.

Mr. Andersen also suggested that at the time city departments are developing specifications for major software systems and specific output products the council should be involved in order to ensure that it will receive the data and reports it requires for its functions of policy making and oversight.

FIGURE IV-19

CITY COUNCIL DESIRED COMPUTER CAPABILITIES

Hardware: One CRT and one printer located in the council suite

Applications: On-line access to at least the following systems and data bases.

- * financial management system
- * personnel management system
- * equipment management system
- * contract compliance dates
- * census and housing data
- * board and commission membership
- * summary reports from various departments and functions
- * on-line, English language inquiry and unique report generating capability.

Regarding priorities for specific city-wide application system requirements, Mr. Andersen listed the following:

- * financial management
- * payroll
- * cost accounting
- * equipment management.

The council and its staff should also consider enhanced use of word processing.

P. Mayor's Office

The recommendations contained in this analysis are intended in all cases to improve the administration of city government in Omaha. No specific application programs are suggested solely for

use by the mayor's office. However, the following automated systems that are recommended for citywide or departmental application should be of particular interest and value to the mayor and his staff. These include:

- * integrated financial management system, including cost accounting and payroll
- * equipment management system
- * enhanced word processing capability
- * automated complaint handling system
- * personnel management system
- * English language inquiry capability.

An on-line CRT capable of accessing the city's data base should be installed in the mayor's staff office area and his staff trained in the use of the major application systems of interest and in the recommended English language inquiry and report generating capability.

As the automated systems recommended in this analysis are implemented to meet citywide and departmental requirements, the mayor's staff can be expected to rely increasingly on them to access data, answer questions, engage in long-range planning, prepare budgets, plan programs, and use as an independent check on various city activities.

Q. Summary

This chapter has reviewed the principal information management requirements of the city of Omaha's eight departments plus those of the municipal court, the CETA program, the public library, the city clerk's office, the city council, and the mayor's office. Some of the recommendations made to address

these requirements affect only one department or division in city government. Most, however, affect several users in one or more departments or have implications for numerous city units.

The recommendations made in earlier chapters to meet city-wide information management requirements can be expected to be of particular value to all departments. This is especially true of the recommended financial management, equipment management, personnel management, complaint handling, and word processing systems. The hiring of a qualified management information systems director and provision of training for both management level and end-user personnel in several areas relating to information management will also be of benefit to the departments.

Recommendations of a citywide nature should receive priority over recommendations for departmental application in terms of budget, timing, and degree of effort allocated for implementation. This does not mean, however, that the departments should wait until major citywide systems are installed to pursue the acquisition or enhancement of systems to meet particular departmental needs. Nor does it mean that only one system at a time in order of its priority should be pursued by a department. In many cases, parallel system procurement or development efforts are advisable and are recommended.

For example, microcomputer based systems for engineering and design aid purposes have been recommended for the public works department as have enhancements to the existing street and sewer inventory systems, and public works has been identified as a major beneficiary of citywide financial management and equipment

management systems. Within budgetary and manpower limits this department should engage in parallel system enhancement or procurement activities in these and possibly other areas. Similar examples can be cited from other departments.

This analysis envisions establishment of a process both among and within city departments that will result in the critical review of the recommendations presented, the establishment of relative priorities for action on them, and the adoption of rational or step-by-step plans for their implementation. To be effective, this process should involve the departments working together cooperatively--especially since many of the existing and proposed automated systems in city government involve or affect multiple users.

This process ultimately will produce a comprehensive information management system, as distinct from a data processing system, for Omaha. The process will be time consuming and often frustrating, but it will reward its participants with improved information availability and quality and, if the information is used wisely, improved decision making.

V. ADDITIONAL CONSIDERATIONS

Four additional items affecting data processing and information management in Omaha remain to be addressed. These are the NCR/MDS data processing system acquired by the finance department, a structure for long-term management involvement in data processing in Omaha, city/county cooperation in data processing, and the OPPD computer graphics and mapping system.

A. NCR/MDS System

On January 28, 1981, on the recommendation of the finance department, the city council authorized the purchase of computer hardware from the NCR Corporation and financial management software from Moore Data Systems, Inc. The principal hardware components included a 1MB NCR V8555 CPU with console CRT, a 600 LPM card reader, a 1200 LPM printer, and three 200 MB disk drives. The software consisted of an MDS governmental financial management information system and COMMAND inquiry/report generating language. The initial cost of this system was \$492,251.72. This cost involved \$300,251.72 for the NCR hardware and \$192,000 for the MDS software.

An immediate payment of \$102,038.38 to NCR was to be followed by two annual installments of \$99,106.67 in January, 1982, and January, 1983, and an immediate payment of \$50,000 to MDS was to be followed by semi-annual payments of \$50,000 each and a final payment of \$42,000 upon acceptance of the software. At this writing, the city has paid a total of \$102,038.38.

The NCR hardware has been delivered to the city but has not been installed. The software has not been delivered. The intent of the administration is to await the results of this analysis before making a final determination regarding the disposition of hardware and software.

This analysis will address the NCR/MDS system in the following respects:

- * total system costs
- * communication with the Douglas County system
- * relationship with long-term city requirements.

1. Total System Costs. The total cost of a data processing/information management system is often three to four times greater than the initial system investment. Typically, total cost is calculated over a five-year system life and includes at least the following elements:

Immediate costs

- * initial hardware configuration
- * operating software
- * initial application software
- * facility preparation
- * initial training
- * initial communication equipment (modems, controllers, installation costs, etc.)
- * media (tape, disk packs, etc.)

Additional required elements

- * additional hardware
- * additional communication equipment
- * additional media

These additional components must be considered in the Omaha case because the hardware system as purchased is under-configured and will not adequately support functions of the financial management software nor provide an adequate level of system back-up.

Continuing costs

- * hardware maintenance
- * operating system license/rental
- * application software support
- * application software license
- * data communication (line costs, modem rental, etc.)
- * media (tape, disk packs, etc.)
- * training
- * personnel (operators and programming).

Currently, the only known cost is the purchase price for the initial NCR hardware and the MDS software. Estimates will be provided herein for several, although not all, of the remaining items and an estimated five-year system cost will be developed.

Initial hardware: \$300,251.72

Source: NCR invoice. (The assumption is made that the initial CPU and disk configurations are adequate to support the financial management system, including all required files and records, purchased from MDS.)

Operating system: No first-year charge.

Estimate prepared by the city finance department and reported in the Peat, Marwick and Mitchell study.

Initial application software: \$192,000

Facility preparation: \$23,000

Including raised floor, separate HVAC system, separate electrical circuitry; relocation of walls; sound proofing. Estimate prepared by the city finance department and reported in the Peat, Marwick and Mitchell study.

Initial training: \$12,000

Estimate prepared by the city finance department and reported in the Peat, Marwick and Mitchell study.

Initial communication: Zero

No initial communication equipment purchased.

Initial media: Zero

No initial media purchased.

Additional hardware: \$57,880

Based on the following components:

8 CRT's	\$17,500
1 80 KB tape drive	26,600
1 300 LPM printer	<u>13,780</u>
Total	\$57,880

The CRT's are required for input, inquiry, etc., into the financial management programs by clerical, accounting and management personnel, for training and for development of special reports and additional programming. The additional tape and printer are required for back-up. These additional hardware components are required to enable the presently underconfigured system to perform at a minimum level of effectiveness solely on the MDS financial management software. If programming in additional functional areas (e.g., equipment management, personnel management, complaint handling) is added to this system, additional hardware will be required.

Additional communication: Zero

None required for the hardware configuration needed to support the financial management system.

Additional media: No estimate

An estimate cannot be developed for disk and tape storage requirements without greater detail regarding file, record, and transaction requirements for the financial management system.

Hardware maintenance: \$71,000

Estimate provided by the city finance department and reported in the Peat, Marwick and Mitchell study. (The city's contract with NCR does not provide for hardware maintenance. Should the city implement this system, such an agreement is strongly recommended, and its cost should be included herein.)

Operating system: \$63,000

Estimate prepared by the city finance department and reported in the Peat, Marwick and Mitchell study.

Application software support: No estimate

(A standard element in many local government software procurements is a provision for continuing software support at a specified cost. The contract with MDS has no such clause; hence, an estimate of the cost of software support cannot be made.)

Application software license: No charge
Source: Contract with MDS.

Continuing data communication: Zero
 As long as the hardware configuration does not exceed the minimum required to support the financial management programming, data communication will be local to the CPU. Hence, no specialized communication hardware will be required and no transmission costs (e.g., modem, line) will be involved.

Continuing media: No estimate
 See comment under additional media above.

Continuing training: Zero
 As long as no additional application software systems are acquired, additional training requirements will be minimal.

Personnel: \$730,000
 Based on current city salary and benefits for following personnel required to operate and support this system:

<u>Positions</u>	<u>Annual</u>	<u>Five-year</u>
2 operators	\$ 40,000	\$200,000
2 programmer/analysts	\$ 66,000	\$330,000
1 supervisor	\$ 40,000	\$200,000
Total	\$146,000	\$730,000

Additional programming requirements beyond those involved with supporting the financial management system will, of course, increase these costs commensurately.

The estimates provided here combined with the known purchase price for hardware and software result in an estimated five-year system cost of at least \$1,449,132. Figure VI-1 summarizes these figures.

The city finance department has calculated potential offsetting savings of \$102,000 over five years as the result of implementing the NCR/MDS system. Subtracting this figure from the total estimated cost of \$1,449,132 results in an estimated net cost of the NCR/MDS system of \$1,329,132. This figure is nearly three times the original purchase price of hardware and software.

 FIGURE V-1

 ESTIMATED FIVE-YEAR COST
 NCR/MDS COMPUTER SYSTEM
 CITY OF OMAHA

<u>Element</u>	<u>Cost</u>
Initial hardware	\$300,252
Initial software	192,000
Facility preparation	23,000
Initial training	12,000
Initial communication	--
Initial media	--
Additional hardware	57,880
Additional communication	--
Additional media	--
Hardware maintenance	71,000
Operating system	63,000
Application software support	No estimate
Application software license	--
Continuing data communication	--
Continuing media	No estimate
Personnel	<u>730,000</u>
Total	\$1,449,132

The estimates presented here are based on a system of NCR hardware with a 1MB CPU, eight CRT's, two printers, two tape drives, and three 200 MB disk drives located in the finance department solely supporting the financial management system and COMMAND language purchased from MDS with minimal technical support. Any significant additions to this configuration (either hardware, application software, or communication) will result in additional costs.

2. Communication with the Douglas County Computer System.
 The city of Omaha currently spends nearly \$1 million per year for data processing on the Douglas County computer system. Several departments including police, municipal court, fire, public works, personnel, planning, and housing and community development either

have their own programming on the Douglas County system or make use of a variety of files, data bases, and programming on that system. Many of these are shared by several city and county users. Two of many possible examples include the real property file and the criminal justice information system.

Omaha currently faces a critical choice in data processing/information management. When it is made, that choice will constitute a major long-term commitment. To begin with, the city requires the implementation of several major automated information management systems. These include:

- * integrated financial management
- * equipment management
- * personnel management
- * complaint handling
- * geographically based information management
- * word processing.

In addition, continuing implementation and use of application systems and the use of data bases and files of particular interest to departments and divisions in the city will be required to support the functions of those entities.

Omaha's long-term data processing/information management requirements inevitably will involve the city with the Douglas County computer system. This is because many of the systems, applications, data bases, and files now in use by Omaha currently run on the county computer system and because others that the city will implement in the future will affect, or be affected by, or should be integrated with systems in use on the county computer. This is true if for no other reasons than the multiple

user dimension of many files, data bases, and application systems used by Omaha and the increases in data processing cost and complexity that establishment of a separate computing capability would involve.

Therefore, any large scale computer system acquired by the city should be capable of processor to processor, interactive communication with the Douglas County computer system. The city's NCR V8555 hardware does not have the capability for such communication, and NCR cannot estimate when such a capability will be available or its cost. NCR has identified one potential source of software to facilitate interactive communication between the NCR and IBM systems, Consolidated Software Systems (CSS) of Kettering, OH.

CSS has developed a communication package, currently running in only one site, that may meet Omaha's communication requirements. The estimated cost of this software is \$25,000. Modifications will probably be required, however, to the city's MDS financial management software and/or to the Douglas County computer system to enable the CSS communication software to function. Without further detailed information than can be provided herein an estimate of the probable magnitude or cost of the required modifications cannot be made nor can an estimate of the long-term costs for support of the communication software.

To summarize, the city's NCR V8555 computer currently is not technically capable of communicating in an acceptable mode with the county's computer, nor can an estimate be made of the costs or other difficulties involved in installing potentially applicable communication software from a third-party vendor.

3. Recommendation. This study recommends that Omaha either sell the NCR/MDS system or negotiate terminations of the contracts with NCR and Moore Data Systems, Inc. This recommendation is based on citywide and departmental data processing/information management requirements identified during this analysis; the extensive city use of files, data bases, and application systems on the county computer; the multi-user nature of many of the files, data bases, and systems used by the city; and, finally, the estimated five-year cost and the communication deficiency of the NCR/MDS system. The city should also develop detailed functional requirements for the application systems recommended here and set about the task of procuring those systems for implementation either on the Douglas County computer system or in a mode compatible with the communication requirements of that system.

This recommendation should not be read to impugn the value or integrity of either the NCR hardware or the MDS software. If Omaha's only information management requirements involved meeting the limited objectives of one city department, the NCR/MDS system would function adequately. Broader citywide and departmental data processing/information management requirements--especially the need for the integration of existing and proposed city systems in an interactive mode with various systems on the Douglas County computer--clearly indicate that the NCR/MDS system will not provide Omaha with the capabilities it requires.

As painful as this experience has been, it has provided Omaha with an important lesson. Prior to acquiring an automated data

processing system a city government must: (1) carefully determine its information management requirements, (2) place those requirements in citywide and departmental priority order, and (3) undertake a carefully conceived procurement process designed to produce a system that will meet those needs most cost-effectively.

This lesson should be remembered each time the city or any department or division in the city sets about acquiring a new automated system or upgrading an existing one.

B. Management Information Committee

When this study began, Mayor Boyle appointed a committee of department heads and other ranking officials in city government to review and comment on this report and to provide advice regarding implementation of its recommendations. In addition to the department heads, the committee included the chief aide to the mayor, the head of the CETA program, the library director, and the president of and the assistant to the city council. By the time the final report from this study has been completed, the committee will have met three times--once at the beginning to be informed of the study and its methodology and twice to review the draft elements of the report.

This committee should be expanded to include the police and fire chiefs, the city clerk, and the municipal court administrator. It should be made a permanent advisory committee to the mayor chaired by the MIS director. The main functions of the committee should be to advise the MIS director and the mayor regarding citywide and departmental information management requirements and problems, to review plans and procedures for the

acquisition of new or the enhancement of existing automated systems, and to oversee the implementation of the recommendations of this study and subsequent information management plans and programs for Omaha.

A permanent management information committee in Omaha city government can serve six important functions, each of which will help to promote a more effective management information system for the city. These include:

- * participation by all departments in the decision making process by which MIS requirements and priorities are determined
- * negotiation among departments and other city data processing users regarding MIS requirements, relative priorities for implementation of systems, and other actions
- * legitimization of identified citywide and departmental information management requirements and priorities. (Committee action would ensure that these become the city's projects and priorities, not those of an outside consultant or a single user.)
- * integration of requirements for and use of application systems, files, and data bases in order to facilitate the most cost-effective approach to data processing for city users and between city and county users.
- * initial and continuing training of department heads, middle and upper level managers, and end-users in various areas of information management technology
- * continuing oversight of the performance of the management information system and identification of problems and issues requiring attention by the MIS director and other parties.

C. Intergovernmental Relations

1. City/County Cooperation. As noted throughout this analysis, the city of Omaha makes extensive use of the Douglas County Systems and Data Processing Center. Many of these uses involve city departments sharing major systems and data files with county

users. This relationship is expected to expand substantially in coming years to include implementation on the county computer or in a mode consistent with the communication requirements of that computer of a number of new automated systems and the enhancement of several existing automated capabilities.

With this in mind, Omaha should thoroughly review its relationship with the county. First, the city should initiate discussions with the county regarding a written contractual agreement covering all aspects of their data processing relationship. Currently no written agreement exists between Omaha and Douglas County regarding Omaha's use of the Douglas County computer system. This is notwithstanding substantial investments by both the county and the city in staff, programming, equipment, and annual data processing use.

A contract should cover at least the following items and should ensure the protection of both parties in the relationship:

- * cost of all services and method of payment
- * method of determining and approving future costs
- * initial and future rights and responsibilities regarding hardware, programming, and data files
- * locus of data processing authority and responsibility in both entities
- * term of agreement and contingencies regarding hardware, programming, and data files in case of termination of the agreement
- * documentation of programming and data files
- * training
- * support for vendor supplied programming
- * performance criteria.

These and other issues, as relevant, should be reduced to writing and approved by city and county elected governing bodies as soon as possible.

The data processing relationship between Omaha and Douglas County for the immediate future may be adequately served with a contractual agreement, but eventually both city and county will find an intergovernmental agreement establishing a joint board or authority for the Douglas County Systems and Data Processing Center a more satisfactory vehicle.

In the not too distant future, Omaha's contribution to the Douglas County computer system will approach 50% of that system's budget. At that time, if not before, Omaha may find having a more formal role in the data processing center advantageous. In addition, given the magnitude of city use of this system and hence the system's commitment of personnel and equipment to city uses, Douglas County may find a formalization of the city role to its long-term advantage as well.

The specific contents of an intergovernmental agreement, of course, will have to be negotiated between Omaha and Douglas County. A few of the parameters of such an arrangement, however, are suggested here for consideration:

- * a board of either three or five persons with equal representation from the city and county and selection by city and county representatives of a neutral third party

- * policy direction and administrative oversight by the joint board with professional management of the center from the classified service of the county

- * budget preparation by the center's professional management and recommendation made to the joint board and, upon approval by the board, submission to and approval as part of the regular city and county budget processes

- * approval of all major hardware and other system acquisitions by the joint board

- * determination of initial and future city and county rights and responsibilities regarding hardware, programming, and data files

- * term of agreement and establishment of a method of determining rights, responsibilities, and liabilities in the event of termination of the agreement.

Regardless of the contents of either a short-term contract or a long-term intergovernmental agreement, this study specifically recommends that Omaha formally initiate discussions with Douglas County on these matters.

2. OPPD Mapping/Graphics System. The Omaha Public Power District (OPPD) recently acquired a powerful, sophisticated computer mapping/graphics system. Omaha should work cooperatively with OPPD so that this system can be developed on a basis consistent with current city and county base mapping and with utilization of data currently accessible through the DIME file.

Omaha should not consider acquiring a similar capability or even becoming part of the OPPD system at this time. The city has several far more basic information management needs to address before serious consideration should be given to a sophisticated computer mapping and graphics capability. Nevertheless, Omaha should endeavor to ensure that, as far as practicable, the OPPD computer mapping and graphics system will develop in such a way as to make maximum use of existing base mapping and data files and to make future use by Omaha a realistic possibility.

D. Summary

This chapter has presented findings and recommendations regarding the city's NCR/MDS computer system, a continuing city management information committee, and intergovernmental cooperation in data processing and information management. These recommendations are in many respects as important as any contained in this report and should be acted upon accordingly.

APPENDICES

APPENDIX A

AUTOMATED SYSTEMS ON THE DOUGLAS COUNTY COMPUTER
OWNED OR USED JOINTLY BY THE CITY OF OMAHA

<u>Project Code</u>	<u>Project Description</u>
CPAL	<p>CITY PLANNING ADDRESS LABELS</p> <p>Users: City Planning</p> <p>Objectives: Prepare address labels for zoning notifications.</p>
CPHE	<p>CITY PLANNING HOUSING ESTIMATE</p> <p>Users: Housing & Community Development/ City Planning</p> <p>Objectives: Prepare reports for specific requests from the user.</p>
CPHP	<p>CITY PLANNING HOUSING ESTIMATE</p> <p>Users: City Planning</p> <p>Objectives: Prepare reports for specific requests from the user.</p>
CPLB	<p>CITY PUBLIC LIBRARY BOOK BUYING</p> <p>Users: Omaha Public Library</p> <p>Objectives: 1. Provide weekly computer and data entry services for the Omaha Public Library system in the execution of an automated book buying system which was written by their prime supplier, Baker & Taylor, and packaged under the name "BATAB." 2. Provide vital control information which is virtually non-existent under their manual operation.</p>
CPRS	<p>COMPUTERIZATION OF CITY PERSONNEL FUNCTIONS</p> <p>Users: City of Omaha Personnel Department</p> <p>Objectives: Develop an EDP system to store, update, maintain, and retrieve city of Omaha personnel data. The system would consist of three files. They are: 1. Job applicant file: includes information on all citizens who apply for employment with the city of Omaha.</p>

<u>Project Code</u>	<u>Project Description</u>
CPRS (Cont.)	<p>2. Current employee file: contains information on all active city employees. All employees whether civil service appointed, unclassified such as part-time, seasonal, etc., or working under a federally funded program will be included in the file.</p> <p>3. Retired employee file: contains information on former city of Omaha employees or their beneficiaries who are receiving a monthly benefit from a retirement fund.</p>
CPWA	<p>CITY PUBLIC WORKS COST ACCOUNTING</p> <p>Users: City Public Works</p> <p>Objectives: 1. Provide a more accurate accounting system. 2. Provide more precise reports. 3. Capture location data (address) on work orders.</p>
CPWS	<p>STREET INVENTORY</p> <p>Users: City Public Works</p> <p>Objectives: 1. Build and maintain a file containing all possible information describing the city street network, including accidents. 2. Provide on-line inquiry into this file.</p>
CPWT	<p>CITY PUBLIC WORKS TRAFFIC</p> <p>Users: City Public Works</p> <p>Objectives: Provide the user with information useful in analyzing traffic patterns and flows.</p>
CSSI	<p>CITY SANITATION SEWER INVENTORY</p> <p>Users: City Sanitation</p> <p>Objectives: Record the physical characteristics of the sewer system by manhole. This includes a physical description and location of each manhole, line segment, tap, and inlet. Record all maintenance on the sewer system.</p>
CSSP	<p>PLANT DATA COLLECTION</p> <p>Users: City Sanitation</p> <p>Objectives: Establish a system of data collection, storage, and retrieval which can be used to monitor plant operation and efficiency.</p>

<u>Project Code</u>	<u>Project Description</u>
CSSR	CITY SANITATION SYSTEM COST RECOVERY Users: City Sanitation Objectives: Establish a system for calculating the unit cost of operating the various facilities within the sanitation division.
CSSS	CITY SANITATION INDUSTRIAL SAMPLING Users: City Sanitation Objectives: Aid wastewater sampling personnel in the enforcement of the city code regarding the quality of wastewater entering the Omaha system. This is done by storing information on companies, samples, and impact points.
CSST	CITY SOLID WASTE COMPLAINTS Users: City Sanitation Objectives: Establish a system for recording garbage pick-up complaints and special pick-up permits.
CSSW	CITY SANITATION SYSTEM SOLID WASTE Users: City Sanitation Objectives: Provide capability of monitoring the activity of solid waste facilities.
HCDR	HOUSING & COMMUNITY DEVELOPMENT REHABILITATION Users: Housing and Community Development Objectives: Track rehabilitation projects by addresses within neighborhood via an on-line terminal.
MDFM	METROPOLITAN DIME FILE MAINTENANCE Users: MAPA/City Public Works/Police/City Planning Objectives: Provide an on-line system for updating and retrieving data for the DIME file.
PCGL	REAL PROPERTY PLANNING Users: City Planning Objectives: Prepare reports for specific requests from the user.
PCPI	CITY PERMITS & INSPECTIONS Users: City Permits and Inspections/County Assessor Objectives: Aid in the accumulation, control, and dispersion of information relating to city of Omaha permits and inspections.

<u>Project Code</u>	<u>Project Description</u>
PFDA	<p>PROPERTY FIRE DIVISION ARSON</p> <p>Users: Omaha Fire Division</p> <p>Objectives: Record information on the fire ticket and initial field arson report.</p>
PFDB	<p>PROPERTY FIRE DIVISION BUILDING</p> <p>Users: Omaha Fire Division</p> <p>Objectives: 1. Provide a data base containing information on building characteristics and contents useful to the Omaha fire division.</p> <p>2. Provide a data base containing information on hazardous chemicals to aid the Omaha fire division in their handling and control.</p> <p>3. Provide data base on fire hydrants.</p>
PRAS	<p>REAL PROPERTY SALES STUDY</p> <p>Users: County Assessor/City Planning</p> <p>Objectives: 1. Create cumulative file of real property transfers and considerations.</p> <p>2. Aid the assessor in the appraisal of real property.</p> <p>3. Provide ability to access and maintain this file via terminal.</p>
PRCW	<p>REAL PROPERTY CITY WEEDS</p> <p>Users: City Weed and Litter/City Finance</p> <p>Objectives: Maintain control of weed and litter billing and payments.</p>
PREH	<p>REAL PROPERTY HOUSING & COMMUNITY DEVELOPMENT</p> <p>Users: Housing & Community Development</p> <p>Objectives: Prepare reports for specific requests from the user.</p>
PREI	<p>PROPERTY REAL ESTATE INQUIRY</p> <p>Users: County Treasurer/Clerk/Assessor/ (Various City Users)</p> <p>Objectives: Provide city and county offices with current property information through the use of computer terminals.</p>

Project Code Project Description

CRIMINAL JUSTICE INFORMATION SYSTEM

LASC	AUTO SEARCH BY MAKE AND COLOR Users: Police/Sheriff Objectives: Search auto registration file using only make, model, and color of auto.
LASR	AUTO TITLE/ASSESSMENT/REGISTRATION Users: County Clerk/Assessor/Treasurer/CJ Users Objectives: Build and maintain a computer file of all vehicles titled in Douglas County. All county clerk title offices have the ability to issue titles on-line and inquire into the file. Assessor can add tax valuations on-line. These tax values and the computer levy file are used to issue registrations and to print auto tax renewal statements. Treasurer is able to issue registrations on-line and have access to vehicle file at all treasurer branches.
LBOR	BOAT REGISTRATION Users: Treasurer/CJ Users Objectives: Keep a boat registration file for on-line processing. Allow the treasurer's office to update boat information on-line. Allow for new, renewed, or duplicate registration. This system sets fees and keeps track of all boat information, owner information, co-owners, and certificate information.
LCJB	COUNTY/CITY CRIMINAL JUSTICE SYSTEM/BONDING Users: Police/Sheriff/Municipal Court/District Court Objectives: Provide bond control with attendant reports.
LCJJ	JAIL CENSUS Users: Police/Sheriff/Corrections Objectives: 1. Provide jail census and jail release information. 2. Establish timely and accurate information flow between criminal justice agencies. 3. Provide immediate inquiry into

<u>Project Code</u>	<u>Project Description</u>
LCJJ (Cont.)	files by criminal justice agencies. 4. Maintain accountability of progress through the local criminal justice agencies.
LCJM	<p>CRIMINAL JUSTICE COURTS</p> <p>Users: Municipal, County & District Courts/Criminal Justice Agencies</p> <p>Objectives: 1. Provide a computer system to handle criminal court cases as an extension of the current operating traffic system by preparing a court calendar, appeal and bind over listings, abstract of conviction, subpoenas, officer and prisoner appearance notification and exception notices for cases exceeding normal expectation.</p> <p>2. Maintain accountability of progress through the court system.</p> <p>3. Update the case files each time an action affects the case.</p> <p>4. Provide immediate inquiry into files regarding case status limited by a need to know and security.</p> <p>5. Post dispositions to past records automatically as a result of dispositions entered via the terminal.</p> <p>6. Provide a log of activity.</p>
LCJO	<p>CRIMINAL JUSTICE BOOKING</p> <p>Users: Police/Sheriff/Corrections</p> <p>Objectives: Establish standards for entering police and sheriff arrest information on-line that will include all required information for printing arrest record on output printer and establish the base information needed to proceed with the total justice information concept.</p>

<u>Project Code</u>	<u>Project Description</u>
LMCT	<p>COMPUTERIZED TICKET INFORMATION SYSTEM</p> <p>Users: Municipal and County Courts/ Police/Sheriff</p> <p>Objectives: 1. Record all traffic tickets to insure that some type of action will occur with on-line accessibility.</p> <p>2. Schedule and docket court appearance tickets.</p> <p>3. Supply statistical information to be used for improving court operations.</p> <p>4. Coordinate and update both police and court files.</p> <p>5. Provide machine issuing and recording of warrants with on-line accessibility by local law enforcement agencies.</p> <p>6. Provide court access to criminal history of defendant for use in setting bond and sentencing.</p> <p>7. Streamline the cash accounting system.</p> <p>8. Provide computer printout of abstract of conviction necessary for the state.</p>
LPFC	<p>CORRECTIONS INFORMATION SYSTEM</p> <p>Users: Douglas County Corrections Department/Other CJ Users</p> <p>Objectives: Provide management with population statistics about the various detention areas controlled by the corrections department.</p>
LPFI	<p>MASTER INDEX (PEOPLE FILE)</p> <p>Users: Criminal Justice Agencies</p> <p>Objectives: 1. Create a master name file with suitable identifiers to enable multiple agencies to use as their master file.</p> <p>2. Assign a phonetic code and a unique data center number to all entries to this file.</p> <p>3. Flag master file to show which agencies have records related to this master file.</p> <p>4. Provide a phonetic look-up on this file to provide access to the individual agency's file.</p> <p>5. Standardize name and address master.</p> <p>6. Eliminate duplication of master files.</p>

<u>Project Code</u>	<u>Project Description</u>
LPFL	<p>LAW PERSON DRIVER LICENSE UPDATE</p> <p>Users: Police/Sheriff/Municipal Court</p> <p>Objectives: Integrate the driver's license information into the master name file and allow multiple agencies to use this information in generating necessary reports and identifying the person by a computer assigned number to help eliminate duplication.</p>
LPFO	<p>FIELD OFFICER ACTIVITY REPORT</p> <p>Users: Omaha Police Division</p> <p>Objectives: 1. Provide the police division with on-line computer capabilities to record field officer daily activities using the radio dispatch cards. This will eliminate individual preparation of daily reports.</p> <p>2. Prepare officer daily and monthly activity reports.</p> <p>3. Prepare summaries of district work loads.</p>
LPSA	<p>PROPERTY & PAWN SHOP INVENTORY SYSTEM</p> <p>Users: Omaha Police Division</p> <p>Objectives: 1. Create a multi-purpose file of all property reported stolen, lost, found, recovered, confiscated as evidence, or pawned.</p> <p>2. Provide on-line updating and editing of information entered into the system.</p> <p>3. Provide 24-hour inquiry into file for verification of stolen or pawned property.</p> <p>4. Provide inventory control of no action property in the police division property room.</p> <p>5. List of property to be disposed of.</p> <p style="padding-left: 40px;">A. Evidence over 30 days.</p> <p style="padding-left: 40px;">B. Found not claimed over 30 days.</p> <p style="padding-left: 40px;">C. Unclaimed over 6 months for auction.</p> <p>6. Provide automatic message switching to NCIC and NCIS files for checking stolen report on national files.</p>

<u>Project Code</u>	<u>Project Description</u>
LPSC	<p>MANAGEMENT MANPOWER & CRIME STATISTICS</p> <p>Users: Omaha Police/Douglas County Sheriff</p> <p>Objectives: 1. Assist management decisions by providing meaningful information on which to base their decisions.</p> <p>2. Capture and keep on-line all reports made by the police and sheriff departments.</p> <p>3. Allow on-line access to this information both for making corrections and browsing.</p> <p>4. Issue and control report number via the computer.</p> <p>5. Prepare various exception reports for control purposes.</p> <p>6. Prepare UCR and other management reports.</p> <p>7. Provide on-line information retrieval by selecting district, date, and type of report and crime.</p> <p>8. Using the census files, check for valid address range and correct police patrol district.</p>

Note: This appendix contains only the major application systems on the Douglas County computer owned and/or used by Omaha. It does not list the subsystems within or reports provided by these major systems. In addition, application systems owned and/or used by Omaha that run on other than the Douglas County computer are not listed here.

Source: Douglas County Systems and Data Processing Center, 1981

APPENDIX B

CRT'S AND PRINTERS
ON-LINE TO THE DOUGLAS COUNTY COMPUTER

<u>Department</u>	<u>CRT</u>	<u>Printer</u>
Police	22	12 (includes 4 thermal printers)
Municipal court	11	5
Public works	7	3
911 center	4	0
Permits and inspections	2	2
Finance	1	0
Fire	2	2 (thermal printers)
City prosecutor	1	0
Planning	1	1
Parks	<u>1</u>	<u>1</u>
Total	52	26

Source: Douglas County Systems and Data Processing Center.
