DOCUMENT RESUME

ED 031 276 LI 001 642

Specifications of a Mechanized Center for Information Services for a Public Library Reference Center. Final Report. Part 1, Preliminary Specification: Mechanized Information Services in Public Library Reference Centers.

California Univ., Los Angeles. Inst. of Library Research.

Pub Date 31 Jan 68

Note-49p.; Related documents are LI 001 643, LI 001 644, LI 001 645, and LI 001 646

EDRS Price MF-$0.25 HC-$2.55

Descriptors-Administrative Organization, *Automation, Computers, *Information Centers, *Information Services, Information Storage, Information Systems, Magnetic Tapes, Personnel, *Public Libraries, *State Programs

Identifiers-*California

This document presents preliminary specifications for a library-based Center for Information Services (CIS). Four sets of issues are covered: (1) data base inventory, providing a listing of magnetic tape data bases now available from national sources or soon to be so; (2) administrative issues, including the organization of the CIS within the library, its administrative relationship to other activities, its staffing, its method of operation, and its service load; (3) hardware issues, including library/CIS computer configuration and its requirements for space; (4) software issues, including the requirements for generalized programs to handle file management and search, reference retrieval, and text processing. (Author)

PRELIMINARY SPECIFICATION:
MECHANIZED INFORMATION SERVICES
IN PUBLIC LIBRARY REFERENCE CENTERS

Part 1 of the Final Report on

Specifications of a Mechanized
Center for Information Services
For a Public Library Reference Center

STSA Grant A 6 11-66

31 January 1968

Institute of Library Research
University of California
Los Angeles, California

TABLE OF CONTENTS

ABSTRACT

Part 1 of the Final Report on Specifications of a Mechanized Center for Information Services in a Public Library Reference Center presents preliminary specifications for a library-based "Center for Information Services". Four sets of issues are covered:

1. Data base inventory, providing a listing of magnetic tape data bases now available from national sources or soon to be so.

2. Administrative issues, including the organization of the CIS within the library, its administrative relationship to other activities, its staffing, its method of operation, and its service load.

3. Hardware issues, including library/CIS computer configuration and its requirements for space.

4. Software issues, including the requirements for generalized programs to handle file management and search, reference retrieval, and text processing.

I. INTRODUCTION

This report presents specifications for the development of mechanized information services in reference centers for the State of California, with special emphasis on service to business and industry. It is the first part of the final report on a study sponsored by the U. S. Department of Commerce under STSA (the State Technical Services Act of 1965).

The theme of library service in California (and elsewhere) is that of expanding scope. If California's productive economy and rich cultural life are to be maintained, then access to book and other library materials must be increased. Unless there are sound local libraries backed up by a means to draw on distant library resources, severe handicaps are imposed upon every level of society: the pre-school child for whom the library provides an introduction to the world; the beginner reader with his insatiable curiosity; the student and his need for reference materials; the adult citizen and his need for information on family, social and political life; the research scientist and the technical specialist and their needs for specialized information.

But in addition, today's library is called on to serve even wider needs for library service and is paying increasing attention to "information" services. Such information services include, in addition to library service: (1) information analysis; (2) publication, announcement, and distribution; (3) information generation and usage. The public library is assuming more responsibility in all of these areas, and eventually

should serve as an agency for acquisition of data not previously considered within its scope, including in particular, machine-readable computer data. It will also serve as a point for access to state, national, and even international resources through networks of various kinds. Perhaps most important, the library can provide a point of assistance in the use of these new forms of data.

This implies a need for specification of a mechanized "Center for Information Services" to be installed in the Public Library Systems of the country to meet the requirements for information services under the State Technical Services Act of 1965.

This Act arose out of demands to speed the spread of technology developed under government sponsored projects into civilian industry. It has as its purpose the diffusion and application of science and technology in business, commerce, and industry. In addition to educational functions, the Act defines "technical services" to include:

(a) Preparing and disseminating technical information in a variety of forms, specifically including computer tapes and microforms;

(b) Establishing technical information centers to carry out that preparation and dissemination; and

(c) Provide reference centers to identify sources of expertise.

The Act thus clearly defines a set of library activities. It requires the acquisition, storage, and distribution of recorded data, including reports, abstracts, and reviews in the form of printed documents as well as mechanized media such as magnetic tapes and microforms. It specifically calls for establishment of technical information centers which must include the ability to utilize these data forms.

The development of these centers must be directed toward their becoming an ongoing, operational system: i.e., they must provide day-to-day information services. Furthermore, their services must be immediately accessible to even the smallest of businesses in local communities throughout the State. The administration will therefore require a high level of experience in providing library types of services.

The kinds of activities discussed above are currently provided by the complex system of public libraries of the country and in particular by the State Libraries. This system of libraries is therefore administratively well suited for the operation of the centers called for in the State Technical Service Act--once they have been developed, and provided the conditions necessary to introducing such centers into the public library system have been considered in their planning.

During 1967, the Institute of Library Research of the University of California studied Mechanized Information Services in Library Reference Centers.

The study was concerned with library services for handling media such as magnetic tape. Since these machine-readable data bases have been developed for a variety of purposes outside those normally considered within the scope of the library, several problems are faced by the library in extending its scope to include acquiring such media, cataloging them, and providing "information services" based on them.

Some of the issues relate to the content: What kinds of material should the library acquire? Some of them concern library processes: How do we catalog magnetic tape materials? Some of the problems are technological: How do we provide man-machine communication? Some of them are administrative:

How do we finance information services? How do we fit them within the traditional library structure?

The interest in such services is a natural result of the great number of efforts to develop mechanized information services and produce national information networks with a high level of mechanization. Part II of this report therefore provides a context within which to view the development of the State library network. Part III provides a quantitative picture of the present state of the network.

Some problems represent essentially policy issues, since there is simply not enough data to resolve them on an objective, factual basis:

1. Is it worthwhile to provide mechanized information services to the business and industrial community?

2. Should the public library be regarded as the appropriate agency for such services?

3. How should the public library proceed in relation to efforts in development at other libraries and at a national level?

Part IV of this report describes the approach taken to study of these policy problems and summarizes the results.

Other problems are essentially technical, relating to the characteristics of mechanized data bases and the requirements for programs to process them. This part of the report summarizes the results (the study of these technical issues).

The addition of machine readable media to the library's collection will require additions of staff, changes in internal administrative organization, and the formalization of relationships with other activities. The preliminary specifications therefore present an organization chart in which CIS Departments, reporting to an Assistant Librarian for Mechanized Services, provide coordination and liaison of CIS activities and operation and system support of its computer installation. Staffing requirements are enumerated.

Although exact specifications for a computer facility will almost certainly be changed before installation a reasonable minimal system is presented which will provide both on-line and batch processing capabilities for the library's computer oriented services. It is designed to serve both Information Services and production processing.

The success of library services ultimately will depend on effective programming. Study of the alternatives for handling files produced for many differing original purposes has led us to specify that CIS software should be "generalized" and able to handle a wide variety of formats. The specifications call for three separate modules. The first, CISFMS (Center for Information Services File Management Software), is a general purpose system for normal file maintenance, servicing requests for simple, field-structured searches. It quickly puts acquired data bases into service with minimum demands on both programmer and user. For processing more complex requests, a second module known as the CISRRS (CIS Reference Retrieval Software) is specified. It will search data bases which involve the use of subject descriptions and in which at least two files are interactive (e.g., master files and index files). It provides for more sophisticated processing where repeated field data are involved. The third module, CISTPS, (CIS Text Processing Software) is designed around the particular needs of generalized text processing.

In summary, the concept of a Center for Information Services is engendered by the developments of modern information technology. Organizationally the Center is viewed as an administrative part of the library. Physically it is viewed as a storage and processing facility. It will provide a supplement to the media and method of operation of the usual library. It must have an ability to deal with a wide variety of

data bases and programs. It will require new policies and procedures, new relations to other organizations, and new means of cooperation with other centers. The system must be operational, general purpose, adaptable, replicative, and designed to encourage easy use.

with their comments. Special appreciation should be expressed to Mrs. Mary Allison who acted as liaison between the Oakland County Library Board and the surveyor, and to Mrs. Mary Jane Palmer, student assistant, who acted as bibliographer and could not have been more intelligently helpful.

II. AVAILABLE DATA BASES

This survey is based largely upon information compiled for the Institute of Library Research by Informatics, Inc., in their report, In Specification of a Center for Information Services; Appendix A: Descriptions of Data Bases, Sherman Oaks, California, 1967. The listing here emphasizes reference data bases and does not claim to be exhaustive even in that coverage; however, it is indicative of the growing variety and number of magnetic tape files in existence, of a type which might be utilized in a Center for Information Services in the University Library. It reflects, for the most part, projects undertaken on a large national scale, or to serve the needs of particular organizations. A National Science Foundation publication, Nonconventional Scientific and Technical Information Systems in Current Use, No. 4, December 1966, contains an additional listing of more than one hundred computer-based information retrieval systems which utilize reference data bases. In almost all cases, the primary storage medium is magnetic tape.

There are also increasingly large numbers of machine readable files, many of them available at nominal charge, being created by individuals or by small groups in industrial organizations, or within university departments. A number of these (emphasizing text data bases) are noted in compilations such as Literary Works in Machine Readable Form[1], and

[1]Carlson, Gary, Literary Works in Machine Readable Form, by Dr. Gary Carlson, Director, Computer Research Center, Brigham Young University, Provo, Utah. July 1965. (This list is updated in the January 1967, issue of Computer and the Humanities.

Computerized Research in the Humanities: A Survey[1]. The Council on Social Science Data Archives has published a brochure, Social Science Data Archives in the United States, 1967[2], which lists and describes files covering a wide spectrum of subject matter (emphasizing numerical data bases), many of which are available from sponsoring institutions.

A commerical publication, Directory of Computerized Information in Science and Technology, 1967[3], is scheduled for issue in Spring 1968. Other directories, covering computerized information in Medicine, the Humanities, and the Social Sciences are planned. These will be published as part of an "International Information Network Series" and will serve to bring the existence of many more machine readable files to current awareness.

In the following pages, the address and director of the creating agency is listed for each of a variety of data bases now available or soon to be so.

Several overall observations about data bases can be made from an examination of this listing:

Many of the files were created for specific purposes and were tailored to meet the special needs of the parent organization. Therefore, they have been designed without regard to a capability for easy readability

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[1]Bowles, Edmund A., "Computerized Research in the Humanities: A Survey". ACLS Newsletter Special Supplement (June 1968) 1-49.

[2]"Social Science Data Archives in the United States, 1967". Council on Social Science Data Archives, New York, New York.

[3]Directory of Computerized Information in Science and Technology Part I, 1968. New York, Science Associates/International.

for other purposes. Documentation in such cases is frequently poor and incomplete, and cooperation is apt to be uncertain or unenthusiastic.

On the other hand, some organizations (both profit as well as non-profit) are in the business of maintaining data bases and providing a variety of services--searching, preparing reports, copying files, and producing extracts or sub-files. These data bases are generally, but not always, easy to read and well documented, and are usually furnished with computer programs to read, search, and otherwise process the data involved.

The majority of organizations surveyed use IBM equipment, particularly 1401/1410 systems. Most, if not all of these, are converting to 360 systems. The use of tapes is still dominant, the trend to greater use of discs being, at the moment, quite small.

From a file management point of view, most of the existing data bases have simple, hierarchically arranged, field structures. Many have variable length records. Record formats (fixed or variable), from one file to another, are virtually unrelated. It is evident that translation or transliteration to a common format is nearly impossible, and custom programming a complete system for each data base is far too expensive. The maintenance and use of programs written by sponsoring organizations appears to be cumbersome and impractical (for example, there are 15 programs involved in the American Petroleum Institute system), and the incompatibility of software systems adds to the difficulty.

American Bibliographical Center
2010 Alameda Padre Serra
Santa Barbara, California 93103
Director: Dr. Eric Boehm
Historical Abstracts

American Chemical Society
Publications Department
1155 Sixteenth Street, N.W.
Washington, D. C. 20036
Director of Business Operations: Joseph H. Kuney
Journal of Chemical Documentation
Journal of Chemical Engineering Data

American Geological Institute
1444 North Street, N.W.
Washington, D. C. 20050
Geoscience Abstracts
Bibliography and Index of Geology, Exclusive of North America

American Petroleum Institute
Division of Refining
Central Abstracting and Indexing Service
555 Madison Avenue
New York, New York 10022
Manager: Mr. Everette H. Brenner
Petroleum Abstracts

American Society for Metals
ASM Documentation Service
Metals Park, Ohio 44073
Director: Norman E. Cottrell
Associate Director: Mrs. Marjorie Hyslop
Review of Metal Literature

Applied Mechanics Review
Southwest Research Institute
8500 Culebra Road
San Antonio, Texas
Director: Mr. Stephen Juhasz
Applied Mechanics Review

Atomic Energy Commission
Atomic and Molecular Processes Information Center
Oak Ridge National Laboratory
Oak Ridge, Tennessee 37831
Director: C. F. Barrett
Atomic and Molecular Processes Information

Atomic Energy Commission
Division of Technical Information Extension
Post Office Box 62
Oak Ridge, Tennessee 37831
Chief, Computer Operations: Joel S. O'Connor
Nuclear Science Abstracts

Biosciences Information Service, of
Biological Abstracts
3815 Walnut Street
Philadelphia, Pennsylvania 19104
Director: Phyllis V. Parkins
Assistant Director for Systems Development:
Miss Louise Schultz
AUTHOR index
BASIC (Biological Abstracts Subjects in Context)
CROSS (Computerized Rearrangement of Special Subjects)
BIOSYSTEMATIC

U. S. Department of the Interior
Bonneville Power Administration
Portland 8, Oregon
System Engineer: Val Lava
Electrical Engineering Abstracts

R. R. Bowker Company
1180 Avenue of the Americas
New York, New York 10036
Book Editorial Department: Mr. John N. Berry, III
American Book Publishing Record
Forthcoming Books
Publisher's Weekly
Paperbound Books in Print
Subject Guide to Books in Print
Children's Books for Schools and Libraries

U. S. Department of Commerce
Bureau of the Census
Washington, D. C. 20233
Director: A. Ross Eckler
Available tape files cover population, housing, agriculture, business, foreign trade, etc.

Bureau of Labor Statistics
U. S. Department of Labor
Washington, D. C. 20210
Survey of Industry Labor Turnover
National Survey of Scientific and Technical Personnel in Industry
Survey of Industry Employment Payroll and Hours
Survey of Industry Employment, Worker Earnings and Hours of Work for States and Areas
Estimates of Labor Force Characteristics from Current Population Survey
Survey of Consumer Expenditure
Occupational Outlook Matrix
State and Area Employment and Earnings
Industry Sector Price Indexes

University of Saskatchewan
Regina Campus
Regina, Saskatchewan
Canada
Canada News Index (planned)

Canada--Department of Forestry and Rural Development
Geo-Information System of the Canada Land Inventory
Ottawa, Canada

Chemical Abstracts Service
2540 Olentangy River Road
Columbus, Ohio
Director: Dale B. Baker
Manager, Subscriber Information Service: Mr. Elden G. Johnson
Chemical Titles
CBAC (Chemical and Biological Activities)
POST (Polymer Science and Technology)
Chemical Compound Registry

Clearinghouse for Federal Scientific and Technical Information
5825 Port Royal Road
Springfield, Virginia 22151
Director: Bernard Fry
Assistant Director, Systems: Peter F. Urbach
U. S. Government Research and Development Reports

Johns Hopkins University
Baltimore, Maryland 21205
Communications in Behavioral Biology

Computer Software Management and
Information Center (COSMIC)
Computer Center (C-B)
University of Georgia
Athens, Georgia 30601
(no publication)

Direct Access to Reference Information,
A Xerox Service (DATRIX)
University Microfilms Library Services
Xerox Corporation
Ann Arbor, Michigan 48106
(searches on request)

U. S. Office of Education
Educational Research Information Center (ERIC)
400 Maryland Avenue, S.W.
Washington, D. C.
Director, Division of Information Technology and
Dissemination: L. G. Burchinal
RIE (Research in Education)

Engineering Index
345 East 47th Street
New York, New York 10007
Assistant General Manager: Mr. Michael Tomaino
Electrical/Electronics Engineering

Engineers Joint Council
345 East 47th Street
New York, New York 10007
Mr. Frank Speight
Thesaurus of Engineering Terms

Frost & Sullivan, Inc.
179 Broadway
New York, New York 10007
Mr. Daniel M. Sullivan
DM (2) (Defense Market Measures)

General Electric Corporation
Flight Propulsion Division
Cincinatti, Ohio 45215
Manager, Information Systems: George Carr

Harvard University
Vision Information Center (NINDB)
Countway Library of Medicine
Boston, Massachusetts 02115
(no publication)

Health Law Center
Graduate School of Public Health
University of Pittsburgh
Pittsburgh 13, Pennsylvania
Assistant Director: Eric W. Springer
Total State Statutes
Health Statutes
U. S. Appropriation Acts
Internal Revenue Regulations
etc.

Johns Hopkins University
Information Center for Hearing and Speech
and Disorders of Human Communication (NINDB)
Baltimore, Maryland 21205
(no publication)

Hughes Aircraft Company
Los Angeles, California
Electronic Properties Information Center (EPIC)

Institute for Scientific Information
325 Chestnut Street
Philadelphia, Pennsylvania
Director: Dr. Eugene Garfield
Director of Research: Dr. Irving H. Sher
Science Citation Index

International Labour Office
Central Library and Documentation Branch
Integrated Scientific Information Service (ISIS)
Geneva
Weekly Bulletin

Library of Congress
Information Systems Office
1st Street and Independence Avenue, S.E.
Washington, D. C.
Director, MARC Pilot Project: Mrs. Henriette Avram
Project MARC (Machine Readable Catalog)

Library of Congress
Card Division
Building 159 Navy Yard Annex
Washington, D. C. 20541
Chief, Card Division: Alpheus L. Walter
Subject Headings

National Aeronautics and Space Association
400 Maryland Avenue, S. W.
Washington, D. C. 20202
Director, Scientific and Technical Information Division: John F. Stearns
Scientific and Aerospace Reports
International Aerospace Abstracts

National Bureau of Standards
U. S. Department of Commerce
Office of Technical Information and Publications
Washington, D. C. 20234
Chief: W. R. Tilley
Index of Government Sponsored Computer Projects
National Standard Reference Data System
Crystal Data Determinative Tables

National Council on Crime and Delinquency
Information Center on Crime and Delinquency
44 East 23rd Street
New York, New York
International Bibliography on Crime and Delinquency

National Library of Medicine
8600 Rockville Pike
Bethesda, Maryland
Associate Director for Intra-Mural Programs: Joseph Leiter, Ph.D.
MEDLARS CCF (Condensed Citation File)

New York Times Index
Times Square
New York, New York 10036
New York Times Index

Ontario Institute for Studies in Education
Toronto 5, Ontario
Canada
Carnegie Human Resources Data Bank
(publishes various bulletins and searches on request)

PANDEX
American Management Association Building
135 West 50th Street
New York, New York 10020
PANDEX (printed, microfiche, magnetic tape)

Parkinson's Disease Information and Research Center (NINDB)
Columbia University
New York, New York 10032

Linguistics Department
Rand Corporation
1700 Main Street
Santa Monica, California 90406
Bibliography of Computational Linguistics
(various textual files, including 30 million words of Russian text)

Science Information Exchange
Smithsonian Institution
209 Madison National Bank Building
1730 M Street, N. W.
Washington, D. C. 20036
Director: Monroe E. Freeman, Ph.D.
The Grant Master File

Stanford University Libraries
Stanford, California 94036
Computer Produced Catalog

Brain Information Service (NINDB)
Biomedical Library
53-233 Health Sciences Center
University of California
Los Angeles, California 90024

Department of Political Science
Statistical Laboratory
4343 Social Science Building
University of California
Los Angeles, California 90024
Director: Dwaine Marvick
"POLCEN" (Political Census)

University of Southern California--McGraw-Hill
Division of Cinema
University of Southern California
Los Angeles, California
Director: Glen McMurry
National Information Center for Educational Media (NICEM)

Project URBANDOC
The City University of New York
33 West 42nd Street
New York, New York 10036
Director: Mrs. Vivian Sessions
URBANDOC

United States Department of Agriculture
Washington, D. C.

Current Research Information Systems (CRIS)
(searches on request)

Pesticides Information Center
(will output special bibliographies, also search on request)

Bibliography of Agriculture

III. ADMINISTRATIVE ISSUES

A Center for Information Services will operate as the administrative agency for coordination of the acquisition, cataloging, storage, and processing of machine processible data. It is therefore necessary to establish at least a preliminary definition of its administrative structure, its staffing, and its method of operation.

ADMINISTRATIVE ORGANIZATION

Library Internal Organization

Operation of the Center for Information Services will involve four major groups in the library: the Library Technical Services Department, for acquisitions and cataloging; the Library Reference Department, for service and public relations; the Library Data Processing Department, for computer operations; and the Library Systems Department, for development and maintenance. A "CIS Administrative Department" will coordinate their activities, provide special expertise in information handling as necessary, and serve as liaison with activities at other libraries in the network.

Figure 1 is a schematic organization chart in which the role of each department in the operation of a CIS has been highlighted.

Staffing

The CIS operation will require addition of new staff as well as special training for existing staff of the library. However, there are some particularly difficult staffing problems. The following paragraphs enumerate the kinds and numbers of personnel required, and in each case

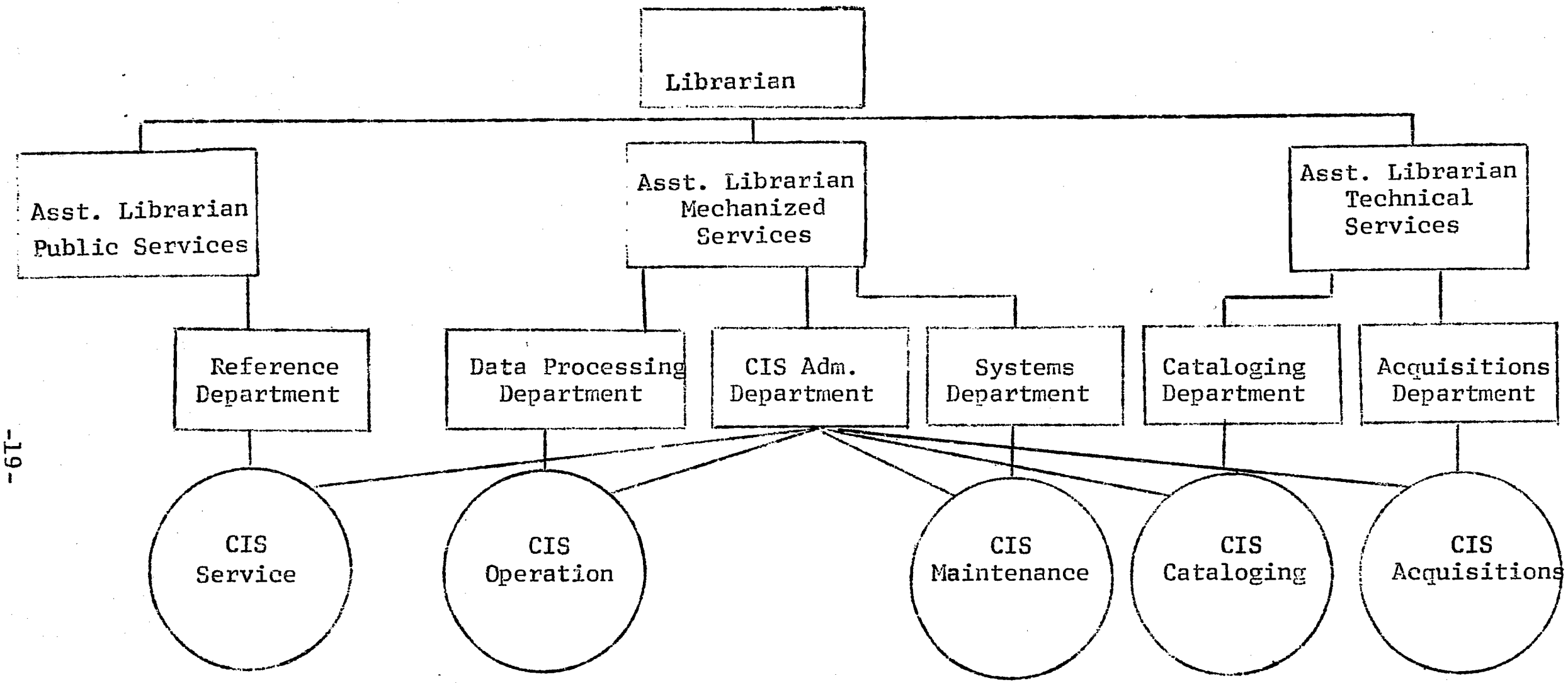

Librarian
Asst. Librarian Public Services
Asst. Librarian Mechanized Services
Asst. Librarian Technical Services
Reference Department
Data Processing Department
CIS Adm. Department
Systems Department
Cataloging Department
Acquisitions Department
CIS Service
CIS Operation
CIS Maintenance
CIS Cataloging
CIS Acquisitions

FIGURE 1

estimate the salary level which the position calls for in terms of an existing library salary structure. Unfortunately, there are serious inconsistencies between those salaries and the competition for the limited number of people who combine knowledge of data processing and information retrieval with knowledge of libraries. The problems raised are particularly acute for the position of "Assistant Librarian for Mechanized Services" and those of the three department supervisors.

It is possible that in order to attract personnel with the required competence, it will be necessary to depart radically from the existing salary scales. On the other hand, that would raise problems in the working relationship between people in library positions of equivalent responsibility but with disparate salaries. Because those problems ultimately could destroy the effectiveness of the CIS, it has been assumed that salary scales consistent with others in the library will be used. This means that personnel must be found among those with less experience but real capability.

A key person in CIS operations is the Assistant Librarian for Mechanized Services. Within the general guide lines established by the Librarian, he is responsible for the analysis and design of the library's information system and for administration of the professional staff required for such work. He analyzes prospective projects to insure that all sources of data pertinent to the program have been identified. He evaluates existing information services and those proposed for the future with regard to user needs, efficiency of equipment, and methods of operation. He applies detailed technical knowledge of both computer based and manual information storage and retrieval systems in such evaluation. He prepares specifications for such services, including relating them with various existing programs.

He communicates results as necessary to carry out liaison with organizations, agencies, and individuals, on campus as well as off campus. A salary within the range of $14,000 to $16,000 should be planned on.

Falling under the direction of the Assistant Librarian for Mechanized Services are those aspects of the CIS operation which involve the mechanized equipment and its utilization. Specifically, he is responsible for the CIS Administrative Department, the Data Processing Department, and the Systems Department.

Since the CIS Administrative Department will provide the special expertise in information handling in support of the other departments of the library, its primary staffing needs are for "information specialists".

They will function under the direction of the Supervisor of the CIS Administrative Department (an Associate Information Specialist with a salary of $12,000 to $13,000). He plans, organizes, and coordinates the activities of the other departments of the library to assure the successful operation of the CIS as a program entity. He provides liaison with other libraries with respect to mechanized information services. He assigns information specialists under his direction to assist in determining requirements for acquisitions, in cataloging and describing acquisitions properly, in phrasing of requests for service, and in scheduling the processing of the files.

His staff consists of two or more Assistant Information Specialists (with salaries of about $10,000), who serve as the means for communication between libraries and the specialized technical data files and reference files of the CIS. They evaluate index data to insure complete accuracy in description of material and appropriate depth of indexing for value in later retrieval. They assist in determining needs for information in formulating requests, and in analyzing requests, and in analyzing retrieved information

for presentation to the user. They ensure appropriate dissemination of incoming information to users. They have sufficient technical knowledge of CIS information storage and retrieval systems to use them effectively.

The Data Processing Department provides for the management and operation of the library's computer-related equipment facilities, including not only the computer itself but peripheral equipment elsewhere in the library.

It operates under the direction of the Supervisor of the Data Processing Department (with a salary of $12,000 to $13,000). He plans, organizes and controls the operation of the computer and peripheral data processing equipment, and is in full charge of all library computing equipment operations. He establishes detailed schedules for the utilization of all equipment to obtain maximum usage. He assigns personnel under his direction to the various operations and instructs them where necessary so they are trained to perform assigned duties in accordance with established methods and procedures. He provides technical liaison with computer facilities outside the library to coordinate activities. He reviews equipment logs and reports on equipment operation efficiency. He must be familiar at the working level with all phases of the operation, and should have a knowledge of computer programming sufficient to diagnose malfunctions as due to operation, equipment, or programming.

He will require the assistance of a Lead Computer Operator for each shift (with a salary of about $10,000). They should have technical knowledge of computer operations comparable to a Senior Computer Operator (see below) and also supervisory capability for instructing, assigning, directing, and checking the work of the other computer operators, including the seniors. They assist in the scheduling of the operations and the assignment of personnel to the various items of equipment required for computer functions.

They may act as shift supervisors in the absence of the Department Supervisor. The staff should include a Senior Computer Operator for each shift (with a salary of about $8,000), who should be competent to work at all phases of computer operation with very little assistance. Other personnel--a total of perhaps ten for a two shift operation--should include junior or trainee computer operators (3; 2 for a day shift, 1 for a second shift), a clerical staff to receive requests for use of computer and organize them for processing according to predetermined rules, and key-punchers. Their salaries are in the range of $5,000 to $7,000 each.

Under the general direction of the Assistant Librarian for Information Services, the Systems Department is responsible for analysis and design of data processing and information handling systems for the library. It functions under the direction of the Supervisor of the Systems Department who is an Associate Information Systems Specialist (with a salary of $12,000 to $13,000). He is responsible for direct supervision of analysts and programmers including outlining detailed procedures to be followed. He works closely with librarians and other library personnel in the definition of their specific requirements.

Under his direction is a staff of Assistant Information Specialists (with salaries of $8,000 to $12,000) who are capable of one or more of the following tasks: analysis of information handling functions and in the development of general system design, application of analytical techniques to the study and evaluation of both existing systems and alternative ones, application of existing systems and procedures to assigned tasks, conversion of existing operations to new ones, preparation of detailed manuals for operation. Also under his direction is a staff of Programmers (with salaries in the range of $8,000 to $12,000), responsible for the actual work of programming the computer.

In other library departments there is no need for additional or different personnel, as such. There is, however, a real need for education of the present staff in the particular problems of mechanized services and the methods for solution.

CIS METHOD OF OPERATION

It is presently visualized that a patron seeking to use the CIS will present a request to a local library, who will determine whether the request for information can best be handled by local resources and conventional procedures (such as consultation of the card catalog, a bibliography, or other reference tool) or by reference to the CIS. When the librarian recommends use of mechanized data, he will help the user formulate his request.

It is expected that the CIS itself will be limited by the small storage capacity, relatively slow processing speed, and moderate peripheral equipment of the small computer it uses. It will therefore operate as a batch processing system. Requests for CIS searches will either be accumulated on-line or written and forwarded on a daily basis to the library computer. Searches will be run against the various files on a scheduled basis. Output will be provided in printed form or on other media as requested, or will be transmitted to the campus computer.

The lack of experience with systems of the CIS type make it impossible with any real confidence even to estimate the number of requests to be expected. The projections of workload have been based on a figure of five files per day to be scheduled for search, with the number of requests processed against each varying from one to many.

Over the next five year period, it is expected that the CIS will acquire at least twenty data bases (each of which may involve three or four files of at least six tapes each per year) for a total of about 2,000 tapes.

The processing time per request depends upon the degree of batching, the basis for scheduling of specific files or portions of files, the tape running time and the number of tapes involved, the internal (CPU) processing time, etc. Maximum file size has a direct bearing on file search time. Most data bases are small (a few reels of magnetic tape), but one data base in the survey consists of 50 reels. The maximum allowable record size encountered in the data bases examined so far is about 54,000 characters. This is an extreme however; more typically, allowable records are limited to about 2,000-3,000 characters. (These are maximum <u>allowable</u> sizes for variable length records; the actual limits on size of large records is unknown).

As an initial approximation, we estimate an average of four tapes per portion of a file scheduled to be processed on a given day, taking a total of one hour per file. Thus, processing the anticipated five files per day, CIS would utilize about 30% of the two-shift capacity of the library's computer.

Storage and handling of magnetic tape files by library personnel at a central location should minimize loss or destruction of data. Duplicate tapes for outside processing would be supplied on a regular chargeout basis. Particular care must be taken to guarantee that duplication and dissemination of tape files does not infringe upon any copyright of the organizations which originally issued them.

In this method of operation, we have emphasized the desirability of <u>controlled access</u>. We feel that it will be some while before access to

mechanized data will be simplified so that any but specially trained personnel will be able to use it effectively. This is not to underestimate the value of mechanized retrieval services, since we feel they will become an essential part of library operation, but simply to emphasize what we feel is a significant point in the economic utilization of such services. Mechanized information services are of primary value as an aid to the professional, trained in information services in general or in their application to a particular area.

IV. COMPUTER CONFIGURATION

Defining the detailed configuration for a computer installation to be operative in say 1972, for workloads largely unknown (or undeterminable at this time), is at best an iterative process. Any initial plan for configuration is almost certain to be modified to take into account changing workloads, unforeseen requirements, new software, etc. However, the basic configuration described in this section (an IBM System/360 Model 30 with 64K core, 2311 disc files, and tape drives) is considered minimum from a CIS point of view at this stage (Phase I) of the CIS project.

THE PROPOSED LIBRARY COMPUTER SYSTEM

Although the system described below is a relatively small one for the variety of applications planned, it can accomplish both on-line and batch processing, and seems adequate to provide both sufficient time and hardware capabilities for the library's computer-oriented services. The configuration is summarized in Figures and .

Central Processing Unit

The system is built around an IBM 2030-F central processing unit with a 64,000 character core memory. The required features to be added to the processing unit are: decimal arithmetic capability for computational purposes; an internal timer, which will be indispensable for the proposed monitor system; a selector channel to handle certain

FIGURE 2

LIBRARY COMPUTER SYSTEM SCHEMATIC

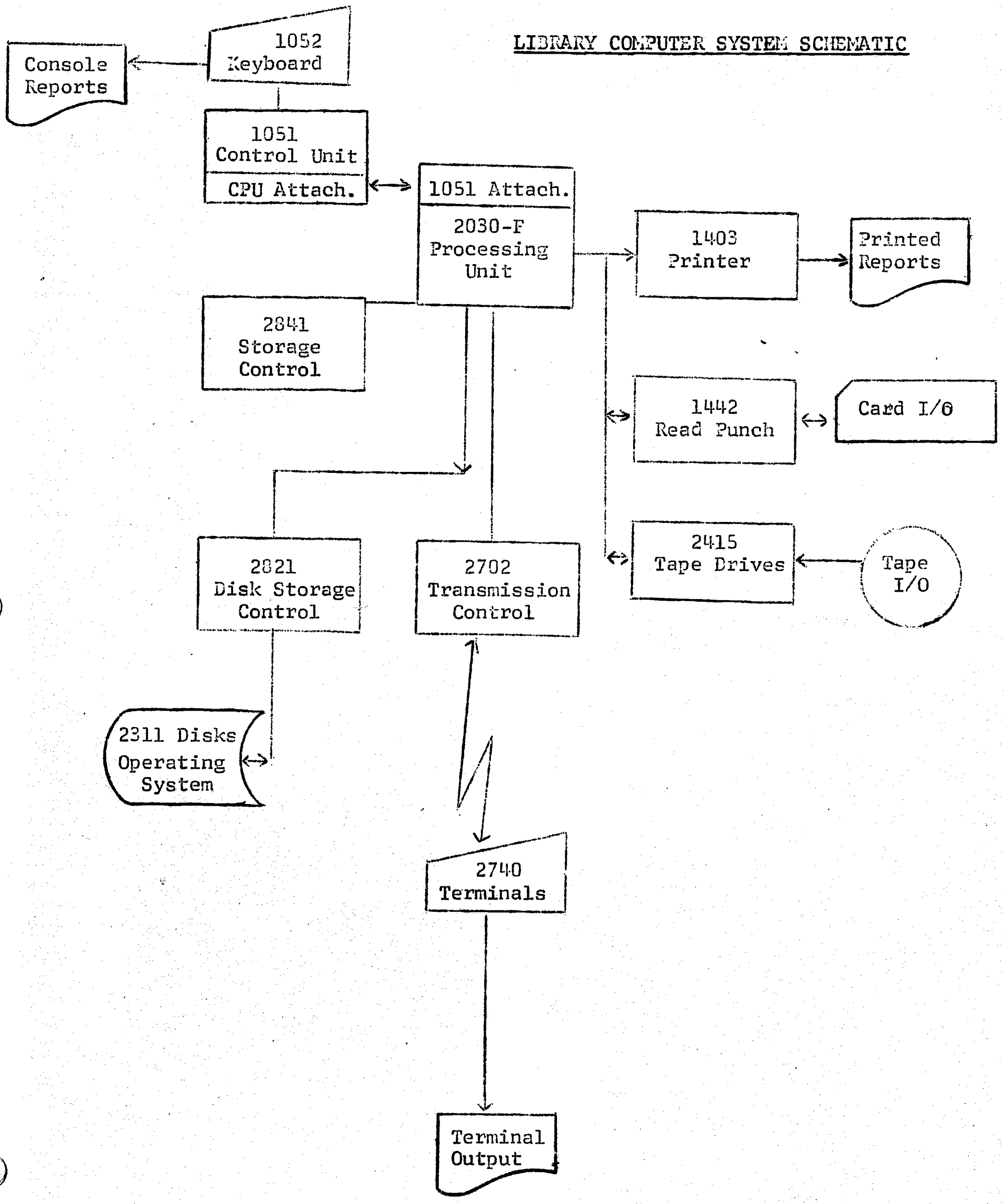


FIGURE 3

Tentative CIS Configuration

IBM 360/30

2030 F		Processing unit (64K)	$178,390
	3237	Decimal arithmetic	1,000
	4760	Internal timer	1,940
	6960	Selector channel	8,290
	7520	Storage protect	5,820
	7915	1051 Attachment	4,005
	4427	Floating point (PL/1)	1,940
1051 N1		Control unti	3,050
	3130	CPU attachment	500
1052 6		Printer keyboard	2,725
1442 N1		Card read punch	26,250
1403 2		600 lpm printer	34,000
	8641	Universal character set	450
	4740	Interchangeable chain cartridge adapter	3,125
2821 2		Control unti	27,940
2311 1		Disk storage drive (4 @ $25,510)	102,040
	1316	Disk Pack (8 @ $490)	3,920
2841 1		Storage control	26,430
	4385	Filescan	1,360
	6118	Record overflow	400
2702		Transmission control	39,580
	1065	Additional selective speed	700
	4615	Terminal control Type I	1,575
	4616	Terminal control Type II	1,575
	4612	Line adapter (4 @ $1,385)	5,560
2740		Communication terminal (4 @ $3,100)	12,400
	3255	Dial up (4 @ $135)	540
	4790	Line adapter (4 @ $450)	1,800
2415 2		Tape drive (800 bpi, 14 kb)	57,040
			$554,345

input and output functions; a storage protect feature to provide safety in multi-terminal processing; a keyboard terminal attachment for interface with the console; and the capability to handle floating point arithmetic, required for implementation of the PL/1 programming language.

The memory of the proposed system may be reduceable to 32K rather than th 64K proposed. Part of this issue relates to the operating system to be used (as discussed in the next section), since DOS fits into 32K but OS/360 requires at least 64K. In addition to requiring less core, DOS has the advantage of being faster in some cases; OS, on the other hand, provides vastly more data management service and is, on the whole, considerably more sophisticated and flexible than DOS.

Input/Output Units

Input/Output devices include a console printer/keyboard; a printer capable of producing 600 lines per minute with a universal character set and including features to enable use of the upper- and lower-case print chain; a dual magnetic tape drive; and a card reader-punch.

Storage Devices

The storage control unit of the proposed system includes a file-scan device for additional input-output protection and a record overflow indicator. The system includes four disk drives and eight disk packs for auxiliary storage.

Teleprocessing Components

The remainder of the configuration provides the teleprocessing capabilities of the system and is based on keyboard communication terminals, as well as the data collection terminals for use in circulation control. The new terminals will have dial-up and line adapter features. The transmission control device attached to the processing unit will handle both types of remote terminals.

The proposed system is a minimal but adequate computer configuration for library processing and CIS jobs. It will be possible to connect it to a larger computer for more powerful processing, using the transmission control devices of the two systems.

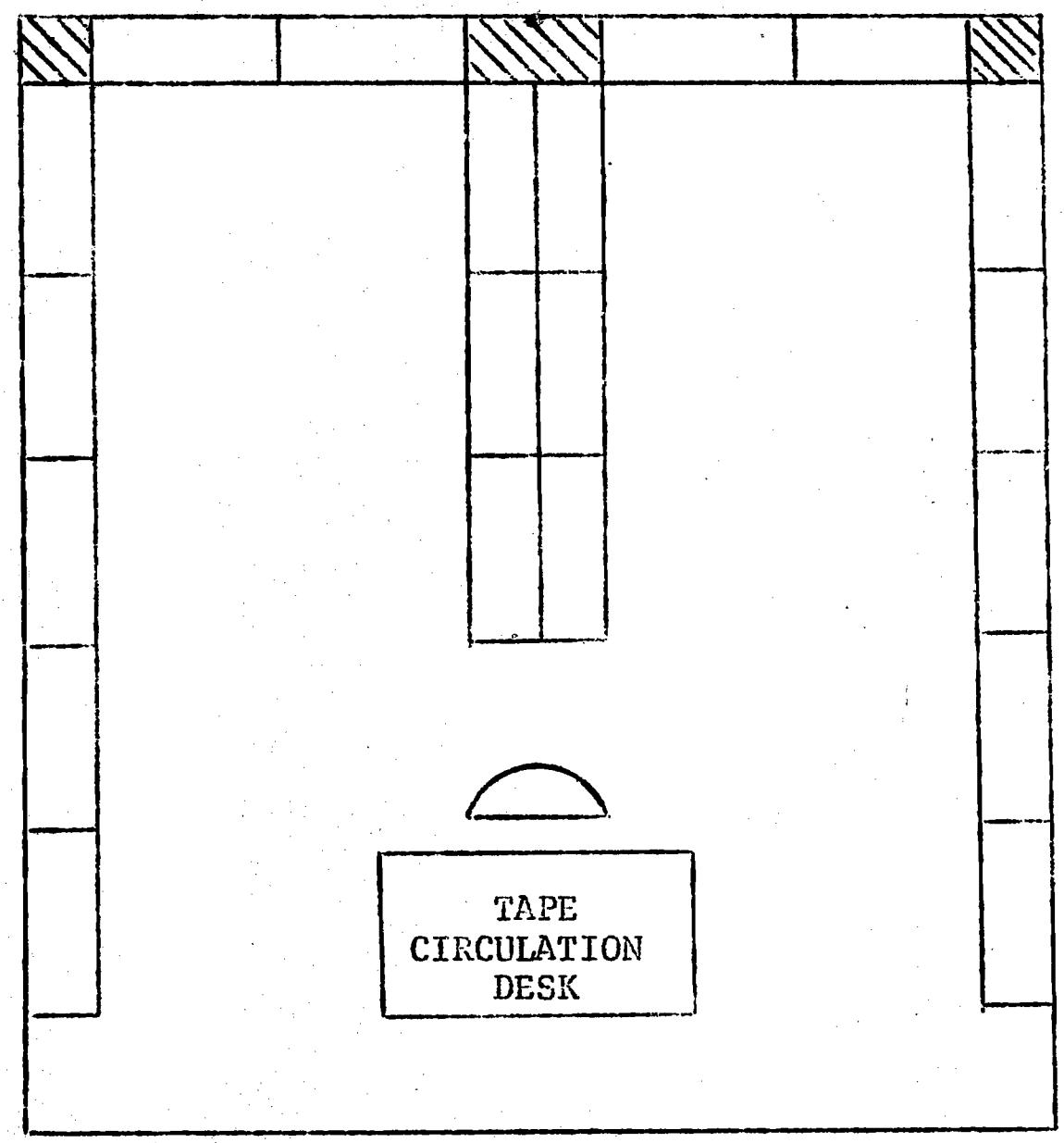
PHYSICAL FACILITIES

At the architectural level the use of computers means a new look at library layout, since the effects of automation can radically change organizational relationships in library technical services and the flow of information and material. At the engineering level, it means concern with environmental control, with needs for cabling, with structural planning for equipment, with lighting for consoles and microform reading, with acoustics of input and output devices such as typewriters and printers.

Provision must be made for the central processing facility itself. A preliminary space allocation is as follows:

(A) For the central processing facility itself--1,000 square feet (see Figure 4).

(B) For immediately adjacent service area for storage of spare parts and text equipment--100 square feet.



Notes

--Each tape bay shown in 36 inches wide and has six shelves. The total capacity of a bay is 120 tapes. There are 20 bays shown with a total capacity of 120 times 20, or 2,400 tapes.

--The area included in the space plan is 17 feet by 18 feet, or 306 square feet.

FIGURE 4 : Tape Storage Space Plan

(C) For storage of tapes, discs, and other forms of mechanized storage--300 square feet adjacent to the central processing facility (see Figure).

(D) For storage of cards, forms, and other supplies--200 square feet (located away from central processing facility, but convenient to it).

(E) For offices to house the manager, operating personnel, and programmers--400 square feet (convenient to the facility).

(F) For key-punching personnel--100 square feet (convenient to the facility in an acoustically controlled room).

The central processing facility itself needs to be environmentally controlled:

(A) Temperature held near 75 degrees F. (in the range of 60-70). (Since the heat load generated by a typical installation is about 52,000 BTU, this implies roughly 4 1/2 tons).

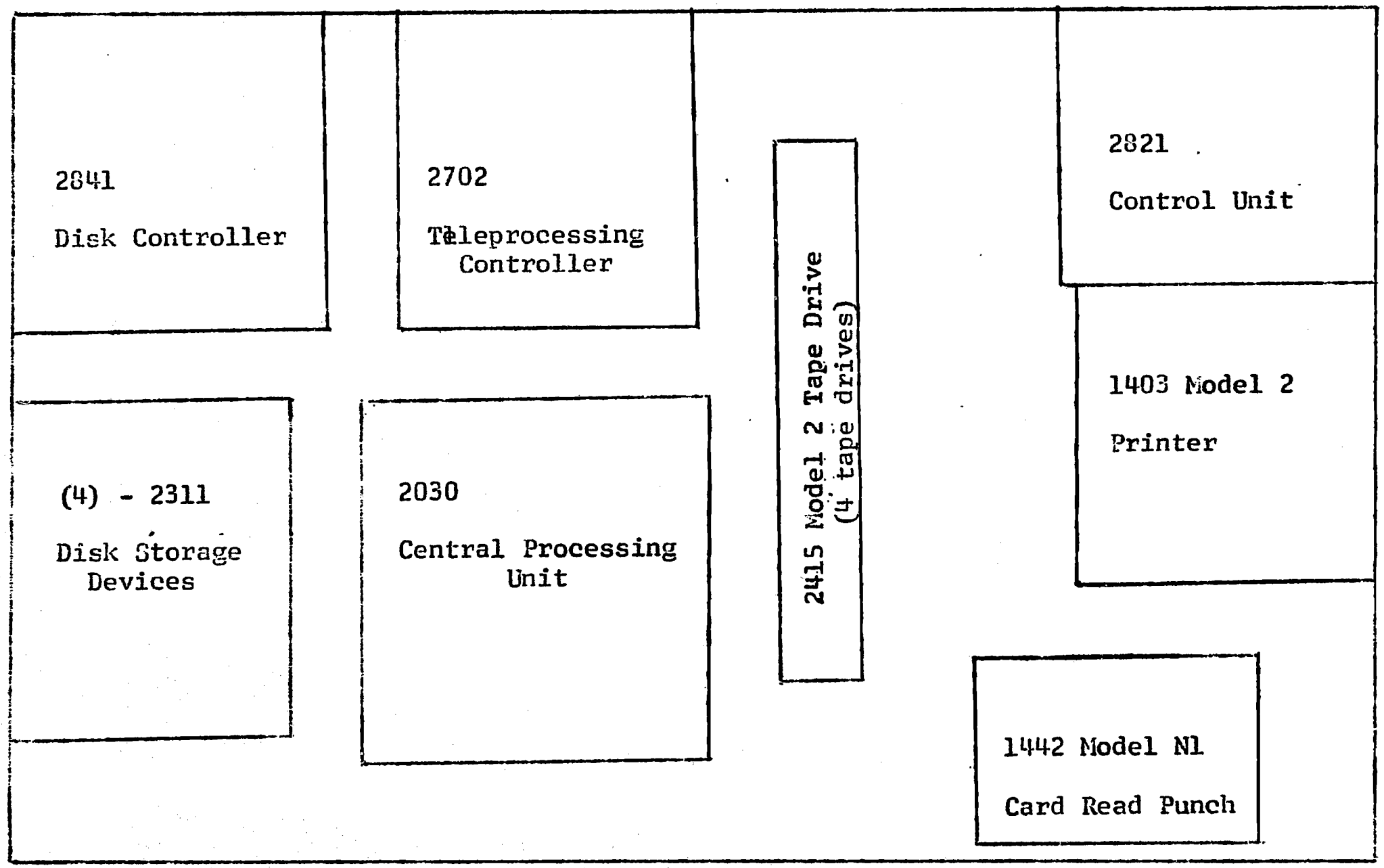
(B) Humidity held near 50% relative (in the range of 40% to 60%). This has particular significance for the magnetic tapes which ten to change their operating characteristics under excessively low or high hunidity.

(C) Dust must be controlled according to preseribed standards, again primarily because of its effects upon the reliability of magnetic reading and recording systems.

(D) There should be recorders for both temperature and humidity so that as variations occur they can be pinpointed in time.

(E) A cut-off for the air conditioning system should be provided within the facility.

The required power supply is a function of the specific configuration of equipment. A typical load is 20 KVA at 175 amps. This can be either 208 or 230 and includes both 3 phase and single phase. Because a stable power source is essential, surges must be controlled to within 5 to 10%. This implies an "isolation transformer" a power cut-off in the facility, and a ground wire ("green" wire) to a well-defined "building ground". There should be a continuous recording of the voltage.



Notes:

--Any pieces of equipment listed in Figure 3 not shown are included in allocated areas.
--The areas shown for pieces of equipment include space required for clearance and access.
--The area included in the space plan is 40 feet by 25 feet, or 1,000 square feet.

FIGURE 5: Library Computer Space Plan

The various mechanical units--printers, card readers and punches, key punches, etc.--tend to be noisy. Acoustical control is thus essential particularly if card equipment is involved.

The wiring and cabling within the facility should be placed under the floor, which implies either a false floor raised 12" or a recess of 12" under the floor.

Peripheral units, including point-of-action recorders, typewriter-type terminals, and displays, will be located throughout the library building. They usually involve connection by cables to multiplexing units or buffers and then by telephone line to a teleprocessing terminal in the facility. In particular, a typical peripheral unit is an IBM 1030 Data Collection System which accepts pre-punched cards (such as book cards and borrower cards) and transmits information from them to a key-punch or to an on-line computer. A second type of unit is a typewriter terminal. These can have the necessary buffer equipment directly associated with each and thus require connection only to a telephone line. A third type of unit is the cathode ray tube display, which requires a higher transmission rate and uses a separate multiplexing unit.

V. SOFTWARE FOR THE CIS SYSTEM

The dominating technical constraint on CIS software (computer programs) is the requirement for the ability to handle data from a variety of existing files. The processing, preparation, and output of the data once it has been selected and extracted is a relatively straightforward (although by no means trivial) task. The heart of the matter, therefore, is the ability to maintain, read, select, and extract data from files prepared by other organizations. As it now is, each data base has its own format, its own thesaurus, and its own package of "file management" programs which provide capability for maintenance and search. Each data base now requires a separate set of forms and procedures for utilization. With twenty data bases, each representing three or four files, the installation would be faced with the spectre of perhaps 500 different operating programs and procedures, few of which would be compatible with the library's operating system.

Therefore, how do we add data bases without proliferating programs to the point of virtual strangulation? The answer might lie in standardization, but that seems hardly likely, in view of the enormous variety of purposes served by the data bases to those who originate them. It might lie in conversion of the data bases to some standard format and structure for storage and processing by the library using them, but this also seems unlikely, in view of the sheer bulk

of data involved. It might lie in the use of generalized file management programs which can handle the variety of data bases and provide standardized services based on them.

The conclusions, based on the work done to date, are that custom programming for each data base is too lengthy, too costly, and too unresponsive to the needs of the Center and its users. On the other hand, translation or transliteration of files for use in some standard system is impractical because of the possible loss of meaningful information, the costs, the continual changing of formats, and the difficulty in processing. These points, when combined with the uncertainty of future data base formats and the changing nature of user requirements, all suggest as the solution the development of a generalized system appropriate the Center operations.

The design of the generalized system will be special purpose insofar as it reflects the special requirements of the Center for Information Services. Many recently developed generalized file management techniques, however, can form the basis for system design.

To use such generalized programs requires a careful description of each data base, both so the generalized programs can operate on it. and so the user can know what level of service he can call on. Usually, these programs provide a clearly distinguishable set of stages of processing, from fixed field, fixed format processing (the simplest and most efficient), to variable format processing, to text processing. Their relative efficiencies differ so radically that the prospective user must be well aware of precisely what data from a given data base can be effectively processed by a given level of program.

SPECIFICATIONS FOR CIS FILE MANAGEMENT SOFTWARE

For the purpose of clarity, this section describes the capabilities of the CIS File Management system as if it were operational, using the present tense, rather than future, throughout the section.

The CISFMS (Center for Information Services File Management Software) is a general purpose file management system. That is, a great variety of file structures may be defined independently of the processing functions performed.

It may be said that any computer programming language is general purpose in the sense that it is not limited to particular files and functions. In order to relieve the programmer of some detail, the notion of higher level languages was developed. The best known of these languages are COBOL, PL/1, FORTRAN, and ALGOL. The use of these languages is said to result in an average reduction of about 5 to 1 in the number of instructions which must be written by the programmer to perform a given application.

CISFMS introduces a still higher level of communication between the user and the computer. By relieving the user of many more requirements to communicate his needs to the computer, CISFMS permits use of the system without formal training in computer programming. Through the concept of different levels (subsets) of communication between the users and the computer, CISFMS may be used by library personnel, system analysts, or computer programming specialists--at the appropriate level of detail. Thus, instead of employing assembly language of a higher level language, the CISFMS user employs a small

set of structured forms to describe his problem solution in the amount of detail required.

CISFMS is used for producing computer programs for normal day-to-day operations, as well as for specialized requirements. The functions which may be involved in such operations include the creation and maintenance of files from original input (e.g., punched card and magnetic tape data), the selection of records from files according to either defined or computed criteria, computations involving data from selected records, extraction and sequencing of results dependent on these data, and the formation of new files for other, subsequent use. As we have said, the files(s) and the function to be are independent of each other, thus providing great flexibility in the use of CISFMS. In execution, however, they are tied together in order to minimize the information which must be provided by the user.

File Definition

CIS File Management Operation is centered around the concept of master files. In order to extract or retrieve data from files, the problem statement must refer to previously defined field names in specific files. When processing requests are presented, the files with which they deal therefore must have been previously defined.

The file definition specifies certain overall file parameters (such as record format and block size). More importantly, the record structure is described also.

CISFMS will have the capability of reading record structures which are fixed or variable in length and whichcan contain:

1. Variable length fields and segments.

2. Repeated fields and segments of the same type.

3. More than one type of format of field or segment at any hierarchical level.

4. An adequate number of hierarchical (nested) levels of segments within a record.

5. Various techniqaes to identify the format types and sizes of records, segments, and fields in a file.

File Organization Concepts

The organization of a file is generally independent of its specific content. Thus, files can be organized sequentially, in terms of some field in the data items in the file; randomly, so that records must be located by reference to an index or an algorithm; or in other ways.

File Search Concepts

The processing of CIS files must begin with the search of a particular file to select records for subsequent use by a requestor. The CISFMS provides capabilities for the simplest forms of such a selection. An obvious extreme is to provide the requestor with a copy of all records in a file. Normally, of course, more selective search criteria are specified. One may request, for example, records identified by particular data values in specified fields (e.g., specified document numbers or subjects). Still more complex search criteria may seek to relate a set of data values in each record to one another for the purpose of selecting those records in which specified relationships exist.

In general, CISFMS allows two file search approaches. In the first, all of the search criteria are specified by the requestor at the start of the search. Since record selection will depend on values actually contained in the records, either index records must be processed or the entire file must be searched to select all applicable records. The second search approach generates search criteria during the course of the search. In both cases, however, CISFMS handles requests phrased in terms of "field-structured" data.

The retrieval capabilities of CISFMS enable the users to select and extract data from the files. The key to effective retrieval is the logical selectivity of the system. CISFMS capabilities include an appropriate set of comparators, Boolean connectors, and types of comparands. Conditional expressions may be combined and a number of nesting levels is provided.

System Monitoring

CISFMS monitoring capabilities include provisions for:

1. Preparing utilization statistics by user, file, type of request, etc.
2. Cost accounting and bharging of accounts.
3. Protection of proprietary files.

System Functions

CISFMS is capable of performing many file management functions:

1. Read existing files from punched cards, magnetic tapes, and other machine-readable input.
2. Maintain files by making additions and deletions.
3. Reformat files to reflect changing specifications and requirements.

4. Select, from files, records that contain data of interest in a problem.

5. Extract data items from the selected records, or use whole records.

6. Arrange output by sorting, sequencing, and grouping.

7. Format printed reports that contain such elements as Preface, Page, Title, Page Number, Column Headings, Column Footings, Line Numbers, Detail Entries, Summaries, Statistics, Line Count, and other details that make a printed report or document informative and attractive.

8. Summarize data to as many levels of total and sub-totals as required, with wide flexibility in format and content of printed output.

9. Compute new values based on values in the file, for use in selection, further computation, printed output, subfiles, or the updated file.

10. Produce printed reports or other printed documents such as 3 x 5 cards, labels, or output on preprinted forms.

11. Produce subfiles on cards, magnetic tape, disk, or other media for further processing by CISS or other systems.

System Operation

The system will provide for the storage of source programs in a "library" for subsequent compilation. By storing the source program, rather than the object program, the system enables the user to conserve space in his system library for other purposes. In operation the user has the option of re-running such programs by recalling them either in source or object language form and operating under the system. This capability supplements the ability to define new data base requirements.

The capability to maintain and query master files, once the user has defined the master file and the query specifications, is then essentially automatic. This type of implicit specification is a basic design concept of the system. For example, a "standard" mode of operation

will automatically be invoked unless the user specifically requests an alternative mode. These standard cases are applicable in many situations.

The most important advantage of CISFMS is its simplicity of use. It makes use of "programming by questionnaire", in which the user merely answers a series of questions describing the results he requires. An ordinary search request can be described directly by the research or library-oriented user in a few minutes. More complex and sophisticated problems can be described to CISFMS in a few hours.

In summary, the Center for Information Services Software allows the library to use oomputers in the handling of many separate files with a minimum of lapsed time between acquisition of a data base and operational use of it. It reduces the demands for skilled programmers and analysts, and minimizes communications problems between the academic community and data processing people.

SPECIFICATIONS FOR CIS REFERENCE RETRIEVAL SOFTWARE

Since the basic CIS File Management Software provides capability only for the simplest, field structured search logic, the CIS system of software must also include a module for the processing of more complex requests. This is called the CIS Reference Retrieval Software (CISRRS), since it is of primary value in searching of reference data bases which involve the use of "subject" descriptions.

File Definition

The file definition for the CISRRS module is identical with that of the CISFMS module. Those fields of particular concern are the "repeated fields", which are characteristic in reference retrieval situations.

File Organization Concepts

The need for methods of organization beyond those of the sequential and indexed sequential, used in the CISFMS, is evident. A variety of indexing aids must be included:

1. "Inverted files (such as key-word indexes).
2. Dictionaries, hierarchically structured subject headings, and thesauri.
3. Word frequency lists and tables of statistical association.

The CISRRS must provide for the maintenance of these indexing aids as well as for the use of them in the formulation and processing of search requests.

File Search Concepts

Search in the CISRRS module differs from that in the CISFMS in at least two respects:

1. It involves simultaneous, interactive processing of at least two files (the master file containing the data of interest, and index files).
2. It provides more sophisticated processing of repeated field data.

In particular, search requests can be formulated as Boolean combinations of terms as well as of specified field values. The terms will be search for in the indexigd aids, and provision is made for automatic explosion of them based on thesset of inter-term references found. The CISRRS includes capability for correlating index records, based on defined request logic, to derive master file entry references for subsequent processing.

System Monitoring

CISRRS includes, in addition to the monitoring functions of CISFMS, the Maintenance of statistics on inter-file reference.

System Functions

CISRRS supplements the file management functions of CISFMS by its ability to:

1. Maintain index aids from master file records.
2. Explode request terms based upon data stored in master files and index files.
3. Correlate data from separate index records or master file records.
4. Search two or more files simultaneously.

SPECIFICATIONS FOR CIS TEXT PROCESSING SOFTWARE

Although in principle either the CISFMS or the CISRRS could process text data by treating each word as a separate entry in a repeating field, such processing is relatively inefficient. To provide specific functional capabilities, the CIS system includes a module, called the CIS Text Processing Software (CISTPS), designed around the particular needs in generalized text data processing.

File Definition

The file definition for the CISTPS module is identical with that for the CISFMS-CISRRS modules. Those fields of particular concern are the "text fields". Particular attention must be given to provide for "character coding" of multiple font text.

File Organization Concepts

The CISTPS uses the same kinds of indexing aids involved in the CISRRS. However, their scope of coverage is likely to be much broader,

since all terms appearing in text, must be considered (as terms either to be processed or not to be processed).

File Search Concepts

Although search logic considerably more complex than that provided in CISRRS appears to be desirable (including, for example, automatic parsing), it is not possible to specify at this time an adequate, operational definition of it. Therefore, the search logic of CISTPS is identical with that of CISRRS.

System Functions

CISTPS supplements the file management and searhh functions of CISFMS and CISRRS by its ability to:

1. Produce concordances and other word lists.
2. Collate texts for the detection of differences and similarities.
3. Accumulate statistics on frequency of occurrence of words and word strings.
4. Derive indexing terms based on a variety of clues, including frequency of occurrence, format, context, etc.

CHART 23

PERCENTAGE OF USE OF COPYING MACHINE BY COUNTY

Detroit	63.52
Macomb	6.92
Monroe	.03
Oakland	15.43
St. Clair	.11
Washtenaw	.44
Outside	1.84
Wayne	11.60
Detroit	63.52
Non-Resident	36.40

CHAPTER IV

DEMOGRAPHIC PROJECTIONS WITH IMPLICATIONS FOR LIBRARY SERVICE

Profile 68; A Statistical Profile of Oakland County, Michigan and Seven County Detroit Region, compiled and edited by Robert E. Chisholm, tabulates a wealth of data suggesting the present and future library needs of the people in Oakland County.

The most striking conclusion is that Oakland County is rapidly growing, largely through the influx of people and the multiplication of families. Oakland County population doubled between 1940 and 1960 and is expected to double again by 1990 to a total of about 1.6 million people. By 1990 it is estimated that the population of Oakland County will exceed that of Detroit and that the concentration of population will be in Farmington, Waterford, and Bloomfield Townships and in the City of Southfield. Of immediate concern for public libraries which are receiving state and federal aid on the basis of the 1960 census of 690,603 persons in Oakland County is the projection of the Detroit Metropolitan Area Regional Planning Commission that Oakland County's population in the 1970 census will prove to be about 900,000 persons.

Underscoring the projections about population growth is the data about Lebensraum in the county:

In 1968, 28% of the Oakland County's 900 square miles was devoted to urban use, 68% was agricultural or vacant land, the remaining 4% is ponds, lakes and streams. Between 1960 and the first eight months of 1967, 12,000 acres were platted. By 1966, Oakland County accounted for 38% of the total authorized dwelling units in the Detroit Metropolitan Statistical Area. Since 1960, the major growth communities in Oakland County as measured by new residential units have been the City of Southfield, Farmington and Bloomfield Townships. It has been estimated that by 1990 urban development will occupy 54% of the County's land, in contrast to the 28% so used in 1968.

Between 1953 and 1966, business establishments in Oakland County grew from 6,131 to 11,065. Manufacturing establishments grew from 812 employing 59,100 to 1,354 employing 89,472. Retail trade establishments in Oakland County grew from 2,318, with a payroll of 17,379 persons to 3 153 with a payroll of 40,023. Finance, insurance and real estate establishments grew from a total of 279 units employing 2,205 persons to 727 units employing 6,052 persons. Service establishments (hotels, automotive and miscellaneous repair, motion pictures, amusements and recreation services, medical, health, legal, educational services, etc.) grew from 1,364 units employing 6,847 persons to 3,194 units employing 26,320 persons.

In 1960, 329,566 persons, or 47.7% of Oakland County's population, were under 24 years of age. By 1970 this number is expected to rise to 471,592 or 50.6%. If trends continue as expected until 1990, the percentage of this group in the population will remain about stable, but their actual number will rise to about 781,561--more than double the young people who were in the County in 1960. This is the group of people who are in school and traditionally are the heaviest users of libraries.

The County has 13 colleges, universities and institutes with a combined enrollment of approximately 15,000 students. In 1966 it had a total of 4,530 public elementary classrooms and 3,534 high school classrooms.

In 1960, 37.6% of the 18 and 19 year olds in Oakland County were enrolled in school, 13.4% of the persons 20 and 21 years old, 8.1% of those 22 to 24 years old. In 1960, there was a total school enrollment of 190,427 persons in Oakland County between the ages of 5 and 34. In 1967, a total of 357,309 persons were enrolled in the public elementary and secondary schools of the County.

In 1960, Oakland County adults over 25 years old had completed a median of 12.1 years of school. 25.7% of the men and 18.5% of the women had completed some post-high school education. By 1970, it is projected that Oakland County will have the highest median of school years completed in Michigan. Since level of education has a direct relation

to library use, this statistic again has great implication for future planning.

Within the seven county Detroit metropolitan area, Oakland County households have the highest effective buying income. About 44% of Oakland County families earned more than $10,000 in 1966.

Of the 226,891 employed adults in Oakland County in 1960, 133,480 work in Oakland County, 58,382 work in the City of Detroit (and would thus be eligible to a free card in the Detroit Public Library).

In 1967, Oakland County's equalized valuation was 10% of the State's total, over 3 billion dollars. County government's revenue in 1966 reached 30 million dollars, a 50% increase over 1960. 45% of the County's expenditures was devoted to health, welfare and medical assistance programs.

One can generalize from all this demographic data that Oakland County is a rapidly expanding, highly educated, highly affluent community, with a large concentration of students, professional people, business and industry, and that the need for quality library service can be expected to grow.

CHAPTER V

OAKLAND COUNTY LIBRARY SERVICE TODAY

The following generalizations on present library service in Oakland County are derived from the latest statistical data supplied by public and college and university libraries to the Michigan State Library, and from data supplied by the Oakland County Intermediate School District. It is also based on a questionnaire circulated to all public libraries in the county and returned by all but one of the 28 libraries and on interviews with the library and education leaders in the county. (See Introductory Chapter)

To assess the adequacy of library service of various types, national minimum standards, endorsed by the American Library Association for public, school, college and community college libraries were used as yardsticks.

Findings

1. Public library service in Oakland County is uneven--ranging all the way from fine local library service in Birmingham, providing 2.5 books per capita and expending $7.10 per capita to virtually no library service or very marginal library service in Pleasant Ridge, Royal Oak and Lathrup Townships and in the northern tier of townships.

2. Per capita support for the operation of public libraries in Oakland County ranges from $9.37 in Bloomfield Township to 53¢ in Walled Lake. (See Chart I) The median is $1.98.

3. Millage expenditure for public libraries ranges from 2.937 mills in Brandon (probably skewed by a construction project) to .362 mill in Waterford. Most of the communities without public libraries are expending for their contracts with neighboring libraries, less on .3 mill. (See Chart 1)

4. No independent local public library in Oakland County has sufficient support base to offer its public a full range of services. (According to minimum national standards, a library system should serve and be supported by at least 150,000 people.)

5. Of the 28 public libraries in Oakland County, 19, or 68% are now affiliated with the Wayne County Federated Library System, and one with the Washtenaw County Library. However, these public libraries serve only 46% of the people in Oakland County. Of the 19 Wayne County affiliates, one third serve communities of less than 10,000 population, 78% communities of less than 25,000. (See Chart 2)

6. The essential service offered to Oakland County affiliates of Wayne County Library is the centralized acquisition, cataloging and processing of books. Access to the State Library hot line is also perceived as an important service.

7. Most larger, well established libraries in Oakland County do not belong to Wayne County Federated Libraries. Their belief is that the acquisition-cataloging-processing service is geared to the needs of very small libraries, that the reference collections in the county library are no better than their own and that consultant services offered by the county library are not meaningful.

8. Applying ALA's 1962 standard of threshold adequacy to the book collections reported by Oakland County Public Libraries in 1966 indicates a book gap of over 500,000 volumes, which would require an expenditure of over $4 million to span. If one excluded from this estimate of threshold adequacy, the Oakland County affiliates of Wayne and Washtenaw County libraries, on the theory that these system members have access to headquarters collections, then the total book gap would be 171,627 volumes requiring approximately $1.35 million to span. How meaningful the popular collections located in Wayne and Ann Arbor are to Oakland County residents is hard to measure. (See Chart 3a)

9. Applying ALA's 1962 standard of threshold adequacy to the professional staffing patterns reported by Oakland County Public Libraries in 1966 indicates a need for 36 additional librarians. Less than one fourth of the public libraries in Oakland County meet these standards.

The fact that the 1962 Interim Standards have been superceded by the 1966 Minimum Standards for Public Library Systems

which are inapplicable to independent libraries in Oakland County, and the further consideration that the 1960 census figures are manifestly inaccurate tends to underscore the need for additional professional personnel in Oakland County public libraries. It must be stated, however, that the 20 system affiliates do have access to professional services, especially in acquisition and cataloging from the headquarters. (See Chart 3b)

10. Seventeen Oakland County public libraries issue non-resident cards at cost ranging from $1.00 in Orion to $10 in West Bloomfield. Average fee for non-resident use is $5.00. The largest number of non-resident cards is issued by Royal Oak Public Library (606). (See Chart 4)

11. Unit cost per circulation, according to the Racine, Wisconsin formula (total operating cost divided by total annual circulation) varies in Oakland County from 24¢ in Oxford to $1.71 in Bloomfield Township (skewed by the fact that this is a new developing library). Average cost per circulation is 54¢. (See Chart 5)

12. With one exception all of the public libraries in Oakland County expressed awareness of service demands which they could not meet locally. Needs most commonly given top priority were:

2

1) Interloan access to Detroit Public Library collections

1) Book examination center in Oakland County (This already exists for Wayne County affiliates, at the Southfield Library.)

2) Interloan from Oakland University Library

2) Central acquisition, cataloging, processing of books

3) In-person access and telephone reference from the Detroit Public Library

4) Oakland County Library card and delivery service between libraries

4) Access to the State Library hot-line. (See Chart 6)

13. School library service in Oakland County is as uneven as public library service. Communities with poor public library service tend also to have substandard or few school libraries.

Adequate school libraries are clustered in the populous, south-central school districts. (See Chart 7)

14. Expenditures for school libraries in 1966/67 ranged from $1.05 per pupil in Madison District to $10.02 in Bloomfield Hills. The average public school expenditure was $4.31. Average private school expenditure was $3.06. (See Chart 8)

15. Only 10 of the 28 school districts in Oakland County met the 1960 standard of 10 books per pupil or 6,000 volumes. Nine of the 47 private schools met this standard. New minimum standards scheduled now for publication by the American Association of School Libraries and the Audio-Visual Department of the National Education Association recommend 20 books per pupil, or 10,000 volumes.

16. Forty per cent of the school districts of Oakland County are without a school library/audio-visual supervisor. (See Chart 8)

17. Although 79% of the public schools in Oakland County have professionally staffed libraries, 66 schools (in 11 districts) are without librarians. (See Chart 8)

18. Only 15 per cent of Oakland County school districts own 300 filmstrips or more. The new standards recommend 500-1,000 titles, representing 1,500 prints or 3 per pupil, whichever is greater. (See Chart 9)

19. Only 8% of Oakland County schools have 200 or more tape and disc recordings. The new standards recommend 1,000-2,000 titles, representing 3,000 records or tapes, or 6 per pupil, whichever is larger. (See Chart 10)

20. In general, most Oakland County schools, in their statement of need required for an application for funds under Title II, Elementary and Secondary Education Act, emphasized the need for additional instructional materials, audio-visual as well as printed.

21. An extensive professional library in education for the use of all the teachers in Oakland County is being established at the headquarters of the Intermediate School District. This should be an important new resource for the whole community. The librarian for this center expressed interest in sharing

reference services and in access to the education collections at the Detroit Public Library and Wayne State University.

22. Campus libraries at Oakland University and the three campuses of the Oakland Community College are rapidly building, but not yet capable of meeting the needs of faculty and students. Meanwhile, student body in these institutions grows rapidly. Oakland University now has issued over 860 courtesy cards to people not University faculty or students, a significant number of them to community college students. (See Charts 11 and 12)

23. Wayne State University's Southfield Campus is rapidly expanding. Although a small collection is provided at the campus, and students are encouraged to use the general libraries at the Main Campus, these students are already placing new burdens on local public libraries and on the Oakland University Library.

24. Use by residents of Oakland County of the Detroit Main Library research collections during the period of open access amounted to 13.3 per cent of the total use of these facilities. These collections are not and should not be duplicated in Oakland County.

25. Libraries of all types--the Oakland University, the community colleges, the school and public libraries--indicate the need for regular interloan-delivery service from the Detroit Library, as well as in-person access.

26. Students and faculty of Oakland County Community College make heavy use of the Oakland University Library.

27. Oakland County Community College Libraries are open to the general public.

28. Oakland County residents are mobile. The coordination of all libraries, public, school, college, university, into a single network, open to all residents of the county, is essential if maximum use is to be made of existing resources.

29. Oakland County government is big government with important information needs in order to plan wisely and to keep abreast of federal and state legislation. Special library service is not now available to county, township and municipal officials.

30. Industry and business in Oakland County are rapidly expanding. Independent local public libraries in the County are not now geared to meet their growing information needs.

CHART 1

OAKLAND COUNTY PUBLIC LIBRARIES - 1966/67

Library	Exp. Per Cap.	Millage	Circ. Per Cap.	Vol. Per Cap.
Avon	1.57	.519	3.2	1.0
Baldwin	7.10	.487	11.9	2.5
Berkley	2.70	1.384	5.6	1.5
Bloomfield	9.37	1.096	5.0	1.0
Brandon	10.56	2.937	3.8	1.0
Clawson	4.30	1.6	8.4	1.5
Farmington	1.41	.665	5.1	.8
Ferndale	3.61	1.229	4.4	1.8
Franklin	2.81	.683	6.7	3.5
Hazel Park	1.47	.754	2.7	1.1
Highland	1.46	.560	8.0	1.2
Holly	1.32	.553	2.8	1.6
Huntington Woods	7.69	1.874	8.3	2.0
Independence	1.39	.534	1.9	.6
Madison Hts.	2.32	1.176	2.5	.7
Milford	2.14	.611	3.9	.6
Novi	1.56	.562	2.7	.9
Oak Park	2.53	1.046	6.8	1.4
Orion	1.32	.729	2.5	.7
Oxford	1.00	1.131	4.4	1.7
Pontiac	2.15	.492	2.9	1.1
Royal Oak	3.11	1.212	6.3	1.3
South Lyon	1.98	1.099	7.0	2.4
Southfield	2.42		5.4	.83
Troy	1.34	.566	1.3	.5
Walled Lake	.53	.759	1.6	.2
Waterford	.90	.362	1.6	.3
West Bloomfield	1.98		7.4	1.5

CHART 2

OAKLAND PUBLIC LIBRARY AFFILIATIONS

Library	Wayne Cty. Affil.	Other Affil.	1966 Contract Expenditure
Bloomfield	x	Baldwin	45,492
Brandon	x		319
Clawson	x		7,874
Farmington	x		1,365
Hazel Park	x		1,113
Highland	x		491
*Holly	x		555
Huntington Woods	x		4,580
Independence	x		1,089
Madison Heights	x		2,144
Milford	x		1,470
Novi	x		-
Oak Park	x		-
Orion	x		1,184
Oxford	x		(New Affiliate)
Southfield	x		14,875
South Lyon		Washtenaw	632
Troy	x		2,873
Walled Lake	x		710
Waterford	x		9,422
West Bloomfield	x		8.744

*Now Disaffiliated

CHART 3 a

BOOK COLLECTIONS OF OAKLAND COUNTY PUBLIC LIBRARIES

Library	Population Served	Vol. for Min. Stand.*	Actual Collection	Vol. Gap.	Cost @ $7.91/vol.** to fill gap
Franklin	2,262	10,000	7,858	2,142	$ 16,943
Brandon	3,513	10,000	3,293	6,707	29,528
South Lyon	4,633	10,000	11,030	no gap	-
Highland	5,596	11,192	6,469	4,723	37,359
Milford	5,871	11,742	9,509	2,233	17,663
Novi	6,454	12,908	6,249	6,659	52,673
Holly	6.945	13,890	11,184	2,706	21,404
Oxford	7,252	14,504	12,101	2,403	19,007
Huntington Wds.	8,746	17,492	17,869	no gap	-
Independence	10,890	21,780	6,420	15,360	121,498
Orion	11,844	23,688	8,054	15,634	123,665
Walled Lake	12,559	25,118	3,572	21,546	170,429
Clawson	14,795	29,590	23,477	6,113	48,354
W. Bloomfield	14,994	29,988	23,961	19,483	154,111
Troy	19,382	38,764	10,505	18,259	144,429
Bloomfield	22,530	45,060	21,867	23,193	183,457
Berkley	23,275	46,550	35,371	11,179	88,426
Avon	23,846	47,692	22,855	24,837	196,461
Hazel Park	25,631	51,262	28,942	22,320	176,551
Ferndale	31,347	62,694	56,826	5,868	46,416
Madison Hts.	33,343	66,686	24,804	41,882	331,287
Farmington	33,573	67,146	26,227	40,919	323,669
Southfield	35,057	70,114	29,271	40,843	323,068
Oak Park	36,632	73,264	50,370	22,894	181,091
Birmingham	36,930	73,860	92,278	no gap	-
Waterford	47,107	94,214	15,582	78,632	621,979
Royal Oak	80,612	145,918	103,902	42,016	332,346
Pontiac	96,089	169,134	108,575	60,559	479,022
Totals			778,391	539,110	$4,240,836

**Figure $7.91 from Bowker Annual, 1967.

*ALA's Minimum Standards for Public Library Systems, 1966, recommends a collection of at least 100,000 recent non-fiction titles in a headquarters collection. Interim Standards for Small Public Libraries, 1962, recommends a sliding scale with a minimum of 10,000 volumes and 2 volumes per capita. For purposes of this estimate of threshold adequacy, the Interim Standards have been used.

TABLE 3b

ADEQUACY OF PROFESSIONAL STAFF - OAKLAND COUNTY PUBLIC LIBRARIES*

	Pop. Served	F.T.E. Prof.	Prof. Staff Standard	Staff Gap
Group A				
Franklin	2,262	0	1	1
Highland	5,596	0	1	1
Holly	6.945	1	1	0
Huntington Woods	8,746	2	1	0
Milford	5,871	1	1	0
Novi	6,454	0	1	1
Brandon	2,513	1	1	1
Oxford	7,252	0	1	1
South Lyon	4,633	0	1	1
Group B				
Bloomfield	22,530	6	2	0
Independence	10,890	1	2	1
Orion	11,844	1	2	1
Avon	23,846	1	2	1
Troy	19,382	0	2	2
Walled Lake	12,559	1	2	1
Berkley	23,275	4	2	0
Clawson	14,795	1	2	1
Group C				
Baldwin	36,930	8	4	0
Farmington	33,573	0	4	4
Ferndale	31,347	3	4	1
Hazel Park	25,631	0	4	4
Madison Hts.	33,343	2	4	2
Oak Park	36,632	6	4	0
Waterford	47,107	1	4	3
Southfield	35,057	5 1/2	4	0
Group D				
Pontiac	96,089	5	12	7
Royal Oak	80,612	8	10	2

*Interim Standards for Small Public Libraries, 1962 gives the following guidelines for threshold adequacy in public library staffing:

Population	Professional Staff
5,000-9,999 (Group A)	1
10,000-24,999 (Group B)	1 plus 1-2 Prof. Assts.
25,000-49,999 (Group C)	2 - 6 Professionals
50,000 and up (Group D)	6 plus 1 per 7,500 population over 50,000

CHART 4

OAKLAND COUNTY PUBLIC LIBRARIES - NON-RESIDENT CARDS AND ESTIMATED PERCENTAGE OF NON-RESIDENT USE OF REFERENCE SERVICES

Library	Non-Resident Card Cost Per Year	Number of Non-Resident Cards	Percentage Non-Resident Use of Reference Services*
Avon	$ 5	158	-
Baldwin	contract	-	58.13
Berkley	5	47	10-15
Bloomfield	-	-	10
Clawson	5	325	5
Farmington	free to Wayne County affil.	283	
Ferndale	$5 (contract for Pleas. Ridge)		
Highland	3	18	1/3
Huntington	5	0	.5
Madison Hts.	5	3	1
Milford	5	1	
Oak Park	5		2
Orion	1	503	10
Oxford	3	"few"	-
Pontiac	7.50	250	20-30
Royal Oak	6	606	-
Troy	2	10	-
Walled Lake	5	-	
Waterford	3	35	
West Bloomfield	10	97	10
	$ 5 average	2,236 total	

*Many libraries found it impossible to estimate non-resident reference use.

CHART 5

OAKLAND COUNTY PUBLIC LIBRARIES - UNIT COST PER CIRCULATION ACCORDING TO RACINE FORMULA*

Library	Expend.	4.44%	Total Operating Cost	Circulation	Unit Cost By Circulation
Avon	37,377	1,660	39,037	76,793	.51
Baldwin	253,587	12,591	27,117	441,103	.62
Berkley	58,995	2,619	61,614	130,112	.47
Bloomfield	186,501	8,280	19,478	113,769	1.71
Brandon	8,668	385	9,053	11,971	.76
Farmington	46,920	2,083	49,003	170,894	.28
Ferndale	113,184	5,024	118,208	138,052	.86
Franklin	6,352	282	6,634	12,905	.35
Hazel Park	37,585	1,669	39,224	68,892	.57
Highland	8,143	362	8,505	44,789	.19
Holly	9,144	406	9,550	19,230	.50
Huntington Wds.	44,725	1,986	46,711	72,423	.64
Independence	14,249	633	14,882	20,963	.71
Madison Heights	76,282	3,387	79,669	84,011	.95
Milford	12,557	558	13,115	22,040	.59
Novi	9,664	429	10,093	17,621	.56
Oak Park	91,832	4,077	95,909	250,178	.39
Orion	15,690	697	16,387	30,090	.55
Oxford	7,307	324	7,631	32,086	.24
Pontiac	204,469	9,078	213,547	275,248	.78
Royal Oak	250,718	11,132	261,850	511,014	.51
South Lyon	9,160	407	9,567	32,424	.29
Southfield	84,798	3,765	88,563	190,695	.46
Troy	23,123	1,027	24,150	25,441	.95
Walled Lake	6,646	295	6,941	19,650	.35
Waterford	36,149	1,605	37,754	77,385	.49
West Bloomfield	29,688	1,318	31,006	112,099	.28
				Average	.54

*The Racine, Wisconsin Public Library uses the following formula to assess cost of non-resident use: Total operating expenditure + 4.44% (Central City Services) divided by annual circulation.

CHART 6

SERVICES NEEDED BY LOCAL PUBLIC LIBRARIES

	Number of Libraries Wishing Service	Number of Libraries Giving This Top Priority
In-person borrowing from DPL	16	4
Interloan from DPL	14	6
Access to State Library Hot Line	14	3
Interloan from Oakland University Library	13	5
Delivery service between libraries of Oakland County	13	3
Telephone reference	13	4
Oakland County area-wide library card	12	3
In-person borrowing from Oakland University	12	2
Centralized cat. and processing	11	5
Book examination center in County	11	6
Interloan from Wayne County Lib.	10	2
Centralized acquisition of books	10	5
Delivery service between DPL	10	2
Educational Films	9	-
Foreign language books	8	1
Public information materials	8	-
In-service training	6	1
Consultant service	6	-
Special collections	5	1
In-person borrowing from Wayne County Library	5	-
Personnel recruiting	3	1
Cooperative purchase of supplies	3	-

CHART 7

PUBLIC SCHOOLS IN OAKLAND COUNTY*

School District	High School	Junior High	Elem.	Total
Avondale	1	1	4	6
Berkley	1	2	8	11
Birmingham	2	3	17	22
Bloomfield Hills	1	2	8	11
Brandon	1		2	3
Clarenceville		1	4	5
Clarkston	1	1	5	7
Clawson	1	1	6	8
Farmington	2	3	16	21
Ferndale	1	1	10	12
Hazel Park	1	1	9	11
Holly	1	1	3	5
Huron Valley	1	2	6	9
Lake Orion	1	1	5	7
Lamphere	1	1	8	10
Madison	1	1	5	7
Novi	1		2	3
Oak Park	1	2	7	10
Oxford	1	1	5	7
Pontiac	2	6	28	36
Rochester	1	2	8	11
Royal Oak	2	4	18	24
Southfield	1	4	16	21
South Lyon	1	1	4	6
Troy	1	1	7	9
Walled Lake	1	2	7	10
Waterford	2	2	27	31
West Bloomfield	1	1	3	5
	32	48	248	328

*Oakland County School Directory, 1965/66.

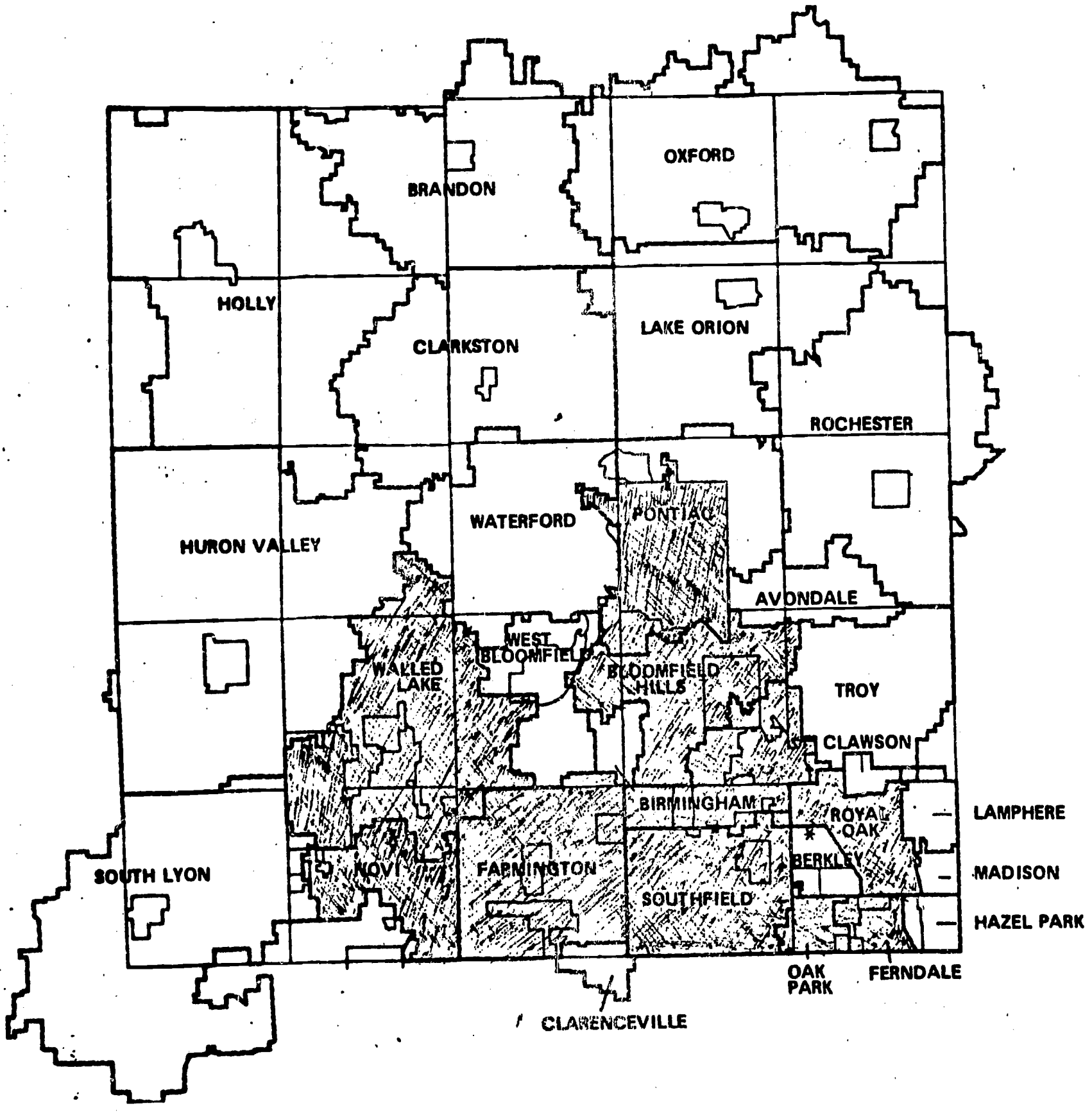
CHART 8

SCHOOL LIBRARIES IN PUBLIC ELEMENTARY AND SECONDARY SCHOOLS IN OAKLAND COUNTY

District	Enrollment 9/67	Library Expenditures Per Pupil 1966/1967	District Media Supervisor	Percentage of Schools with Organized Libraries	Percentage of Schools with Professional Librarian
Avondale	3,805	$ 4.93	Yes	100	83
Berkley	8,845	-	-	-	-
Birmingham	17,723	5.33	Yes	100	100
Bloomfield Hills	8,766	10.02	Yes	100	100
Brandon	1,598	2.75	No	100	100
Clarenceville	3,946	4.26	No	100	83
Clarkston	5,805	3.00	No	14	100
Clawson	4,896	2.48	No	25	37
Farmington	15,264	3.85	Yes	96	87
Ferndale	8,509	5.86	Yes	100	100
Hazel Park	8,060	1.97	Yes	100	100
Holly	3,128	3.88	Yes	100	100
Huron Valley	6,201	5.22	Yes	100	100
Lake Orion	4,831	2.59	No	28	14
Lamphere	5,611	5.73	Yes	100	100
South Lyon	2,773	3.15	No	33	50
Madison	4,942	1.05	No	85	43
Novi	1,324	5.60	No	100	67
Oak Park	6,508	9.03	Yes	100	100
Oxford	2,534	7.87	No	14	57
Pontiac	24,055	3.98	Yes	97	89
Rochester	7,488	4.04	No	100	92
Royal Oak	20,200	2.91	Yes	100	100
Southfield	15,473	3.04	Yes	100	100
Troy	5,039	4.42	Yes	90	91
Walled Lake	9,695	3.10	Yes	57	71
Waterford	17,660	5.42	Yes	14	100
West Bloomfield	3,560	9.79	Yes	100	100
Totals	228,245				
Averages		4.31	60%	79%	84%

MAP 1

OAKLAND COUNTY PUBLIC SCHOOLS
BOOK STANDARDS AND EXISTING SERVICE



*no statistics for Berkley

Shaded areas - districts where some schools maintain 1960 book standards of 10 or more books per pupil. (1968 standards are double.)

CHART 9

NUMBER OF FILMSTRIPS AVAILABLE IN OAKLAND COUNTY PUBLIC SCHOOL DISTRICTS

District	199 or less	200-249	250-299	300+
Avondale	5			1
Birmingham	10	6	3	5
Bloomfield	2		2	10
Brandon	2	1		
Clarenceville	2	2	2	
Clarkston	6	1		
Clawson	7	1		
Farmington	6	6		10
Ferndale	9	2		1
Hazel Park	10	1	1	
Holly	4	1		
Huron Valley	7	2		1
Lake Orion	5	1		
Lamphere	10			
South Lyon	2		1	2
Madison	4	1		2
Novi	3			
Oak Park	10			
Oxford	5	1	1	
Pontiac	14	6	2	13
Rochester	11	1		
Royal Oak	17	4	2	1
Southfield	14	4	1	2
Troy	10	1		
Walled Lake	6	3	1	
Waterford	32			1
West Bloomfield	5			1
Percentage of Schools in County	67%	13%	16.5%	15%

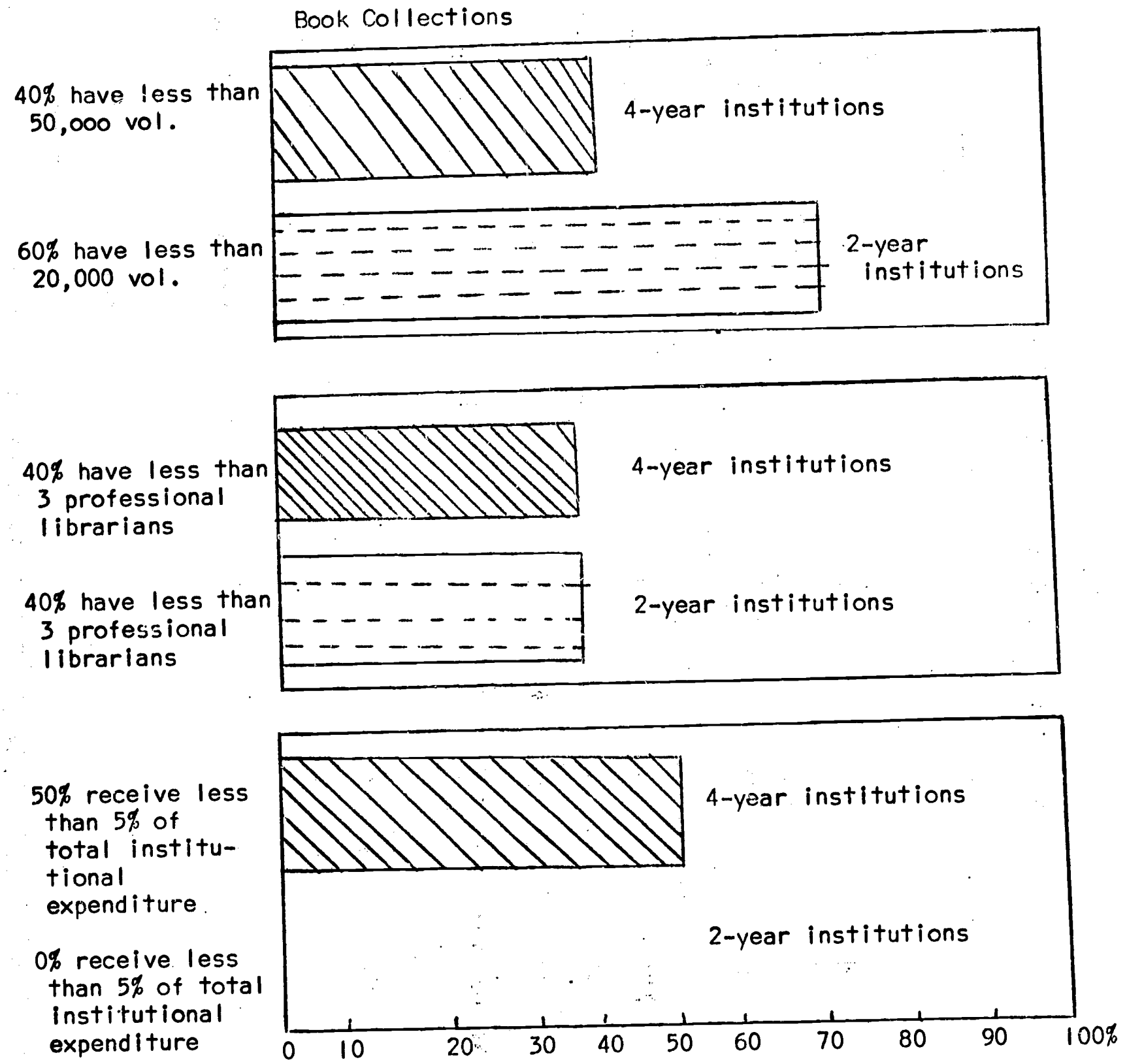
CHART 10

NUMBER OF RECORDINGS, TAPE &/OR DISC, AVAILABLE IN OAKLAND COUNTY PUBLIC SCHOOL DISTRICT

District	Less than 100	100-149	150-199	200+
Avondale	6			
Birmingham	3	10	7	4
Bloomfield	6	4	2	2
Brandon	2	1		
Clarenceville	5	1		
Clarkston	7			
Clawson	8			
Farmington	13	4	4	2
Ferndale	8	2		2
Hazel Park	11	1		
Holly	4			
Huron Valley	8	2		
Lake Orion	6			
Lamphere	9	1		
South Lyon	5			
Madison	6			1
Novi	2	1		
Oak Park	10			
Oxford	7			
Pontiac	25	5	3	2
Rochester	11			1
Royal Oak	14	2	2	6
Southfield	17	2		4
Troy	10	1		
Walled Lake	7	1		1
Waterford	33	1	1	1
West Bloomfield	6	-	-	-
Percentage of Schools in County	75%	12%	6%	8%

CHART 11

OAKLAND COUNTY COLLEGE AND UNIVERSITY LIBRARIES;
Existing Library Service and Minimum Standards
Endorsed by the American Library Association



Four-year institutions: Cranbrook, Duns Scotus, Lawrence Institute. St. Marys, Oakland University

Two-year institutions: DeLima, Michigan Christian, Oakland Community College with three campuses.

CHART 12

UNIVERSITY LIBRARY STATISTICS*

COLLEGE	Enrollment	Number of Volumes	Number of Professional Lib.	F.T.E. Total	Expenditure/ Student	Total Expenditures	Per Cent Expenditure For Lib.
Cranbrook	122	14,307	1	2	.94	11,495	-
De Lima	98	11,731	1	8	1.71	27,788	25
Duns Scotus	66	37,065	1	1		11,318	4
Lawrence	No effort	22,565	6	9		47,935	3
Michigan Christian College	229	10,130	1	1			
St. Marys	130	59,805	3	3	.77	10,000	6
Oakland University	3,896	85,755	12	47	137.91	481,043	5
Oakland County Community College	5,455	60,000**	11	23	187.07	448,789	9
						Average =	8.6

*Statistics of 1966 supplied to the Michigan State Library
**Three-campus total

CHAPTER VI

OPTIONS OPEN TO OAKLAND COUNTY

Option #1

Oakland County government can continue to do nothing about library development in the County beyond administering penal fines for communities without libraries, under PA 59, or the County can take a leadership role in equalizing, coordinating and improving library service for all the residents of the County.

All the findings in the previous chapter indicate a need for County coordination and leadership. If the County elects to do something, its legal options would be to establish, by vote of the Board of Supervisors, a County library under PA 138.

This library could serve, directly or by contract, the 76,681 persons in the County now living in areas without local public libraries and could offer leadership and services to the existing public libraries, or to the libraries of all types in the County.

Although it would be legally possible for all or some of the existing public libraries of the County to become branches of the Oakland County Library, thus ceasing to exist as

independent legal entities, it seems unlikely that this would occur.

If Oakland County Library wished to qualify for state aid under PA 286, it would need to expend an amount equal to at least .3 mill on the state equalized valuation of the areas in the County without public libraries. This, including penal fines, would amount on most recent figures to $88,243.86. Penal fines in 1967/68 in Oakland County came to 28¢ per capita. Based upon the 1960 population of the areas in the county currently without public libraries, a county library could expect state aid of .5¢ per capita or $3,814, and a salary reimbursement for a qualified county librarian of $4,800.

Option #2

In addition to the above, the county library could then affiliate with all the existing public libraries in the county to form a public library system under PA 286. To accomplish this, all of the member libraries would need to agree on a plan of service and one of the libraries in the county would need to be designated as system headquarters, at least temporarily. Once the system had been approved by the State Board of Education, it could qualify for an annual state aid grant of 30¢ per capita (actually state aid appropriations in 1967/68 permitted system grants of only 10¢ per capita). If all the libraries in the county chose to join the Oakland County system, and if state aid were appropriated to its

authorized level, according to the 1960 census, this could mean a state aid grant to the Oakland County Library System of $207,174. In addition, each member library would be required, under PA 286, to make a contribution to the system of 10¢ per capita.

The existing public libraries in the county could, under the law, choose to affiliate or not to affiliate with the county library. All of the public library administrators interviewed indicated that they would favor the establishment of a county library and that they would join it if it offered meaningful services.

Option #3

After establishing a county library, its Board could, rather than establish a library per se, contract for services with the Wayne County Federated Library System and become a part of the Wayne County System.

The willingness of Wayne County Library and its director to enter into such an agreement seems indicated by Mr. Kaiser's report of 1967 to the Oakland County Library Board. The libraries in the county who are affiliated with Wayne County are, on the whole, satisfied with the services they receive. Most, if not all of them, are dependent upon Wayne County's book selection - acquisition - cataloging - processing services. In fact, until an Oakland County Library could offer these services, it would be necessary either for the county library to negotiate a contract for continuing this service or for the

individual local libraries to negotiate such contracts.

The disadvantage of Oakland County Library or the Oakland County Library System becoming, in effect, an affiliate of Wayne County Library, is that Wayne County's services are, on the whole, not meaningful to many of the larger libraries of Oakland County.

If the Oakland County Library wished to serve all the public libraries of the county, as well as the school and college libraries and business, industry and government in Oakland County, there is real question whether Wayne County Library would be able to provide services of this scope.

There also seems to be a substantial, if subjective, sentiment against turning to Wayne County for government services of all kinds, on the part of Oakland County officials.

Option #4

An Oakland County library could concern itself only with the public library service of the county, or it could undertake a new pattern of coordination of all types of libraries. The traditional pattern of library systems in Michigan has included only service to public libraries although county libraries frequently offer some service to school libraries.

Concentration on public library coordination and improvement (in itself a large undertaking in Oakland County) has the virtue of a traditional, established pattern, and administrative simplicity. A county library which undertook to include all library service in the county into a single network would be

breaking new ground. However, there is already a certain practice of coordination on the county. Oakland University Library has issued over 860 courtesy cards, mostly to high school and community college students. Oakland Community College feels a responsibility to the whole community and opens its facilities freely. High school students of Oakland County are heavy users not only of their local public libraries, but also of the Oakland University and the Detroit Public Libraries. All this indicates an alert, intelligent, mobile population accustomed to seeking their library services where they may be found. In the face of rising demands for library service (as indicated by all demographic projections on Oakland County) and soaring library costs, it is an exciting idea to think of a strong and innovative county library service coordinating and improving library service to all kinds and in all types of libraries and making maximum use of all resources, both within and outside the county.

One of the complications of such a coordinated county library would be that its support should reasonably be shared by the intermediate or local school districts, the community college district, and possibly by the state university.

Option #5

After establishing a county library, serving either the whole range of libraries in the county or the public libraries only, its Board could, rather than establish a library per se, and rather than affiliating with Wayne County, appoint a strong

county librarian, housed in the county office buildings or in the local public library designated as headquarters, whose first functions would be to:

(a) Negotiate with the Detroit Public Library for interloan and in-person access to its collections for all the libraries and citizens of Oakland County. The need for this service is almost universally perceived by all types of libraries in the county. This procedure could involve establishing an Oakland County access office at the Detroit Main Library, i.e., a reference librarian and supporting clerical staff (Oakland County employees) with telephone and copying equipment, whose function it would be to facilitate interloan access to the Detroit Library collections. It would also be desirable to acquire a delivery truck and driver.

(b) Negotiate with the libraries of Oakland County for an Oakland County Library card opening all library resources in the county to everyone. This would involve some system of county reimbursement to the strong public libraries for non-resident use, and some assurance that communities in the county not presently providing library service do not impose upon their neighbors.

Reimbursement might be made on the basis of the average unit cost of circulation (total operating cost divided by total circulation) as has been used in Racine, Wisconsin. This amounts in Oakland County to about 54¢ per circulation.

Provision that all townships in the county do their share in providing local library service might be made by stipulating that the Oakland County Library card be issued only by existing libraries, supported at least by the equivalent of .3 mill, and that townships without local libraries be required to contract for service with the County Library, or their neighboring libraries, at least at the level of .3 mill. The need for open access for everyone in the county to all libraries in the county is almost universally perceived.

(c) Arrange for telephone tie-in with the State Library hot-line for all libraries in Oakland County.

(d) Offer leadership to townships without libraries (especially in the northern suburbanizing area, and Royal Oak Township) in developing a rational plan for library establishment and improvement.

(e) Identify the needs of government, business and industry for special information services, and develop a plan for meeting these needs.

(f) Offer in-service training opportunities to upgrade the librarians of the county and to keep them in contact with the new ideas in the library profession. A fringe benefit of this program would be the establishment of fruitful ties between all the libraries of various types in the county.

Option #6

Once a county library system was established, in addition to the above, it could establish a library service center,

offering book examination, acquisition, cataloging, processing as well as other services to all public libraries of the county or to all publicly-supported libraries, including public, school, community college libraries. Such services might also be extended to the private school and college libraries of the county, by contract. If all the libraries in the county were included in the service center, it would have sufficient base to warrant highly sophisticated equipment, and could result in important fringe benefits and savings in the coordination of collections throughout the county. A service center might also begin to acquire a collection of lesser used journals and books and might serve as a last-copy storage library for all the libraries in the county.

Such a service center requires very careful planning and should not be undertaken without it.

Option #7

In addition to the above, an Oakland County Library could establish a regional reference center open for in-person use to all residents of the county. Collections in this center might be somewhere between the depth of the Detroit Library collections and the resources of the local libraries of the county. It could be argued that Oakland County, with its affluent and well-educated residents and its large number of students and professional people, should have such a facility.

Option #8

Once a county library has been established, the concept could be adopted, as it has in Wayne County, that all or almost all public library service is the responsibility of the local communities, and that central services of the county library should be defrayed entirely, or almost entirely, from local contributions and state and federal grants.

Building an integrated library system on such a concept tends to limit the central services of the system to the least common denominator of the most poorly supported local library, and to base the system not so much on improving library service to everyone, as on offering only such services as can be done cheaper en mass. The American Library Association's national study of public library systems, released in June, 1968, underscores the danger inherant in this concept.

It could be argued that most cities, villages and townships in Oakland County with somewhat limited tax resources are faced with pressing demands for a multiplicity of vital services from their rapidly expanding populations. It could be argued that substantial improvement of and equalization of library resources in Oakland County must come via new money from higher levels of government--county, as well as state and federal.

Option #9

Once a county library was established, the county could appropriate sufficient funds to offer libraries services

meaningful to them, but require public libraries wishing to affiliate with the county library to make a contribution of at least 10¢ per capita, as required under PA 286, and school and community college and other libraries to contribute also to the county library on some mutually agreeable use formula.

Such a requirement, if enough member libraries joined the system, might have the advantage of getting the county library system on a sound financial basis of shared responsibility. It would take cognizance of the other tax sources in addition to the county--i.e., local municipal, school district and community college district.

Its disadvantage is that it might get the county library off to a very slow start. There might be a strong tendency on the part of many communities to "wait and see." Since state aid, and frequently federal aid, is available to a system on the basis of its total population of all member public libraries, a slow start, with only a few public libraries as members, would immediately limit the state aid available to the Oakland County Library.

Option #10

Once a county library was established, for the first five years of its life the county could appropriate an amount equal to 10¢ per capita to each public library wishing to join the system. Under PA 286, the libraries would then be required to return the grant to the county library as its membership contribution.

This system would have the advantage of allowing the Oakland County system to qualify immediately for maximum state and federal aid and to give the county library a grace period to prove itself before requiring contributions from its members.

The danger is, of course, that grace periods have a way of extending into eternity.

CHAPTER VII

RECOMMENDATIONS

The weight of the foregoing evidence suggests the following recommendations:

1. Establish an Oakland County Library under PA 138 and appoint a County Library Board.

2. Appoint a County librarian of superior professional competence and imagination.

3. As a first step, negotiate for interloan-telephone and in-person access to the Detroit Main Library.

4. Negotiate with existing public libraries for an Oakland County library card.

5. Procure a delivery truck and driver and set up a schedule including the Detroit Main Library, the public libraries, the community college, the intermediate school district and Oakland University.

6. Establish an Oakland County Library System, affiliating all the public libraries in the County, develop a plan of service (recommendations 3, 4 and 5) and designate one of the public libraries of the County as temporary headquarters.

7. Initiate the following studies as a guide for future library development in the County. (It may be possible to

qualify for planning money under Section 701 of the Housing and Urban Development Act.)

a) A feasibility study for establishing an Oakland County Service Center providing book examination, ordering, cataloging, and processing as well as other services for all libraries of every type in the County.

b) A feasibility study for establishing a regional reference center open to all residents of the County.

c) A study of the information needs of county, school district and local government, leading to a plan of action.

d) A study of the information needs of business and industry in the County, leading to a plan of action.

8. Negotiate with Wayne County Library to continue to offer book examination-ordering-processing-cataloging services for those libraries in Oakland County who want the service, until such time as the study recommended in 7a can furnish guidelines for Oakland County development. Costs of these services should be met by the local libraries.

APPENDIX

At the invitation of the Oakland County Library Board, Wayne State University is conducting a study on the library needs of Oakland County residents which may require solution on a county-wide, rather than local basis, and on the role which county government should play in the development of library services in Oakland County. We need your ideas and would appreciate it very much if you would complete the following questionnaire and return it by August 27, 1968 to

Genevieve Casey, Associate Professor, Library Science
Office of Urban Library Research
5229 Cass
Detroit, Michigan 48202

_____
Name of Library

_____ _____
Address Telephone Number

_____ _____
Director Chairman of Library Board

_____ _____
Population Served (1960 census) Population Served (most recent estimate)

Income 1967/68

_____ _____ _____
Total Millage Rate Per Capita

_____ _____ _____
Penal Fines State Aid School District

_____ _____ _____
City Federal Aid Other (Please Identify)

Contracts to Provide Service to Other Libraries or Communities (Please Describe)

System Affiliation (Name Library System)

Services Received from Other Libraries in 1967/8

Service	Library Offering Service	Frequency	Cost
Book Selection & Examination			
Book Ordering			
Cataloging			
Processing			
Interloan			
Reference (Telephone)			
In-Person Access			
Films			
Special Collections			
Consultant Services-Personnel			
Children's Service			
Adult Services			
Young Peoples Service			
Public Relations			
Budgeting & Finance			
Building & Equipment			
General Administration			
Other (Specify)			
Total Cost of services			

Non-Resident Use _____ _____
Cost of Non-Resident Card Number, Non-Resident Cards

_____
Estimated Percentage of Non-Resident Use of Reference Facilities

Services you would like to receive from outside your own library (Please number in terms of priority, i.e. #1, first priority, #2, second priority, #3, third priority.)

☐ Access to the State Library Hot Line

☐ Book Examination Center in Oakland County

☐ Centralized Acquisition of Books

☐ Centralized Processing & Cataloging

☐ Cooperative Purchase of Supplies

☐ Consultant Services (Specify)

☐ Delivery Service Between Detroit Public Library

☐ Delivery Service Between Libraries of Oakland County

☐ Educational Films

☐ Foreign Language Books

☐ In-Person Borrowing Privileges from the Detroit Public Library

☐ In-Person Borrowing Privileges from Oakland University Library

☐ In-Person Borrowing Privileges from Wayne County Library

☐ In-Service Training

☐ Interloan Privileges from the Detroit Public Library

☐ Interloan Privileges from Oakland University Library

☐ Interloan Privileges from Wayne County Library

☐ Oakland County Area-wide Library Card

☐ Personnel Recruiting

☐ Public Information Materials

☐ Special Collections

☐ Telephone Reference

☐ Other (Specify)