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ABSTRACT

In response to serious concerns about the dramatic increases in college and university costs, the Department of Education solicited proposals in May 1987 for innovative projects to explore means of cost reduction or containment which promise significant cost savings, whether accrued in the short- or long-term. The solicitation for cost containment projects also gave emphasis to approaches that can be transferred to other institutions or other groups of institutions. The final report of this project describes the organizational structure and purposes of the Washington Research Library Consortium (WRLC), identifies cost containment issues addressed by the project, and offers the WRLC solutions to these issues. Presented are benefit analyses of projected capital investment and operational costs for WRLC programs, when actual costs and cost savings are known or when they can be estimated. Descriptions of the various approaches under consideration and discussions of the major cost factors are provided when information on costs and cost savings are not yet available for programs to be added in later phases. The Articles of Incorporation and Bylaws for the WRLC, a profile of the WRLC, cost estimates for database creation, and a successful application to the National Endowment for the Humanities are appended to the report. (37 references) (SD)

THE WASHINGTON RESEARCH LIBRARY CONSORTIUM

FINAL REPORT SUBMITTED TO

THE U. S. DEPARTMENT OF EDUCATION

COLLEGE COST CONTAINMENT PROJECT

CONTRACT NO. 300870126

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INTRODUCTION

In response to serious concerns about the dramatic increases in college and university costs, the Department of Education solicited proposals in May 1987 for innovative projects "which explore means of cost reduction or containment not in general use but which promise significant cost savings, whether accrued in the short-term or the long-term." The solicitation for College Cost Containment Projects also gave emphasis to those approaches which improve the quality of higher education and which can be transferred to other institutions or groups of institutions. The approach being developed by the Washington Research Library Consortium (WRLC) promised significant benefits in addition to cost savings for its member institutions. Among the expected benefits of the WRLC are improvement in the quality of academic instruction and research and the implementation of a comprehensive model which is transferrable to other consortia.

When the WRLC was formed in the mid-1980s there was a clear need to counter the trend of increasing costs for managing information and to improve library and information resources and services in support of research and instruction. The WRLC was therefore designed to contain or reduce capital and operational costs in several broad but clearly defined areas, to enhance the quality of education and research at its member institutions, and to serve as a model for other consortia. The original members of the WRLC are The American University, The Catholic University of America, Gallaudet University, George Mason University, The

George Washington University, Georgetown University, Marymount University and the University of the District of Columbia.

The Final Report for the College Cost Containment Project describes the organizational structure and purposes of the Washington Research Library Consortium, identifies the cost containment issues addressed by the project, and offers the WRLC solutions to these issues. There are benefit analyses of projected capital investment and operational costs for WRLC programs, when actual costs and cost savings are known or when they can be estimated. Descriptions of the various approaches under consideration and discussions of the major cost factors are given in those cases where information on costs and cost savings are not yet available for programs to be added in later phases. The Articles of Incorporation and Bylaws for the Washington Research Library Consortium, a profile of the WRLC, cost estimates for database creation, and a successful application to the NEH Preservation Program are appended to the report.

THE WASHINGTON RESEARCH LIBRARY CONSORTIUM

Formation and Mission

A new service, distinctive in concept and unique in its combination of interrelated functions, was proposed in early 1984 by the Library Council, Consortium of Universities of the Washington Metropolitan Area. The Library Council, comprised of the library directors of the Consortium member universities, had implemented a sizable number of traditional cooperative programs. By mid-1984, however, it had become evident that it would be

necessary to form a new organization with the involvement of university administrators if plans for large-scale and complex programs were to be realized. Both the concept for a research library consortium and a proposal for a detailed planning study, which delineated the major programs and a plan of work, were given full support by the library directors and the Consortium Executive Committee. The Executive Committee of the Consortium of Universities, which had an instrumental role in the formation of the WRLC, consists of the Chairman, Vice Chairman, Secretary, and Treasurer of the Board of Trustees, the President and Chief Executive Officer, the remaining Ex Officio Trustees (Presidents of the Participant and Associate Participant institutions) and two Public Trustees.

There has been general agreement from the earliest stages of the project that the primary goal of the Washington Research Library Consortium is to support the enhancement of research access. This goal has evolved to include the provision of direct benefits to faculty and students. A mission statement, based on these goals and their shared institutional interests, was approved by the WRLC Board of Directors in May 1988:

The mission of the Washington Research Library Consortium is to provide an enhancement to the existing library and information resources and services for its participating institutions.[1]

From the mission statement it is clear that WRLC was created to augment rather than to replace existing resources and services. The success of the WRLC has been seen to depend, in

part, on the ability of the participating institutions to meet acceptable levels of support for their primary clienteles as well as consortial obligations. With this objective in mind, the university presidents have agreed that each of the universities will continue to be responsible for maintaining a certain level of financial support for existing library and information services. This commitment is of particular significance because the concept and plans for the WRLC call for a high degree of interdependence among the universities.

Purposes and Programs

The initial working paper for a research library consortium, issued in March 1984, included a set of purposes or objectives.[2] These purposes have remained essentially unchanged, although they have been augmented in keeping with the evolution of the WRLC goals and have been recast as a more specific set of interrelated programs, as follows:

1. A common data base of library information
2. A program of enhancements to other library and information resources and services
3. A communications network linking the universities
4. A cooperative collection development and management program
5. An information and document delivery service
6. A preservation program
7. A storage program

These programs, as defined by the WRLC, are designed to offer solutions to a number of cost containment issues which confront not only the participating universities but individual institutions and groups of institutions throughout the country. The four cost containment issues addressed in this study, and the specific solutions proposed by the WRLC, follow sections on the organizational structure and financing of the Washington Research Library Consortium.

Organizational Structure

After the conduct of the planning study and completion of other formative steps, the Washington Research Library Consortium was incorporated as a non-profit corporation in the District of Columbia in March 1987. The Articles of Incorporation for the Washington Research Library Consortium and the Bylaws for the WRLC, adopted by the Board of Directors at its May 1987 meeting, are attached as Appendixes A and B. The Bylaws and Articles of Incorporation have been included as model legal documents for similar organizations.

As specified in the Articles of Incorporation, the sole member of the WRLC is the Consortium of Universities of the Washington Metropolitan Area. The WRLC Board of Directors is elected annually by the Consortium of Universities; the elected Board members have thus far been the presidents of the eight participating universities. In recognition of their significant and continuing role, a representative from the university librarians was subsequently added to the Board of Directors.

This representative is elected from among their membership by the WRLC library directors.

An Executive Director, selected by the Board of Directors, is the chief administrative officer and president of the corporation. Paul Vassallo, former Associate Vice President for Computer and Information Resources and Technology, and Professor of Library Services at the University of New Mexico, was selected for the position, effective March 1, 1988.

As part of an effort to involve other constituencies in the advanced planning and implementation of the WRLC, the Board of Directors has established a number of committees: an Advisory Committee of Library Directors, a Faculty Advisory Committee, an Advisory Committee on Computing and Telecommunications, and an Advisory Committee on Fund Raising. In addition, two important technical committees, comprised of representatives from the participating libraries, have been formed: a NOTIS Implementation and Applications Advisory Committee and an Advisory Committee on Collection Development. The organizational structure, a list of goals, and information on the member libraries is provided in Appendix C: A Profile of the Washington Research Library Consortium.

Financing of the WRLC

Funding has been secured and will continue to be secured from a combination of sources. The importance of the WRLC for the metropolitan area was demonstrated when a number of local foundations contributed sizable amounts for advanced planning and

startup. During 1985-86 more than $400,000 was awarded to the Consortium of Universities for purposes related to the WRLC. These funds have been used for salaries and wages, consultant and legal fees, office equipment and computers, software, record processing for five of the participating libraries, service bureau computing charges, and general operating expenses. In June 1987 a contract in the amount of $97,624 was awarded by the U. S. Department of Education for a College Cost Containment Project to develop and disseminate a cost-benefit analysis of the WRLC model. In October of the same year, twenty acres of land were donated by Prince Georges County for the construction of a central facility. During 1988 federal grant awards were received for a detailed study of preservation needs and for development of an interlibrary loan component for the WRLC online integrated system.

The financial plan for the permanent WRLC office and for the implementation of the common online system and other programs is based on two principles. The first of these, that member institutions will share the annual operating costs of the consortium, was accepted in principle at the beginning of the project. In August 1987 the library directors proposed a cost-share model for the equitable sharing of operational costs. This model apportions 60% of the operating expenses on a coequal basis; the remaining 40% of the costs are allocated on a proportional basis, derived from an index used by the Association of Research Libraries. The model, which acknowledges the equal

commitment of the participating institutions while recognizing their variances in size and prospective use of WRLC services, was adopted by the Board of Directors for implementation on January 1, 1988.

The second principle reflects the limited resources available to the participating institutions. When possible, capital expenditures are supported with funding obtained from external sources. The potential benefit of this approach became apparent when federal legislation in support of the project, including an appropriation of $6.702 million, was passed by Congress and signed by the President in December 1987. However, the release of these funds was delayed when the WRLC was subsequently informed that appropriated funds would be withheld until technical changes were made in the authorizing language to more specifically earmark the funds for the Washington Research Library Consortium. To date, efforts to revise the language have not been successful. As the appropriation is available until expended, work has continued toward release of the funds to the WRLC, as intended by Congress.

In the meantime, the Consortium of Universities and the WRLC are cooperatively working on the development of a fund-raising plan which will be presented to their respective boards. This capital campaign will seek to raise $16 million over the next three to five years. It is anticipated that funding will be secured from a combination of sources to include individual and

corporate gifts, grants from private foundations, and a tax-exempt bond issue.

Cost Containment Issues

The multifaceted approach of the WRLC has been designed to address a number of cost containment issues as well as to fulfill its mission and goals. These issues, of concern to all colleges and universities, are:

1. The need to reverse the trend of increasing costs for providing access to library materials.
2. The need to reduce the cost for storing library materials.
3. The need to reduce the effects of increased costs for maintaining and improving collections.
4. The need to reduce the costs for preserving collections.

The following sections of this report will describe the programs which are being developed by the WRLC as appropriate solutions to these cost containment issues. Each of the sections is introduced by a background statement which places the related programs within the context of WRLC development. Although the issues and programs are described in a sequence, it should again be emphasized that all of the programs are inextricably linked.

ACCESS TO LIBRARY MATERIALS

Background

Since the initial concept paper, a common data base has been seen as the essential tool needed for the accomplishment of WRLC objectives and programs. By fall 1985 it was apparent that most

of the local systems at member libraries would soon be obsolete or would require major and costly upgrades. This situation provided an exceptional opportunity for breaking the noncorresponding cycles for the replacement of local systems, usually required at five to seven year intervals. A concurrent exploration of fund raising strategies, initiated by the Consortium of Universities, offered the prospect of external financial support, essential for the replacement of the diverse and incompatible local systems with a common system.

The favorable circumstances for a collaborative project were formally recognized by the library directors at a November 1985 meeting when they agreed to purchase a fully integrated system, rather than a more limited public access catalog as previously envisioned, provided funds were made available by the universities or from outside sources. The librarians further agreed to employ RMG Consultants, Inc. to guide the consortium through the design of an RFP and the evaluation of solicited proposals. It was decided that all of the participating libraries would install the public access catalog and interlibrary loan modules of the selected system. The acquisition of other modules was left to institutional decision, with a signed understanding that modules of the WRLC system would be acquired when it was time to replace local system components.

A Project Review Group, comprised of representatives from the eight participating libraries, was formed in January 1986 to work with the acting project director and the consultants. By

early March the group had issued a request for proposal and a requirements report to six vendors of online integrated systems. After an intensive review and evaluation of the four received proposals, the group submitted its report to the library directors with a recommendation that NOTIS be selected as the consortium system. In July 1986 the report and recommendation were accepted by the library directors and a contract was subsequently negotiated with NOTIS Systems, Inc.

NOTIS (Northwestern Online Total Integrated System) was originally developed by the Northwestern University Library. The application software package is now marketed and supported by NOTIS Systems, Inc., a wholly owned subsidiary of the university. The software package operates on IBM hardware configurations and supports all of the major library functions. NOTIS is one of the leading systems, particularly for academic libraries, and has been installed at a sizable number of research libraries.

WRLC central staff, gradually added since August 1987, and two committees, the System Implementation Group (January 1987-February 1988) and the NOTIS Implementation and Applications Committee (May 1988-) have played instrumental roles in planning WRLC implementation of the NOTIS system with priority given to the cataloging/public access catalog module. Substantial work has been accomplished, including design of alternate hardware configurations and telecommunication networks, determination of tape editing standards, selection of a common barcoding standard, and initial processing of bibliographic and authority control

records for five of the participants. The definition of tables, modifications to public screen displays, and other tasks necessary for the implementation of NOTIS are in an advanced stage of progress.

During the last quarter of 1987, the NOTIS software package and a generic database were installed at a time-sharing service, Litton Computer Services, for testing purposes preparatory to installation on the WRLC computer. A subset of bibliographic records from five of the libraries was subsequently loaded. With the availability of a multi-institution environment, the WRLC staff has been able to prepare and test the NOTIS tables which support the cataloging and public access catalog modules. Other software packages, to be installed and made operational by 1992, include the public access catalog and cataloging function for staff purposes, acquisitions, and circulation.

Considerable attention has also been given by the WRLC to retrospective conversion of bibliographic records not in machine readable formats; to the preparation and loading of the WRLC union list of serials, local reference databases, and external databases; and to the improvement of physical access to library materials. The following programs will be described as they relate to cost containment issue one (the need to reverse the trend of increasing costs for providing access to library materials): 1) the shared automation system and telecommunications network, 2) database creation, including the collaborative conversion of all bibliographic records to machine

readable form, 3) provision of access to other databases, and 4) information transfer and document delivery.

Automation System and Telecommunications

The primary WRLC solution to the ongoing trend of increasing costs for the provision of access to library materials is the reduction of costs for bibliographic access to consortium and other resources through a shared automation system and telecommunications network. Prior to the planning stage for the WRLC, seven of the libraries had already acquired five different and incompatible systems. This diversity, combined with the incompleteness of most of the local systems, has made it impossible to realize shared objectives for coordinated collection development and the improved sharing of library resources. With implementation of the WRLC/NOTIS system and an advanced telecommunications network these and other objectives can be achieved. A number of the benefits and capabilities to be offered by the collaborative system are given in a section following descriptions of three alternative approaches and their corresponding costs.

Costs for the WRLC and Alternative Systems

The capital costs for a WRLC NOTIS system are comparable to or less than hardware, software, and site modification costs for local system replacements or the installation of NOTIS systems at member institutions. The one-time costs for database creation, which are essentially the same for each of the three options, are

discussed in a section following the presentation of costs and benefits.

As noted above, it can be assumed that all of the libraries will need to replace their existing systems within the next five years. An exception is Marymount University which would need to convert from a manual to an automated system. Based on information obtained from March 1986 and January 1989 surveys of estirated costs for local system development as well as representative upgrade proposals from member libraries, it would cost the WRLC institutions between $200,000 and $750,000 each to replace their local systems with minimal turnkey systems. On average, the cost for the new systems would be approximately $500,000 for a total outlay of $4,000,000 for the eight institutions. It should again be emphasized that several of the libraries would find it difficult to finance the addition of modules not now installed or to replace aging or obsolescent systems. More significantly, the enhancement or replacement of existing systems will not achieve the objectives or provide the benefits which can be realized only through a common system.

A second option, the installation of NOTIS on an institution-level basis at the member libraries, would provide each of the institutions with a fully-integrated system. NOTIS also has a number of desired features which became apparent in the system selection process for the WRLC. The system hardware is standard; the software is flexible and can be modified to m et local requirements. NOTIS supports networking, and the

organization offers financial stability and creative leadership. The local implementation of NOTIS would also enable the WRLC libraries to communicate with each other and to realize a limited portion of the benefits which can be more readily achieved through a common system.

There are, however, a number of serious deterrents to this approach. NOTIS is not a turnkey system. The number of experienced programmers and other technical support staff within the libraries is limited. As a consequence it would take more effort and time, in the aggregate, to implement NOTIS on a decentralized basis. Secondly, the development of local systems would make it more difficult to achieve the benefits which can be derived from a shared online system including cost containment through cooperative collection development and the sharing of library resources. Finally, the capital costs for the individual implementation of NOTIS at the universities will exceed those for the WRLC.

The best source for the determination of implementation costs is the NOTIS Configuration Guide, issued in January 1989. Included are three representative but detailed configurations which closely resemble those required for the WRLC libraries. For each configuration there are item breakouts for central site hardware, terminal-related hardware, and software. The first configuration uses the smallest family of processors. It supports 50 terminals and accommodates 150,000 bibliographic records. This configuration could support integrated systems at

Gallaudet and Marymount. The second configuration has enough space to support 450,000 bibliographic records and is appropriate for American, George Mason, and the University of the District of Columbia. The third configuration is intended for large academic libraries with considerable terminal and storage needs and is appropriate for Catholic, George Washington, and Georgetown. The cost for the eight member universities would be:

Configuration 1	2 @$395,690	$ 791,380
Configuration 2	3 @$616,130	$1,848,390
Configuration 3	3 @$941,355	$2,824,065
Total		$5,463,835

According to estimates provided by the libraries, they will need support for 719 terminals. The above configurations have been costed for 728 terminals, with sufficient operating system capacity for 1,250 terminals. Site preparation and the installation of telecommunications have not been included in either of the above models. Even if these costs are modest and the costs which apply only to a central system are added, the projected capital costs for the WRLC are attractive, particularly when the advantages of the centralized system are kept in mind. The five-year capital costs for the WRLC system, taken from a January 1989 income/expenditure model, are as follows:

Item	Five Year Total
Computer hardware	$2,947,076
Computer software	777,118
Computer room and HVAC equipment	184,000
Cost of land	2,300
Office equipment	75,500
Terminal installation	34,800
Office telephone system	22,500
Total	$4,043,294

The computer hardware costs include an IBM 4381-21 with upgrades to a 4381-23 and a 4381-92E, a total of 35 Gb disk storage, tape drives, and high speed printers. The software includes MVS/XA with VTAM and RACF with upgrades to VM/XA and MVS/ESA plus a variety of applications and microcomputer software. An estimated 2,000 square feet of space will be required for the computing facility at $90 per square foot for capital construction costs; an additional $4,000 has been added for modifications. Land costs, which are described more fully in the section on materials storage, have been calculated at the rate of $1.15 per square foot.

In summary, the projected capital costs for the WRLC system are nearly identical to the estimated aggregate cost for replacing the local systems and more than $1,400,000 less than the total for local NOTIS systems. The comparisons are even more favorable if the costs for site preparation, telecommunication installation, and office equipment are added to the totals for the other alternatives.

System Benefits and Capabilities

The first module of the automation system to be made available will be the common database of library information. This database, or online union catalog, will be the most important component for faculty, students and other system users as it will provide end-user access to consortium library holdings through public access terminals, and, eventually, through local area networks, distributed terminals, and remote access.

The concurrent implementation of the cataloging module will enable libraries to add new records and holdings as soon as the public access catalog is operational and to maintain the WRLC database in a cost-efficient manner. Other modules, to include circulation, acquisitions, and serials, will be installed in accord with a schedule to be developed by the WRLC. Attention will also be given to authority control, installation of new versions and releases from NOTIS, upgrades to central facility hardware and software, the provision of access to other databases, and enhancements to the telecommunications network. Among the many benefits which will result from implementation of the WRLC automation and telecommunication systems are the following:

1. Users of the WRLC catalog will have online bibliographic access to the holdings of all of the participating institution libraries. At the time of the initial database load it will be possible for system users to access records for approximately 2,200,000 volumes. With the addition of

other records to be processed and the completion of retrospective conversion, the database will have records for more than nine million items including five million cataloged books. There will be an increase in access from six-fold to fifty-fold, depending on the present size of the home institution library.

2. Numerous surveys and other studies have shown that users greatly prefer online catalogs to manual catalogs. There have been several recent studies which conclude that online catalogs also result in measurable benefits. A carefully designed study at Vanderbilt University led to a conclusion that its online catalog "had a statistically significant effect in reducing the amount of time required for a search and in increasing the probability of success in finding a known item."[3] Use of the NOTIS union catalog feature, which provides access to additional holdings at Vanderbilt divisional libraries, resulted in an "unequivocal gain in the availability of known items."[4] A follow-up study has concluded that increased familiarity with the online catalog has resulted in a significant drop in average search times and improved retrieval.[5] It is reasonable to assume that the WRLC catalog, with its millions of records from eight university library systems, will be of inestimable value.

3. With respect to database organization, NOTIS users may select from a number of options. The WRLC libraries have selected the single institution group/multiple processing

center option. As a result the online public catalog will provide index-level displays which identify all holding locations for a title, thereby facilitating access to consortium holdings, as well as full bibliographic record displays which are library-specific, thereby enabling the participating libraries to retain their catalog integrity. Patrons will be able to identify campus and consortium holdings with minimal effort; at the same time the libraries will be able to use the cata. ;ing module with minimal changes to existing procedures.

4. The automation system and communications network will provide the necessary tool for other consortium programs, including cooperative collection development and contractual interlibrary lending.

5. With the shared automation system it will be possible to readily control and locate library materials which are moved to or from the central facility or which are acquired jointly and housed at the center.

6. Each of the libraries can provide access to selected NOTIS system files, at predetermined security levels. Through the use of this feature it will be possible for authorized staff at other WRLC libraries to determine item status. Access to on-order and in-process records, in conformity with policies and procedures to be determined by the WRLC, will significantly improve the potential for an effective collection development program. A decision to provide

access to selected circulation data will enable library staff and users to determine if desired items are in circulation or have been temporarily removed from the circulating collection.

7. With few exceptions, the libraries have not automated most of their basic functions or have modules which are no longer cost-effective. Implementation of the NOTIS system will provide dramatic benefits for nearly all of the libraries.

8. The WRLC telecommunications network, to be linked to campus local area networks, will be a major enhancement to library and information services. It will soon be possible at most of the universities to access the system from departmental offices and other key locations. Dial-up access from personal computers is also being planned. The distributed catalog will save students and faculty an incalculable amount of time and expense. As an example, Georgia Tech reported that its distributed information system produced estimated savings of $1.2 million in faculty time in 1987.[6] Again, it can be assumed that benefits from the WRLC system, in the aggregate, will far surpass those of single institution environments.

9. In time, the best investment for the institutions and the WRLC may well be the communications capability. Substantial effort has been devoted to the complex technical and political issues related to linkages between the WRLC

network and local area networks and considerable progress has been made toward resolution of these issues. Although data transmission is the primary concern at this time, the additional capabilities offered by an integrated voice-video-data communications network are being explored. Lehigh University's multi-drop video classroom, called the Distance Learning Network, provides a completely interactive capability in the remote delivery of education. The Lehigh University network also serves as one example of the potential benefits of advanced communication networks.

Database Creation

The WRLC has initiated work on the creation of a common database, in preparation for implementation of the online integrated system. A number of significant tasks have already been accomplished, including bibliographic extraction and database preparation for records through mid-1987 from five of the libraries, creation and testing of a pilot database, adoption of a common barcoding standard, and shared planning for retrospective conversion. The balance of the tasks are being planned in detail. They will be completed prior to the availability of the system or in keeping with a schedule to be developed.

The joint creation of the database is a major element in the implementation of the WRLC/NOTIS system. It has required the close involvement of WRLC staff and the NOTIS Implementation and Applications Committee. As a result, the WRLC will have a truly

common yet flexible system. Another benefit, of great value to the participating libraries, is WRLC cost-sharing for barcoding, database preparation, and retrospective conversion. The division of costs will enable the libraries to undertake projects which in most cases would not have been possible without the WRLC. The following sections will describe program costs for database preparation, retrospective conversion, and barcoding. More detailed information on project costs is contained in Appendix D.

Barcoding

WRLC objectives for resource sharing and NOTIS system constraints have necessitated the adoption of a common barcoding standard. After a review of the options, the Advisory Committee of Library Directors accepted a recommendation from the WRLC to adopt Codabar as the common system. Several of the member libraries had previously initiated conversion to Codabar which has been widely adopted by academic libraries. The WRLC has estimated that it will cost $.13 per title for materials and labor. The projected costs for barcoding of the collections are:

Institution	Volumes	Cost
American	305,000	$ 39,650
Catholic	1,043,000	135,590
Gallaudet	186,000	24,180
George Mason	312,000	40,560
George Washington	1,170,000	152,100
Georgetown	622,000	80,860
Marymount	82,000	10,660
UDC	220,000	28,600
Total	3,940,000	$512,200

Retrospective Conversion

From the beginning of the project it was realized that access to consortium holdings would be considerably enhanced, and user satisfaction increased, if all records were converted to standard machine-readable formats. Fortunately, all of the libraries except George Mason and Marymount have participated in OCLC since 1975. During the past few years, George Mason and George Washington have converted nearly all of their remaining records, and Marymount has completed a retrospective conversion project under contract with CAPCON, the regional bibliographic network. Partial conversion projects have been undertaken by American, Gallaudet, Georgetown, and the University of the District of Columbia. As a result, more than two million bibliographic records are available in OCLC-MARC formats.

Approximately 972,000 records have yet to be converted, including the pre-1975 records at Catholic University, sizable quantities of pre-1975 records at Georgetown and UDC, and an estimated 137,000 records at the other WRLC libraries. Many of these records are for infrequently used but valuable materials or materials in nontraditional formats. All of the participants agree that online bibliographic access to these records will enhance research and scholarship and facilitate many of the WRLC programs, including traditional interlibrary loan, a new consortium loan service, and collaborative collection development. Although the benefits of retrospective conversion are apparent, several of the WRLC member institutions are unable

to fund the full cost of retrospective conversion and it is now extremely difficult for libraries to finance these projects from outside sources. Therefore, one of the objectives for the federal appropriation and the capital campaign is to secure one-half of the funding needed for retrospective conversion of the remaining bibliographic records.

A number of project alternatives have been explored. The one which appears to be the most cost-beneficial, in terms of total cost, staff requirements, and hit-rate, is the OCLC Microcon service. Microcon is a batch retrospective conversion service which uses rent-free IBM PC-compatible hardware. Search keys and local data are entered onto diskettes which are sent to OCLC for conversion.

CAPCON, the regional library services organization to which six of the WRLC member libraries belong, has estimated that it will cost an average of $1.25 to convert the remaining titles through Microcon. The Microcon charge per record is $.40 and the estimated labor cost is $.85 per record. The project would be undertaken through a group contract with OCLC, CAPCON, or another vendor. The estimated costs for all titles not yet converted are as follows:

Institution	Titles	Total
American	80,000	$ 100,000
Catholic	460,000	575,000
Gallaudet	40,000	50,000
George Mason	2,000	2,500
George Washington	15,000	18,750
Georgetown	200,000	250,000
Marymount	0	0
UDC	175,000	218,750
Total	972,000	$1,215,000

Database Preparation

The creation of records for the NOTIS system consists of two basic steps, bibliographic record extraction and database preparation. The records are extracted from OCLC-MARC tapes under contract with CAPCON, FEDLINK (for Gallaudet), and SOLINET (for George Mason). These records are then prepared under a group contract with BNA according to WRLC specifications. As previously noted, the majority of the records from American, George Mason, George Washington, Marymount, and UDC have already been processed. Based on charges received from BNA and the networks, the cost per record for extraction and preparation is $.15. The projected costs for database preparation are:

Institution	Records	Cost
American	91,000	$ 13,650
Catholic	572,000	85,800
Gallaudet	133,000	19,750
George Mason	39,000	5,850
George Washington	46,000	6,900
Georgetown	510,000	76,500
Marymount	6,000	900
UDC	185,000	27,750
Total	1,582,000	$237,300

The database creation expenses for the WRLC member institutions are elaborated in Appendix D. This appendix gives detailed cost estimates for retrospective conversion, database preparation, and bar coding. Database preparation and retrospective conversion charges are calculated primarily on a per unit basis. This applies to CAPCON/LSSI charges for record extraction, NOTIS and BNA charges for tape processing, and OCLC/vendor charges for retrospective conversion. As a consequence there would be a comparatively small if any difference between the costs for database preparation and record conversion if undertaken by the libraries or if done through the WRLC. Therefore these cost elements have not been explicitly compared.

Provision of Access to Other Databases

Installation of the automated system will give WRLC an opportunity to provide access to materials and information other than the bibliographic holdings of its member libraries. Access to local reference and external databases may be through NOTIS or through other software and command languages supported by the consortium. Thus far, the most attention has been given to the WRLC union list of serials, although some planning has been devoted to the provision of access to other local databases and to shared access to databases which are not available on a reasonable cost basis through commercial services.

Union List of Serials

Since 1985 a union list of serials database has been built on OCLC by eighteen participants: the eight WRLC university libraries, Howard University, the six university law school libraries, Mount Vernon and Trinity Colleges, and the Wesley Theological Seminary. The union listing project was initiated by the Consortium of Universities and transferred to the WRLC in October 1988. It is administered under contract by CAPCON, the regional bibliographic network. By January 1989 the union listing database included 43,660 titles and 78,430 copy-specific holdings statements.

The WRLC will purchase the union listing database from OCLC and process the extracted records under contract with BNA. A serials union list loader, available from NOTIS, will then be used to add the records and holding statements to the WRLC system. Thereafter, union listing records will be added and maintained through WRLC terminals and/or the NOTIS serials overlay package. This approach will offer many advantages over the severely limited access now available which consists of a handful of OCLC public access terminals and periodic offline products in a microfiche format. Among these advantages and benefits are: 1) the database will be available as an integral feature of the WRLC NOTIS system, 2) records will be retrievable through a variety of access points using standard NOTIS command language, 3) records will be in full MARC format, 4) the only development costs are the union list loader, OCLC record

extraction, and tape processing charges, and 5) the libraries will not have to purchase special purpose equipment or provide instruction for users.

The one-time cost of the serials union list loader is $5,000, which includes the serials overlay package. OCLC/CAPCON record extraction charges are based on unit pricing. The current BNA processing charge is $.0125 for each title and holding statement. Assuming the present database, the one-time costs for a WRLC/NOTIS union listing capability would be:

NOTIS union list loader	$5,000
OCLC/CAPCON charges	5,152
BNA processing charges	1,525
Total	$11,677

Member libraries will save OCLC/CAPCON charges for record creation, maintenance and use. At present, these costs are approximately $9,000 per year for the eight WRLC participants. Offline products, if needed, can be derived from the WRLC database, resulting in a further saving of $10,000 per year now being expended for OCLC record extraction.

Local and External Databases

At present, the WRLC libraries offer partial and variable access to the large array of databases available through online searching and the newer storage technologies. Although some costs are recovered from users of the database services and a number of group contracts have resulted in modest savings, there are substantial costs for equipment, maintenance, and staff time

as well as ongoing expenditures for vendor charges and telecommunications. Among the storage technologies, CD-ROM has several advantages and is popular with users. There are, however, a number of drawbacks to CD-ROM, including equipment costs, limits to data base size, limitations on concurrent use, and hours of access.

Since the earliest planning stages of WRLC there has been the potential for an alternative which would expand access to information while containing costs: use of the shared online system to access reference databases and, through gateways, external databases. Although NOTIS did not offer these capabilities at the time it was selected for the WRLC, it has since adopted a new corporate direction with an emphasis on knowledge management. The first of the solutions to be developed by NOTIS is the provision of access to reference databases through the online public access catalog. These databases are purchased and maintained by the library or consortium. A database selection module, including a multidatabase interface, has been added to the NOTIS system. The databases which are thus far being supported by NOTIS are MEDLINE and Wilsonline.

Among the benefits of the new product are cost reduction, reduced staff demands, expanded access using regular NOTIS terminals, full NOTIS indexing, and easy customization. Other reference databases will be made available by NOTIS. It should be possible for the WRLC to realize significant savings, depending on NOTIS product costs and the usage levels for online

services. Other capabilities, to be offered by NOTIS or made available by the WRLC, include access to local databases, the addition of non-bibliographic files, access to journal articles, gateways to commercial services, and interconnections to other library databases and research information files.

Information Transfer and Document Delivery

With implementation of the online public catalog and ready access to the common database, there will be a dramatic increase in the demand for books and other materials held by the WRLC member libraries. The addition of converted records, union listing records, and local reference files will augment the database and increase the need for improved access to materials. There will be further demands after the deposit of library materials and joint acquisitions in the central facility, but the availability of the center will also provide an exceptional opportunity for the introduction and implementation of advanced solutions to information transfer and document delivery.

Interlibrary loan standards and policies, direct borrowing privileges, delivery service, and other traditional programs for the sharing of library resources have facilitated access to member library holdings. Some of these programs will be retained and improved. In the aggregate, however, they are clearly insufficient to meet the needs and expectations which exist in the new environment. To meet this challenge the WRLC will add new programs during an initial implementation phase and,

concurrently, will plan and test new solutions which will shift the emphasis from physical to electronic delivery.

Some preliminary steps have already been taken which provide a basis for improving physical access to the WRLC library collections. In October 1985 the Consortium Library Council adopted a policy manual for a proposed loan service. This service was designed to facilitate the sharing of total library resources while distributing library use in an equitable manner. The manual will have to be reconsidered in light of developments, but it does offer suggestive directions for the efficient sharing of library resources by a large clientele.

An interlibrary loan demonstration project, currently in-progress at George Mason University with financial support from the Higher Education Act Title II-D Program, has as its goal an automated interlibrary loan interface for NOTIS. The elements of the design were included in a task force report from which the policy manual was derived. If the demonstration is successful, it could result in a much-needed interlibrary loan module for the WRLC and other NOTIS users. An immediate step to improve resource sharing was taken during the fall of 1988 when telefacsimile machines were acquired for the WRLC office and each of the university libraries. In addition to interoffice communication, these machines are used for the rapid transmission of journal articles requested through interlibrary loan.

A scheduled delivery service, now operated under contract, will be reviewed on a periodic basis. To meet changing needs

over the next three years, the contracted service will be expanded or the consortium will purchase vehicles and operate its own delivery service. During this initial implementation phase the WRLC will modify other physical delivery programs while moving toward electronic delivery on a gradual basis. By the third year it is expected that WRLC will have the software capability to support electronic mail and expert system applications. A combination of technologies in support of full text and document image processing will be tested, to include scanning, optical storage and retrieval, laser printing, and a high capacity communications network. As appropriate, the WRLC will also initiate projects which test the use of video transmission. By 1992 the WRLC will be in a position to assume a leadership role in information transfer and document delivery.

STORAGE OF LIBRARY MATERIALS

Background

The pressures for space and the need for an affordable alternative to conventional library storage were primary reasons for the formation of the Washington Research Library Consortium. By July 1989 the member library holdings will be more than 5,100,000 volumes. At ten volumes per square foot, the accepted standard for conventional storage, the current storage requirement for the WRLC collections is 510,000 square feet. An average of 125,000 volumes are being added each year. Within five years there will be need for an additional 62,500 square

feet; within ten years the storage requirement will exceed 630,000 square feet.

Fifty to sixty percent of net assignable space is normally allocated for staff, users, and service areas. At most, half of the available space should be used for housing collections. The total library space now in use within the WRLC is only 832,000 net assignable square feet, far short of the immediate need. As a consequence, all but one or two of the libraries have crowded working conditions, insufficient seating, and stacks which are filled to capacity. Among the short-range options, compact shelving and on campus storage are being used to a limited degree by several of the libraries. These are expensive alternatives, however, and much of the on campus space is substandard for library storage.

The usual solutions for the longer-term, expansion or construction of library buildings, are no longer acceptable options for most of the WRLC member institutions. Space is limited and therefore valuable on the urban campuses. With library construction costs averaging $120 per square foot in the Washington, D.C. metropolitan area, it would cost $18,000,000, exclusive of land and at current rates, to build 150,000 square feet of additional storage space. At these rates the WRLC institutions can no longer justify the construction of conventional storage space for library materials. The only possible exceptions are the one or two institutions which have

yet to build a library of even minimum adequacy for their primary clientele.

The need to reduce the cost for storing library materials is the second of the cost containment issues which is being addressed by the Washington Research Library Consortium. The solutions offered by the WRLC will alleviate or eliminate institutional requirements for capital intensive library facilities. These solutions are: 1) the reduction of capital expenditures for the storage of library materials through the construction of a joint facility, 2) the use of new technologies for storing and retrieving library materials, and 3) adoption of policies and mechanisms for the efficient selection, control and retrieval of stored materials.

Construction of a Joint Facility

Since the initial concept for the WRLC, the proposed solution to the collective space problem has been a common facility, located on inexpensive land outside of the urban center, modular in construction, and designed specifically for high density storage. The facility as planned will be an integral component of the total WRLC program. Resources located at the center, like those at the campus libraries, will be available on an equal basis to faculty and students. Deposited and commonly owned materials as well as those held by the member institutions will be fully accessible through the online public access catalog. Retrieval from the center will be further enhanced through

automated control of the depository collections, storage technology, frequent delivery, and document transfer.

There is general agreement within the WRLC that a substantial portion of the total collection is little used and should be transferred to the joint facility. The facility will also provide a central location for materials to be acquired in common through gift or purchase. Those materials which have been placed in the center will be retrieved and delivered to the requesting library or individual within twenty-four hours.

In a series of studies, conducted in the 1930s and 1940s, G. K. Zipf found that a small number of words in text account for a high percentage of word occurrences. When total word usage is plotted, the result is a characteristic hyperbolic distribution. Zipf subsequently applied his principle to a wide range of activities and found it to be generally applicable. During the 1960s, Zipf's law and distribution were successfully applied to a large number of library activities. It was demonstrated, as anticipated by the law, that twenty percent of the typical library collection accounts for approximately eighty percent of the circulation. Conversely, the least-used twenty percent of the collection receives less than one percent of the total use. For planning purposes, the WRLC has calculated that it will be cost-efficient to transfer twenty-five percent of the collection to the central facility or 1,575,000 volumes by 1999.

If twenty-five percent of the combined collection of 6,300,000 volumes is transferred, the quantity of material to be

stored at the main university libraries will be approximately 4,700,000 volumes by 1999, some 400,000 fewer than the 1989 storage requirement. It should therefore be possible to avoid on-campus library construction for a minimum of ten to twelve years, and indefinitely if the continued transfer of little-used materials and the emerging developments in information storage and transfer are taken into account.

Another primary benefit of the proposed solution, in addition to the avoidance of on-campus construction, is the low and affordable cost of remote, high density storage. The estimated cost for the construction of on-campus buildings to house 1,575,000 volumes is $27,787,500. By comparison, the projected cost for a standard high density storage area, similar to the University of California Northern Regional Library Facility, is $4,787,620. The comparative costs f r the two options have been derived from the following model:

COST COMPARISON OF WRLC CENTER AND ON-CAMPUS BUILDING CONSTRUCTION

ITEM	ON CAMPUS VARIABLE	ON CAMPUS QUANTITY	ON CAMPUS COST	WRLC CENTER VARIABLE	WRLC CENTER QUANTITY	WRLC CENTER COST
Volumes:						
Volumes in WRLC		6,300,000			6,300,000	
Percent little used	25%			25%		
Vols. to be stored		1,575,000			1,575,000	
Space:						
Vols. in 100 sq. ft.	1,000			3,100		
Space required		157,500			50,800	
Building:						
Sq. ft. cost of land	$50		$7,875,000	$1.15		$58,420
Sq. ft. building cost	$120		$18,900,000	$75		$3,810,450
Building costs			$26,775,000			$3,868,870
Bookstacks:						
Vols. per linear foot	10			20		
Expansion factor	20%			0%		
Linear feet needed		189,000			78,750	
Linear feet per double faced section	42			60		
Price per section	$225			$700		
Cost of shelving			$1,012,500			$918,750
Total costs			$27,787,500			$4,787,620

With the consortium option the percentage of savings for materials storage is 82.8%. All of the quantitative and cost data for the above model have been obtained from WRLC statistics, standard sources on library space planning, and knowledgeable individuals. The cost of university land varies from a low of $30 per square foot to a high of $70 a square foot; $50 per square foot has been used as an average. The value of the Collington Center land has been placed at $50,000 per acre or

$1.15 per square foot. Only 1.163 acres will be needed at the WRLC location for the initial phase of the storage area.

A large portion of the savings derive from lowered building costs. The average per foot building cost for academic libraries in the Washington, D.C. metropolitan area is approximately $120; the projected cost for construction of the WRLC center is $75 per square foot. It should be noted that construction costs are considerably higher in the urban center where two of the major universities are located.

Other savings are attributable to the relatively simple construction requirements for the common facility and to storage density. In the above model, the greater storage density at the center is achieved through efficient utilization of space (e.g., minimum aisles, long ranges, elimination of user space), stack units with nine or ten shelves, the use of size categories, and elimination of the 20% expansion factor needed for efficient shelving in conventional libraries. Double shelving, as at the University of California facility, is used to increase storage density and the number of volumes per linear foot. As noted in the section on storage technologies, far greater densities and lower space requirements can be achieved through the use of innovative approaches now under consideration by the WRLC. The availability of the central facility will also provide other benefits in addition to the avoidance of university capital construction costs and the reduced cost for remote storage:

1. The transfer of little-used materials to the central facility will relieve overcrowding and improve access in the library bookstacks. Collections will be easier to use, and expensive shifting of the collections will be reduced or eliminated
2. The repository will have appropriate storage for audiovisual materials, microforms, and other types of library materials as well as for books and serials.
3. Member libraries will be able to store unprocessed materials at the center on a space available basis
4. The WRLC will recover a portion of its operating costs through the rental of space to member libraries and, in accord with a policy to be adopted, to non-member institutions.
5. Because of its modular design and modest capital requirements, it will be possible to expand storage capacity at the central facility in less time and at less cost than would be possible at the universities.
6. Preservation guidelines and procedures will be established for the WRLC. Transferred materials will be examined, treated as appropriate, and stored in a controlled environment. Deposited materials will be stored under better conditions than is practicable at most of the member institutions.

Another option, the construction of a high density storage facility at one or more of the member institutions was given

consideration but rejected. Although a local high density storage facility would provide the benefits of a remote facility as well as the advantage of proximity to stored materials, there are a number of serious drawbacks to this alternative:

1. At an average of $50 per square foot for university land, the cost of the 50,800 square feet needed to build high density facilities for the storage of 1,575,000 volumes would be at least $2,540,000. The estimated value of 50,800 square feet of the donated land in Prince George's County is only $58,420. The actual cost of land needed for local facilities could be far higher if buildings were constructed in a central location or on an as needed basis as the per square foot costs at George Washington and Georgetown Universities, two of the urban libraries in need of the most space, are already in excess of $75 per square foot.
2. The amount of space available at the campuses is severely limited. In some cases it may not be possible to expand existing buildings or to build high density storage facilities on university land.
3. The capital cost per square foot for the construction of local high density storage facilities will be less than the estimated $120 per square foot for traditional library space. It is probable, however, that capital costs would be 20% to 50% more than the estimated $75 per square foot for a remote facility. There are numerous cost elements for on-campus construction (e.g., campus planning requirements,

site modifications, relocation of utilities) which will not be incurred for the joint facility. The design and construction of the WRLC facility will be basic and similar to existing high density storage facilities. These are unlikely to be acceptable for on-campus buildings, which will increase planning and architectural costs.

4. The cost for planning and constructing two or more storage facilities on the campuses, if eventually needed, would exceed the costs for the expansion of a modular building at a remote location.

5. There are substantial cost-savings and benefits if the major WRLC components--the online system, materials storage, collection development, preservation--are closely integrated at a central facility. The easiest and least expensive way to achieve this objective is to build a common, multipurpose facility at a remote location.

A number of important steps have been taken toward the realization of a joint facility. In October 1987, Prince George's County donated twenty acres of land to the Washington Research Library Consortium. This parcel of land, in the Collington Center Development, has been valued at $800,000 to $1,000,000. Seven of the eight WRLC institutions are within twenty miles of the site, which is conveniently located and adjacent to major access routes. With the availability of land and the prospect of capital funding, the final draft of a preliminary functional building program was prepared in mid-1989

and issued on September 16. The detailed program gives specifications, special requirements, and spatial relationships for each of the center's areas and functions including the data center, preservation facilities, and high density storage. This document has provided an excellent foundation for exploratory discussions. Two older documents, the October 1985 report of a Task Force on Policies for the Selection, Organization, and Retention of Materials in the Cooperative Center and a brief policy manual adopted in November of the same year by the Consortium Library Council, are still useful for the formulation of needed policies and mechanisms.

Technologies for Storing and Retrieving Materials

As part of the planning process for the center, the WRLC is exploring recent developments in physical storage technology and giving consideration to storage technologies beyond the physical item. There are two recent approaches to the physical storage of library materials which hold great promise for the WRLC. Both of these approaches use microcomputer systems to control the stored materials and achieve exceptional storage densities, thereby saving labor and construction costs. The first of these, the miniload automatic storage and retrieval system (AS/RS), has been incorporated in the draft WRLC facility building program. This system and structure are based on a well-established material handling technique used by industry. With an AS/RS, structural support for the ceiling and walls of the storage facility are provided by metal racks approximately 40 feet in height. The

racks are subdivided into numerous 2' by 4' bins. AS/R ma ines, controlled by computer software and electronics, are used to move the bins between the racks and an operator work station. Miniload automatic storage and retrieval systems are reliable, with an average uptime of 98%. An AS/RS can be connected to online catalogs and circulation systems and has sophisticated capabilities for gathering and organizing stored materials. Because of shelving height and storage density, it is possible to reduce the square foot requirements to approximately 8% of the amount needed for conventional storage and 35% of the total for the more conventional high-density storage used in the WRLC cost model. The structure and storage density of a miniload AS/RS make it possible to secure the collections and assure proper environmental conditions.

A four aisle system of 12,000 square feet will store approximately 1,400,000 volumes. At an estimated $3.00 in construction costs per item stored, the miniload AS/RS system is attractive when compared to the $12 figure for conventional storage in the Washington metropolitan area.[7] Based on studies done by the California State University for a prototype installation at the Northridge campus, the operational costs may also be one-fourth of those for academic libraries.[8]

Another approach was implemented in 1986 by The Harvard Depository, Inc., a wholly owned subsidiary of Harvard University. The Depository, planned and managed by the

university, is operated under contract by a records management firm, Iron Mountain Group, Inc.

The storage area at the Harvard Depository is a single story, modular cube on a specially designed concrete slab. Thirty foot shelving units are configured from floor to ceiling. The shelving is six feet deep, with two 36 inch sections back to back. Materials are stored in cardboard book trays of various sizes, which allows books and other items to be shelved by width as well as height. The 18" trays are shelved double deep on the 36" shelves, at right angles to the shelving. Battery powered, driver-on-board pickers are used to access the stored materials.

The planning for physical security, environmental protection, and inventory loss protection has been exceptionally thorough. There are detailed requirements for storage containers, fire safety construction, alarm and detector systems, air quality, climate control, and building maintenance. The storage area is left dark to protect against light exposure, except during operation when there is a low level of ambient illumination. A computerized inventory system and bar codes are used to control the retrieval and return of stored materials.

The capital cost for the Harvard Depository was $1.8 million or $2.2 million with the cost of financing and land. The capital costs per volume were $1 and $1.30, respectively, and the annual operating cost is well under $1.00 per volume stored.[9] For a building under construction at Ohio State, modeled after the Harvard Depository with a storage area for 1.6 to 2 million

volumes, the total project costs will be $3.3 million. This cost includes separate office, reference, and work space for the university archives and photo archives. It is estimated that the capital cost per volume stored at full capacity will be $1.45 to $1.70, excluding only the costs for the archives administrative area.[10] With the Harvard model the capital costs are 20% to 35% less than for conventional high density storage or automatic storage and retrieval systems. The decisions to be made by the WRLC on the construction of the storage area and the use of storage technology will be influenced by a number of factors including site considerations, the availability of contributed land for the initial phase and subsequent modules, desired storage density, the experience of similar facilities, and the cost efficiency of available software for the automated control of stored materials.

Policies and Mechanisms for Materials Storage

The common storage of library materials will be further enhanced through the adoption of legal documents, policies, and procedures. These instruments will facilitate operations and thereby reduce costs for the selection, organization, and retention of materials. A key element in their formulation and implementation will be the availability of the WRLC/NOTIS system. The linkages among organizational structure, the online integrated system, and the central facility will enable the WRLC to develop a model solution for the storage of library materials

from multiple institutions. Among the documents and procedures which will be written and adopted by the WRLC are the following:

1. Legal documents regarding the ownership, possession, insurance, and return of materials transferred to the central facility.
2. Policies and procedures for the transfer of materials to the facility and from the facility to the owning library.
3. Policies, standards, and procedures for the bibliographic control of materials located at the center.
4. Guidelines for the organization and physical identification of materials.
5. Policies and procedures for the circulation of materials from the center and for on-site use at the center.
6. Policies for the retention of last copies or the transfer of their content to another format.

A number of specific approaches which are intended to improve cost-efficiency have been mentioned in the report or have been given preliminary consideration. These approaches include library cataloging and barcoding of stored materials in accord with WRLC guidelines, barcoding by item number and shelf location, arranging materials by date of receipt, using size categories for the shelving of various types of material, intershelving of monographs and serials, and monitoring the use

frequency of stored materials with a view toward returning items which are too-frequently circulated.

MAINTAINING AND IMPROVING COLLECTIONS

Background

Improvement of library support for academic programs and research interests and acquisition of a combined collection of far better quality than the individual library collections are among the primary goals of the WRLC. The more specific objectives which relate to the strengthening of resources are the implementation of a cooperative collection development program, the reduction of unnecessary duplication, and the effective use of financial and other resources. Although the realization of similar goals and objectives has proven elusive for most consortia, the WRLC has an unusual combination of attributes and capabilities which will enable it to strengthen library resources and to offer solutions to the third of the cost containment issues: the need to reduce the effects of increased costs for maintaining and improving collections. Among the attributes and resources of the WRLC are the following:

1. An infrastructure which includes policy makers at the highest university levels, offering authority and support not available to the numerous consortia which consist solely of library members. The organizational structure of the WRLC has clear and direct relationships between the Board of Directors, the Executive Director, the Advisory Committee of Library Directors, and a Faculty Advisory Committee, all of

which have essential roles in the development of library collections.

2. Legal instruments, including the Articles of Incorporation and Bylaws, which give specific recognition to the provision of staff and resources to develop, maintain, and administer a cooperative academic and research collection.

3. A concept for cooperative collection development and the sharing of resources which gives emphasis to the creation, in effect, of one library from many. This "library" consists of the collections held by the member libraries as well as the materials owned in common. The concept has appeal for the member institutions as it encourages the strengthening of the composite and individual collections as well as the sharing of library resources.

4. A common integrated system which will provide access not only to cataloged items held by the libraries but to acquisition records and in-process materials.

5. The proximity of its member institutions, which greatly facilitates the sharing of library resources. This ability to share resources on a cost-efficient and timely basis is a key element in the success of collection development programs.

6. The accessibility and preservation of the materials stored at the resource center, which will become a significant portion of the total holdings. These materials, accessible to all of the participants on an equal basis through the

common database and document delivery, will be preserved under appropriate environmental conditions to assure their availability for use.

7. A central location, acceptable to all participants, for the storage of materials owned in common.
8. The programs and visibility of the WRLC, which will attract gifts and external funding.

The WRLC also benefits from the experience and interest of the library directors and library staff members responsible for collection development. These individuals have essential roles in the design and implementation of solutions to the cost containment issue, the need to reduce the effects of increased costs for maintaining and developing library collections. The approaches or solutions which are being developed by the WRLC are described after the following section on collection needs within the WRLC and the cost of meeting these needs.

Collection Needs and Costs

In an effort to define a strategy for collection development, the Consortium Library Council undertook a study in 1983 with the assistance of the Office of Management Studies, Association of Research Libraries.[11] An important component of this study was an analysis of two of the Library of Congress classifications, N (Art and Architecture) and P (Linguistics, Languages, and Literatures) using the conspectus developed by the Research Libraries Group At the conclusion of the intensive analysis it was evident that most of the individual library

collections were inadequate to support faculty or graduate research. Of the sixty discipline-level collections which were analyzed, only seven or eight were strong enough to support thesis-level research and only seventeen of the sixty were judged to be strong enough to support undergraduate programs.

An RLG conspectus validation study for English literature corroborated these findings. The six libraries participating in the collaborative project (American, Catholic, George Washington, Georgetown, Howard, UDC) individually held from 134 to 578 of the 973 titles included in the validation study. Altogether the libraries held 70.5% of the titles, barely adequate to support one doctoral program. The labor-intensive conspectus approach was not used for the assessment of other classifications, but it was fairly concluded that substantial funding and a carefully designed program at the consortium level would be needed to improve the collections in the aggregate.

An approach which is frequently used to determine the appropriate size of library collections is the application of quantitative guidelines. These guidelines indicate the number of volumes needed to support instruction and research. The volume counts which are obtained from the guidelines are then compared to collection statistics. The results can be used to ascertain collection needs and to calculate funding requirements. The most commonly accepted guideline, the Clapp-Jordan formula, was developed in 1962 by the Council on Library Resources. A modification to this quantitative guideline, the SUNY adequacy

formula, was issued in 1983. The SUNY formula assigns 80,000 volumes for a basic undergraduate collection, 145 volumes for each full-time equivalent faculty, and 12 volumes for each full-time equivalent student. In addition, the formula assigns 395 volumes for each subject field of undergraduate concentration, plus 3,500 volumes for each subject field of masters concentration, and an additional 38,000 volumes for each subject field of doctoral concentration. Data for the following table was obtained from the member universities and fall 1988 statistics compiled by the WRLC, supplemented by The College Handbook,1988-89 and Peterson's Guide to Graduate and Professional Programs: An Overview 1989.

SUNY ADEQUACY FORMULA APPLIED TO THE WRLC

Category	Quantity	Volumes per formula	Total Volumes
Basic undergrad collection	8	80000	640,000
Faculty (FTE)	3412	145	474,740
Student (FTE)	53027	12	636,324
Subject fields of Undergrad concentration	478	395	188,810
Subject fields of masters concentration	391	3900	1,524,900
Subject fields of doctoral concentration	112	38000	4,256,000
Total volumes			7,720,782

The volume count for the main university libraries of the WRLC was 4,984,671 on 1 July 1988. An estimated 130,000 volumes will be added in fiscal year 1989 (July 1988 - June 1989) for a current total of 5,115,000. This total is approximately 2,600,000 less than the number of volumes which should be held by the universities to support their educational and research programs. Expressed as a percentage, the WRLC libraries now hold 66.3% of the volumes which they should have according to the SUNY adequacy formula.

During 1987-88 the WRLC libraries expended $2,874,805 to purchase 86,624 volumes for an average price of $33.19 per volume. At 1987-88 prices it would require an expenditure of $86,294,000 to purchase the 2,600,000 volumes currently needed to achieve adequacy plus a like amount to process the acquired materials. The amount actually needed would be substantially more over time, due to inflation, the price for out-of-print materials, and changes in the applied formula as a result of enrollment growth, additional program offerings, and new faculty positions.

Another factor to be considered in the design of collection development strategies is the dramatic rise in serial prices and the resultant impact on book acquisitions. The recent price trends for serials and monographs, and the consequences for monograph purchases are given in the following table:

WRLC LIBRARIES
SERIAL AND MONOGRAPH EXPENDITURES
1985-86 AND 1987-88

Serials	1985-86	1987-88
Expenditures	$2,732,342	$4,120,511
Percent of Acquisitions Expenditures	44.4%	55.3%
Serial Subscriptions	36,764	39,950
Price per Title	$74.32	$103.14
Monographs		
Expenditures	$2,858,255	$2,874,805
Percent of Acquisitions Expenditures	46.4%	38.6%
Monographs Purchased	100,654	86,624
Price per Title	$28.39	$33.19

Between 1985-86 and 1987-88 the average price per serial title increased $28.82 or 38.8%. During the same period the average price for monographs increased $4.80 or 16.9%, a substantial but far lower rate than for serials. Another consequence of serial price increases has been the decline in expenditures for library materials in other formats, from $563,751 in 1985-86 to $458,826 in 1987-88. The rapid increase in serial prices and the resultant changes in acquisition patterns which are being experienced within the WRLC are consistent with national trends as reported by the Association of Research Libraries, The Faxon Company, the Library Journal, and other sources.[12]

A third consideration for WRLC collection development, in addition to collection adequacy and serial price tr nds, is the undetermined percentage of overlap among the eight university libraries. As a result, the composite collection is weaker than is apparent from library statistics. Although a sizable amount of duplication is necessary for the literature requirements at multiple universities, there is no doubt, based on studies and experience, that a considerable portion of the duplication within the WRLC is unnecessary.

Despite the extent of need and the impact of external factors, a number of steps can be taken by the WRLC and its member institutions to strengthen library holdings while working towa' reduction of the effects of increased costs for maintaining and improving collections. The most important of these are a steady growth in the level of financial support for library acquisitions and materials processing, actualization of the "one library" concept, and realization of WRLC plans for cooperative collection development.

The WRLC Library

Only one or two of the member libraries have collections which are largely sufficient to meet the needs of their primary clientele, either in terms of adequacy formulae or of known demand. A substantially higher percentage of this need would be met if faculty and students had ready access to the holdings of other member libraries. To attain this objective there would have to be a fundamental change, from limited access to

individual library holdings through traditional policies and programs to nearly complete access through a new level of resource sharing and collection development. This concept, which has been described as a single library, is one of the essential features of the WRLC. A single WRLC library can be realized, without the relocation of individual library collections, through a combination of contractual relationships, consortium services, technology, and a program of cooperative collection development. Contracts between the member institutions and the WRLC will offer assurance that resources at main campus libraries will remain available and that libraries will adhere to common standards. The services and technology which are being introduced by the WRLC to enhance bibliographic and physical access have been described: the common database and telecommunications system, access through NOTIS to reference and external databases, an innovative loan service, and electronic delivery of information.

With realization of the single library there will be easy access not only to the holdings of home institutions but also to the millions of items held by WRLC member libraries and, through the automated system, to extensive resources in electronic formats. As a result, the effective holdings and the level of collection adequacy will be greatly improved overall Library resources will be further enriched, at both the institution and consortium levels, through the WRLC program of cooperative collection development.

Cooperative Collection Development

A high priority has been assigned to cooperative collection development in the initial three-year implementation phase for the Washington Research Library Consortium, scheduled from July 1989 through June 1992. It is also a major element in the concurrent planning and testing for second phase implementation. An important step toward the realization of program and planning objectives for collection development was taken in September 1988 with the formation of a Collection Development Advisory Committee, consisting of representatives appointed by the library directors and chaired by the WRLC Executive Director. At its initial meeting the committee identified topics of prospective interest and adopted the following charge:

The purpose of the Committee is to address issues of common interest to the participating institutions concerning the development of policies and programs to enhance cooperative collection development and management, including storage, preservation and access. The Committee is to provide advice to guide the direction that the WRLC is to take in responding to and working with institutional collection development policies and implementation programs.

This charge is notable for the emphasis it places on the roles and relationships of the consortium and its participating institutions, consistent with the WRLC mission statement, and for its coherent statement of purpose, which recognizes the linkages among the various programs. The committee subsequently agreed

that its initial priority is cooperative acquisitions with a focus on serial subscriptions. A pilot project, to test a proposed methodology for the collective purchase of expensive serial back files and sets, has been agreed to by the committee and forwarded to the library directors for consideration. Funding for the purchases is to be secured from outside sources and institutional contributions. The approach to be used by the pilot project will add resources which would not be acquired by single institutions, build on collection strengths, and spread costs among the participants. Information and experience from the pilot project will be used to develop strategies to extend the joint acquisitions program to other forms of material to include audiovisual materials and computer software. Consideration will also be given to shared subscriptions to specified categories of journals and to joint memberships in the Center for Research Libraries and other organizations.

In addition to the collective purchase of expensive materials, the Collection Development Committee has begun the process of selecting other projects and tasks which can be accomplished prior to the availability of NOTIS. Substantial progress has already been made in the collection of data on advanced degree programs and awarded degrees, as the first step toward the establishment of a program for the systematic collection of institutional information. Attention is also being devoted to the determination of objectives and strategies for cooperative collection development, with emphasis on computer

assisted approaches. A major component of this process will be a review of NOTIS support capabilities for collection development and an evaluation of the various collection development methodologies as they relate to NOTIS capabilities and WRLC objectives.

If NOTIS capabilities are inadequate to support the chosen methodologies, the WRLC will develop the software needed for the support of a cooperative collection development program. With the availability of the online public access catalog, scheduled for the second year of the implementation phase, it will be possible to initiate a limited number of collection development projects which are cost-effective in the WRLC/NOTIS environment. These projects will be tests or initial phases of the several components of a coordinated collection management program, to include description and assessment of the collections, analysis of information on the collections and institutions, common or coordinated policy statements for collection development, and institutional assignments for primary collecting responsibilities.

The WRLC and Cost Containment

The improvement of library resources and the reduction of the effects of increased costs for these resources are long-range and complex objectives. With the single library concept and collection development program, the WRLC is offering solutions which will reduce the time and cost needed to build a

superior composite collection. Costs will be contained and collections improved through the following approaches:

1. Actualization of the single library concept will expand the quantity of materials available to faculty and students, reduce the need for duplication, and enable libraries to use acquisitions funds to purchase other materials, thereby enriching the total collection.
2. Knowledge of the total holdings and their relation to academic programs will enable the libraries to make better and more rational cost-benefit decisions on current purchases. This knowledge will be obtained through analysis of collection and institutional information, authorized access to acquisitions and serial records, common or coordinated policy statements, and institutional assignments for collecting responsibilities.
3. With the capabilities available with NOTIS and tools to be made available through WRLC, it will be possible to identify collection strengths, overlap, omissions, and other characteristics. With this information it will be feasible to implement a program to strengthen the composite collection in a systematic manner.
4. Joint acquisition of expensive and specialized materials in accord with program guidelines will assure the availability of materials which are too expensive for individual institutions, thereby adding significant resources at modest cost to the participants.

5. Through a program to secure outside funding the WRLC will be able to attract gifts and compete successfully for grant awards. Gift collections and external funding will strengthen the total resources while helping to reduce the financial support needed for library materials.

6. It will be practicable, in the WRLC/NOTIS environment, to undertake a program to reduce the amount of unnecessary duplication, particularly for serials and expensive sets. The WRLC/NOTIS online system will provide easy and dynamic access to full bibliographic and union listing records. Additional information will be available with implementation of the acquisitions and serials modules. Together with policy statements, collecting assignments, and use studies, the system information will provide a firm basis for decision making. The funds saved from the reduction of unnecessary duplication can be used to purchase other titles or applied toward the restoration of a more acceptable balance between serial and monograph expenditures.

A more cost-effective use of financial resources will be one of the primary benefits derived from the implementation of these approaches. In combination with gifts and grant awards, the single library concept and collection development program will also result in a stronger composite collection which will more adequately support the academic and research programs of the member institutions.

At present there are no budgeted or projected expenditures for cooperative collection development. It is expected, however, that WRLC staff time and other expenses for this purpose will not exceed $50,000 over the next three or four years, including the cost of augmenting NOTIS software. Without data it is impossible to forecast how much of the needless duplication will be eliminated or to calculate the improvement in collection adequacy over time. Nevertheless, it can be asserted that WRLC programs for collection development will be cost-beneficial and that new directions made possible by the WRLC will reduce the effects of increased costs for maintaining and improving library collections.

PRESERVATION OF LIBRARY COLLECTIONS

Background

If the consortium library collections are similar to those of other academic libraries, approximately 25% of the holdings in printed text are already embrittled and most of the remainder are deteriorating or at risk. For most of these materials the deterioration is gradual, slowed by environmental controls and other measures, but for a sizable portion of the total collection the deterioration is proceeding at an alarming rate.

This situation has been one of the most serious concerns of the WRLC member libraries. In response, the libraries have introduced or improved their preservation measures, including environmental controls, adherence to library binding standards, selective microfilming of research collections, and the proper

handling and cleaning of library materials. These efforts are useful or even essential, but they have been largely fragmentary or are insufficient to counter the accelerating decay. The deterrents to a more systematic and ambitious program for materials preservation, which confronts the individual WRLC libraries and libraries elsewhere, is the level of funding required and the shortage of expertise. Of the answers which have been proposed, the most promising are cooperative programs and technological innovation. With the exception of a very small number of research libraries, the only way that most libraries can justify the high cost of large-scale microfilming and mass deacidification is through the sharing of capital and operational costs. New technology, when introduced, is also likely to require the centralization of resources and expertise.

With the original concept for the WRLC it became logical to think of the collections of the member libraries as a single resource which required preservation. It was also logical, in the context of WRLC objectives, to link the preservation program to the programs for the online system, materials storage, and collection development. The preservation program in its larger dimension is the WRLC solution to the fourth of the cost containment issues, the need to reduce the costs for preserving collections. The costs and benefits of the WRLC approach are described, following sections on the initial implementation phase and planning for a comprehensive program.

Assessment of Preservation Needs

The important first step toward the development of a cooperative preservation program is being undertaken with the support of a $46,745 grant from the National Endowment for the Humanities Office of Preservation Projects. The grant award was made to the WRLC, in cooperation with the Georgetown University Law Center Library, a regional leader in the areas of collection assessment and conservation. There are two phases to the six-month study, a condition survey and an evaluation phase, during which the results will be analyzed and documented. The application for the grant award, including the narrative description of the preservation project, is attached as Appendix E.

Six of the WRLC libraries are participating in the survey, which is directed by Linda Nainis, Assistant Director for Collection Management at the Georgetown University Law Library. She will work closely with Jutta Reed-Scott, a preservation consultant from the Association of Research Libraries. The study is further enhanced by the involvement of a conservation consultant and an experienced survey statistician. A Preservation Planning Program, developed by the ARL, is being used to provide a framework for the study.

Librarians have been appointed to the study by each of the participants. They will serve on the Preservation Planning Committee and direct the conduct of a condition survey of their respective libraries. Decisions on survey design, sampling

frames, the collections to be sampled, forms to be used, and related matters will be made by the committee with the involvement of the project team. The collected data will be input on a central computer. This information will then be manipulated and analyzed, using a shared statistical package. A final report on the survey results and recommendations to the WRLC will be prepared and reviewed.

The survey is envisioned as the initial step of a comprehensive program to preserve and extend the useful life of disintegrating library materials. As a result of the survey it will be possible, for the first time, to identify the nature and magnitude of preservation problems in WRLC libraries. Analysis and interpretation of the survey data will enable the WRLC to relate the specific preservation problems to appropriate treatment strategies. The hard data produced by the survey will also support preservation planning and decision-making within the consortium. Another tangible benefit to be derived from the study will be a network of librarians who will be jointly knowledgeable about the preservation needs of the member libraries.

Planning for a Comprehensive Program

The preservation survey will provide a strong basis for cooperation within the WRLC and direction for the planning of a comprehensive program, including a state-of-the-art facility. Further support for the development of a plan of action will be

obtained from additional studies, consultants, site visits and demonstration projects.

The interdependent nature of the WRLC programs will provide an exceptional opportunity for the integration of preservation information and strategies. Perhaps the foremost of these is the capability of relating preservation measures to the overall goal of coordinated collection development. The planning process will therefore include a thorough consideration of program relationships as well as an examination of opportunities for cooperative preservation activities. As there is a large array of measures for the conservation and preservation of library materials, it will be necessary to identify those which are most cost-effective in the WRLC environment. Among the activities which have been determined as being of particular importance are the following:

1. Establishment of coordinated policies and procedures within the WRLC and its libraries
2. Automation of preservation information within the NOTIS integrated library system
3. A systematic collection management program to include the identification of candidate collections for preservation
4. A training program for library staff in the preservation and conservation of library materials
5. A conservation treatment center
6. A shared mass deacidification facility

7. Preservation microfilming
8. A clearinghouse of preservation-related information
9. Joint purchase or lease of expensive preservation equipment
10. Joint purchase of preservation supplies
11. Transfer of full text to digitized form
12. A policy and procedures for the retention of last copies
13. A coordinated program for disaster preparedness

In combination the selected programs should be cost-beneficial and ensure that materials or their contents are preserved for use. As a step toward realizing these objectives, the development of an approach for the periodic review and evaluation of programs will be included in the planning process. As preservation is an area of great interest, with likely changes in technology and national planning, there will also be need for an ongoing awareness of new developments and an assessment of their import for the WRLC and its member institutions.

Cost-Benefits of the Preservation Program

Many of the enumerated programs can be implemented at modest cost but will nevertheless be of significant benefit. These include the identification of candidate collections for preservation; coordinated policies and procedures, including those for the retention of last copies; the automation of preservation information; a training program for library staff; a clearinghouse of information on preservation; and a coordinated plan for disaster preparedness. It is possible that financial

support for several of these programs could be secured from outside sources.

The joint purchase of specialized equipment will spread the costs among the participants. In nearly all cases the equipment would be purchased through the WRLC and located at the central facility. Some of the desired equipment is expensive (e.g., book dryers and equipment needed for extensive repair or maintenance of audiovisual materials) and could not be afforded by individual institutions. The joint purchase of supplies, for use at the libraries and the center, will result in group discounts and lowered unit prices. Although cost savings cannot be projected, it is certain that collective purchase of supplies and equipment will be of direct benefit to the participating libraries.

As noted in a previous section on information transfer, the WRLC is planning to test a combination of technologies in support of full text and document image processing, to include scanning and optical storage and retrieval. The extent and nature of this testing will depend on a number of factors. As a consequence, it is not feasible at this time to project an estimated cost for this activity.

A conservation treatment center is essential for the repair and maintenance of the collection housed at the central facility. This center may also supplement the repair work being done at the individual libraries, in which case there would be some cost recovery. A model conservation center has been described by Linda Nainis and Robert Milevski, complete with a detailed cost

itemization for basic equipment and supplies.[13] A comparable facility for the WRLC would cost an estimated $19,000 at current prices. This price includes built-in and moveable furniture, a Kutrimer board shear, a stamping press, additional equipment, tools, and supplies. An estimated 500 square feet of space would be required for the center.

A second major component of the preservation facility is a microfilming unit. This unit will have the capability of producing archival quality film of deteriorated materials and other items which should be preserved for use. The primary function of the unit is to provide a photographic style laboratory for making microfilm copies of books, journals, and other printed materials. The unit will also be used for the cleaning, restoration, and duplication of micro-reproduced materials.

Preliminary specifications for the unit are included in the final draft of the functional building program. The draft identifies eight functional areas and provides estimated square feet for each of these areas. Other design specifications and the requirements for furniture and equipment will be derived in consultation with the Mid-Atlantic Preservation Service (MAPS). The estimated cost for unit furnishings and equipment, including the six production cameras recommended by MAPS, is $1,200,000. This cost reflects the announced termination of microfilm camera production by Eastman Kodak and the uncertain cost of similar

equipment produced in Europe. The estimated space requirement for the microfilming unit is 5,000 square feet.

The third of the three preservation components is a mass deacidification unit. With the large volume of materials needing treatment within the WRLC, a mass deacidification unit will be needed to preserve and extend the life of printed materials which are still in relatively good condition and to deacidify new books which are produced with acid-based paper. The objective of the WRLC is to have a handling capability of 500,000 to 1,000,000 volumes per year. If there is unused capacity the consortium will be able to generate income from the sale of services to nonmember institutions.

At present the only technology which is both proven and commercially available is the Wei T'o Nonaqueous Books Deacidification System. Wei T'o has been operational at the National Archives of Canada since 1981. The system uses a liquified gas process to neutralize acids and to deposit buffering chemicals which will neutralize acids that may subsequently contaminate the paper.

Mass deacidification equipment and space is expensive and beyond the reach of the individual institutions. Based on estimates obtained from Wei T'o, the capital cost for a system capable of handling 500,000 volumes per year is approximately $750,000 and a system large enough to handle one million volumes would cost $1,500,000 or more. An estimated 5,000 square feet of space have been allocated for the equipment room and related

functions. As in the cases of preservation microfilming and high density storage, the cost-beneficial method of resolving the problem of deacidification is through the WRLC. Among the advantages of the WRLC approach are economies of scale, shared expertise, and the sharing of capital and operational costs.

The estimated capital costs for the three major components of the preservation unit are:

Conservation center	$ 19,000
Preservation microfilming	1,200,000
Deacidification (first phase)	750,000
Land: 10,500 sq ft @$1.15	12,075
Construction: 10,500 sq ft @$75	787,500
Total	$2,768,575

The capital cost for the preservation unit is considerable, but will be more than recovered through the extension of life for the materials held by member libraries and the center. It is also probable that the provision of services under contract to non-WRLC libraries will generate income in excess of operational expenditures which could be used to offset a portion of the capital expenditures. More significantly, the individual libraries can not afford the capital costs for preservation microfilming or deacidification equipment, and commercial services for the transfer or treatment of large quantities of material would be more costly than comparable services provided through the WRLC. In addition to offering a comprehensive program for the preservation of library materials, the WRLC

approach offers economies of scale, shared expertise, and the sharing of capital and operational costs.

SUMMARY OF WRLC CAPITAL COSTS

The capital costs for the major programs have been itemized under the respective sections on cost containment issues and WRLC solutions to these issues. As noted above, all of the anticipated costs for one of these programs, maintaining and improving library collections, are best handled as operating costs. Because they must be budgeted and available for the initial year of operation, the costs for administrative office furnishings and equipment and an office telephone system have been included with the WRLC/NOTIS system. The totals for the integrated online system, the storage area, and the preservation unit include associated costs for land and building construction.

In addition, there are capital costs which are not attributable to one of the major programs but which are essential for the operation of the WRLC. These costs can be assigned to three categories: land, building construction, and equipment. The land thus far assigned has totaled 63,300 square feet although it should again be noted that space requirements for the storage area can be significantly reduced if AS/RS or the Harvard Depository model are adopted. The facility building program has assigned 1,930 square feet for the vestibule, administrative offices, custodial/maintenance, restrooms, and a small kitchen. Approximately 4,000 square feet of space will be needed for a reception and waiting area, a conference room, an area for on-

site research, a training area, a staff lounge, and shipping and receiving. An additional amount of land, estimated to total 50,000 square feet, will be needed for roadways, parking, and landscaping.

Construction costs have been calculated at $75 per square foot, the same rate as for the storage area and the preservation unit. The remaining capital costs are for architectural fees, a delivery vehicle, a security system, and miscellaneous equipment and furnishings. The estimated cost for these items is $65,000. In summary, the total capital costs for the WRLC are:

Item	Cost
WRLC/NOTIS system	$ 4,043,294
Database Creation (1/2 of total)	982,250
Union listing capability	11,677
Materials storage	4,787,620
Preservation unit	2,768,575
Other WRLC functions:	
Land: 54,000 sq ft @$1.15	6,900
Construction 6,000 sq ft@$75	450,000
Fees and equipment	65,000
Total	$13,115,316

WRLC OPERATIONAL COSTS

An income/expenditure model for a three-year period, from July 1990 through June 1992, has been accepted in principle by the WRLC Board of Directors. The summary of operating expenditures for fiscal years 1990 through 1992 is as follows:

Item	Cost
Personnel	$2,042,996
General expenses	126,271
Consultants	18,000
Telecommunications	122,599
Staff development	90,807
Office space	333,133
NOTIS expenses	58,950
Hardware expenses	227,903
Software expenses	43,009
Total	$3,063,669

This expenditure model is centered on the implementation of the NOTIS system, the primary emphasis for the WRLC during the initial three-year period. However, it does provide administrative and office support for the resource sharing programs transferred from the Consortium of Universities, new programs for collection development and document delivery, and detailed planning for collection management, the central facility, and a comprehensive program for materials preservation. The line item for office space is for the rental of an interim location before the move to the central facility.

It is difficult and perhaps misleading to compare WRLC operating costs for the three-period to the sum of the projected system operating costs for the individual institutions. With the exception of three universities, the individual library systems consist of two or three modules, thus reducing the cost for system maintenance and personnel. One of the participants, Marymount University, is not automated at present and has not projected costs for a system other than through the WRLC. Some of the libraries receive administrative, programming, or other

support from a campus computing center. The cost for space, building maintenance, utilities, supplies, and indirect expenses are difficult to obtain and have not been solicited by the WRLC. Also, the WRLC will be operating a far larger and more complex system, with a greater volume of activity than the sum of the individual systems. As with the systems at the individual institutions, the major determinants for the size and cost of the WRLC system will be the degree and impact of concurrent use of the system, the size of the various files, and performance expectations. Finally, the WRLC operating budget includes support not only for the common system but for resource sharing activities and new program initiatives.

As part of the planning process, the WRLC surveyed its member libraries in April 1986 and December 1988 regarding projected expenditures for personnel and system maintenance. The data are not complete and somewhat inconsistent, but it is possible to determine expenditure ranges for the July 1989 - June 1992 period At the low end, the range of projected expenditures are $1,360,000 for system maintenance and $1,320,000 for personnel, for a total of $2,680,000. This amount is only $383,669 less than the total operational expenditures for the WRLC, including rent for interim space, a telecommunications network, and support for the other cooperative programs. Since data is missing on computing center support, other budgeted costs, and indirect costs, it can be reasonably stated that operational costs for the individual systems are at least equal

to and probably greater than the operational costs for the WRLC/NOTIS system.

Operational costs for representative NOTIS systems are given in the NOTIS Configuration Guide. These annual costs correspond to the capital costs for the several hardware/software configurations used in the report. The annual costs include maintenance for central site hardware and terminal-related hardware plus maintenance fees for the NOTIS package and a report writer. The annual operating costs for configuration 1 systems, which are adequate for Gallaudet and Marymount, are $41,150. The annual operating costs for configuration 2 systems, which use a family of processors which are appropriate for American, George Mason, and the University of the District of Columbia, are $56,496. Configuration 3 systems, required at Catholic, George Washington, and Georgetown, have an annual operating cost of $69,747. For the eight WRLC libraries the total cost would be $461,029 per year or $1,383,087 for a three-year period. This amount is considerably more than the $270,912 to be expended by the WRLC for hardware and software maintenance and again demonstrates the advantages of a common, centralized system.

Operational costs for the storage of library materials have been calculated by the California State University system. According to detailed studies done in 1987 by the Chancellor's Office, California State University, the unit cost for an open stack collection, including utilities, reshelving, and maintenance, was $.281 per item per year. The use of industrial

shelving lowered the cost to $.200 per item, but with an AS/RS system the per item cost was only $.068 per item stored, or 24.2% of the cost for an open stack collection. This is very similar to the cost of $.07 per item stored as reported to the Study Team from the Ohio Board of Regents by the University of California Northern Regional Facility. Storage and retrieval costs can not be projected as yet for the WRLC center. Nevertheless, it appears certain, based on the experience of other facilities, that operational costs will be considerably less than those which would be incurred by the member institutions for the traditional storage of a like quantity of library materials.

As previously noted, the operational cost for an active program of cooperative collection development will be approximately $50,000 for the initial three-year period. It is not possible, however, to give meaningful cost projections for the preservation program. The level of the ongoing costs for the comprehensive program will depend on the dollar amount of the fixed costs, the volume of activity and the consequent changes in variable costs, and the extent of cost-recovery from the sale of services to member and nonmember libraries. An attempt to compare the WRLC costs for these programs with costs for the individual institutions would be essentially meaningless as cooperative collection development and the large-scale preservation of library materials are feasible only in the WRLC environment.

CONCLUSIONS

Through its combination of interrelated programs the WRLC is providing solutions to four of the major cost containment issues which are confronting its member institutions and other institutions of higher education throughout the country. The offered solutions will reverse the trend of increasing costs for providing access to library materials, reduce the cost for storing library materials, reduce the effect of increased costs for maintaining and improving collections, and reduce the costs for preserving collections. With the implementation of its programs the WRLC will play an important role in the nationwide effort to counter the trend of increasing costs for the management of information. In keeping with its mission, the WRLC will also provide an enhancement to existing library and information resources and services for its participating institutions.

Most but not all of the costs for the implementation and operation of the WRLC and its programs are known or have been estimated. The largest of the capital costs--for computer hardware and telecommunications, database creation, building construction, and the preservation unit--are primarily one-time costs. The WRLC capital costs in the aggregate will be significantly less than the capital costs which would be incurred by the member institutions for the replacement of online systems and the construction of space to house the growing collections. Two of the major activities, cooperative collection development

and the comprehensive preservation of library materials, are feasible only in the context of the WRLC and its interrelated programs. It is not yet possible to estimate the WRLC operational costs for programs other than general administration and the online integrated system, but these appear to be very favorable, particularly in light of the numerous benefits to be derived from the WRLC and the resultant improvement of library and information services in support of research and instruction.

NOTES

[1] Washington Research Library Consortium, Board of Directors, Minutes of the Meeting of May 31, 1988.

[2] Dennis, Donald D., "Working Paper on a Consortium Cooperative Library Center," rev. July 25, 1984.

[3] Malcolm Getz, "Some Benefits of the Online Catalog," College & Research Libraries 48 (May 1987): 239.

[4] Ibid., p. 235.

[5] Malcolm Getz, "More Benefits of Automation," College & Research Libraries 49 (November 1988): 535-39.

[6] Miriam A. Drake, "Value of the Information Professional: Cost/Benefit Analysis," in President's Task Force on the Value of the Information Professional, Final Report, (Washington, D.C.: Special Libraries Association, 1987), p. 11.

[7] John Kountz, "Industrial Storage Technology Applied to Library Requirements," Library Hi Tech 5 (Winter 1987): 14. The average price per book stored using AS/RS technology was $2.68 in 1987.

[8] Ibid., p.14.

[9] Ohio Board of Regents, Library Study Committee, Academic Libraries in Ohio: Progress Through Collaboration, Storage, and Technology (Columbus, Ohio: Ohio Board of Regents, 1987), p. 52.

[10] Ohio State University, Office of Planning and Space Utilization, Program of Requirements: Library Book Depository, Phase 1, 1989-90 Biennium (Columbus, Ohio: Ohio State University, 1989), p. 15.

[11] Consortium of Universities of the Washington Metropolitan Area, Collaborative Collection Analysis: Report to the Eugene and Agnes E. Meyer Foundation (Washington, D.C.: Consortium of Universities, 1984).

[12] Association of Research Libraries, ARL Statistics 1987-88 (Washington, D.C.: Association of Research Libraries, 1989) p. 7.; Ronald Akie, Periodical Prices: 1986-1988 Update (Westwood, Mass.: The Faxon Company, Inc., 1988); Leslie C. Knapp and Rebecca T. Lenzini, "Price Index for 1988: U.S. Periodicals," Library Journal 113 (April 15 1988): 35-41.

[13] Linda Nainis and Robert Milevski, "Book Repair: One Component of an Overall Preservation Program," The New Library Scene 6 (April 1987): 1-10.

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APPENDIX A

GOVERNMENT OF THE DISTRICT OF COLUMBIA
DEPARTMENT OF CONSUMER AND REGULATORY AFFAIRS

C E R T I F I C A T E

THIS IS TO CERTIFY that all provisions of the DISTRICT OF COLUMBIA NON-PROFIT CORPORATION ACT have been complied with and accordingly this CERTIFICATE of Incorporation is hereby issued to THE WASHINGTON RESEARCH LIBRARY CONSORTIUM

as of March 5, 19 87.

Donald G. Murray
Director

R. Benjamin Johnson
Administrator
Business Regulation Administration

Miriam Hellen Jones
Superintendent of Corporations
Corporations Division

Marion Barry, Jr.
Mayor

ARTICLES OF INCORPORATION
OF
THE WASHINGTON RESEARCH LIBRARY CONSORTIUM

To: Department of Consumer and Regulatory Affairs,
Business Regulation Administration
614 H Street, N.W.
Washington, D.C. 20001

We, the undersigned natural persons of the age of twenty-one or more, acting as incorporators of a corporation under the NON-PROFIT CORPORATION ACT (D.C. Code, 1981 edition, Title 29, Chapter 5), adopt the following Articles of Incorporation:

ARTICLE I. NAME.

The name of the Corporation is "The Washington Research Library Consortium."

ARTICLE II. TERM.

The term of the Corporation shall be perpetual.

ARTICLE III. PURPOSES.

The Corporation is organized to operate exclusively for charitable, scientific, literary or educational purposes within the meaning of Section 501(c)(3) of the Internal Revenue Code of 1954 (or the corresponding provision of any future United States internal revenue law) by promoting the development of a cooperative network primarily among libraries in the Washington metropolitan area. The specific functions and services provided by the Corporation may include, but are not limited to:

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A. Providing staff and resources to develop, to maintain and to administer a cooperative academic and research collection for and among the libraries of the institutions participating in the cooperative network ("Participating Institutions") that will better support the academic and research programs of the Participating Institutions.

B. Establishing a computer and telecommunications network ("Computer Network") with an outline union catalog of the Participating Institutions' holdings and the Corporation's holdings accessible to the libraries of the Participating Institutions ("Participating Libraries") that will provide internal management and service modules for the Participating Libraries and which will support an enhanced cooperative exchange of holdings among the Participating Libraries.

C. Establishing and operating a building ("Facility") that will house seldom-used, research-level books and other materials from the collections of the Participating Libraries, that will provide temporary storage facilities for unprocessed but in-process library materials from the Participating Libraries and that may house additional materials as necessary or desirable.

D. Establishing and operating a preservation services unit, headquartered at the Facility, with staff and equipment sufficient to provide the services required for the restoration and conservation of the collections of the Participating Libraries, the Corporation and other libraries.

E. Operating a library resources delivery system that will fectively serve the Participating Libraries and the Corporation.

F. Raising funds by subscriptions or otherwise from individuals, governments, and organizations of any kind to accomplish the Corporation's charitable, scientific, literary or educational objectives.

G. Engaging, either alone or with others, in storage, retrieval and use of information and in research in information studies.

No portion of the funds provided by the Corporation to The Washington Research Library Consortium, or to any other organization, shall be utilized by The Washington Research Library Consortium, or such other organization, for any purposes, including political purposes, that would not be considered haritable, scientific, literary or educational purposes within the meaning of Section 501(c)(3) of the Internal Revenue Code of 1954 (or the corresponding provision of any future United States internal revenue law). The use of the Corporation's funds by The Washington Research Library Consortium, or any other organization supported by the Corporation, shall be consistent with the restrictions on the Corporation's powers set forth in Article IV B of these Articles of Incorporation.

ARTICLE IV. POWERS.

A. The statement of purposes contained in Article III shall be construed as a statement of both purposes and powers and not as restricting or limiting in any way the general lawful powers of the Corporation or their exercise and enjoyment, as they are expressly or impliedly granted by the Non-Profit Corporation Act of the District of Columbia.

Consistent with the purposes outlined in Article III, the Corporation may exercise all powers available to corporations under the District of Columbia Non-Profit Corporation Act, subject to the specific restrictions on the Corporation's powers contained in these Articles of Incorporation and the Corporation's bylaws, and provided that the Corporation is not organized for profit and no part of the net earnings of the Corporation shall inure to the benefit of any director or individual, and that the Corporation shall exercise only such powers as are consistent with the exempt status of organizations described in Section 501(c)(3) of the Internal Revenue Code of 1954 (or the corresponding provision of any future United States internal revenue law), and the regulations thereunder, as the same now exist or as they may be hereafter amended from time to time.

B. In all events and under all circumstances, and notwithstanding merger, consolidation, reorganization, termination, dissolution or winding up of the Corporation, voluntarily or involuntarily or by operation of law or any provision hereof:

(1) The Corporation shall not have or exercise any power or authority either expressly, by interpretation, or by operation of law, nor shall it directly or indirectly engage in any activity, that would (i) prevent it from qualifying (and continuing to qualify) for exemption from federal income taxation as a corporation described in Section 501(c)(3) of the Internal Revenue Code of 1954 (or the corresponding provision of any future United States internal revenue law or (ii) cause it to lose such tax exempt status.

(2) No part of the assets or net earnings of the Corporation shall inure to the benefit of or be distributable to its incorporators, directors, officers, or other private persons, except that the Corporation shall be authorized and empowered to pay reasonable compensation for services rendered and to make payments and reimbursements for expenses incurred in furtherance of the purposes set forth in Article III hereof.

(3) No substantial part of the activities of the Corporation shall consist of carrying on propaganda, or otherwise attempting to influence legislation, except as may be permitted in accordance with Section 501(h) of the Code (or corresponding provisions of any future United States internal revenue law); nor

shall it in any manner or to any extent participate in, or intervene in (including the publishing or distributing of statements), any political campaign on behalf of any candidate for public office.

(4) Neither the whole, nor any part or portion, of the assets or net earnings of the Corporation shall be used, nor shall the Corporation ever be operated, for purposes or objects other than those set forth in Article III hereof.

(5) If the Corporation shall during any period be treated as a private foundation as defined in Section 509(a) of the Internal Revenue Code of 1954 (or the corresponding provision of any future United States internal revenue law), the Corporation shall during any such period:

(a) not engage in any act of self-dealing that is taxable under Section 4941 of the Internal Revenue Code of 1954 (or the corresponding provision of any future United States internal revenue law);

(b) not make distributions at such time and in such manner as to subject it to tax under Section 4942 of the Internal Revenue Code of 1954 (or the corresponding provision of any future United States internal revenue law);

(c) not retain any excess business holdings that would subject it to tax under Section 4943 of the Internal Revenue Code of 1954 (or the corresponding provision of any future United States internal revenue law);

(d) not make any investments that would subject it to tax under Section 4944 of the Internal Revenue Code of 1954 (or the corresponding provision of any future United States internal revenue law); and

(e) not make any taxable expenditures that would subject it to tax under Section 4945 of the Internal Revenue Code of 1954 (or the corresponding provision of any future United States internal revenue law).

ARTICLE V. CLASSES OF MEMBERS.

The Corporation shall be composed of one member: The Consortium of Universities. Such member shall have the right to elect the directors of the Corporation, except that the initial Board of Directors is named herein.

ARTICLE VI. BOARD OF DIRECTORS.

The affairs of the Corporation shall be managed by a Board of Directors as set forth in the bylaws. The number of directors and the manner of their election or appointment by the above

named member shall be set forth in the bylaws, except that the initial Board of Directors is named herein.

ARTICLE VII. REGULATION OF INTERNAL AFFAIRS.

The affairs of the Corporation shall be managed by the Board of Directors. Except as provided in these Articles, provisions for the regulation of the internal affairs of the Corporation, including the management of the Corporation by such officers as the bylaws prescribe, shall be determined and fixed by the bylaws. The initial bylaws of the Corporation shall be adopted by the Board of Directors, which may alter, amend, repeal or replace the bylaws.

ARTICLE VIII. DISSOLUTION.

In the event of termination, dissolution or winding up of the Corporation in any manner or for any reason whatsoever, its remaining assets, if any, after the payment of all liabilities and obligations, shall be distributed to one or more organizations described in Section 501(c)(3) of the Internal Revenue Code of 1954 (or the corresponding provision of any future United States internal revenue law) selected by the Board of Directors in its discretion.

ARTICLE IX. PRIVATE PROPERTY OF OFFICERS AND DIRECTORS.

The private property of the officers and directors of the Corporation shall not be subject to payment of corporate debts to any extent whatsoever.

ARTICLE X. INDEMNIFICATION.

The Corporation shall indemnify any director or officer or former director or officer of the Corporation, or any person who may have served at its request as a director or officer of another corporation, whether for profit or not for profit, against expenses actually and necessarily incurred by such officer or director in connection with the defense of any action, suit or proceeding in which he is made a party by reason of having served as director or officer, except in relation to matters as to which he shall be adjudged in such action, suit, or proceeding to be liable for gross negligence or willful misconduct in the performance of a duty.

ARTICLE XI. ADDRESS AND REGISTERED AGENT.

The address of the initial registered office of the Corporation is:

1660 L Street, N.W., Suite 1000
Washington, D.C. 20036

The name of the initial registered agent at the foregoing office is:

Barbara A. Burton

ARTICLE XII. INITIAL DIRECTORS.

The number of directors constituting the initial Board of Directors is three (3), and the names and addresses of the persons who are to serve as the initial directors until their successors have been elected and qualify are:

Rev. John P. Whalen
1614 Parham Road
Silver Spring, MD 20903

Dr. Lisle C. Carter
1638A Beekman Place, N.W.
Washington, D.C. 20009

Rev. Timothy S. Healy
Georgetown University 3600 m st N.W
Washington, D.C. 20057

ARTICLE XIII. AMENDMENT.

The Corporation reserves the right to amend these Articles of Incorporation. No amendment shall be made which would adversely affect the qualification of the Corporation as an organization described in Section 501(c)(3) of the Internal Revenue Code of 1954 (or the corresponding provision of any future United States internal revenue law), contributions to which are deductible for federal income tax purposes.

ARTICLE XIV. INCORPORATORS.

The name and address, including street and number, of each incorporator is:

Rev. John P. Whalen
1614 Parham Road
Silver Spring, MD 20903

Dr. Lisle C. Carter
1638A Beekman Place, N.W.
Washington, D.C. 20009

Rev. Timothy S. Healy
Georgetown University 3600 m st. N.W.
Washington, D.C. 20057

IN WITNESS WHEREOF, the incorporators hereof have signed these Articles of Incorporation on the dates indicated beside their signatures.

Rev. John P. Whalen — Date: March 3, 1987

Dr. Lisle C. Carter — Date: 4 March 1987

Rev. Timothy S. Healy — Date: March 3, 1987

District of Columbia)
) ss:
)

I, RITA Sanderson, a Notary Public, hereby certify that on the 4th day of MARCH 1987, Rev. John P. Whalen appeared before me and signed the foregoing document as an incorporator, and averred that the statements therein contained are true.

(NOTARY SEAL)

Rita A Sanderson
Notary Public

My Commission Expires January 31, 1990

District of Columbia)
) ss:
)

I, RITA SANDERSON, a Notary Public, hereby certify that on the 4th day of March 1987, Dr. Lisle C. Carter appeared before me and signed the foregoing document as an incorporator, and averred that the statements therein contained are true.

(NOTARY SEAL)

Rita A Sanderson
Notary Public

My Commission Expires January 31, 1990

District of Columbia)
) ss:
)

I, Barbara P. Rule, a Notary Public, hereby certify that on the 3rd day of March 1987, Rev. Timothy S. Healy appeared before me and signed the foregoing document as an incorporator, and averred that the statements therein contained are true.

(NOTARY SEAL)

Barbara P. Rule
Notary Public
My commission expires: June 30, 1987

APPENDIX B

Adopted at Meeting of Board of Directors May 5, 1987

BYLAWS

OF

THE WASHINGTON RESEARCH LIBRARY CONSORTIUM

ARTICLE I

Name of the Corporation

The Name of the Corporation is THE WASHINGTON RESEARCH LIBRARY CONSORTIUM.

ARTICLE II

Purposes of the Corporation

As provided in the Articles of Incorporation, the Corporation is organized to operate exclusively for charitable purposes within the meaning of Section 501(c)(3) of the Internal Revenue Code of 1954 (or the corresponding provision of any future United States internal revenue law) by promoting the development of a cooperative network primarily among libraries in the Washington metropolitan area. The specific functions and services provided by the Corporation may include, but are not limited to:

A. Providing staff and resources to develop, to maintain and to administer a cooperative academic and research collection for and among the libraries of the institutions participating in the cooperative network

("Participating Institutions") that will better support the academic and research programs of the Participating Institutions.

B. Establishing a computer and telecommunications network ("Computer Network") with an outline union catalog of the Participating Institutions' holdings and the Corporation's holdings accessible to the libraries of the Participating Institutions ("Participating Libraries"), that will provide internal management and service modules for the Participating Libraries and that will support an enhanced cooperative exchange of holdings among the Participating Libraries.

C. Establishing and operating a building ("Facility") that will house seldom-used, research-level books and other materials from the collections of the Participating Libraries, that will provide temporary storage facilities for unprocessed but in-progress library materials from the Participating Libraries and that may house additional materials as necessary or desirable.

D. Establishing and operating a preservation services unit, headquartered at the Facility or elsewhere, with staff and equipment sufficient to provide the services required for the restoration and conservation of the collections of the Participating Libraries, the Corporation and other libraries.

E. Operating a library resources delivery system that will effectively serve the Participating Libraries and the Corporation.

F. Raising funds by subscriptions or otherwise from individuals, governments, and organizations of any kind to accomplish the Corporation's charitable, scientific, literary or educational objectives.

G. Engaging, either alone or with others, in storage, retrieval and use of information and in research in information studies.

No portion of the funds raised by the Corporation shall be utilized by the Corporation or provided to any other organization, for any purposes, including political purposes, that would not be considered charitable purposes within the meaning of Section 501(c)(3) of the Internal Revenue Code of 1954 (or the corresponding provision of any future United States internal revenue law). The use of the Corporation's funds shall be consistent with the restrictions on the Corporation's activities set forth in Article VI of the Articles of Incorporation.

Consistent with these purposes, the Corporation may exercise all powers available to corporations under the District of Columbia Non-Profit Corporation Act, subject to the restrictions contained in the Corporation's Articles of Incorporation and these Bylaws, and provided, however, that

the Corporation is not organized for profit and no part of the net earnings of the Corporation shall inure to the benefit of any director or individual, and that the Corporation shall exercise only such powers as are consistent with the exempt status of organizations described in Section 501(c)(3) of the Internal Revenue Code of 1954 (or the corresponding provision of any future United States internal revenue law) and the regulations thereunder, as the same now exist or as they may be hereafter amended from time to time.

ARTICLE IV

Powers of the Corporation

The Corporation shall have all such powers as are provided by law, in its Articles of Incorporation, and in these Bylaws, including the power to acquire, own and dispose of property and the power to do any and all lawful acts necessary or desirable for carrying out the Corporation's purposes, but the Corporation shall not engage in any activities that are inconsistent with the qualification of the Corporation as an organization described in Section 501(c)(3) of the Internal Revenue Code of 1954 (or the corresponding provisions of any future United States internal revenue law).

ARTICLE V

Board of Directors

1. Powers and Duties. The Corporation shall be managed and governed by a Board of Directors. The Board shall have the power to take all lawful action in the name of the Corporation consistent with the Articles of Incorporation and these Bylaws.

2. Number, Election and Term of Office. The initial Board of Directors shall be set forth in the Articles of Incorporation. The initial directors shall hold office until a new Board of Directors is elected at the first annual meeting of the sole member and shall have qualified or until the earlier resignation or removal of the initial directors. Thereafter, the members of the Board of Directors shall be elected annually by the Corporation's sole member, The Consortium of Universities of the Washington Metropolitan Area. The Board of Directors shall consist of such directors as shall be elected by the Corporation's sole member, but in no event shall there be less than three directors. The sole member may, from time to time, elect additional directors to the Board of Directors, as the sole member shall deem appropriate.

3. Resignation and Removal. A director may resign by giving Notice thereof in writing or may be removed involuntarily at any time by a majority vote of the directors in office.

4. Re-election. A director may serve unlimited consecutive terms in office.

5. Vacancies. The Board may at any meeting fill a vacancy created by resignation, removal, or death by electing a director to serve the unexpired portion of the vacated term.

6. Meetings. There shall be an annual meeting of the Board, either within or without the United States, and such other regular or special meetings as the Board may by resolution determine. Special meetings of the Board may be called by the Chairman, the Executive Director or by written request of a majority of directors.

7. Chairman of the Board of Directors. The Chairman of the Board shall be elected by the Board at the annual meeting of the Board. The Chairman shall preside at meetings of the Board of Directors and shall perform such other duties as may be assigned by the Board.

8. Vice Chairman of the Board. The Vice Chairman shall be elected at the annual meeting of the Board. The

Vice Chairman shall, in the absence of the chairman, preside at meetings of the Board of Directors and shall perform such other duties as may be assigned by the Board.

9. Notice. Notice of the time and place of any regular or special meeting of the Board shall be made at least ten days in advance of such meeting to each director, either personally or by mail, telephone or telegram, subject to Waiver of Notice as provided in the District of Columbia Non-Profit Corporation Act. Neither the business to be transacted at nor the purpose of any regular or special meeting of the Board of Directors need be specified in the Notice or Waiver of Notice of such meeting.

10. Quorum. A majority of directors shall constitute a quorum for the transaction of business. Except where otherwise provided in the Articles of Incorporation or in these Bylaws, the act of the majority of the directors present at a meeting at which a quorum is present shall be the act of the Board of Directors.

11. Action without a Meeting. Any action required or permitted to be taken at a meeting of the Board of Directors may be taken without a meeting if consent in writing, setting forth the action so taken, shall be signed by all of the directors.

ARTICLE VI

Officers

1. Election and Term of Office. The officers of the Corporation shall be elected by the Board of Directors at its annual meeting to serve for one-year terms and shall consist of an Executive Director, a Secretary, a Treasurer, and such other officers or assistant officers as the Board may deem necessary. The Executive Director shall be employed by the Board and shall be the general manager of the Corporation's affairs under the direction of the Board of Directors. The Executive Director shall employ and discharge all agents and employees of the Corporation and perform such other duties as may be assigned by the Board of Directors. During the Executive Director's temporary absence or inability to serve, he or she may delegate his or her powers to an employee of the Corporation chosen by him or her.

2. Bond. The Board of Directors may require any officer or employee of the Corporation to give bond to the Corporation, in an amount to be determined by the Board and with sufficient surety, conditioned upon the faithful performance of the duties of the respective office or employment.

3. Removal. Any officer elected or appointed by the Board of Directors may be removed at any time, with or without cause, by the affirmative vote of a majority of the directors in office. Any vacancy occurring in the office of the Corporation shall be filled by the Board of Directors.

4. Executive Director. The Executive Director shall be the chief administrative officer and president of the Corporation. The Executive Director shall supervise the day-to-day affairs of the Corporation and shall perform such other duties as may be assigned by the Board.

5. Secretary. The Secretary shall keep or cause to be kept the minutes of all meetings of the Board of Directors. The Secretary shall give, or cause to be given, such Notice of all meetings of the Board of Directors as may be required by the Corporation's bylaws or by law, and shall perform such other duties as may be assigned by the Board of Directors.

6. Treasurer. The Treasurer shall have the custody of the corporate funds and securities and shall keep or cause to be kept full and accurate accounts of receipts and disbursements in books belonging to the Corporation and shall deposit or cause to be deposited all moneys in that name and to the credit of the Corporation in such depositories as may be designated by the Board of Directors. The Treasurer shall disburse or cause to be

disbursed the funds of the Corporation in accordance with the directions of the Board of Directors, and shall render to the Board of Directors, at its regular meetings or when the Board of Directors so requires, an account of all of his or her transactions as Treasurer and of the financial condition of the Corporation.

ARTICLE VII

Members

1. In General. The sole member of the Corporation shall be The Consortium of Universities of the Washington Metropolitan Area.

2. Meetings. The sole member of the Corporation shall hold an annual meeting at such place and time as the Board of Directors shall designate and at which the sole member shall elect persons to the Board of Directors and may conduct such other business as may be proper. The sole member, the Secretary or the Board of Directors may call special meetings to conduct such business as shall be proper. Such special meetings shall be held at such places and times as the Board of Directors shall designate. The sole member may, from time to time, elect additional directors to the Board of Directors, as the sole member shall deem appropriate.

3. Notice. Notice of the time and place of any annual or special meeting shall be made to the sole member at least ten days in advance of such meeting, either personally or by mail, telephone or telegram, subject to Waiver of Notice as provided in the District of Columbia Non-Profit Corporation Act. Neither the business to be transacted at nor the purpose of any annual or special meeting need be specified in the Notice or Waiver of Notice of such meeting.

4. Action without a Meeting. Any action required or permitted to be taken at a meeting may be taken without a meeting if consent in writing, setting forth the action so taken, shall be signed by the sole member.

ARTICLE VIII

Committees

The Board of Directors may by resolution adopted by a majority of directors in office designate and appoint one or more committees, each of which shall consist of two or more directors, which to the extent provided in said resolution shall have and exercise the authority of the Board of Directors in the managing of the Corporation and the conduct of its affairs. The Board may also by resolution adopted by a majority of directors present at a meeting at which a quorum is present designate and appoint other committees not having and exercising the authority of the Board. The designation and appointment of any such committee and the delegation thereto of authority shall not operate to relieve

the Board of Directors, or any individual director, of any responsibility imposed upon it or him or her by law.

ARTICLE IX

Compensation of Directors and Indemnification

1. Compensation. The directors of the Corporation shall receive no compensation for their services as directors but may be reimbursed for such expenses as they may incur in carrying out the purposes of the Corporation, provided that such reimbursement in no way adversely affects the Corporation's qualification under Section 501(c)(3) of the Internal Revenue Code of 1954 (or the corresponding provisions of any future United States internal revenue law).

2. Indemnification. To the extent permitted by law, every person who is or was a director or officer of the Corporation shall have a right to be indemnified by the Corporation against all reasonable expenses, including judgments, fines or reasonable amounts paid in settlement, incurred by him or her in connection with or resulting from any claim, action, suit or proceeding in which he or she may become involved as a party or otherwise by reason of his or her being or having been a director or officer of the Corporation, provided either said claim, suit or proceeding shall be prosecuted to a final determination and he or she

shall be vindicated on the merits, or the Board of Directors shall through a quorum of disinterested directors make a determination not inconsistent with the terms or circumstances of a civil judgment or conviction that his or her conduct did not constitute gross negligence or willful misconduct in the performance of duty and that he or she fully cooperated with the Corporation in the defense or dispositon of any said claim, action, suit or proceeding. Indemnification under this paragraph shall not exclude any other rights to which a director or officer may be entitled by contract, by vote of the Board of Directors or otherwise.

ARTICLE X

Reliance on Books of Account, Records and Reports

To the extent permitted by law, the directors, officers, committee members and employees of the Corporation shall in the performance of their duties be fully protected in relying in good faith upon the books of account or reports made to the Corporation by any of its officers or committees selected and supervised with reasonable care, or by an independent certified public accountant, or by an appraiser selected with reasonable care by the Board of Directors or by any such committee, or in relying in good faith upon other records of the Corporation.

ARTICLE XI

Checks, Notes, Etc.

All notes, drafts, checks, acceptances, orders for the payment of money, and all negotiable instruments obligating the Corporation for the payment of money shall, unless otherwise provided by resolution of the Board of Directors, be signed by the Executive Director and the Treasurer.

ARTICLE XII

Fiscal Year

The Fiscal year of the Corporation shall begin on July 1 and end on June 30.

ARTICLE XIII

Amendments

These Bylaws may be altered, amended or repealed and new bylaws adopted by a majority of the members of the Board of Directors in office.

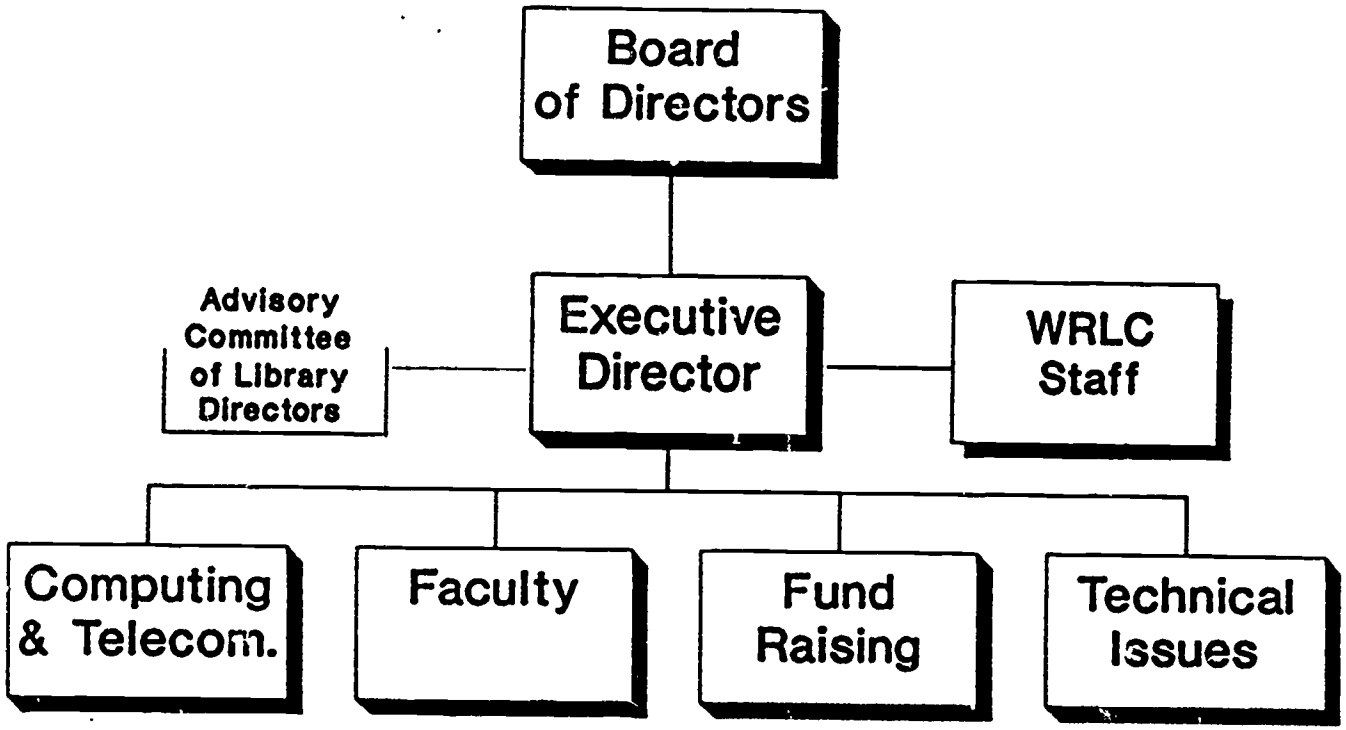
ARTICLE XIV

Dissolution

In the event of termination, dissolution or winding up of the Corporation in any manner or for any reason whatsoever, its remaining assets, if any, after the payment of all liabilities and obligations, shall be distributed to one or more organizations described in Section 501(c)(3) of the Internal Revenue Code of 1954 (or the corresponding provisions of any future United States internal revenue law) selected by the Board of Directors in its discretion.

Washington Research Library Consortium

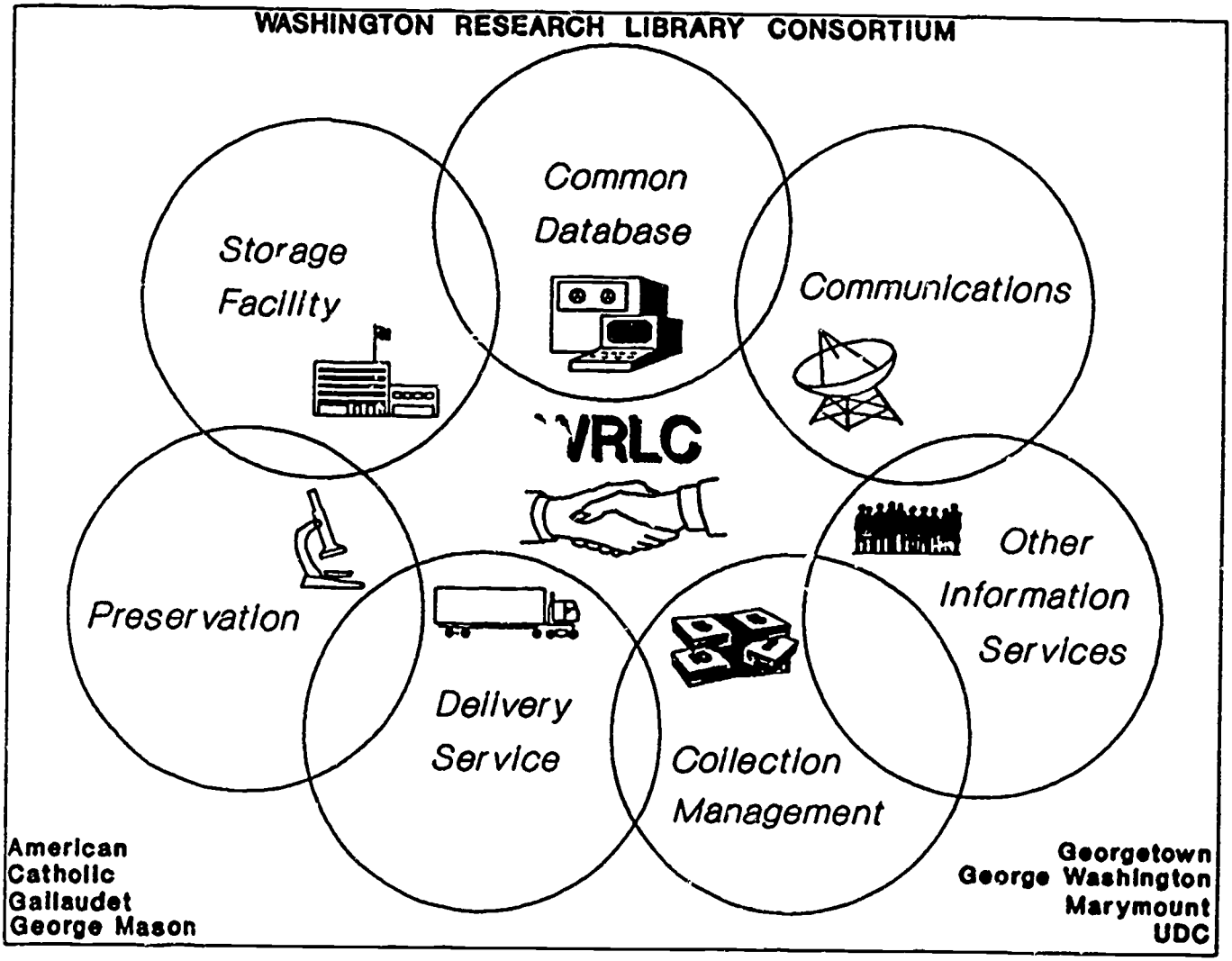
Organization Structure



February 1989

WASHINGTON RESEARCH LIBRARY CONSORTIUM
GOALS

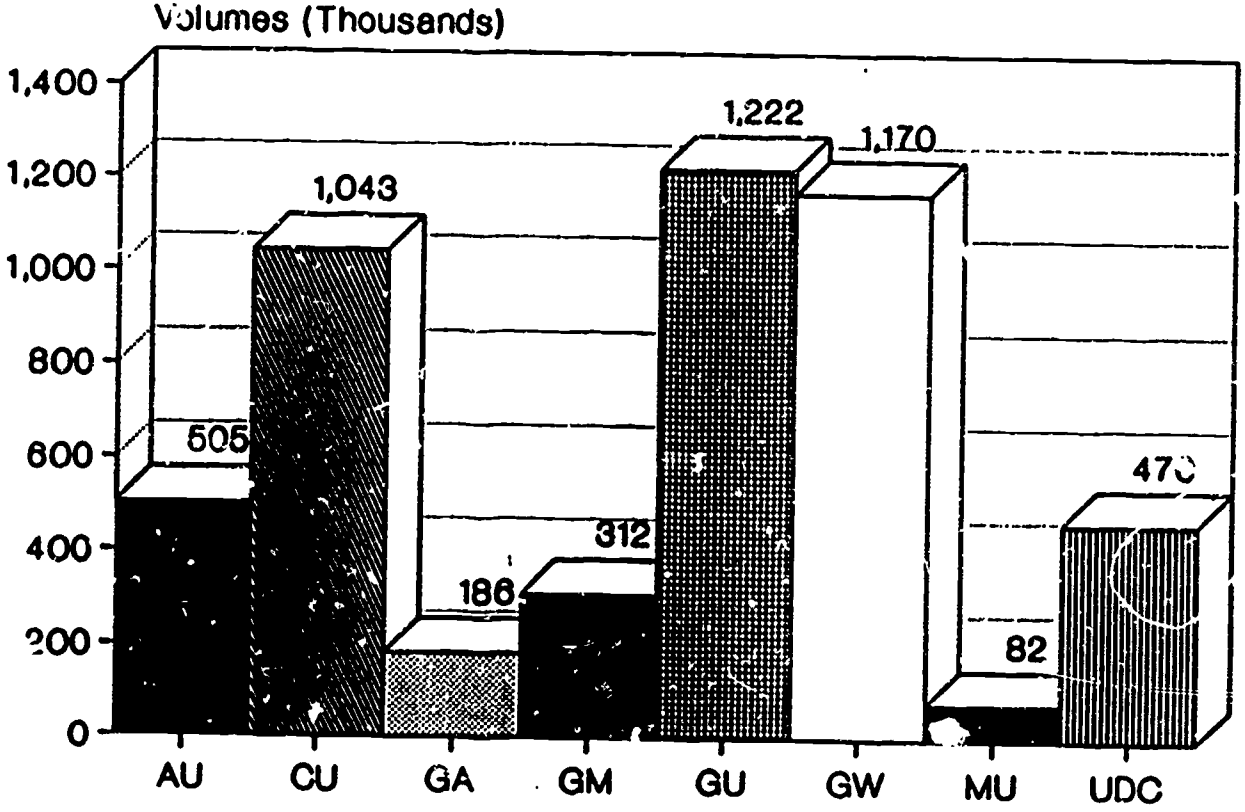
- ✓To establish a common data base of library information accessible to the participants
- ✓To plan for and implement a program of other enhancements to existing library and information resources and services
- ✓To plan for and implement a cooperative collection development program
- ✓To plan for and implement a delivery and communication program
- ✓To plan for and implement a preservation program
- ✓To plan for and implement a storage program
- ✓To plan for and construct a facility to accommodate these functions
- ✓To plan for and implement a fund-raising program


WASHINGTON RESEARCH LIBRARY CONSORTIUM
Common Database
Storage Facility
Communications
VRLC
Preservation
Other Information Services
Delivery Service
Collection Management
American
Catholic
Gallaudet
George Mason
Georgetown
George Washington
Marymount
UDC

WASHINGTON RESEARCH LIBRARY CONSORTIUM

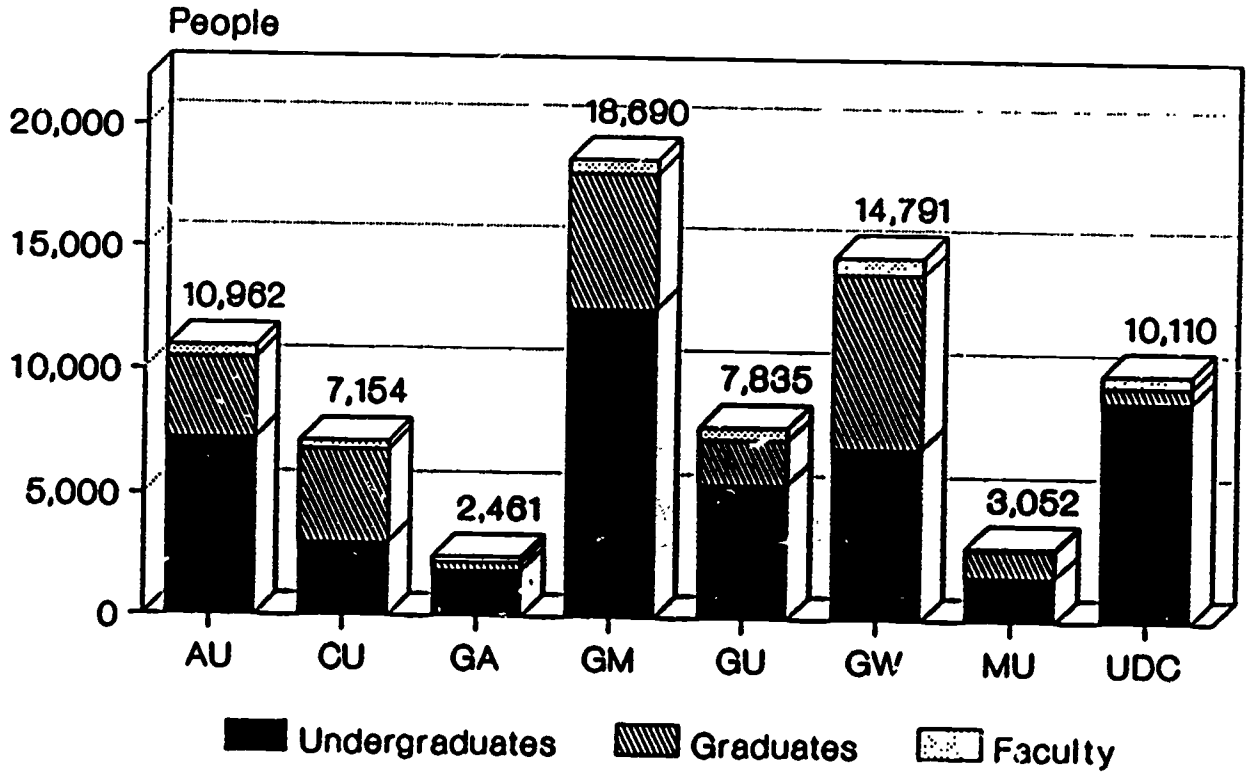
PROFILE OF MEMBERSHIP

Washington Research Library Consortium
Member Libraries



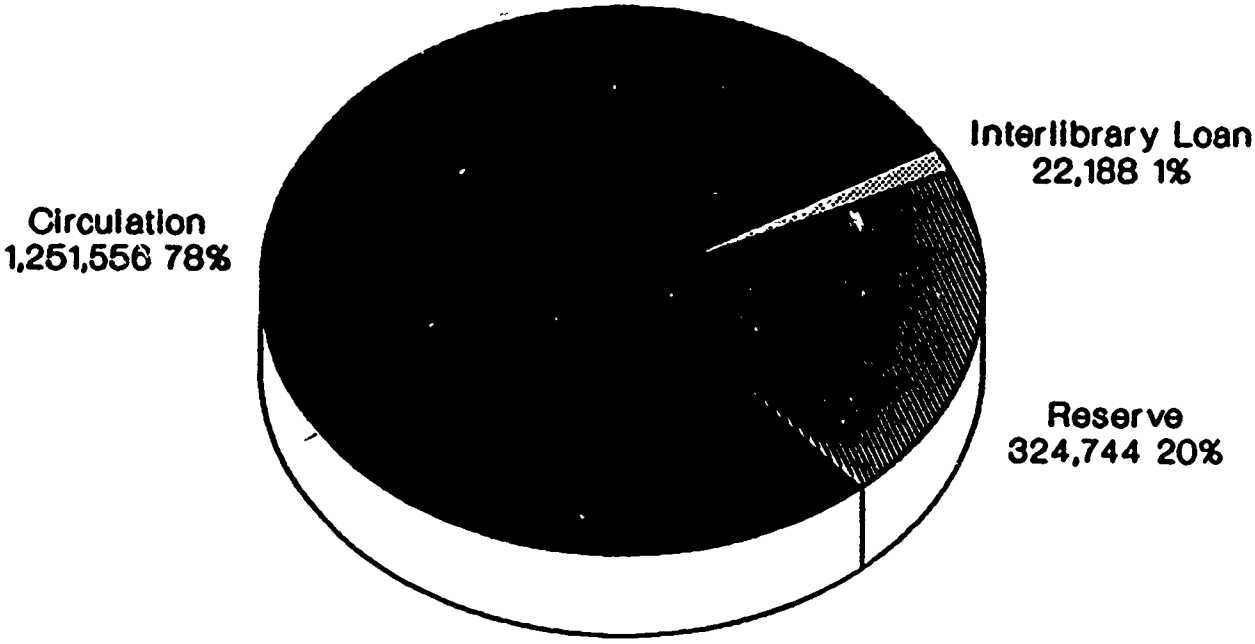
Volumes in Main Collections (6/30/88)

Washington Research Library Consortium
Member Libraries



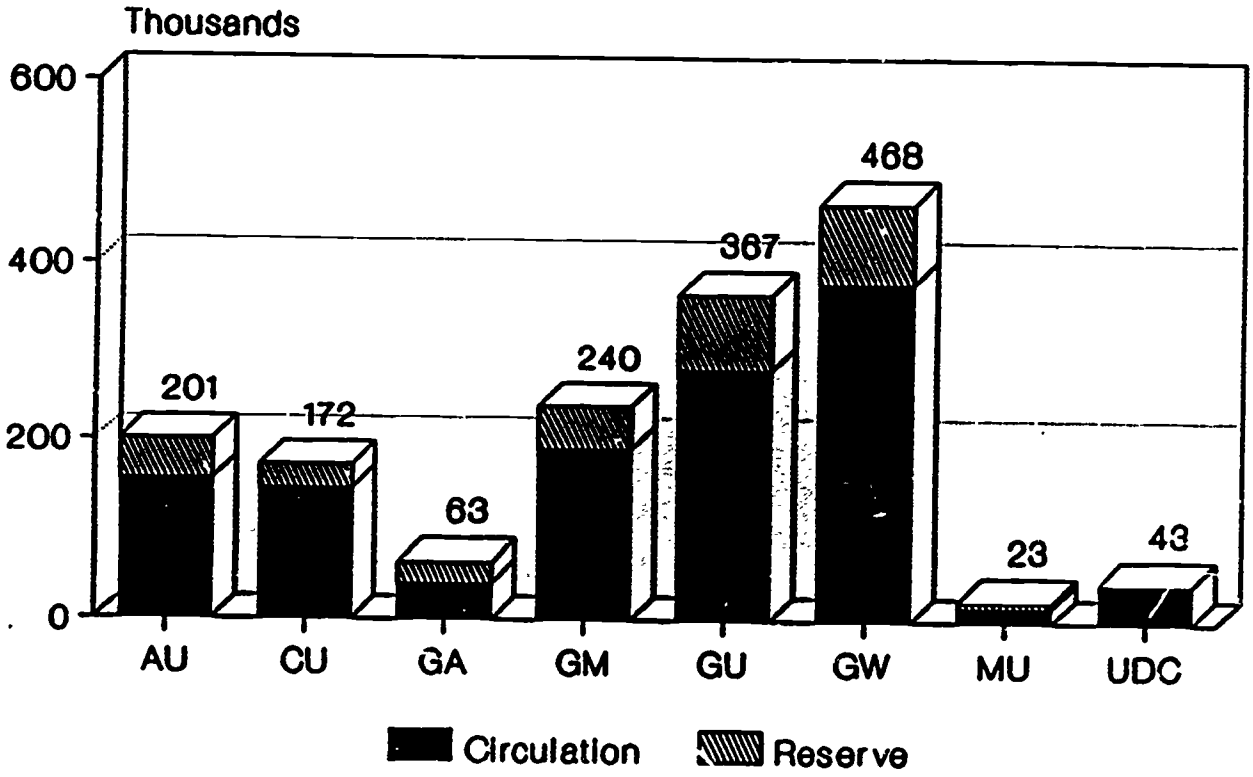
Users (6/30/88)

Washington Research Library Consortium
Member Libraries



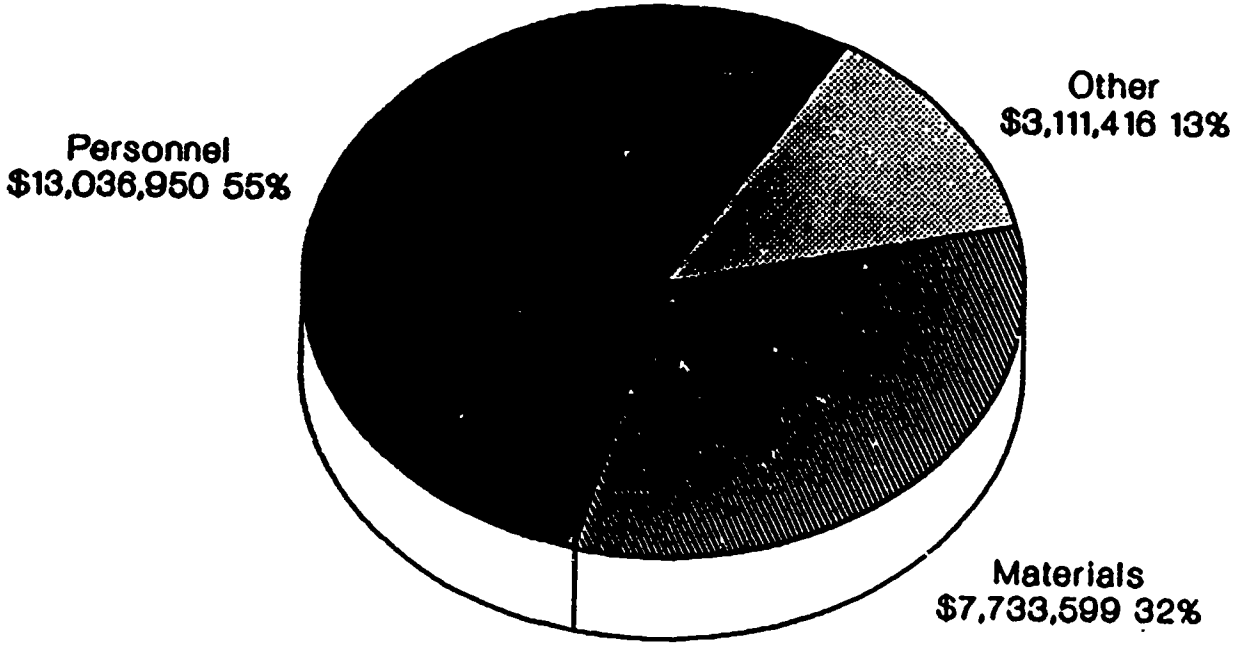
Loan Transactions (6/30/88)

Washington Research Library Consortium
Member Libraries



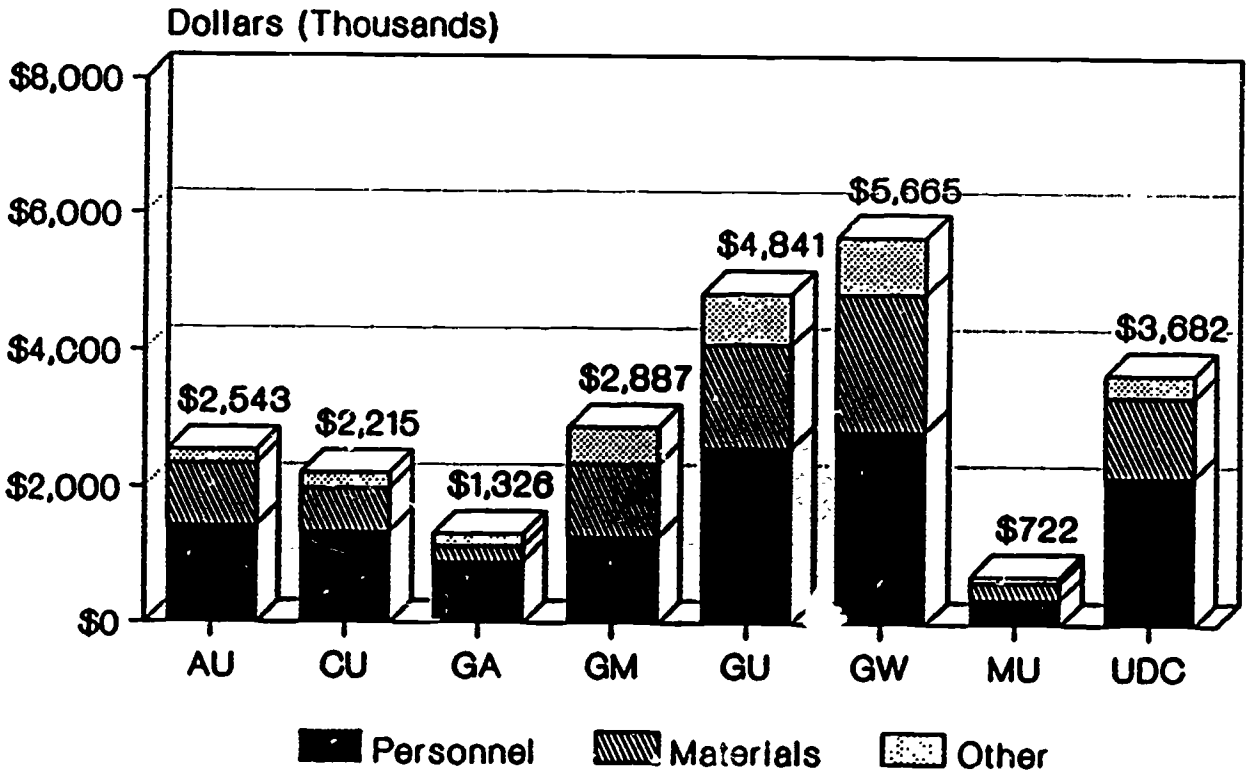
Circulation (6/30/88)

Washington Research Library Consortium
Member Libraries



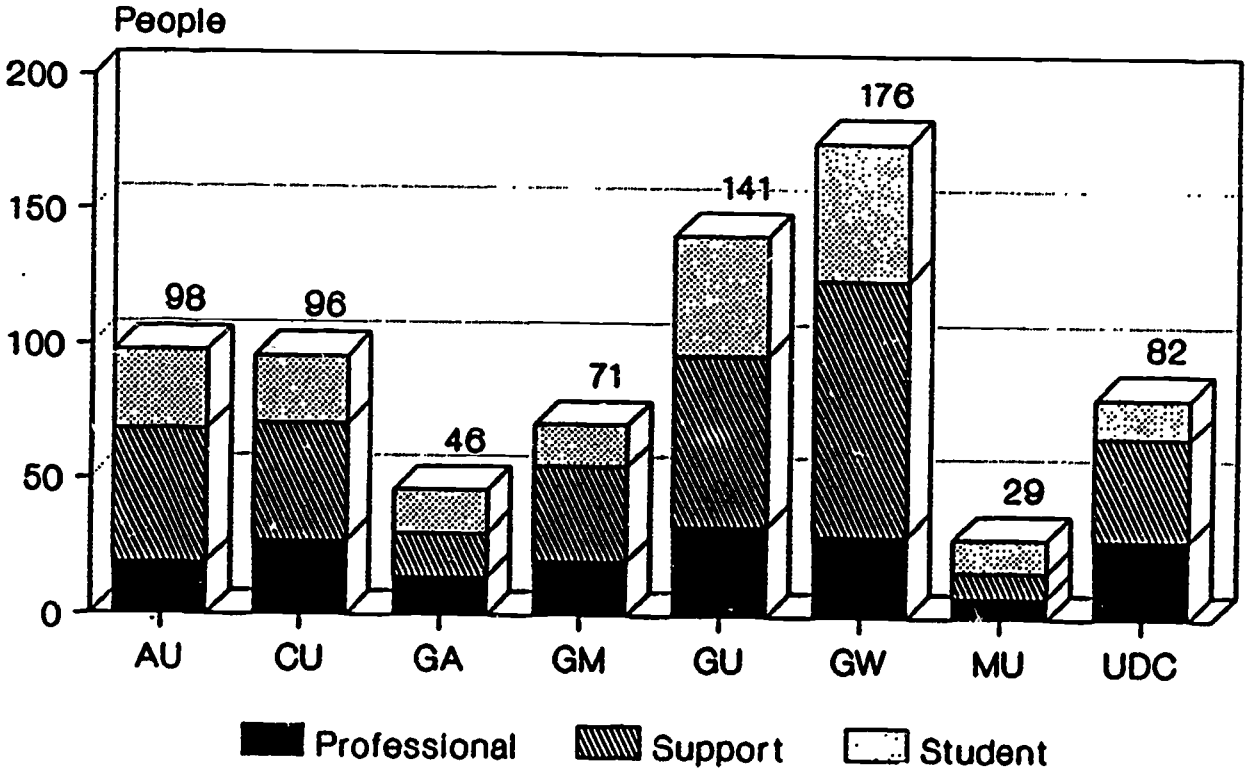
Expenditures (6/30/88)

Washington Research Library Consortium
Member Libraries



Expenditures (6/30/88)

Washington Research Library Consortium
Member Libraries



Personnel (6/30/88)

Database Creation Cost Estimates
Retrospective Conversion
For Titles Not Yet Converted

Member	Titles	OCLC Cost	OCLC Total	Labor Cost	Labor Total	Total
American	80,000	$0.40	$32,000	$0.85	$68,000	$100,000
Catholic	460,000	$0.40	184,000	$0.85	391,000	$575,000
Gallaudet	40,000	$0.40	16,000	$0.85	34,000	$50,000
George Mason	2,000	$0.40	800	$0.85	1,700	$2,500
George Washington	15,000	$0.40	6,000	$0.85	12,750	$18,750
Georgetown	200,000	$0.40	80,000	$0.85	170,000	$250,000
Marymount	0	$0.40	0	$0.85	0	$0
UDC	175,000	$0.40	70,000	$0.85	148,750	$218,750
TOTAL	972,000		$388,800		$826,200	$1,215,000

Bibliographic Extraction Expenses (Total Titles - Already BNA Processed)

Member	Records	Cost	Total
American	91,000	$0.02	$1,820
Catholic	572,000	$0.02	11,440
Gallaudet	133,000	$0.02	2,660
George Mason	39,000	$0.02	780
George Washington	46,000	$0.02	920
Georgetown	510,000	$0.02	10,200
Marymount	6,000	$0.02	120
UDC	185,000	$0.02	3,700
TOTAL	1,582,000		$31,640

Database Preparation Expenses (BNA)

Member	Records	Cost	Total
American	91,000	$0.13	$11,830
Catholic	572,000	$0.13	74,360
Gallaudet	133,000	$0.13	17,290
George Mason	39,000	$0.13	5,070
George Washington	46,000	$0.13	5,980
Georgetown	510,000	$0.13	66,300
Marymount	6,000	$0.13	780
UDC	185,000	$0.13	24,050
TOTAL	1,582,000		$205,660

Bar Coding Expenses

Member	Volumes	Vendor Cost	Vendor Total	Labor Cost	Labor Total	Total
American *	305,000	$0.03	$9,150	$0.10	$30,500	$39,650
Catholic	1,043,000	$0.03	31,290	$0.10	104,300	$135,590
Gallaudet	186,000	$0.03	5,580	$0.10	18,600	$24,180
George Mason	312,000	$0.03	9,360	$0.10	31,200	$40,560
George Washington	1,170,000	$0.03	35,100	$0.10	117,000	$152,100
Georgetown *	622,000	$0.03	18,660	$0.10	62,200	$80,860
Marymount	82,000	$0.03	2,460	$0.10	8,200	$10,660
UDC *	220,000	$0.03	6,600	$0.10	22,000	$28,600
TOTAL	3,940,000		$118,200		$394,000	$512,200

* Estimate of volumes that have not yet been bar coded with Codabar

TOTAL ALL COSTS	$1,964,500
HALF OF COSTS	$982,250

APPENDIX E

NEH APPLICATION COVER SHEET

Form OMB 3136-0111
Expires 5/31/89

1. Individual applicant or project director

a. Name and mailing address

Name: Vassallo, Paul
(last) (first) (initial)

Address: Washington Research Library Consortium
1717 Massachusetts Ave. N.W. Suite
Washington, D.C. 20036
(city) (state) (zip code)

b. Form of address: 1

c. Social Security # 365-36-6554 Date of birth 8-3-37 (mo./day/yr.)

d. Telephone number
Office: 202 / 265-1313 Home: / (area code)

e. Major field of applicant or project director: H3 (code)

f. Citizenship ☒ U.S. ☐ Other (specify)

2. Type of applicant

a. ☐ by an individual b. ☐ through an org./institute
If a, indicate an institutional affiliation, if applicable, on line 11a.
If b, complete block 11 below and indicate here:
c. Type: consortium of universities
d. Status: non-profit

3. Type of application

a. ☒ new c. ☐ renewal
b. ☐ revision and resubmission d. ☐ supplement
If either c or d, indicate previous grant number:

4. Program to which application is being made

Office of Preservation

Endowment initiatives: (code)

5. Requested grant period

From: Jan '89 (month/year) To: June '90 (month/year)

6. Project funding

a. Outright funds	$161,058
b. Federal match	$
c. Total from NEH	$161,058
d. Cost sharing	$124,246
e. Total project costs	$285,304

7. Field of project: H3 01

8. Descriptive title of project: Implementation of Preservation Program at WRLC

9. Description of project (do not exceed space provided) The Washington Research Library Consortium (WRLC) was established in 1987 under a Board of Directors consisting of the Presidents of the eight member universities. Preservation and improvement of access to collections of member libraries are primary objectives. Using a consultant provided by the Assoc. of Research Libraries (ARL), the WRLC will initiate a project to conduct a cooperative condition survey of the member libraries. Using an experienced preservation administrator and a trained collections conservator, it will expand the services of an existing preservation treatment facility as a pilot project, in preparation for the creation of a larger shared treatment center. The array of preservation services provided by WRLC will be broadened as shared preservation experience accumulates. The preservation activities of the WRLC have the potential for providing a national model for other metropolitan area universities.

10. Will this proposal be submitted to another government agency or private entity for funding? No.
(If yes, indicate where and when):

11. Institutional data

a. Institution or organization:
Washington Research Library Consortium (name)
Washington, D.C. 20036 (city) (state)

b. Name of authorizing official:
Vassallo, Paul (last) (first) (initial)
Executive Director (title)
Paul Vassallo/gse (signature) Executive Director (date)

c. Name and mailing address of the institutional grant administrator
Vassallo, Paul (last) (first) (initial)
WRLC
1717 Massachusetts Ave. N.W.
Washington, D.C. 20036 (city) (state) (zip code)
Telephone: 202 / 265-1313 (area code) Form of address: 1

12. Student loan status

Is the individual applicant or project director currently delinquent on repayments of any federally backed student loans?
Note: Knowingly providing false information may subject the applicant to criminal penalties of up to $10,000 or imprisonment of up to five years, or both. 18 U.S.C. §1001.
☐ Yes ☒ No

For NEH use only
Date received
Application #
Initials

National Endowment for the Humanities
BUDGET FORM

OMB No. 3136-0071

Project Director	If this is a revised budget, indicate the NEH application/grant number:
Paul Vassallo	
Applicant Organization	**Requested Grant Period**
Washington Research Library Consortium	From Jan 1989 (mo/yr) to July 1990 (mo/yr)

The three-column budget has been developed for the convenience of those applicants who wish to identify the project costs that will be charged to NEH funds and those that will be cost shared. FOR NEH PURPOSES, THE ONLY COLUMN THAT NEEDS TO BE COMPLETED IS COLUMN C. The method of cost computation should clearly indicate how the total charge for each budget item was determined. If more space is needed for any budget category, please follow the budget format on a separate sheet of paper.

When the requested grant period is eighteen months or longer, separate budgets for each twelve-month period of the project must be developed on duplicated copies of the budget form.

SECTION A — budget detail for the period from Jan 1989 (mo/yr) to July 1990 (mo/yr)

1. Salaries and Wages

Provide the names and titles of principal project personnel. For support staff, include the title of each position and indicate in brackets the number of persons who will be employed in that capacity. For persons employed on an academic year basis, list separately any salary charge for work done outside the academic year.

name/title of position	no.	method of cost computation (see sample)	NEH Funds (a)	Cost Sharing (b)	Total (c)
Paul Vassallo, Proj.Dir.	[1]	18mos.x2% *	$	$2,808	$2,808
Linda Nainis, Proj.Mgr	[1]	18mos.x50% at $44,800/yr*	34,944		34,944
Mary Pound, Cons.Spec.	[1]	12mos.x75% at $24,000/yr*	18,540		18,540
Mary Pound, Cons.Spec.	[1]	6mos.x50% at $24,000/yr*	6,180		6,180
Secretarial Support	[1]	18mos.x30% at $21,500/yr*	10,062		10,062
Pres.Plan'g Lib'ns	[4]	18mos.x15% at $38,000/yr*		35,568	35,568
Pres.Plan'g Lib'ns	[6]	3mos.x15% at $38,000/yr		8,550	8,550
Release time trainees	[4]	6mos.x100%at $18,000/yr*	37,080		37,080
Data Collectors		1500hrs x$5.75/hr	8,625		8,625
		SUBTOTAL	$115,431	$46,926	$162,357

*Note: 6% increase to salary added for FY1989-90

2. Fringe Benefits

If more than one rate is used, list each rate and salary base.

	rate		salary base	(a)	(b)	(c)
NEH	21.7 %	of	$ 106,806 **	$23,177	$	$23,177
Cost Sharing	21.7 %	of	$ 46,926		10,183	10,183
			SUBTOTAL	$ 23,177	$10,183	$33,360

**Note: does not incl. data collectors

3. Consultant Fees

Include payments for professional and technical consultants and honoraria.

name or type of consultant	no. of days on project	daily rate of compensation	(a)	(b)	(c)
Jutta Reed-Scott Pres. Plan'g Spec.	6	$ 300	$ 1,800	$	$ 1,800
		$			
		$			
		$			
		$			
		SUBTOTAL	$ 1,800	$	$ 1,800

4. Travel

For each trip, indicate the number of persons traveling, the total days they will be in travel status, and the total subsistence and transportation costs for that trip. When a project will involve the travel of a number of people to a conference, institute, etc., these costs may be summarized on one line by indicating the point of origin as "various." All foreign travel must be listed separately.

from/to	no. of persons	total travel days	subsistence costs +	transportation costs =	NEH Funds (a)	Cost Sharing (b)	Total (c)
1. Boston/Wash	1	2	$ 200	$ 300	$ 500	$	$ 500
2. " "	"	"	"	"	500		500
3. " "	"	"	"	"	500		500
4. " "	"	"	"	"	500		500
5. " "	"	"	"	"	500		500
6. " "	"	"	"	"	500		500
				SUBTOTAL	$3,000	$	$3,000

5. Supplies and Materials

Include consumable supplies, materials to be used in the project, and items of expendable equipment; i.e., equipment items costing less than $500 or with an estimated useful life of less than two years.

item	basis/method of cost computation	(a)	(b)	(c)
6 add'l Planning Manuals & Resource Notebooks	$100/set	$ 500	$	$ 500
Conservation supplies		4,000		4,000
Statistical Analysis Software	$150/copy	150		150
	SUBTOTAL	$4,650	$	$4,650

6. Services

Include the cost of duplication and printing, long distance telephone, equipment rental, postage, and other services related to project objectives that are not included under other budget categories or in the indirect cost pool. For subcontracts over $10,000, provide an itemization of subcontract costs on this form or on an attachment.

item	basis/method of cost computation	(a)	(b)	(c)
ARL Pres. Planning Study	base price incl. 6 days of consulting	$ 6,000	$	$ 6,000
G.U. Course in stat. anal. software	est. value		350	350
Weekly delivery service	$40/trip x 50 weeks	2,000		
	SUBTOTAL	$8,000	$ 350	$8,350

7. Other Costs

Include participant stipends and room and board, equipment purchases, and other items not previously listed. Please note that "miscellaneous" and "contingency" are not acceptable budget categories. Refer to the budget instructions for the restriction on the purchase of permanent equipment.

Item	basis/method of cost computation	NEH Funds (a)	Cost Sharing (b)	Total (c)
Treatment Facility	1 yr. rental 236 at $25/sq.ft.	$	$5,900	$5,900
Cons. Equip. & Tools	1 yr. rental at $2,000/yr.		2,000	2,000
Computer	1 mo. rental at $460/mo.		460	460
Waived overhead-G.U.	G.U.'s costs x 63%		58,427	58,427
	SUBTOTAL	$	$66,787	$66,787

8. Total Direct Costs (add subtotals of items 1 through 7) $156,058 $124,246 280,304

9. Indirect Costs [This budget item applies only to institutional applicants.]

If indirect costs are to be charged to this project, check the appropriate box below and provide the information requested. Refer to the budget instructions for explanations of these options.

- ☐ Current indirect cost rate(s) has/have been negotiated with a federal agency. (Complete items A and B.)
- ☐ Indirect cost proposal has been submitted to a federal agency but not yet negotiated. (Indicate the name of the agency in item A and show proposed rate(s) and base(s), and the amount(s) of indirect costs in item B.)
- ☐ Indirect cost proposal will be sent to NEH if application is funded. (Provide an estimate in item B of the rate that will be used and indicate the base against which it will be charged and the amount of indirect costs.)
- ☒ Applicant chooses to use a rate not to exceed 10% of direct costs, less distorting items, up to a maximum charge of $5,000. (Under item B, enter the proposed rate, the base against which the rate will be charged, and the computation of indirect costs or $5,000, whichever sum is less.)

A. _____ (name of federal agency) _____ (date of agreement)

B.

rate(s)		base(s)	NEH Funds (a)	Cost Sharing (b)	Total (c)
_____ %	of	$_____	$_____	$_____	$_____
_____ %	of	$_____			
		TOTAL INDIRECT COSTS	$5,000	$_____	$5,000

10. Total Project Costs (direct and indirect) for Budget Period $161,058 $124,246 $285,304

SECTION B — Summary Budget and Project Funding

SUMMARY BUDGET

Transfer from section A the total costs (column c) for each category of project expense. When the proposed grant period is eighteen months or longer, project expenses for each twelve-month period are to be listed separately and totaled in the last column of the summary budget. For projects that will run less than eighteen months, only the last column of the summary budget should be completed.

Budget Categories	First Year/ from: 1/1/89 to: 7/1/89	Second Year/ from: 7/1/89 to: 7/1/90	Third Year/ from: to:	TOTAL COSTS FOR ENTIRE GRANT PERIOD
1. Salaries and Wages	$ 73,900	$ 88,457	$	= $ 162,357
2. Fringe Benefits	14,165	19,195		= 33,360
3. Consultant Fees	1,200	600		= 1,800
4. Travel	2,500	500		= 3,000
5. Supplies and Materials	2,650	2,000		= 4,650
6. Services	7,000	1,350		= 8,350
7. Other Costs	27,747	39,040		= 66,787
8. Total Direct Costs (lines 1-7)	$ 128,162	$ 150,142	$	= $ 278,304
9. Indirect Costs	$ 1,666	$ 3,334	$	= $ 5,000
10. Total Project Costs (Direct & Indirect)	$ 130,828	$ 154,476	$	= $ 285,304

PROJECT FUNDING FOR ENTIRE GRANT PERIOD

Requested from NEH:[1]		Cost Sharing:[2]	
Outright	$ 161,058	Cash Contributions	$ 57,109
Federal Matching	$	In-Kind Contributions	$ 67,137
		Project Income	$
TOTAL NEH FUNDING	$ 161,058	TOTAL COST SHARING	$ 124,246

Total Project Funding (NEH Funds + Cost Sharing)[3] = $ 285,304

[1]Indicate the amount of outright and/or federal matching funds that is requested from the Endowment.

[2]Indicate the amount of cash contributions that will be made by the applicant or third parties to support project expenses that appear in the budget. Include in this amount third-party cash gifts that will be raised to release federal matching funds. (Consult the program guidelines for information on cost-sharing requirements.)

Occasionally, in-kind (noncash) contributions are included in a project budget as a part of the applicant's cost sharing: e.g., the value of services or equipment that is donated to the project free of charge. If this is the case, the total value of in-kind contributions should be indicated.

When a project will generate income that will be used during the grant period to support expenses listed in the budget, indicate the amount of income that will be expended on budgeted project activities.

[3]Total Project Funding should equal Total Project Costs.

Institutional Grant Administrator.

Complete the information requested below when a revised budget is submitted. Block 11 of the application cover sheet instructions contains a description of the functions of the institutional grant administrator. The signature of this person indicates approval of the budget submission and the agreement of the organization to cost share project expenses at the level indicated under "Project Funding."

Paul Vassallo, Executive Director, WRLC
Name and Title (please type or print)

Telephone (202) 265-1313
area code

Paul Vassallo /jse
Signature

Date 6-8-88

NEH Application/Grant Number:

IMPLEMENTATION OF PRESERVATION PROGRAM AT WRLC

I. Introduction

The alarming rate of decay of large portions of the research materials in libraries nationwide provides a serious reminder that the lifespan of a book is limited. Unfortunately, the length of that lifespan has been cut even shorter by the way books have been manufactured, and ultimately, by the way they are maintained. Because of the magnitude of the problem, even with generous amounts of expertise and resources, an extraordinary amount of time and effort will be needed to meet the preservation challenge that threatens to destroy millions of existing library volumes.

In the meantime, however, libraries--individually, cooperatively, and regionally--bear the responsibility for identifying items most at risk and for implementing appropriate conservation measures to keep existing collections of books intact. Until new solutions are found or forced upon libraries, researchers rightfully expect that, for as long as possible, they will have continued free and equal access to the materials they have been using.

By extending the useful life of existing collections, libraries can provide, not only broader access to these materials, but also time for other strategies to begin working. With time, approaches to neutralize and strengthen acidic paper may be perfected. With time, cooperative microfilming programs may establish a pool of resources large enough to serve libraries nationwide, and systematic enough to make it readily apparent which titles may have evaded capture on microfilm. With time, reliable and cost-effective new technologies for reformatting may be developed.

Recognizing the need to begin to undertake conservation on a larger scale, the Washington Research Library Consortium (WRLC) established the development of a preservation program as a primary objective. Through the leadership of the WRLC, a coordinated preservation center is planned that will eventually provide storage, preservation treatment, microfilming, deacidification, and become a clearinghouse for preservation-related information. It will be a model for other regional programs in the nation. Capital funding has been approved for a shared on-line catalog, the construction of a central facility, including necessary preservation equipment. Twenty acres of land have been donated for WRLC use. To date only a few academic libraries in the Washington metropolitan area have taken significant steps in the direction of preservation. In order to proceed, training, preservation planning and program development need to be undertaken at each of the universities, relying primarily upon staff already in place.

NEH support is sought to take the first steps in setting the groundwork for a larger scale preservation program of the future. An initial two-phase project will create the basis for future implementation of a more comprehensive program: (1) to identify the range and magnitude of current preservation needs by conducting a cooperative condition survey of the WRLC libraries, and (2) to expand the services of an existing preservation facility performing basic collection care treatments in order to gather shared preservation experience as a pilot project, prior to the a creation of a larger, regional center with a broader array of services.

Ten participating general and law libraries within the eight universities will appoint preservation liaisons who will spend 15 percent of their time in joint planning meetings and will coordinate the preservation work within their own libraries. Taking advantage of resources already in place at the Georgetown University Law Library, the overall work of both phases can be coordinated by an experienced preservation administrator. The libraries will, however, require expert assistance from a consultant experienced at teaching the Association of Research Libraries (ARL) preservation planning strategy, to design and conduct a coordinated survey for ten libraries within the eight institutions. Four law libraries and one library with strong holdings in Law will share the technical expertise and equipment investment at the Georgetown University Law Library conservation workshop. Four staff members from the WRLC libraries will be trained to perform appropriate conservation treatments for care of circulating collections. In this way, collective resources can be shared and problems can be solved more effectively and more efficiently than would be possible for any institution acting alone. Through this approach the institutions will take responsibility for their own collections, and for training their own staff in preservation approaches. NEH assistance will enable the trained staff at the Georgetown Law Library and an ARL consultant to play a coordinating and training role and to assist the other WRLC libraries thereby establishing a framework in which a more comprehensive cooperative preservation program can be developed in the future.

II. Background Information

The recent creation of the Washington Research Library Consortium is an important development in the history of inter-university and academic library cooperation. The WRLC has the potential of being a national model for other metropolitan area universities. The university presidents have approved an operating budget primarily supported by member university funds to enhance further library cooperation and to strengthen total library services within the eight universities, public and private, located in the Washington metropolitan area.*

Generous support from several Washington area foundations provided seed money for initial staffing and the planning process during the important developmental phases. The U.S. Department of Education also provided needed funds for the study of the governance and cost-benefits associated with its development. The support of the several local and state governments has further bolstered in this enterprise, specifically and most generously, Prince George's County, which donated twenty acres of prime land to the WRLC for the construction of the central facility. Lastly, but perhaps most importantly in terms of moving the development of the project forward, was the appropriation by the Congress of the United States in December 1987 of $6,702,000 in capital funds, for computer equipment, construction, and other capital costs that are essential to the WRLC. In summary, a sound fiscal base has been established to achieve and put into operation a national model of regional academic library cooperation.

Ultimately, a very large, sophisticated preservation program is envisioned. A wide array of preservation services will be provided. Treatment programs, begun through sharing the services of trained personnel, will be developed. For example, the WRLC central preservation facility will become, not only a large scale storage facility and computer center, but also a preservation treatment center and a clearinghouse of preservation-related information. It will coordinate preservation activities, provide agreements of preservation priorities and assignments, make provisions for bibliographic flagging of last copy, coordinate development of preservation plans, share reformatting projects, train personnel in handling, environmental control and

* The eight WRLC members are: The American University, The Catholic University of America, Gallaudet University, George Mason University, The George Washington University, Georgetown University, Marymount University and the University of the District of Columbia.

monitoring, maintenance and repair, provide educational programs and workshops, jointly purchase or lease expensive equipment, jointly purchase preservation supplies. In addition, some activities for continuing programs remain to be established, such as joint disaster teams and assistance, shared access to disaster equipment, centralized storage for microform negatives, a shared deacidification facility. The universities will target materials for treatment in identified subject areas within the general collections in the libraries, for example, Latin American materials and unique and valuable Americana materials.

Prior to establishing comprehensive preservation programs, the WRLC is seeking assistance to build upon preservation expertise that already exists within the universities. It needs to take the first steps in cooperative planning and begin to establish cost-effective preservation approaches. It will engage in initial assessment activities involving selected staff in member institutions in preservation planning, and it will expand the services of an existing conservation facility within the universities to serve a larger number of libraries. This initial two-phase preservation project is an important component of the overall objectives of the WRLC.

The basic requirements of fruitful cooperation among the universities and their libraries have already been established. There is a fifteen year history of cooperation of the University Presidents and their administrators under the Consortium of Universities in the Washington Metropolitan Area. There is also a thirteen year history of constructive cooperation of the University Library Directors and their staffs under the Library Council. Their dedication, cooperation, support and hard work over a four year period resulted in the planning and development of the WRLC.

The agreement of the WRLC library directors of the member universities and their staff after an intensive study resulting in the selection of a common integrated library system (NOTIS) is in itself is a fine example of intelligent, cooperative decision-making. NOTIS is widely recognized as one of the most sophisticated automated library systems available. This library applications software was developed by Northwestern University. It provides an integrated library catalog with a wide variety of bibliographic and preservation information. The online, interactive, public access catalog employs a simple, clear command language. It will enable library users on any of the campuses to search via computer terminals the merged database of the holdings of all the university libraries, enabling each library to view each other's detailed holdings, thereby

establishing closer communication and access to more specific data than is possible in larger nationwide networks.

Collectively with over 6 million volumes, the collections of the eight WRLC universities provide rich academic resources to researchers in the Washington Metropolitan area and in the nation. Individually, the library collections are strong. However, the subject interests of the WRLC universities are clustered in the Humanities. Notable collections are found at more than one library in the same and complementary subject areas. Together the combined collections provide important national resources in a number of fields of study.

Georgetown University, founded in 1789, the oldest Catholic university in the nation, is a member of the Association of Research Libraries. Together, Georgetown, Catholic (founded in 1889) and George Washington (founded in 1821) universities have notable, long-established collection strengths in the History of Religion, among other subjects: Catholic History, Jesuit History, Catholic Americana, Canon Law, Labor and Church History, Medieval Studies, Portuguese and Spanish Semitics, Judaic studies. Other joint areas of strength in special collections of national significance exist at Georgetown, American and at George Washington universities in Diplomacy, Foreign Affairs, and International Relations. There are also collections of distinction in local history and culture of the Washington metropolitan area, including history of the Province of Maryland at Georgetown University, the first college in the District of Columbia; the culture and history of Washington D.C. at George Washington University; Northern Virginia history at George Mason University. Gallaudet has a nationally important special collection of materials relating to deafness. Distinguished special collections exist at American University in the culture of Japan, Asia and the East; at George Washington in the History of Print, at the University of the District of Columbia for the Black Film Institute; at George Mason on the Federal Theatre Project & New Deal Culture, and the papers of Senator William Scott, among others. With the aid of the shared bibliographic data base it will be possible to identify unique and overlapping areas of specialty with more precision.

It would be difficult to list all the strengths of the WRLC libraries. However, a few recognized strengths deserve particular mention: American and English Literature (Catholic, Marymount, Georgetown); Art History (G.W.); Art and Architecture, Social and Behavioral Sciences (American); History (American, G.W., Georgetown); and Economics (American, G.W.); Humanities (American, U.D.C.). These are just a few of the outstanding subject collections which can be found in the Washington D.C. area universities.

Law is a subject strength in five of the universities that

have American Bar Association accredited graduate programs, and separate law libraries. Like the general library directors, the law library directors in these five universities (Georgetown, American, George Washington, George Mason, Catholic) have established close relationships. They have formed a tradition of cooperative planning and coordination in automation and the creation of joint bibliographic products among other areas.

It is notable that Washington, hub of government, is also a national center for the practice of law. Nationally significant cases and policy issues, the cutting edge of legal theory, come before Washington lawyers. Consequently, the research needs of the Washington legal community are varied and profound. Through the actions of various regulatory agencies located in Washington--ITC, FTC, FCC to name a few--new legal policies are developed and set in motion. The legal profession, perhaps more than any other, relies upon documented information and the expert handling and interpretation of that information. Uncompromising demands are placed on the academic law libraries to provide a noteworthy breadth and depth of legal literature to support the Washington legal community.

Moreover, the preponderance of legal literature has enduring research value, not just for the legal community but for other researchers as well. Historians, philosophers, sociologists as well as other scholars in a broad range of humanities and social sciences study law as a reflection of our society's values. Philosophy of law, legal ethics and jurisprudence scholars recognize the intimate relationship between law and culture. They recognize that our world view is inherently tied to the language of law, the process of dispute resolution and the methods by which legal doctrine is established.

Our culture's legal and philosophical outlook forms the foundation for the way our society functions and thinks. For example, the guarantees provided by constitutional law and freedom of the press ensure the continued existence of our independent media and the rights of journalists. Legal decisions set the framework for interdisciplinary areas such as international studies, labor studies, urban studies and women's studies. Civil rights and administrative law issues define the perspective for ethnic studies such as Jewish studies and Native American studies. Intellectual property and copyright issues are critical to writers of literature and drama.

Similarly, the field of Law draws insights from the Humanities and Social Sciences. For this reason, a general background in social, religious and economic history is essential to the understanding of legal history, religious law, Jewish law, canon law and Islamic law. Likewise, psychological theories have been used to explain decision-making in jury studies. Economic theory has been set forth to explain the motivations underlying

legal actions and decisions. Social theory and philosophical viewpoints have been recognized as affecting the development of criminal law. In recognition of these ties, Georgetown Law offers a Humanities and the Law course. This course is taught by a full-time Georgetown Law faculty member with a Ph.D., not a J.D.

Within these fields--law, jurisprudence, the history of law, as well as a myriad of subjects relating to law--indepth scholarly collections of over 1.4 million volumes have been built in the five academic law libraries. The combined collections provide an impressive array of national resources. Georgetown University Law Library collects at a research level for all areas of Anglo-American and International Law. Special collections within the law libraries include thousands of antiquarian and out-of-print books, on subjects such as American Legal History, International Law, and Patent and Customs Law.

Within the general and law libraries, the book is still the predominant format; it constitutes the vast majority of resources in the general and subject libraries. Even in the law libraries where full text of primary material is readily available on-line, the book format is still overwhelmingly chosen by publishers and is strongly preferred by many library users. Because of the precedential nature of law, historical volumes always remain important to legal researchers and scholars.

Unfortunately, the immense collections that underlie and give vitality to these institutions of higher education are threatened by the accelerating decay of their paper-based records. The alarming embrittlement of acidic paper manufactured since the mid-19th century is one problem. Washington's extreme climate changes and its polluted urban environment contribute significantly, over the years, to embrittlement. The Library of Congress estimated that 25 percent of its collections were brittle in 1985. Georgetown University Law Library's survey estimated that 24 percent of its books had brittle or weak pages. The "brittle book" problem, however, is just a magnification of preservation problems that will always exist within collections of paper records.

Books, which consist of a variety of organic materials, are easily damaged, particularly when they are heavily used by students and scholars. The surveys done at George Washington in 1982 and Georgetown Law in 1984 indicate that an estimated 57.6 percent of Gelman's total monograph collection is moderately or severely deteriorated and that an estimated 29 percent of Georgetown Law's total collection needs repair or is beyond repair. Since identical criteria and methods were not used at both schools, unfortunately, it is impossible to compare these statistics. Another problem in drawing conclusions from this data arises because the surveys were done so long ago. The

situation in 1988 could be quite changed from that found at G.W. six years ago. Finally, both surveys would have been improved if they had more closely related specific preservation problems to appropriate treatment strategies.

A new survey, this time including ten WRLC libraries will be conducted in a coordinated fashion with identical data collection forms. It will provide the comparable data needed to assess the relative condition of the collections in the universities' libraries. When linked to the refined knowledge about subject strengths that will be available through the shared data base, the findings will be even more valuable. It will enable the libraries to have confidence that their conclusions will be based on a realistic assessment of the magnitude and type of their preservation problems. Hard data available from this type of joint survey, designed to reveal programmatic needs, will enable the WRLC libraries to make judgments about appropriate treatments like deacidification, various types of repair or rebinding, microfilming. For example, books not yet brittle can be deacidified in the future. On the other hand, books that are brittle should be replaced or reformatted (as in preservation microfilming) if warranted by their bibliographic content. If not worthy of, or capable of immediate replacement/reformatting, the fabrication of box enclosures will at least provide a miminal level of protection from further abrasion. Books identified as worn or damaged as a result of heavy or careless use, but are not yet brittle, will be good candidates for repair or rebinding programs. The findings will enable the WRLC libraries, as a group, to proceed to the formulation of joint plans, policy and treatment priorities.

Based upon survey findings libraries in addition to Georgetown may decide to eventually establish inhouse preservation facilities, in addition to the central WRLC preservation facility. It would be ideal to have a full-scale inhouse conservation treatment facility in each library. But for smaller libraries this may not be economically feasible or the best use of scarce resources. The smaller libraries may want to rely for some time on a cooperative treatment programs such as the planned central WRLC facility.

Moreover, the national shortage of conservation specialists would make it difficult for smaller institutions to staff small treatment facilities. Despite a number of innovative training programs that have been proposed and developed--such as at Columbia University and Johns Hopkins--prestigious research libraries still find it difficult to recruit qualified conservation specialists. Collection conservators that can perform a wide range of simple but conservationally-sound repairs, and who can manage a high-volume, multi-faceted program of collection care are in high demand. Therefore, cooperative treatment facilities not only spread out the cost of equipment

and supplies, they maximize the talents, knowledge and capabilities of the conservation specialists we have.

The concept of a shared conservation facility for basic repairs is an innovative one. Such a facility will have the capability to repair the frayed or detached bindings, rather than construct new bindings, as is done in a commercial bindery. Or it may recommend protective enclosure, which can provide essential protection for the fragile paper within many aging volumes. These simple treatments can dramatically reduce and correct the damage suffered in valuable collections that have permanent or long-term research value. Furthermore, through repair, resources can be directed toward the protection and treatment of books which have not yet reached an advanced stage of deterioration, thereby avoiding more extensive problems in the future.

The WRLC law libraries will test the concept of a consortium facility for simple repairs of circulating collections. In doing so, they will extend the lifespan of the WRLC library collections that are treated. In addition by centralizing the facility, the volume of work that is handled will be expanded. The larger volume of work will create training opportunities for conservation support staff that would not be available within smaller operations. The training component of this project will provide valuable experience for four new conservation technicians.

The project will utilize existing staff through a project that builds on administrative and conservation experience of participating staff members. It will draw upon the existing equipment and resources of Georgetown University Law Library conservation facility. Georgetown Law's conservation program now includes an integrated approach to binding, repair, boxing, and replacement. With a preservation staff of 3.5 fte and an annual budget of approximately $100,000 Georgetown preserves over 6,400 volumes per year, and replaces several thousand as well, with reprints, new editions or reproduction editions. The library's positive results in performing item treatments, are complemented by environmental monitoring, disaster preparedness, and technical advice concerning preservation for all library units. The inhouse treatment program, begun in 1985 with an equipment and physical plant investment of about $10,000, now includes a solid staff with formal training in book conservation. The full story behind the establishment of Georgetown Law's conservation unit in 1985 is chronicled in an article included in Appendix A. Thus, Georgetown Law has a significant conservation program in place with staff specialists who can help other WRLC campuses start a program, and prepare the way for a major cooperative WRLC conservation program.

Through this project, the participating libraries will

enrich their preservation capabilities, and thereby increase the number of library staff with preservation awareness. This is an important benefit to the field of preservation where there have been too few trained librarians, and a benefit to the academic libraries in the Washington metropolitan area in particular. They will prepare for the time when they will share an even larger shared conservation treatment facility, with a broader base of services. Their experience will lay a groundwork for future development of a shared staffing facility in the WRLC's new building which will be under construction in 1990. The implementation of the project will yield an appropriate awareness of what configuration of shared preservation staff will be needed in the future. It will suggest production and capacity quotas for a central treatment facility, and will teach the libraries methods for controlling the flow of materials from their libraries to the shared facility and back again. This experience of implementating a shared treatment facility will evoke a commitment from the participating universities in what is hoped to be an ongoing program for the new, large central storage and treatment facility.

III. Description of Proposed Project

The purpose of this project is to assist the WRLC libraries in taking the first steps toward the development of cooperative preservation programs. Initially, this two-phase project will prepare the libraries for making further plans to develop a large shared preservation facility in the future.

During the first phase of the project, a library in each of ten libraries will designate a Preservation Planning librarian. The coordinated activities of these Preservation Planning librarians will require new and expanded roles for staff already in place. NEH funds are requested to retain an experienced consultant in the library preservation field to provide the technical assistance needed to create coordinated preservation programs. With the guidance of the consultant, an existing preservation manager will assist in training personnel in member libraries to conduct random sample book condition surveys in each of the participating libraries. The ARL Preservation Planning program will provide the framework for the study. The ARL self-study manuals will provide the basic methodology for conducting the design and analysis plus design. (a fuller description of the ARL Preservation Planning Program is included in Appendix B) The consultant will provide assistance to adapt the study to local needs.

In the second phase of the project, using an experienced preservation administrator and a trained collections conservator, the Washington Research Library Consortium will initiate a pilot project to experiment in the expansion of its conservation treatment activities through the development of a central preservation center. It will draw upon and expand the capabilities of established resources that already exist within one of the Consortium libraries: a fully equipped, fully functioning conservation facility, staffed to perform conservation treatments to protect and repair endangered and deteriorating collections. The Washington Research Library Consortium is seeking assistance for pilot project development of a shared conservation service that will serve, initially, the law libraries of four of the consortium libraries and the law collection of one of the general university libraries. An important result of this project will be the protection and preservation of extensive research resources in the field of Law.

All of the libraries participating in the shared conservation workshop phase of the project will have already participated in the preliminary condition survey. The survey findings will assist them in establishing their program objectives and treatment priorities. A staff member from each of four of these libraries will serve as conservation trainees.

The librarians from the five libraries who served on the Preservation Planning Committee will continue to guide and monitor each phase of the project. They will select materials for treatment, participate in the planning and logistical aspects of the program and evaluate the treatments received. Based on statistics which will be systematically collected throughout the project, and what is learned in analyzing the results, these preservation librarians will gain valuable insights about implementing cooperative programs. As well, they will learn to make choices concerning appropriate systematic pproaches needed in their own libraries. Some of these choices may not have been evident before the start of the program, and may go beyond the scope of the program. Afterwards, they will be more capable of assessing options and developing recommendations for cooperative preservation in the future. The final evaluation of the project's impact will be made by the Preservation Planning Committee, with assistance from the consultant.

The Georgetown University Law Library's treatment facility is well equipped to carry out this project. Since its establishment several years ago, it has been staffed with a Conservation Specialist. The Georgetown Law Library facility has received national recognition as a model program for moderate sized library conservation programs. It has been one of three Washington sites visited for the past two years by the conservation training classes taught at Johns Hopkins University Library, as representative of a conservative, cost-effective approach that provides positive results.

In addition, the WRLC will implement its plan for identification of preservation information within the bibliographic record. In developing and refining its central NOTIS database, there are numerous types of preservation information that libraries will want to include. For example, preservation actions such as (1) reformatting in microform, preservation photocopy, or some other media; (2) conservation treatment; or (3) deacidification will be recorded on pertinent records. Furthermore, technical information about a reformatted item will be recorded. In addition, information about the physical characteristics of an item (alkaline paper, acidic paper, brittle paper) will be accommodated. Queuing information, to indicate that an item is scheduled for filming, will be shared to reduce duplicative filming efforts. Copyright information specific to an item will also be recorded where applicable. Finally, the WRLC anticipates that identification of collection development priorities and responsibilities will be an important element to preservation decision-making. Wherever possible, WRLC libraries will utilize appropriate fields in the MARC bibliographic record and in the US MARC Format for Holdings and Locations to identify preservation information (for example the 007,035, 583 and various 500 note fields) The relatively small

number of libraries served within this close geographic region makes it feasible for each library to look at the other library's holdings (and notes that may appear in these fields), thereby establishing close communication concerning the item-by-item preservation activities taking place in each member library.

One of the significant strengths of the program is the training it will provide, both the Preservation Planning librarians and to those selected to learn treatment techniques, who will, at the end of their six month training period, bring those skills back to their libraries. All the training will be provided by experienced and trained preservation professionals.

Through these activities, the concept of a shared conservation center can be established and tested. A network of librarians jointly knowledgeable about the preservation needs of the member libraries will be created. This project will build a strong basis for cooperation that can be used in future expanded WRLC programs and in national cooperation in the preservation arena.

There will be two periods of evaluation, one coinciding with the analysis of the book condition survey findings, and another longer evaluation period at the end of second phase of the project. During these evaluation periods the Preservation Planning librarians will review the project up to that point, identifying its impact in terms of key results: the number of items treated, the knowledge gained by the professional librarians, the new skills learned conservation trainees, the implementation of new preservation policies and procedures within the WRLC and its libraries, the existence of a network of preservation planning librarians, and the development of a coordinated strategy for future WRLC preservation activities. It is expected that the WRLC will have developed the experience to make future recommendations for more comprehensive coordinated programs to meet the preservation needs of member university libraries, including the requirements for space, equipment and staffing of a shared central library facility capable of serving all eight member universities.

IV. Plan of Work

Throughout the two-phase project, Linda Nainis, the Assistant Director for Collection Management at the Georgetown University Law Library will act as Project Manager (resume attached). She will play a key coordinating role in guiding, organizing and scheduling the work and the resources committed to the project. She will be assisted, during the first phase and during the final evalution at the end of the project, by Jutta Reed-Scott, an ARL Preservation Consultant, who will bill the project at the standard ARL rate (resume attached). During the second phase, Mary Pound, Conservation Specialist at Georgetown University Law Library, will train the conservation technicians drawn from participating libraries and will manage the day-to-day operations of the shared conservation workshop (resume attached). NEH funds are sought to release Linda Nainis half time from her regular work for the duration of the project, and to release Mary Pound from 75 percent of her Georgetown Law Library responsibilities during the twelve month period of intensive training of four conservation assistants. During the period in which she is preparing the work site and collecting training materials for project and during the final evaluation stages, Mary Pound will work on the project 50 percent of her time.

As Project Director, Paul Vassallo, Executive Director of the Washington Research Library Consortium, will have oversight responsibility for the project during the full 18 month period of the project. He will monitor the results and will ensure that the focus of the project remains compatible with the needs of the WRLC member libraries.

The first phase, the random sample book condition survey, is designed to last three months. Each of ten participating libraries have pledged their commitment and support of this project. This includes four law libraries (the fifth was without a director at the time project plans were being developed) and six general libraries within the eight universities. (Letters of support from each of the participating libraries are in Appendix C) At the start of the project, each participating library will have selected a professional staff member to form the Preservation Planning Committee and to direct the conduct of a condition survey their library's collections.

During the first month, the Preservation Planning librarians will meet with the ARL consultant several times for planning sessions to decide on the design, sampling frame, what collections are to be sampled, the size of the sample, what information will be gathered, and what forms will be used. The salaries of these Preservation Planning librarians, who will spend approximately 15 percent of their time on these activities, will be contributed from their member institutions. The consultant will review the products and instruments produced for

the condition surveys.

In the second month, data will be collected at all the libraries simultaneously. The ARL consultant will meet again with the Preservation Planning librarians to assist the individual teams in carrying out the condition surveys. This work can be carried out economically by training small teams of student assistants from each library to collect the data. The data will be input on a central computer, again using one or two student assistants, for which NEH assistance is requested.

Then, during the third month, under the direction of the collection management librarian at Georgetown Law Library and the overview of the Preservation Planning librarians, the data will be manipulated and analyzed, using a shared statistical package available from Georgetown University at a very nominal fee. The ARL consultant will assist the individual teams in planning and carrying out the condition surveys, and provide assistance in the analysis of the data, in assessing options and the development of recommendations and plans for a cooperative preservation program. A joint report will show findings and recommendations of the Preservation Planning Committee.

During the initial three month phase, in addition to the conservation survey, the Preservation Planning librarians in the law libraries and the conservation librarians at Georgetown Law will use this time to order supplies, conduct planning meetings, agree on objectives and establish methods, including the logistics of transporting materials to and from the libraries. The equipment and space which will be contributed to the project in order to serve three law libraries and the law collections of Catholic University for a twelve month period.

Starting with the fourth month of the project, two trainees from the participating libraries will begin to serve for six month training terms. At the end of the first six month rotation, the first two apprentices will return to their home institutions, and two additional trainees will serve a final six month apprenticeship. Because these staff members come from small libraries that cannot easily cover their daily operations during the absence, NEH assistance is requested to reimburse their salaries during the absence. These conservation trainees will learn about a dozen different book repair techniques from simple to complex, including replacing missing pages, cover repair, minor sewing reinforcement, paper repair, and recasing. The methods taught will be those used at Georgetown Law, based on the manual written by Carolyn Clark Morrow and Carole Dyal, Conservation Treatment Procedures: a Manual of Step-by-Step Procedures for the Maintenance and Repair of Library Materials (second edition) Littleton, Colo.: Libraries Unlimited, Inc., 1986). They will work on material from their own libraries, that will be shipped weekly to the central facility and returned the

following week. With the addition of these trainees, the facility that currently reviews approximately 300 items per month, and performs treatment on about 200 per month, will more than double its output. At the beginning of each training period, however, there may be a lag in production, due to intensified start-up and basic orientation activities. A brief job description for the trainees is included in Appendix D.

The final three months of the project will consist of an evaluation phase, when successes and insights will be analyzed and documented. The consultant will meet again with the Preservation Planning librarians, in order to assist in reviewing and evaluating the results of the treatment phase of the project. Clerical and administrative assistance for typing of reports, training tools and providing documentation provided at 3 ite throughout the project period. This support will be especially valuable in smooth completion of final reports and articles about the program for dissemination to the professional community. A Gantt chart is included in Appendix E to display the sequence of project tasks.

V. Results

Through the leadership of many people, institutions and organizations at local and national levels, the WRLC has established a sound base, with the expectation of significant achievement and ongoing success in consortium development. The completion of this project will enhance the WRLC's ability to implement a coherent preservation program and to serve as a model for the advancement of preservation programs within the academic consortia in the nation. It will enable the WRLC to take the first steps in program planning, and to lay the groundwork for establishing larger and more sophisticated shared treatment programs. The WRLC recognizes that a wide range of preservation strategies will be required to meet the complex preservation challenge of providing access to the vast body of existing research collections within university libraries. In the interim, a number of positive immediate results are associated with this project:

- Provision of preservation training for 12 professional and 4 non-professional staff.
- Establishment of a fund of shared preservation experience, to lend support to preservation decision-making within WRLC libraries.
- Creation of an enlarged network of people with preservation expertise within the university libraries in the nation's capital.
- Identification of the nature and magnitude of preservation problems in WRLC libraries; generation of hard data that will support preservation planning and decision-making.
- Execution of an estimated 4,000 to 6,000 preservation treatments that will help to extend the lifespan of and provide access to existing Law collections within the universities.
- Establishment of preservation policies and procedures within the WRLC and its libraries,
- Automation of preservation information within the NOTIS system to serve eight universities.

Success is assured through the commitment of the participating libraries, and their appointment of Preservation Planning librarians to work with the project manager and the ARL consultant who will provide the structure, training, guidance and ongoing technical support required for successful program

completion. Together these librarians will form a network to develop coordinated programs to meet the preservation needs of member university libraries, including assessment of the requirements for space, equipment and staffing of a shared central storage and treatment facility capable of serving all the libraries within the eight member universities. The clerical and administrative assistance provided will ensure that the project materials will be carefully documented and the evaluation reports will be widely disseminated within the profession, thereby extending the impact of this project nationwide.

Completion of a random sample preservation condition survey across the WRLC member libraries will be taking the first step toward identification and justification for addressing specific preservation problem areas. Through the efficient use of student assistants it will be possible to collect data about condition in a way that will suggest various treatment options. With NEH support for data collection, input of data, and the nominal cost of a computer program, the libraries can set forth to design appropriate treatment strategies.

The conservation treatment and training phase of the project is highly cost-effective, drawing heavily on existing resources and building on existing strengths. Enabling the Georgetown University Law Library to share the expertise of their highly qualified Conservation Specialist will ensure that the training provided will meet accepted conservation standards. The assistance given to the smaller participating libraries who are releasing their trained staff from clerical responsibilities will enable new skills in conservation to be learned, thereby creating a larger trained workforce for preservation jobs in the future. Furthermore, it will enable libraries to deal with preservation problems through techniques characterized by high production and low unit cost per treatment. Moreover, the assistance will enable libraries to begin revitalizing volumes that are too fragile for commercial binding, such as volumes published within the period 1870-1920. They can return to service some volumes that would be irreplaceable in the commercial marketplace. In addition, the program will provide a means for a year-long, critical physical examination and assessment of collections.

The project fits well within one of the WRLC's major goals: "to implement a preservation program to preserve and extend the useful life of disintegrating library materials at the central facility, and the libraries of the member institutions." This regional cooperative program serves NEH's goals and priorities as well, by implementing a coherent attack on the problem of deteriorating resources in the humanities, through the improvement of research collection maintenance and through the enhancement of the capability of the WRLC to develop f preventive care practices.