

The Maryland Digital Library Program

By
The Maryland Digital Library Task Force of the
Maryland Higher Education Commission
and
The Congress of Academic Library Directors

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FOREWORD

The Secretary of Higher Education authorized the formation of the Maryland Digital Library Task Force (MDLTF) in response to the request of the Congress of Academic Library Directors (CALD). We the Task Force members appreciate the opportunity to undertake this work and to develop this program for a Maryland Digital Library. Through this proposal we express our commitment to work together to develop digital library capabilities that complement Maryland statewide communications planning and the notable Sailor project, and that maintain content at the core of the program rather than technology or telecommunications infrastructure.

This proposal for a Maryland Digital Library reflects broad agreement and support among Maryland's academic libraries about the resources needed in our state to make the ongoing transition to a digital library environment. Such an environment enables library users to gain access seamlessly to electronic resources as well as the substantial collections of more traditional forms of material that publishers continue to issue and that libraries collect and organize for use. Several states already have such a digital library program and realize considerable economies of scale in purchasing and developing content and added value in gaining access to a wider array of electronic and traditional forms of content. Virginia established such a program in 1994. Pennsylvania began its program in 1997.

The Maryland Digital Library program is critical for maintaining the competitiveness of higher education in the state. Students and their parents are mindful of the value that electronic information plays in learning and of the economic return on investment for college graduates who know how to exploit the new world of information resources. Prospective faculty members also now take into account the availability of digital library resources as they make decisions about job offers.

However, the significance of the Maryland Digital Library extends far beyond the role which libraries have traditionally played at the center of college and university campus life. The MDL program offers the potential through the provision of high quality information content to support Maryland's prospective and existing businesses, Maryland's overall economic development, and Maryland's citizens' needs for lifelong learning. The Maryland Digital Library also offers an extraordinary opportunity for Maryland's colleges and universities to develop partnerships with the K-12 education segment in gaining access to digital content.

All of the elements, except the requested funding, are in place now to implement the program successfully. If Maryland delays the development and funding of the Maryland Digital Library beyond the forthcoming fiscal year, we may never be able to recover the competitive edge that Maryland has lost to Virginia and Pennsylvania in the provision of digital library and information services.

Maryland Digital Library Planning Task Force

Charles B. Lowry – USM Representative and Chair
Dean of Libraries University of Maryland

Steven Fine – MICUA Representative
Director of Library and Associate Professor of Rabbinic
Literature and History Baltimore Hebrew University

John Hanson – MICUA Representative
Director of Knott Library
St. Mary's Seminary and University

Suzanne P. Hill – Community College Representative
Director of Library Services, Catonsville Campus,
Community College of Baltimore County

Kimberly B. Kelley – USM Representative
Assistant Vice President of Information and Library
Services University of Maryland University College

Mary Landry – Community College Representative
Director of Library and Audio-Visual Services, Dundalk
Campus Community College of Baltimore County

Lynda Byrd Logan – Community College Representative
Dean of Learning Resources
Prince George's Community College

Nancy Magnuson – MICUA Representative
College Librarian Julia Rogers Library Goucher College

James G. Neal – MICUA Representative
Dean of University Libraries and Sheridan Director,
Milton S. Eisenhower Library Johns Hopkins University

Karen A. Robertson – Morgan State Representative
Director of Library Services Morgan State University

Larry Wilt – USM Representative
Director of the Library Albin O. Kuhn Library &
Gallery University of Maryland Baltimore County

Gerry Yeager – Community College Representative
Director of Library and Information Services
Harford Community College

Connie Cox – MHEC Liaison
Senior Education Policy Analyst
Maryland Higher Education Commission

David Sumler – MHEC Liaison
Director of Academic Affairs – Planning And Policy
Maryland Higher Education Commission

PREFACE

This preface exists to reflect revisions to the original Program Proposal in order to put in place a start-up year for the Maryland Digital Library (MDL) Program. In such a start up year, referred to as Year Zero in the tables that follow, the MDL Program will establish the MDL program and deliver results in a number of key areas:

- Delivery via a Web interface of index, abstract, and full text journal content for more than 1,000 journals together with electronic reference sources such as a comprehensive online encyclopedia.
- Start up activity with as many of the libraries of the 57 institutions of higher education in Maryland that express an interest in participation including on-site visits to address matters related to on-campus and off-campus use of licensed electronic databases made available through the MDL Program, documenting each library's computer and communications systems, conducting training of key persons at each site, and answering questions about MDL and Year Zero activities.
- Providing ongoing telephone and e-mail user support via a help desk, including support by trained staff with expertise in online searching and with knowledge of each library site gained from the on-site visits.
- Putting in place the management for the MDL Program.
- Providing financial accountability for funds received by MDL.
- Introduction and refinement of various governance and advisory structures needed to provide direction for various MDL activities.

Tables 1 and 2 indicate in greater detail the work of Year Zero and the relationship between Year Zero Program activities and those Program activities commencing in Year One and succeeding years. In particular the notes for Table 2 provide a managerial focus for the work of Year Zero.

**TABLE 1
PROJECTED MARYLAND DIGITAL LIBRARY PROGRAM COMPONENTS AND STATUS BY FISCAL YEAR**

Item Number	MDL Program Area	Year Zero	Year One	Year Two	Year Three	Year Four
1	MdUSA					
1.1	MDL Participant Access to Licensed Content	In Place	In Place	Expansion	Expansion	Expansion
1.2	Organizing Internet Content	No Funded Activity	Planning	In Place	Expansion	Expansion
2	MdPAC					
2.1	Union Catalog	Planning	In Development	Implementing	Implementing	In Place
2.2	Patron Initiated Borrowing	Planning	In Development	Implementing	Implementing	In Place
3	Support of K-12, Lifelong-Learning / Business	No Funded Activity	Planning	In Place	In Place	In Place
4	Creating New Digital Content / Online Reference	No Funded Activity	Planning	Trial Project(s)	In Place	In Place
5	Planning for Additional Types of Cooperative Activity	No Funded Activity	Planning	Planning	Planning	In Place

**TABLE 2
PROJECTED MARYLAND DIGITAL LIBRARY PROGRAM COMPONENTS AND STATUS BY FISCAL YEAR**

Budget Item	MDL Program Area	Year Zero	Year One	Year Two	Year Three	Year Four
1	MDL Administration	75,200	124,900	131,145	137,702	144,587
2	MdUSA					
2.1	MDL Licensed Content	212,000	2,000,000	2,200,000	2,420,000	2,662,000
2.2	MDL Licensed Content Support Staff	12,460	149,760	157,248	165,110	173,366
2.3	Computer Hardware/Software for MdUSA	100,000	200,000	50,000	50,000	50,000
2.4	Staff Support/Training - Organizing Internet Content	N/A	35,200	99,960	104,958	108,266
3	MdPAC					
3.1	Union Catalog	12,460	211,200	110,880	116,424	122,245
3.2	Patron Initiated Borrowing	N/A		221,760	232,848	122,245
3.3	Compensation to Net Lenders	N/A	-	125,000	300,000	360,000
4	Support of K-12, Lifelong-Learning and Business		18,000	18,900	19,845	20,837
5	User Support (Help Desk)	39,360	70,000	73,500	77,175	81,034
6	Accounting	11,200	22,500	23,625	24,806	26,047
7	Creating New Digital Content and Online Reference	N/A	35,200	171,960	N/E	N/E
8	Supplies, Equipment, Telephones, etc.	16,200	62,000	25,200	25,200	25,200
9	Professional Development, Travel, and Meetings	21,120	25,000	25,000	25,000	25,000
10	TOTAL	500,000	2,953,760	3,434,178	3,699,069	3,920,827

TABLE 2
PROJECTED MARYLAND DIGITAL LIBRARY PROGRAM COMPONENTS AND STATUS BY FISCAL YEAR

NOTES FOR TABLE 2 YEAR ONE BUDGET

Note Number	Note
1	Line 1: In Year One only MDL pays for program administration by University of Maryland Libraries Director of ITD who will spend a minimum of one day a week on MDL; Expense for Associate Director for MDL Program hired following six month search. All staff expenses include 28% salary related overhead. In succeeding years the Director of ITD continues to spend such time on MDL without reimbursement by MDL. Year One and succeeding years include expenses for Administrative Support of MDL and the MDL Program Associate Director.
2	Line 2.1: MDL participating libraries will gain Web based access to \$212,000 in licensed encyclopedia and index, abstract, and full text journal content during 9 months of Year Zero.
3	Line 2.2: Library Systems Analyst conducts 45 one day sites visits to non USM college and university libraries to get and document information on local automated library system(s), network addressing, and authentication and to conduct training on database access; Systems Analyst has 1/2 day for each of 45 libraries to address questions and resolve problems. Programmer spends 1/2 day for each of 45 library sites to set up and maintain database gateway profiles and to document the bibliographic capabilities of the automated library systems of MDL participating libraries with a view towards the development of the MdPAC capability.
5	Line 2.3: Computer Hardware and Applications Software to implement authenticated gateway access to licensed subscription electronic databases from users on campuses and from users at off campus locations. Server hardware and software cost at \$100,000.
6	Line 5: User support over the 9 month time period of Year Zero consists of four hours of supervision of a User Support Coordinator per week and a full time User Support Specialist to respond to library and user needs for information and assistance with respect to electronic database access.
7	Line 6: Accounting services consist of .25 FTE to assist in procurement and in maintenance of MDL funds and accounting.
8	Line 8: Equipment, supplies, telephone. Two new computer workstations @ \$3,000 each and MDL office expenses of \$850 per month.
9	Line 9: Professional Development, Travel, and Meetings. Funding for 1 FTE for Professional Development. Travel funds for (1) Library systems analyst trips to potential MDL participants, (2) Monthly meetings of an MDL Advisory Group Executive Committee, (3) Six meetings of an MDL Advisory Group, and (4) Two general meetings of MDL participants.

1. EXECUTIVE SUMMARY OF THE MARYLAND DIGITAL LIBRARY PROGRAM

Maryland's academic libraries, which serve the state's publicly supported and independent two and four year colleges and universities, have joined together to develop and to put in place with the proposed funding a Maryland Digital Library (MDL). The goals of the Maryland Digital Library are to: (1) increase effective access to information of critical value in both Internet accessible electronic form and in library collections of books, journals, sound recordings and other traditional forms of material, (2) optimize effective use of funding in the acquisition and creation of digital resources, and (3) link Maryland to the rapid developments in national and global digital library capabilities. The proposed MDL enables Maryland's academic libraries, their users, and the State of Maryland to undertake crucial steps in the transition to library and information services that implement these goals.

Through the Maryland Digital Library, the academic libraries of Maryland will advance the licensing, access, sharing, digitization, distribution and use of educational and scholarly information, and will establish a state-wide entrepreneurial approach to the delivery of information resources and services. The Maryland Digital Library will position Maryland's academic libraries as a center for research and development in the application of information technologies; as a creator and aggregator, and not just a consumer of information services; as a resource in the integration of technology and digital collections into teaching and research; and as a provider of information services to the research, business and lifelong learning communities. The Maryland Digital Library will cast Maryland's academic libraries as successful competitors in the information market, and as a result, encourage state, federal, foundation and corporate investment.

The Maryland Digital Library program will serve the educational, research, economic and development needs of the state with the type of networked information services offered states such as Virginia, Pennsylvania, Georgia, and Ohio. A selected list of such programs appears as Appendix B to this proposal. Programs in these other states have demonstrated advantages of providing such digital library services. Although not among the first states to implement such a program, Maryland has an opportunity to learn from the experience in other states and to leapfrog the competition to establish a model Digital Library program.

The Maryland Digital Library also represents an outgrowth of resources and capabilities already present in Maryland:

- cooperative working relationships among libraries from all sectors of higher education,
- successful initiatives such as Sailor with which Maryland academic libraries cooperate,
- a working model of the needed technical infrastructure in the University System of Maryland shared Library Information Management System (LIMS) and its consortium based licensing of and access to digital index, full text, full image, and multimedia resources,
- the emergence of a high performance Maryland Higher Education Network,
- the support of the Secretary of Higher Education who provided for the formation of the Maryland Digital Library Task Force to develop the concept and for MHEC participation in the work of the Task Force (Appendix A),
- the support of all segments of Maryland's academic community and the Congress of Academic Library Directors (CALD).

The principal benefits of the Maryland Digital Library accrue from two key program components – the Maryland Universal Statewide Access (MdUSA) that provides access to licensed Internet accessible information and the Maryland Premier Academic Catalog (MdPAC) that provides online access first to

existing library holdings and then to newly created digital content. However, the MDL program will result in a number of very specific benefits to academic libraries, Maryland's colleges and universities, and the state at large, including:

- vastly improve access to both licensed electronic information, Internet content, and Maryland based specialized resources and collections for library uses,
- economies of scale in purchasing power,
- equity among the independent and the state affiliated colleges and universities in sharing the MDL resources and benefits,
- enhanced competitiveness with other states in recruiting faculty and students,
- ability to enhance the quality of education for students and to advance overall scholarship within Maryland's colleges and universities as a whole,
- ability to save faculty and student time by making effective searches of multiple sources of information at once,
- ability to access an integrated set of content gathered "in parallel" from diverse digital sources for display to the user in a single list, promoting efficiency of user searching and greater utilization of public workstations,
- patron initiated borrowing of library material from any MDL participating library.
- organizing and making accessible high value Internet Web accessible content along with licensed digital content and statewide library union catalog,
- outreach to the K-12, lifelong and distance learning, and business communities,
- a vehicle for shared learning about creating digital library content and for the actual digitization of content based on the special holdings and resources of Maryland libraries; integration of that content into the MDL,
- providing integrated access to such digitized content along with licensed content and information about the holdings of Maryland's college and university libraries,
- improved opportunities to leverage existing staff resources through initiatives such as Web enabled text and/or voice based reference and information service to users and easy sharing of staff expertise,
- provision of great flexibility in structuring education, training, and lifelong learning experiences for residents of the state who require access to library and information resources to support their learning activities during and outside the ordinary business hours – from work, home, or an instructional site.

Table 1 shows a projected timetable for the introduction of MDL services. Table 2 shows the funding levels required by fiscal year to achieve the program outcomes shown in Table 1.

The Maryland Digital Library has the potential to support Maryland's higher education, and business communities, its overall economy, and its citizens' needs for life-long learning by providing the basis for high quality information services. If Maryland is to remain economically competitive, the State needs to provide information services comparable to those in neighboring states such as Virginia or Pennsylvania. If Maryland funds the MDL program, the state will capture a critical opportunity to capitalize on Maryland's strengths and to remain competitive in the information sector among surrounding States.

TABLE 1
PROJECTED MARYLAND DIGITAL LIBRARY PROGRAM COMPONENTS
AND STATUS BY FISCAL YEAR

	MDL Program Area	MDL Year One	MDL Year Two	MDL Year Three	MDL Year Four
1	MdUSA				
1.1	MDL Participant Access to Licensed Content	In Place	Expansion	Expansion	Expansion
1.2	Organizing Internet Content	Planning	In Place	Expansion	Expansion
2	MdPAC				
2.1	Union Catalog	In Development	Implementing	In Place	In Place
2.2	Patron Initiated Borrowing of Material from Another College or University Library	In Development	Implementing	In Place	In Place
3	Support of K-12, Lifelong-Learning / Business	Planning	In Place	In Place	In Place
4	Creating New Digital Content / Online Reference	Planning	Trial Project(s)	In Place	In Place
5	Planning for Additional Types of Cooperative Activity			Planning	Planning

**TABLE 2
PROJECTED MARYLAND DIGITAL LIBRARY
PROGRAM COMPONENTS AND BUDGET BY FISCAL YEAR**

MDL Program Area		MDL Year One	MDL Year Two	MDL Year Three	MDL Year Four
1	MdUSA				
1.1	MDL Licensed Content	2,000,000	2,200,000	2,420,000	2,662,000
1.2	MDL Support Staff for MdUSA	252,160	264,768	278,006	291,907
1.3	Computer Hardware/Software for MdUSA	200,000	50,000	50,000	50,000
1.4	Staff Support/Training for Organizing Internet Content	35,200	99,960	104,958	108,266
2	MdPAC				
2.1	Union Catalog	211,200	110,880	116,424	122,245
2.2	Patron Initiated Borrowing		221,760	232,848	122,245
2.3	Compensation to Net Lenders	-	125,000	300,000	360,000
3	Support of K-12, Lifelong-Learning and Business	18,000	18,900	19,845	20,837
4	User Support (Help Desk)	70,000	73,500	77,175	81,034
5	Administrative Support (Adm. Asst., Accounting)	45,000	47,250	49,613	52,093
6	Creating New Digital Content and Online Reference	35,200	171,960	Not Yet Estimated	Not Yet Estimated
7	Supplies, Equipment	62,000	25,200	25,200	25,200
8	Professional Development and Travel	25,000	25,000	25,000	25,000
9	TOTAL	2,953,760	3,434,178	3,699,069	3,920,827
Assumptions:					
(1)	Delivery costs of items for patron initiated borrowing are not included in these budgets.				

2. STRATEGIC CONTEXT: IMAGINING THE MARYLAND DIGITAL LIBRARY IN 2010

Powerful forces and fundamental changes in global learning, information technology and scholarly publishing continue to transform academic libraries across the nation. Such forces include: the ongoing demand for traditional media, the emergence of new electronic publications and formats, the development of publications with both electronic and traditional components, the digitization of previously published or issued traditional media such as journals and sound recordings, and rapid changes in information pricing.

Extraordinary expectations regarding the availability of content, the provision of service, and the reach of information technology, illustrated by the impact of various Web based and Web enabled technologies, combined with limited resources, and increased competition for resources represent hallmarks of such change. In such an environment libraries have begun to share collections, technology and expertise more rigorously than in the past, to seek economies of scale via consortium based purchasing, and to build partnerships with the academic, government and corporate communities.

The Maryland Digital Library proposal reflects a set of shared goals, a budget, an organizational framework, an information technology infrastructure, and a timeline that together define an ongoing cooperative program among Maryland's academic libraries to address the present challenges and the likely ongoing course of these forces and changes.

In 2010 libraries will continue to face the prospect of providing access to traditional forms of material and to an expanding number of both electronic publications and digitized versions of material that originally appeared in traditional forms. An even greater variety of electronic information services will exist in 2010 than those that exist in 1999 to index, abstract, extract, and otherwise guide a user to various sources of electronic and non-electronic information. The Maryland Digital Library plans to work aggressively to provide the widest possible scope of seamless access to books, journals, and other forms of publication in both electronic and traditional forms and to the information services that guide users to the content of such works.

By 2010 faculty, student, and other users of MDL's MdUSA and MdPAC services will work very flexibly from a classrooms, library facilities, their homes, or their offices. These users will have access to a variety of finding tools, such as index and abstract services. In addition these users will have access to many electronic full text, full image, and multimedia resources at their convenience, so that they can complete their work whether or not the libraries are open. If needed materials are not available online but are available from Maryland's academic libraries, a user will be able to make a request for such material with an expectation of a timely reply. With the convergence of voice, video, and data networking, arrangements to offer network-based voice and video based library user support, training, and reference services to the user's workstation appear to be at least technically feasible. Such developments will soon be achievable and will represent a giant step toward and perhaps even beyond the vision that Vannevar Bush articulated of a self-contained scholar's workstation that he named "Memex" in widely heralded and cited article in, *The Atlantic Monthly*; July, 1945; "As We May Think"; Volume 176, No. 1; pages 101-108.

Under the leadership of the Congress of Academic Library Directors (CALD), the academic libraries of Maryland seek to realize the capabilities of the Maryland Digital Library in ways which serve the educational, research and economic development needs of the state. This collaborative enterprise will leverage the expanding cooperation in the Maryland library community, the emerging statewide telecommunications network, and the successful Sailor project which serves the public and school library communities. The MDL will develop strong links between academic libraries, the K-12 education community, the business community, and the cultural community, including museums.

3. MARYLAND CONTEXT--SERVING ALL STATE RESIDENTS

Maryland has a long history of library cooperation and resource sharing among all types of libraries in the state. Until recently, the Maryland Interlibrary Organization (MILO) administered as part of the State Library Resource Center and housed at the Enoch Pratt Free Library in Baltimore coordinated library cooperation. More recently the Sailor project was put in place in order to provide a state-of-the-art infrastructure for library cooperation and resource sharing among all types of libraries in the state. The University of Maryland, College Park assisted in this project by providing support and advice for developing the telecommunications and connectivity necessary to establish Sailor. More recently, Sailor has focused on the needs of public library user needs for Internet access to library resources throughout the state and ultimately to Internet resources in Maryland and beyond.

Academic Library Cooperative Programs: Until the development of the Maryland Digital Library program, most of the cooperative activity among academic libraries has developed within libraries belonging to a single sector of the higher education community.

In recent years, resource sharing among the libraries of the University System of Maryland (USM) has resulted in programs such as the Maryland University System Access (MdUSA) Program, which provides USM wide access to licensed digital databases. The USM libraries have also put in place a shared Library Information Management System (LIMS). LIMS provides a single, Web-based public access catalog of USM library holdings (VICTORWeb) and the system-supported ability for any USM library patron to gain access to any item of library material located at any USM library site. The combined resources of these libraries provide a core of research, general, business and technical resources upon which the entire academic community can build.

Community college libraries in Maryland provide resources that support technical curricula and general education. The Maryland Community College Library Consortium manages cooperation among the community college libraries. The Consortium shares journal articles through a fax arrangement and has negotiated consortium discounts with book vendors. The Consortium has not yet negotiated consortium licenses for online resources.

The Maryland Independent College and University Association (MICUA) represents a diverse range of academic institutions, from large research centers to highly specialized professional schools. Reflecting the diverse history and mission of their respective institutions, all MICUA libraries have special collections and particular areas of subject strength; several hold quite specialized resources not found elsewhere in the state. Significant portions of these specialized materials remain unknown or inaccessible to those beyond the individual campus. Such specialized collections may prove good candidates for digitization. Cooperative resource sharing takes three main forms among MICUA libraries: a shared integrated library system (five MICUA institutions), a preferential service for ILL among all members, and several reciprocal-borrowing agreements.

Economic Development: Attracting businesses and promoting economic growth at the state level are complex endeavors. High on any business's list of desirable attributes of a locale for its operation is the availability of high quality higher education coupled with the type of accessibility that allows employees to learn on a flexible schedule. Library service represents an important indicator of high quality in higher education and directly bears on the ability to deliver training and education on a flexible schedule. Improving the outlook for employment in an area usually depends upon the quality of the potential labor force, its existing skills and education, and the prospects for acquiring needed education and skills. The ability to deliver education and training throughout the state and to support that learning with library and information services anywhere and anytime will increase Maryland's capacity to attract and retain businesses, employers, and jobs. The MDL will be essential to developing a business friendly education and research environment.

4. THE MARYLAND DIGITAL LIBRARY PROGRAM PLAN

Maryland and its public and independent institutions of higher education face intense competition throughout the region and nationally to provide networked access to information in support of higher education, distance and lifelong learning and both established businesses as well as prospective businesses. Appendix B highlights several major digital library programs in other states such as Virginia (VIVA) and Georgia (Galileo) which provide their citizenry with broad-based access via cooperative programs among academic libraries to bibliographic and full text resources licensed from commercial vendors. The Maryland Digital Library set forth in this proposal aims to build on the cooperative efforts of Maryland's academic libraries to make such capabilities available to Maryland residents.

From the user's perspective a virtual visit to the proposed Maryland Digital Library will provide access to a wide variety of high value published and Web accessible content. That content will include Internet accessible index and abstract services, full text and full image books and journals, reference and statistical information, as well as multimedia content. Since the bulk of the scholarly publication currently available still appears primarily in print form, the MDL must bridge the worlds of print and electronic information, so that MDL users in the state will have full access to the world's knowledge. Thus, the MDL will also provide to users the means to identify, access, and use needed library materials physically stored in any participating library.

A user will obtain this Maryland Digital Library content and related services via familiar Web-based browser technology (e.g., Netscape Navigator, or Microsoft Internet Explorer and appropriate "plug-ins"). The robust telecommunications infrastructure proposed as a part of the state Higher Education Network will insure adequate capacity as the Maryland Digital Library moves from providing access to indexes, abstracts, and library catalogs through on demand high quality multimedia such as studio quality images, streaming digital video and audio, and asynchronous communications with the information desks in our libraries.

The Maryland Digital Library includes visible milestones that will insure success at each stage and allow MDL to leverage existing technology and experience to build new MDL services. The core of the MDL is content and not technology or telecommunications. The libraries of the University System of Maryland have a history of success in close technology cooperation for resource sharing. The MDL will utilize that experience in multi-institutional licensing of databases and providing access to such databases to jumpstart the Maryland Digital Library.

4.1 Phase I Projects

Maryland Universal State Access (MdUSA): MdUSA will serve as the graphical Web interface that provides a well organized one-stop-shopping approach to shared licensed databases and catalogs with easy navigation using current standards and protocols. The Phase I resources of the Maryland Digital Library will be comprised of three basic tiers of information:

- **Tier-1: Core Academic Collection.** This core collection consists of broad-spectrum, basic reference and full text resources appropriate for a number of users, including Community College students, Freshman and Sophomore students at four-year schools, high school students, and the general public. Such a Core Collection also serves more advanced students on those occasions when they need basic, entry-level of information as the foundation of more advanced or specialized research.

Examples: A multimedia encyclopedia, a general index to the several hundred most frequently used periodicals and journals, full text of articles in widely read periodicals and journals, basic news, and biographical resources.

- **Tier-2: Advanced Information Resources for Learning and Scholarship.** This collection consists of resources in a variety of areas that focus on the needs of undergraduates. Advanced high school students and researchers from business, industry, and the general public will also find these resources useful, as will advanced researchers.

Examples: ABI Inform (for business literature), the Modern Language Association bibliography (for English and literature), JSTOR (an archive of past volumes of journals in a number of academic specialties), Project Muse and the publications of the American Chemical Society.

- **Tier-3: Highly Specialized Research Materials.** This collection will contain resources at the cutting edge of research which may be related to advanced coursework, but would be critical to specialists among the faculty, graduate students, and research and development workers in business and industry. Some resources required for specialized academic programs would also be in this category.

Examples: ICPSR (raw data sets for the social sciences), Genbank (for genetic research), Agricola (agricultural research).

At each level there will be varying degrees of institutional participation that MDL will strive to manage through flexible licensing arrangements. For instance, licensing for the Highly Specialized Research Materials Collection may support unlimited access for a set of Maryland institutions which expect their users to make substantial use of this collection but provide some basis for access by users at other institutions with an occasional need for access, including those at the K-12 level.

Such a shared approach to licensing and access will have powerful outcomes including: (1) reduced unit cost for access to large numbers of electronic abstract, index, reference, and full text and full image journal titles, (2) increasing cooperation among colleges and universities from both the public and the independent sector, (3) strengthening the capabilities of both public and private colleges and universities for teaching and research, (4) allowing Maryland colleges and universities to be more competitive with institutions in other states where such investments have already been made.

With respect to program cost the MDL will realize economies of scale in the cost of licensing and accessing such content by: (1) aggregating the market for such digital materials on a statewide level, (2) establishing a single point of contact for contracting and subscription management, (3) purchasing a large number of abstract, index, full text, and full image resources via a single procurement, (4) offering the prospect, contingent upon funding of a multi-year agreement for one or more suppliers of such content, and (5) leveraging existing computing and communications investments, human resources, and experience developed in an operational shared database and licensing project within the University System of Maryland.

Database Selection and Institutional Commitment: It is critical to the success of the MDL that the process of database selection results in high-quality information availability to the broadest audience. The Management Group (see Section 6. Governance and Management) will provide a set of written principles to the Collection Management Working Group. The Collection Management Working Group will have responsibility for identifying databases that will maximize the purchasing power of state funding in combination with the institutional commitments. The Collection Management Working Group together with the Program Director will negotiate the terms for access to the selected databases. The minimum commitment of an individual institution's library for participation in the MdUSA, the MDL shared database program component, will be an investment to connect to the Higher Education Network and provision of the necessary workstations in its libraries and laboratories that will enable access. In addition, each institution will make a contribution to cost-share the access to each of the three Tiers. The

principle of institutional contribution is based on the maintenance of effort for quality education statewide—that is, quality requires local effort leveraged with state resources. While it is not possible to determine *a priori* how that share will be derived, an example is that each institution will pay an amount equal to 5% of its acquisitions budget, \$10,000, or 50% of the library's existing expenditures on digital databases (whichever is greater). Another strategy would be to base cost on student FTE. The MDL Management Group will work with the institutions and libraries in question to determine a cost sharing formula that does not exclude potential participants on that basis alone. Whatever the formulation for cost-sharing it will mean that the larger institutions (like University of Maryland and Johns Hopkins) will carry larger responsibility than those of smaller size. In addition to the core holdings for each tier, it is likely that individual institutions will desire access to database resources that are not commonly shared. The MDL will be a vehicle for helping to achieve the greatest possible savings through joint pricing negotiations. It is clear from the experience of other states that one of the great benefits of this kind of consortia based negotiation is the economies of scale as well as the added value of greater access for all.

Organizing Internet Content—Other MdUSA Resources: The MDL will also utilize MdUSA to organize “free” resources available on the Internet. Presently, many academic libraries organize such access through the efforts of their subject expert librarians who build homepages—in other words cataloging and “pointing” to valuable Internet resources (commercial, not-for-profit and governmental). This is an extension of the historic role of academic libraries to collect “ephemera” which are free but difficult to manage. Such efforts are successful but time consuming and to a great extent redundant and duplicative. The Collection Management Working Group will have responsibility for exploring ways to create added value by sharing these responsibilities among participating libraries and exploiting the unique expertise of each to add value to MdUSA. This will also bring benefits like standardization and sharing of responsibility for maintaining the integrity of links to “free” sites -- thus overcoming one of the serious problems of such efforts. Finally, the utilization of Web pages to provide guides to Internet resources has become increasingly complex. This component of MdUSA will offer the opportunity to create a technical design approach and organization that is able to manage this effort for all academic libraries in Maryland.

Maryland Premier Academic Catalog (MdPAC): The Maryland Digital Library will also feature access to the holdings of participating institutions for the primary purpose of resources sharing made available through MdPAC a WEB based Public Access Catalog interface. The technical solution to such a “union” approach must be extensible and scalable to the heavy traffic created by post-secondary teaching and research. At the present time, Maryland's public libraries are experimenting with a vendor provided method for linking their catalogs and the Maryland Digital Library will create linkages to that system. However, the primary purpose of MdPAC will be the full exploitation of consortia based sharing of resources. While electronic resources are increasingly important books and journals in MDL participant library collections continue to be in high demand. The focus of MdPAC development will be the creation of the Z39.50 compliant infrastructure to allow for patron initiated borrowing on a statewide basis. Year 1 will be devoted to the necessary prototype development of the system, where the primary technologies and their limits for achieving such capabilities are already known based on USM experience with the SiteSearch software product. Concurrently, delivery mechanisms will be identified for different categories of materials. It is expected for instance that at least fax, but probably digital transmission will be the method for distributing articles from journals and magazines. The system must also allow for direct borrowing by individuals who make the effort to go to another academic library. There is already significant successful experience with direct patron borrowing with the University System of Maryland and between the University of Maryland and Johns Hopkins University as members of the Chesapeake Information and Research Library Alliance (CIRLA). Such borrowing among the USM libraries has already reached impressive levels; on any given day the level of direct patron borrowing of books among these institutions exceeds 22,000 items. MDL must build on and expand these successes by extending them to all of post-secondary education. In addition, it will be essential to develop the algorithms for

supporting this activity, chiefly a mechanism to budget and pay the net-lenders for their efforts in retrieving documents and providing them to other institutions. Based on the successful programs in other states, such mechanisms are essential to make this resource sharing work. When these mechanisms are in place, the state reaps great benefits by leveraging an institutional investment for multi-institutional and possibly statewide impact. It is expected that the funding requests to support the technology development and net-lender payments will be made in both Phase I Year 1 and Phase II Year 2. It will be a primary responsibility of the Management Group to guide this planning process.

Support of K-12, Lifelong-Learning, Business and the Economy: Although the recommendations of the “Governor’s Commission on Technology in Higher Education” called for a Maryland Digital Library proposal supporting the state’s private and public post-secondary institutions, the academic library participants in MDL are mindful of the prospect of extending access much more broadly. Although many of the resources in the MDL may have little impact on K-12, some will prove essential. Similarly, the Maryland Digital Library can fulfill many information needs for life-long learning and support of the business community and the economy of the state. Thus MDL proposes expanding our licensing efforts to provide appropriate access components to K-12 and the private education sectors of the state. This will be an innovative effort to negotiate with vendors reasonably priced service for those outside of the MDL but within the State. In some instances it may be possible to acquire unlimited access to such resources for little additional cost through careful negotiation. From the beginning of the program one fifth of the time of a senior MDL Program Administrator will be allocated to liaison with K-12, lifelong-learning, business, and other communities of potential interest for extended MDL program activity.

In addition to MDL partnerships with business and industry, participating colleges and universities expect to develop such cooperative relationships with Maryland business and industry, which they anticipate will prove mutually beneficial. These relationships might include shared research projects, incubator programs, patron sponsorships, educational contracts, joint business ventures, etc. which would entail access to information resources within the constraints of the MDL contracts with information suppliers. MDL expects to negotiate contracts that provide a variety of avenues for business and industry to gain access to MDL licensed databases in partnership with MDL and/or participating colleges and universities.

4.2 PHASE II PROJECTS

MdUSA Phase II Requirements: It is expected that second year requirements for database access will build on the funding levels established in the first year. If the scale of funding is small in Year 1 then the Year 2 request will be concomitantly larger. If full funding is achieved in Year 1 then the second year request will be predicated largely on meeting negotiated price increases and in taking advantage of new offerings from vendors. In addition, the database market is developing quickly, and it is likely that MDL can stimulate competition among database vendors to leverage new more attractive contracts during the shakeout period.

MdPAC and Patron Initiated Borrowing: The largest new effort for Phase II will be the full implementation of the statewide resource sharing program which has been planned in Phase I. This involves the full technical infrastructure, cooperative agreements, funding for library lending activities and the delivery mechanisms. The assessment of the MDL planners is that the information technology at our disposal has a mature set of capabilities for implementing a MdPAC and Patron Initiated Borrowing.

Creating New Digital Content and Online Reference: During this period, cooperative digitization of collections will be planned. This effort will create new digital content in the form of comprehensive electronic collections drawn from local resources. It is clear from the American Memory Project at the Library of Congress that the special collections located in academic libraries provide an untapped source of content for online instruction and distance education. This is a resource that other states have already begun to exploit through, for instance the University of Virginia Library’s E-Text Center. Maryland can

take similar advantage of these resources that have traditionally been accessible only to research scholars and students on our campuses. Indeed, core activities to digitize historic Chesapeake materials, analog broadcast programming, newspapers, and analog classical music performance are already being worked on among our academic libraries. Supporting and scaling this type of access will leverage the value of small investments resulting in large educational benefits. A natural accompaniment of this will be planning centers for preservation and conservation of collections and shared archiving of electronic resources. It is expected that a base level of funding will be requested for Year 3 that will allow for an appropriately sized and continuous digitization program. Funding needed for preservation and conservation centers will be determined during Years 1 and 2.

Another new initiative to be planned in Year 2 will be a prototype project to create direct Web text and/or voice enabled interactive online reference service across the network. Such asynchronous communication with subject librarian experts presents many of the same challenges that it does in teaching environments. It has great promise, but MDL cannot predict success. However, MDL must make an investment to determine the viability of such services. The Higher Education Network will certainly provide the needed bandwidth to design working prototypes. A successful implementation will allow MDL to use better the expertise residing with the information professionals who work in our academic libraries – offering the prospect of leveraging subject and other specialized knowledge and skills beyond the walls of a single library. It may also provide some answers to the intractable problems of providing library services to remote locations.

4.3 PHASE III AND BEYOND PROJECTS

MdUSA and MdPAC: By Phase III, if the experience of other states like Virginia is instructive, the Maryland Digital Library will have achieved widespread general use and acceptance that will have a large impact. This implementation will help Maryland leapfrog over some older state projects begun at an earlier time and based on older technology. At the same time the levels of budget requests should become stable and well understood as ongoing funding is provided. The principle new initiative will be a prototype project to create direct interactive online reference service across the network.

Digitizing Projects: Year 3 represents the first year in which specific digitization projects receive support for the production of digital content from library collections. MDL will solicit proposals from college and university libraries describing prospective projects. The MDL will award support for these projects on a competitive basis and in order to leverage the maximum benefit to the state MDL will require that colleges and universities provide public access to such digitized collections for educational purposes. Such digital collections will be made available through the Maryland Digital Library site to the whole state.

Beyond Phase III: The MDL will focus on aspects of cooperation involving more rigorous analysis and planning, including cooperative purchasing services, the regional storage of collections, research and development activities in the application of emerging technologies, and the training and development of library staff. As the paper-based collections of the Maryland academic libraries continue to expand and the electronic resources acquired and created through the Maryland Digital Library program increase, the issues of archiving and storage will become more important. The Maryland academic libraries will develop a plan for shared and regional storage of book, journal, microform and manuscript collections, and strategies for delivering these materials to users through innovative applications of technology. In addition, one of the pressing challenges of digital collections is the long-term archiving and availability of these materials. The Maryland Digital Library program will implement procedures for the storage of these electronic resources including the regular monitoring of their usability and the routine refreshment of the technology media. This digital archiving activity will be carried out in collaboration with other academic libraries across the U.S. and in alignment with adopted standards.

5. MDL TECHNICAL INFRASTRUCTURE

The Maryland Digital Library program will build on the University System of Maryland experience of programmatic and technical cooperation in three key areas. These three areas include (1) consortium purchase of and access to electronic databases, (2) establishing and maintaining a union catalog, and (3) providing for patron initiated borrowing among academic libraries.

In addition the MDL program will utilize USM technical capabilities to coordinate libraries' efforts in: (1) organizing Internet content, (2) digitizing and making accessible non-digital content, (3) building strategic partnerships, (4) network enabled voice and/or video services, and (5) planning for additional types of cooperative activity.

MdUSA. The MDL technical infrastructure to support the shared database access, union catalog, and patron initiated borrowing type of collaborative efforts consists of:

- clusters of microcomputer workstations (PCs, Macintoshes, etc.) with commonly available Web browsers such as Netscape and Internet Explorer at each MDL participating library site to be provided by participating campuses and libraries.
- individual microcomputer workstations (PCs, Macintoshes, etc.) with commonly available Web browsers such as Netscape and Internet Explorer located in dormitories, off-campus student residences, off-campus instructional sites, and places of employment,
- connection of microcomputers to the State Higher Education Network or the Internet either from campus or from off campus locations to be provided by participating campuses and libraries,
- a MDL Network Operations Center (NOC) to be provided by the MDL program that provides user support and maintains MDL systems and services which support MDL participants,
- a centralized MDL gateway server provided by the MDL program and located at the MDL NOC, where the server is capable of bringing together as a seamless information resource digital information from a number of local and remote sources (such as abstract and index resources, electronic full text journals, reference material, courses, Internet resources, participant hosted MDL digitized content, etc.)

MDL users at Web capable workstations will have access to shared digital information resources via the MDL gateway located at the Network Operations Center (NOC). For a more technical description of the OCLC SiteSearch software in use by the University System of Maryland libraries, please refer to Appendix C. The MDL gateway server will require high-bandwidth connections to the State Higher Education Network in order to route search and retrieval transactions effectively between users and remote information sources.

The NOC will provide gateway authentication and network security services for MDL users and participating institutions, allowing only authenticated MDL recognized users to gain access to the licensed digital content to which MDL has subscribed. This capability will allow users affiliated with MDL participants to access MDL program resources from the campus library, from any location on campus, from home, or from any location globally where the user can obtain Internet access. Such capability will allow users affiliated with MDL participants to teach, learn, conduct research, and provide service from anywhere in the world. For campus based locations little or no authentication information will be required unless institutional policy or licensing arrangements require such a step. The MDL gateway will manage authentication and authorization services in such a way that the user only needs to perform a single authentication/authorization operation to gain access to the entire range of available information systems and services. This centralized authentication and/or authorization gateway service will simplify the technical effort otherwise required by each individual institution to establish and maintain separate authentication and authorization protocols for each information service in use.

The MDL gateway server will also manage the user's interaction with local and/or remote information resources. Such capability will allow MDL users at Web browsers via a single user input and user interface to conduct a search and display together search results from a number of abstract, index, full text, or full image computer based information sources. Using the gateway to assist the user in making inquiries of a number of remote information sources and managing the resulting interaction is sometimes characterized as "one stop shopping" for information. This saves users time by avoiding the need to enter the same search input separately for each information source and makes these searches more efficient and productive – revealing results that might otherwise have been overlooked. Inquiring across a broad range of information resources also provides the user with results from information sources unlikely to be tapped if a user were required to expend separate effort on a source by source basis. The gateway interface and capability allows a user to get a quick preview of results across a wide array of computer based information sources, to try out multiple search strategies, to combine search results in various ways, and to investigate both expected types of search results as well as those from less frequently consulted sources.

At a technical level that portion of the gateway server in communication with information sources will utilize standardized computer and communications search and retrieval protocols (American National Standards Institute ANSI Z39.50/International Standards Organization ISO 3950). Such standards allow MDL to avoid reliance upon a single supplier or that supplier's computer interface or protocols for authentication, search, and retrieval. Using such standards, MDL can foster competition among potential suppliers and substitute a replacement supplier for one that fails to perform or increases prices above other providers in the marketplace.

MdPAC. The MDL program will put in place a union catalog representing the holdings of participating MDL libraries. In some cases catalog files from participating MDL libraries will load directly into a union catalog database maintained at the gateway server. In other cases where an appropriately configured Version 3 ANSI Z39.50/ISO 3950 server is installed at the participating library's integrated library system, the gateway server will make an online inquiry of that server to determine its holdings and their availability.

Patron Initiated Borrowing. In addition the gateway will have capabilities for users to initiate borrowing requests for materials owned by a library other than that where the user is registered in those cases in which the target integrated library system possesses standards based interlibrary loan capability based on the International Standards Organization interlibrary loan protocol (ISO 10160/10161) together with ANSI Z39.50/ISO 3950 capability. OCLC SiteSearch, the gateway environment currently in use by the USM embodies these capabilities, has capabilities for local database hosting, and is intended to form the foundation of the proposed MDL gateway architecture.

Maryland Digital Library Local Content. In addition to licensing and accessing published information in digital form, establishing a union catalog, and providing for patron initiated borrowing between various libraries, the MDL will also put in place in year two the technical capability for digitizing content from individual academic library collections in Maryland.

The MDL gateway will support several approaches to maintaining and accessing digital library content. Metadata consists of the descriptive and subject categorization of each object or collection of digital library objects. In this respect, metadata functions in a manner similar to the cataloging that libraries provide as a record of holdings and a method of access to an item or items in their physical collections. The MDL gateway will support either centralized MDL metadata covering digital library objects on a statewide basis or distributed metadata maintained and hosted on some number of remote metadata servers. In such a case, it is likely that integrated library systems employing the Z39.50/ISO 3950 protocol will fill such a role.

The MDL gateway will also support both centralized and distributed digital library object stores. A digital library object store consists of one or more digital objects in a standardized network accessible server file structure capable of delivered in response to a request from the MDL gateway.

Decisions about metadata, digital library object stores, and digital library objects will turn on a number of issues such as: funding, network bandwidth, digital library data management (maintaining the currency and integrity between metadata and its corresponding object), server capabilities, network traffic, etc.

The MDL will provide for entering and maintaining metadata, for searching the metadata records as a part of routine user searches of the Maryland Digital Library, and thereby making such content widely known and accessible throughout Maryland from Web capable microcomputers. On an ongoing basis MDL will provide a half time library systems analyst to assist in developing metadata standards, for conducting training sessions regarding metadata, and for providing technical assistance to MDL libraries engaged in digital library projects, and assist in developing intellectual property rights policies for MDL. During Year 2, MDL will digitize and make at least one such digital library collection as one component in planning for the prospect of further such work.

Organizing Internet Content. The technical infrastructure required to support a program focused on organizing Internet content represents a specialized application of the techniques required to support the creation of Maryland Digital Library Local Content. Organizing Internet content requires the creation of metadata which points to an Internet accessible digital library object (Web page, file, sound, image, etc.). In general, such objects lie beyond the management and control of MDL. An object address, content, or availability may change without corresponding change in the metadata record. MDL will need to develop methods for verifying the integrity of links between metadata records and corresponding Internet based resources.

MDL will provide a half time library systems analyst to assist in developing or adapting Internet focused metadata standards, for conducting training sessions regarding Internet metadata, and for providing technical assistance to MDL libraries engaged in the MDL program of creating and maintaining Internet metadata. The MDL half time library systems analyst will also address other issues related to Internet objects such as intellectual property rights – in particular with regard to agreements for local caching of Internet content by MDL.

Building Strategic Partnerships. MDL seeks to develop strategic partnerships with the K-12 education sector and with business and industry, particularly in the areas of database licensing, union catalog, and digital library areas. The MDL Program Director will devote time to developing these relationships and for exploring the basis for such partnerships as a part of each licensing arrangement put in place for the MDL.

Network Enabled Voice and/or Video Services. At present a number of products and services have entered the marketplace that provide for click or push to talk capability over the Web between a multimedia configured microcomputer and a voice capable gateway server. Such products are in production. However, the installed base of appropriately equipped micro-computers remains modest and various Quality of Service related issues which bear on bandwidth, terminal and routing equipment have yet be resolved. By the time that MDL seeks to test the feasibility of this type of service, the marketplace should have reached maturity.

Planning for Additional MDL Cooperative Activities. The MDL program staff will provide support to investigate and plan additional MDL cooperative activities as areas of cooperation are identified.

6. GOVERNANCE AND MANAGEMENT

Academic libraries in Maryland recognize that decisions regarding the governance of the Maryland Digital Library (MDL) will depend upon the amount and type of funding available to the program. The proposers also recognize that as the MDL gains the experience of the first year of operation and as permanent funding for the program becomes available, the MDL will make any needed modifications to the initial governance structure. The MDL proposal seeks first year funding to be provided to an existing organization, such as the University of Maryland that has the organizational capacity and resources both to implement the program and to serve as the fiscal agent for the program.

Initially, a MDL Management Group will set the direction for the program. The MDL Management Group will consist of representatives from the constituencies represented on the Congress of Academic Library Directors (CALD) including the Executive Committee of the University Library Council of the University System of Maryland; the Maryland Independent Colleges and Universities Association (MICUA) and other independent institutions; and the Community Colleges. The MDL Management Group welcomes the *ex officio* participation of both MHEC and MSDE and will actively seek such involvement.

The academic library MDL participants expect that such an interim structure will allow the program to be put in place quickly and efficiently and to take early advantage of the resources and the technical developments arising from the new Maryland Higher Educational Network. The MDL planners regard close coordination between MDL and the Higher Educational Network as critical, as the systems and services of the MDL will rely on the telecommunications and network capabilities provided through the new Network.

The interim governance and management of the MDL program must remain both flexible and fair and responsive to the needs of all participants. Accordingly, the constituencies represented have agreed on the arrangements set forth in this section and on the review of these arrangements for possible modification within a year from the date on which initial MDL program funding takes place. The Management Group will have the responsibility for making a recommendation regarding a permanent governance structure. Adoption of this structure will require approval by each of the segments, and by a super-majority of 75% of the participating institutions.

The MDL proposal provides the basic direction for the MDL program; however day to day operational direction of the MDL program will reside with the MDL Program Director. The Director of Information Technology at the University of Maryland Libraries who currently serves as the Program Director for the USM based LIMS and MdUSA Programs will assume responsibility as Program Director for the Maryland Digital Library. The MDL Program Director also serves *ex officio* without vote on the MDL Management Group. Any aspect of MDL management as exercised by the Program Director that may be required to carry out the Program but that may affect the overall basic direction of the MDL Program will require the consensus of the Management Group.

The MDL Management Group will establish Working Groups to assist it and the MDL Program Director in matters related to the governance and management of the MDL program. With the concurrence of the MDL Management Group the Program Director will form a Technical Working Group as a liaison between the Management Group and program participants. The Group will provide advice regarding the MDL technical infrastructure and keep participating institutions apprised regarding institutional infrastructure and capabilities required in order to make use of various MDL systems and services. In addition, the Management Group will establish a Collection Management Working Group to identify database content to be licensed and to identify methods for integrating high quality, commonly available, and free Internet resources from commercial, not-for-profit and government providers into the overall set of MDL resources.

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MARYLAND DIGITAL LIBRARY
PLANNING TASK FORCE
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***Connie Cox – MHEC Liaison**
Senior Education Policy Analyst
Maryland Higher Education Commission
16 Francis Street
Annapolis, MD 21401

Phone: 410-974-2971, Ext. 185
FAX: 410-974-5376
E-mail: ccox@mhec.state.md.us

Steven Fine – MICUA Rep.
Director of Library
Assoc. Professor of Rabbinic
Literature and History
Baltimore Hebrew University
5800 Park Heights Avenue
Baltimore, MD 21215

Phone: 410-578-6938
FAX: 410-454-1109
E-mail: fine@bhu.edu

***John Hanson – MICUA Rep.**
Director of Knott Library
St. Mary's Seminary and University
5400 Roland Avenue
Baltimore, MD 21210

Phone: 410-864-3621
FAX: 410-435-8571
E-mail: jhanson@his.com

***Suzanne P. Hill – CC Rep.**
Director of Library Services
Catonsville Campus,
Community College of Baltimore County
800 S. Rolling Road
Baltimore, MD 21228

Phone: 410-455-4589
FAX: 410-455-6106
E-mail: shill@neors.cat.cc.md.us

***Kimberly B. Kelley – USM Rep.**
Assistant Vice President of
Information and Library Services
University of Maryland University College
Room 2201, SFSC
University Boulevard at Adelphi Road
College Park, MD 20742-1618

Phone: 301-985-7209
FAX: 301-985-7870
E-mail: kelly@nova.umuc.edu

***Mary Landry – CC Rep.**
Director of Library and
Audio-Visual Services
Community College of Baltimore
County, Dundalk Campus
7200 Sollers Point Road
Baltimore, MD 21222

Phone: 410-285-9642 (Voice Mail)
FAX: 410-285-9559
E-mail: mlandry@dundalk.cc.md.us

Lynda Bryd Logan – CC Rep.
Dean of Learning Resources
Prince George's Community College
301 Largo Road
Largo, MD 20772

Phone: 301-322-0462 (Sec.)
FAX: 301-808-8847
E-mail: LL5@email.pg.cc.md.us

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*Charles B. Lowry – USM Rep. Dean of Libraries University of Maryland 4121 McKeldin Library College Park, MD 20742-7011	Phone: 301-405-9127 FAX: 301-314-9408 E-mail: clowry@deans.umd.edu
Nancy Magnuson – MICUA Rep. College Librarian Julia Rogers Library Goucher College 1021 Dulaney Valley Road Baltimore, MD 21204	Phone: 410-337-6364 FAX: 410-337-6419 E-mail: nmagnuso@goucher.edu
*James G. Neal – MICUA Rep. Dean of University Libraries and Sheridan Director, Milton S. Eisenhower Library Johns Hopkins University Baltimore, MD 21218	Phone: 410-516-8328 FAX: 410-516-5080 E-mail: jneal@jhu.edu
Karen A. Robertson – Morgan State Rep. Director of Library Services Morgan State University 1700 E. Cold Spring Lane Baltimore, MD 21251-0002	Phone: 443-885-3488 FAX: 410-319-3336 E-mail: dlkarobert@moac.morgan.edu
David Sumler – MHEC Liaison Director of Academic Affairs – Planning And Policy Maryland Higher Education Commission 16 Francis Street Annapolis, MD 21401	Phone: 410-974-2971, Ext. 133 FAX: 410-974-5376 E-mail: dsumler@mhec.state.md.us
Larry Wilt – USM Rep. Director of the Library Albin O. Kuhn Library & Gallery UMBC 1000 Hilltop Circle Baltimore, MD 21250	Phone: 410-455-2356 FAX: 410-455-1078 E-mail: wilt@umbc.edu
Gerry Yeager – CC Rep. Director of Library and Information Services Harford Community College 401 Thomas Run Road Bel Air, MD 21015	Phone: 410-836-4144 FAX: 410-836-4198 E-mail: gyeager@harford.cc.md.us

*Denotes Participation in Drafting Group

**APPENDIX B
DIGITAL LIBRARY PROGRAMS IN OTHER STATES**

State: VIRGINIA
Name: VIVA (Virtual Library of Virginia)

Year Started 94

Initial Budget \$5.238M
Budget Year 94-96 biennial budget
Note: Initial Budget was for biennium: \$2.5M for shared electronic collections (of which \$500K was allocated for first year purchases) and \$2.7M to enhance ILL functions.

FY99 Budget: \$2.820M
Materials: \$2.225M
Tech. Support: .160M
Resource Sharing: .360M
User Services: .075M

Web Address: <http://www.viva.lib.va.us/>

Scope of Project: Resource purchase and sharing for VA higher ed institutions.

Databases: Wide range of indexes, full text.

Other Services: Some staffing funded to support interlibrary loans.

Constituencies: Support publicly supported colleges and universities. (i.e. 6 doctoral, 9 comprehensive, and 24 community college institutions) 27 private institutions "participate where possible" (i.e. for consortia pricing). Has goal to include other libraries in VA.

Organization: Governance through committees. Donated expertise/staffing.

Goal/Vision: Support interlibrary loans and shared electronic collections.

State: PENNSYLVANIA
 Name: PALCI (Pennsylvania Academic Library Connection Initiative)
 Year Started 1996 (formed); 1997 (pilot)
 Initial Budget \$6,000 dues X 38 Charter Members = \$228,000
 Budget year 1997 (same in 1998).
 FY99 Budget: N/A
 Materials: Databases purchased by each individual library at consortial prices.
 Tech. Support:
 Resource Sharing:
 User Services:
 Note: Budget does not fit above categories. It is about half for staff salaries and expenses and half for a contract with CPS to develop a virtual union catalog.
 Web Address: <http://www.lehigh.EDU/~inpalci/>
 Scope of Project: Initially: Virtual online union catalog
 Medium Term: consortially purchased databases.
 Databases: Databases with consortial pricing to date:
 OCLC/ECO, OCLC/FirstSearch, ACS Journals, Stat-USA, UMI, Accessible Archives,
 OVID, HarpWeek, ISI (proposed), ABC-CLIO (proposed), State Acad. of Sciences
 (proposal in process), OED (possible).
 Other Services: reciprocal borrowing, interlibrary loan
 Constituencies: 38 public and private academic libraries.
 Organization: 7 member Executive Committee.
 Goal/Vision: Spur development of PA library cooperation
 Notes: Virtual catalog still in development; will be via Z39.50 standard linking catalogs of various vendors.

Updated 4/1/99

State: GEORGIA
Name: Galileo

Year Started 1994; funding in FY96

Initial Budget \$10M (incl. \$4M for statewide network upgrade)
Budget year FY96

FY99 Budget: \$2.4M -- U Sys. of GA only.
Materials: \$1.6M
Tech. Support: \$.5M
Resource Sharing: \$.3M
Other Libraries'
FY 99 Expenditures:
Private academic: \$870K
Technical Institutes: \$412K
Public Libraries: \$920K
K-12: \$850K

Web Address: <http://www.peachnet.edu/galileo/about.html>

Scope of Project: To ensure universal access to a core level of materials and information services for every student and faculty member in the University System of Georgia-regardless of geographic location, size of institution, or mode of instructional delivery: traditional residential, off-campus, or distance learning.

To improve information services and support through increased resource sharing among University System libraries, thus providing a greater return on investment. To provide the necessary information infrastructure so that all students in rural or metropolitan settings in the University System can be better prepared to function in an information society. To enhance the quality of teaching, research, and service by providing worldwide information resources to all faculty. To ensure that adequate PeachNet bandwidth and statewide backbone are available to campuses to support library activities. To place the University System in the forefront of library information technology, enhancing its reputation, along with PeachNet and distance education.

Databases: Many consorcially purchased.

Other Services: ILL, networking.

Constituencies: Public and private 4 and 2 year academic libraries, public and school libraries. University System of GA was "base project."

Organization: U System of GA retains ownership. Steering committee of 20 members.

Goal/Vision: See above.

Notes: Separate online catalogs.

State: OHIO
Name: OhioLINK (Ohio Library and Information Network)

Year Started: Catalog in 1992. Web service in 1996.

Initial Budget: (subsidy from state)
Budget year:

FY99 Budget:
Materials:
Tech. Support:
Resource Sharing:
User Services:

Web Address: <http://www.ohiolink.edu/>

Scope of Project: Online Union catalog, patron-initiated borrowing, shared databases are all implemented.

Databases: Full text from Elsevier Science, MUSE, Academic Press.
Many bibliographic databases.

Other Services: ILL.

Constituencies: Ohio college and university libraries. Considering linkages to statewide networks for public and school libraries.

Organization: Governing Board

Goal/Vision: Full range of library services.

State: FLORIDA

Name: 1. FCLA (Florida Center for Library Automation)
2. LINCC (Library Information Network for Community Colleges)
3. FDLI (Florida Distance Learning Library Initiative)

Year Started 3. FY98

Initial Budget 3. \$2M for startup, electronic access, doc delivery, reference service

Budget year 3. FY98

FY99 Budget: 3. \$2M + \$2M for Doc Delivery from State Library.
Materials:
Tech. Support:
Resource Sharing:
User Services:

Web Address: 1. <http://www.fcla.edu/fcla.html>
2. <http://www.ccla.lib.fl.us/>
3. <http://dlis.dos.state.fl.us/dli/>

Scope of Project: 1. Catalog and databases for the SUS of FL.
2. Catalog and databases for the community colleges
3. Resources and services in support of distance ed.

Databases: 3. Britannica Online + over 60 FirstSearch databases.

Other Services: 3. Reference, user training, document delivery

Constituencies: 1. State University System of FL (10 universities, plus centers, etc.)
2. FL community colleges, i.e. the Comm. Coll. Lib. Assoc. (CCLA)
3. Public state universities & community colleges (38), public libraries.

Organization: 1. Committee of library directors and various other committees.
3. Steering committee with Representation from SUS of FL, CCLA, state library.

Goal/Vision: 3. Full array of library services and resources to support distance education

Notes: Of the 3 projects, the FDLI seems the most comprehensive, including Electronic Resources, Reference and Referral Center, library user training, document delivery, and reciprocal borrowing.

State: NORTH CAROLINA
Name: NCLIVE (North Carolina Live)

Year Started FY98

Initial Budget \$0.5M through community colleges
\$1M through State Library on behalf of public library participation
\$2M through UNC System for enhancement of libraries & NCLIVE devel
\$1.2M through UNC System for NCLIVE
\$.075M f or training and development
“a grant” for capital equip., technical infrastructure at host UNC
campus.

Budget year FY98

FY99 Budget:
Materials:
Tech. Support:
Resource Sharing:
User Services:

Web Address: <http://www.nclive.org/>

Scope of Project: databases and access to print material for all NC library users.

Databases: Many. Mostly via FirstSearch, EbscoHost and ProQuest.

Other Services:

Constituencies: University of North Carolina Libraries
Community College Libraries
State Library & Public Libraries
Independent College & University Libraries

Organization: Steering Committee which is comprised of nine members. That membership includes one leadership position and one library director position from each of the participating communities of interest as well as a representative appointed by the Governor. The State Librarian is serving as convener of the group.

Goal/Vision: Universal access to core group of reference and research materials online in the form of full-text electronic information and indexes. Unlimited access to digital versions of important historical documents and state government information. Information to assist users in gaining access to print materials available in libraries statewide. Assistance from library staff members with skills to help people of all ages use these exciting resources.

State: TEXAS
Name: TexShare

Year Started 1994. Expanded by new legislation in 1997.

Initial Budget \$1M for databases.
Budget year FY98

FY99 Budget:
Materials:
Tech. Support:
Resource Sharing:
User Services:

Web Address: <http://tcsul.texshare.utexas.edu/About/>

Scope of Project: Resource sharing, electronic databases, infrastructure

Databases:

Other Services:

Constituencies: All institutions of higher education in TX: originally, 52 public four-year colleges and universities (as well as medical schools). Expanded to include Texas' 75 two-year colleges and 57 private institutions of higher education, bringing the total number of institutions to 184.

Organization: Advisory board with reps from all segments + general public.
Administered through the State Library, via contract with AMIGOS.

State: ILLINOIS
Name: IDAL (Illinois Digital Academic Library)

Year Started 1999, with proposal

Initial Budget \$870K Requested, of which \$800K is for electronic resources.
Budget year FY2000

FY99 Budget: none

Web Address: <http://www.lis.uiuc.edu/~sloan/idal.html>

Scope of Project: electronic resources for higher education

Databases:

Other Services:

Constituencies: All 2 and 4 year higher ed, public and private

Organization: Proposal: Administer through ILCSO (Illinois Library Computer Systems Organization, which already administers ILLINET Online, a computer-based library system for its 45 member libraries) with expanded governing board.

Goal/Vision: First year focus on undergraduate resources of use to all institutions. Later, add resources for more specialized or advanced needs.

State: CALIFORNIA
Name: CDL (California Digital Library)

Year Started 1997

Initial Budget FY97: \$1.5M for resources.
FY98: \$4M for Resources.
(Both years from discretionary UC sources; seeking state funding)

FY99 Budget:
Materials:
Tech. Support:
Resource Sharing:
User Services:

Web Address: <http://www.cdlib.org/>

Scope of Project:

Databases: Several are available now.

Other Services:

Constituencies: Serves the 9 U of California campuses.

Organization: Executive Director Richard Lucier, in UC Office of the President has advisory task force.

Goal/Vision: "Co-library" of UCal with "co-investment" i.e. CDL funding is seed money added to funding already in campus budgets.

Notes: Cost sharing formula is in flux.
There is a separate project at Cal State.

State: LOUISIANA
Name: LLN (Louisiana Library Network)

Year Started: Online catalog developed first. Database acquisition – no date.

Initial Budget: Funding for catalog mixed in with database funding. Cannot determine.
Budget year

FY99 Budget:
Materials:
Tech. Support:
Resource Sharing:
User Services:

Web Address: <http://www.lsu.edu/OCS/louis/index.html>

Scope of Project:

Databases: Many databases appear to be provided for all users across the state.

Other Services:

Constituencies: All Louisiana academic and public libraries have access.

Organization: Administered by LSU.

State: ALABAMA
Name: AVL (Alabama Virtual Library)
See also: NAAL (Network of Alabama Academic Libraries)
Running: VINE (Virtual Information Network)

Year Started 1999

Initial Budget \$3M requested for FY00
Budget year FY00

FY99 Budget: none yet for AVL. NAAL budget = \$400,000, as follows:
Materials: \$200,000 for electronic databases licensed.
Tech. Support: \$115,894 (office administration only)
Resource Sharing: \$123,500
User Services:
"CE: \$10,606 "

Web Address: AVL: <http://www.virtual.lib.al.us/>
NAAL: <http://www.ache.state.al.us/Naal.htm>
<http://www.lib.auburn.edu/~madd/naal/vine0.html>

Scope of Project: "To provide all students, teachers, and citizens of the State with online access to essential library and information resources."

Databases: NAAL fund subsidizes: Expanded Academic ASAP (IAC)
Academic Search Elite (EBSCO)
Members of NAAL pay part of costs. NAAL negotiates licenses.

Other Services:

Constituencies: To be available to K-12, public libraries, academic libraries.

Organization: Steering committee with state government agency and library representation.

Goal/Vision: Centralized funding for resources, not out of Library budgets.

Updated 4/1/99

Some other states with some efforts, not characterized here:

- OR: ORBIS
<http://libweb.uoregon.edu/orbis/overview-99jan.html>
- NH: NHCUC <http://www.nhcuc.org/index.htm>
- UT: UALC (Utah Academic Library Consortium)
No access to UALC server but see:
<http://www.infotoday.com/cilmag/apr/story1.htm>
- CO: CARL (Colorado Alliance of Research Libraries)
<http://www.coalliance.org/prospector/>
Union catalog, electronic resources.
- ICOLC (International Coalition of Library Consortia):
<http://www.library.yale.edu/consortia/>
has listing of consortia (its members)

APPENDIX C DESCRIPTION OF OCLC SITE SEARCH SOFTWARE CAPABILITY

The OCLC SiteSearch suite of software provides a comprehensive solution for managing distributed library information resources in a World Wide Web environment. It offers tools that integrate electronic resources under one Web interface, control access to resources, and build text and image databases locally.

The OCLC Site Search Software Suite provides the capability to

- integrate library resources for easy user access. OCLC SiteSearch creates a virtual electronic library by linking a local library's catalog, locally mounted databases, remote catalogs, Internet resources, and various online services seamlessly for one-stop access by users.
- build new electronic resources. An individual library can create Web-accessible electronic collections from difficult-to-use resources, such as special collections and reserve room materials, bringing these resources out of the back room and to the user.
- bring local and remote resources together. Based on user demand, network capacity, and license fees, a library may choose which databases to load locally and which ones to access remotely, providing seamless access to the library's users.
- apply local insight. An individual library can decide indexing rules and record formats when building databases as well as how best to customize an interface to meet its users' needs.

The OCLC SiteSearch suite includes the following software packages:

OCLC SiteSearch WebZ software

In addition OCLC SiteSearch includes capabilities for building, maintaining, and accessing local databases, including image databases.

OCLC SITESEARCH WEBZ SOFTWARE

WebZ provides a web-accessible interface to a library's electronic resources, and integrates the access to local and remote information. WebZ also provides the primary infrastructure for the Database Builder and Imaging Support Package software. In addition, the WebZ software provides the following features and advantages:

Customizable Interface. Provide users with a customized, common user interface to all resources, eliminating user confusion with multiple resource interfaces, commands, and locations.

Multi-database Searching. Create topic areas and virtual catalogs that allow users to search multiple library catalogs simultaneously for fast, comprehensive retrieval.

Access Control. Gives flexible access and authorization control supporting individual licensing arrangements and presenting users with sets of resources tailored to their needs.

Powerful Searching. Provide a fully functional interface that includes search history, record bookmarking, export, and browse.

Resource Delivery. Gives users direct access to resources they need through unmediated standards-based interlibrary loan, document delivery, and online full-text display.

OCLC SiteSearch WebZ Software: Technical Specifications

1. WebZ description:

The OCLC SiteSearch WebZ software is the primary component of the OCLC SiteSearch suite of software tools that help libraries integrate, access, and build information resources in the Web environment. Used around the world by some 250 libraries, groups of libraries, and commercial services, WebZ provides a gateway from the Web to diverse library resources through a common user interface. WebZ can be used with other OCLC SiteSearch components, Database Builder and Imaging Support Package, to build and create databases locally.

WebZ helps libraries:

- Provide a single point of access to Z39.50 accessible resources, as well as some non-Z39.50 resources, including library catalogs, unique local databases, remote database services and catalogs.
- Save user time by bringing resources together in a common user interface, eliminating the need to learn multiple interfaces and search commands. Create a customized interface that meets users' needs.
- Provide convenient access from the Web browser when and where the user needs it.
- Present users with appropriate resources to meet their needs, by offering different levels of access depending on the users' authentication.
- Integrate resources in a complex, distributed computing environment, building on current hardware and resource investments.
- Provide direct access to the resources users need through links to local holdings, standards-based Interlibrary Loan requests, document delivery requests, and full-text online display.

2. WebZ functionality:

The WebZ software provides a complete tool set, written in the Java programming language, for creating a customized interface to all of your library resources.

Web gateway – OCLC SiteSearch WebZ software is an enhanced Web-to-Z39.50 gateway that provides a Web interface to library resources. WebZ includes an extension that allows it to work with standard HTTP servers. When a user connects to WebZ from their Web browser, an indicator in the URL prompts the HTTP server to pass the user's commands to the WebZ software. A component of WebZ, called the Java Server Side Interpreter (JaSSI), translates the HTTP and Java from the WebZ interface into the Z39.50 protocol.

When connecting to WebZ, each user is assigned a session ID for the duration of the search session, which allows WebZ to track the "state" of the user session and provide features such as context-sensitive help and search history.

Z39.50 client – WebZ provides Z39.50 client search and retrieval functionality with Z39.50 servers. The ZBase component of WebZ manages connections to local and remote Z39.50 servers. WebZ is fully compliant with the ANSI/NISO Z39.50 – 1992 protocol and employs features from the Z39.50 – 1995 protocol. Because WebZ is based on the Z39.50 standard, WebZ is interoperable with Z39.50 Version 2 and 3 servers from any vendor.

WebZ also has some capabilities to allow libraries to make non-Z39.50 resources accessible through the same interface used to search Z39.50 resources. Through Java programming, WebZ can be configured to search non-Z39.50 resources. ZBase, the WebZ component that handles connections to Z39.50 resources, also translates Z39.50 requests into native search language to search non-Z39.50 resources. In order to configure WebZ to do this translation, the library must receive a published Application Programming

Interface (i.e., language) for the non-Z39.50 resource. In effect, WebZ extends the Z39.50 protocol to resources that were previously inaccessible, making more resources available through the Z39.50 protocol.

Z39.50 server – WebZ's unique architecture also allows you to accommodate access by other Z39.50 clients. This means that you can provide Z39.50 access to the resources you build locally using Database Builder and Imaging Support Package, as well as non-Z39.50 resources. WebZ includes Java classes for the Newton search engine that allow searching of databases in Database Builder. This functionality allows your library to share your resources with libraries that have Z39.50 clients other than WebZ.

Interface – The WebZ software includes a robust, Web-accessible interface that can be locally customized to meet user needs. The WebZ interface is HTML-based and uses Java code embedded in URLs to drive WebZ processes, so the interface can be customized as little or as extensively as needed.

Because WebZ provides Web access to resources, no distributed client software is necessary. Workstations must support standard graphical Web browsers and Internet access. The WebZ software is written in the Java programming language and runs on your library's server. Consequently, WebZ does not distribute Java clients or applets; in addition, it does not require workstations that have browsers and resources sufficient to run Java applets.

Access control – WebZ provides flexible control over access to resources, allowing you to adhere to license and copyright agreements. With WebZ, you may present interfaces that have been customized for your users, based on their authorization. The WebZ access server provides the ability to control access to resources based on IP address or users authorization/password.

To utilize the WebZ authentication functionality, an off-the-shelf SQL (Standard Query Language) database package is required. WebZ includes a JDBC™ or JDBC™-ODBC bridge to provide access from the Java-based WebZ software to authentication databases.

3. WebZ features:

Interoperability with Z39.50 servers – WebZ has been tested for interoperability with Z39.50 servers from the following vendors:

- Ameritech Horizon
- Ameritech Notis
- DRA
- Ebsco
- Endeavor
- FirstSearch
- Geac Advance
- Information Access Company
- Innovative Interfaces, Inc.
- Library of Congress
- MultiLIS
- Ovid
- SilverPlatter ERL Server
- Sirsi

Sophisticated customizable interface – The WebZ software includes a sophisticated interface with all of the features listed below. The WebZ interface is completely customizable, allowing your library to change the HTML to give the interface a new design and added functionality, or to create a completely new interface using Java programming. The library decides the amount of interface customization, as well as associated time required. In addition, the library can create multiple interfaces, so that the appropriate interface is presented to each user based on the authorization.

Authentication and access control – The WebZ access server allows a library to control access to its resources by limiting the number of simultaneous users, restricting by authorization code (e.g., IP address

or partial IP address, student ID, etc.), and creating authorization types for end-user access. Additionally, a library can use CGI or Java scripts to access existing authorization systems.

Simultaneous multi-database searching and browsing – This feature supports the simultaneous transmission of a search or browse request to multiple Z39.50 servers and databases. Users view the results from one database at a time; the results are presented in a frames-based interface, allowing searchers to move between result sets while viewing the result lists.

Z39.50 Sort – The Z39.50 Sort feature implements the Sort Service of the Z39.50 – 1995 (Version 3) protocol. With this feature, WebZ can request sorted data from Z39.50 servers that support Sort, including databases built using the OCLC SiteSearch Database Builder software. The Sort feature allows users to control how results are sorted as the search is conducted.

Standards-based interlibrary loan – With this feature, users can initiate interlibrary loan (ILL) requests from the same Web interface they use to search resources. WebZ transfers the ILL request from WebZ to the OCLC ILL Service, or other pre-configured ILL system, through messages conforming to the ISO ILL protocol (ISO 10160/10161). This feature gives your library the power to offer authorization verification, complete all relevant user and bibliographic information on the request, and reduce data entry of ILL requests by library staff.

Vocabulary assistance – This feature helps your users locate the best terms for their query from either a thesaurus or target database. While WebZ allows your library to integrate thesaurus databases into the search process, it also provides users with vocabulary assistance when searching in databases that do not have corresponding thesauri. Users find subject terms related to their query from either a thesaurus or target database, determine the best terms for their query by browsing through terms, and provide an automatic query into the target database in cases when no hits are found in the thesaurus. Vocabulary assistance offers your library the tools to integrate a thesaurus into the WebZ interface; additionally, if you plan to integrate thesaurus databases, a conversion program will be required at an additional fee. As you begin your planning, please consult with your OCLC account representative.

Diacritics support – WebZ displays all characters in the ISO Latin 1 character set that are supported by HTML. A diacritic is a mark added to a letter to indicate a special phonetic value or distinguish words that are otherwise graphically identical (e.g., circumflex, diphthongs, umlaut, etc.). WebZ displays diacritics that occur in records and search terms, enhancing support for searching in foreign-language databases.

Statistics capabilities – This feature provides your OCLC SiteSearch system administrator with the ability to collect offline statistical data from the WebZ software and save the data in log files. This data may be output in comma delimited format for use with popular statistics software packages.

Record marking and Z39.50 Export – This feature allows the searcher to mark records for subsequent manipulation in WebZ. Marked records are added to a list of records, which can be exported (i.e., e-mailed, printed or saved) immediately or at the conclusion of the online session.

Search history – WebZ tracks searches performed during a user session, allowing the user to view and manipulate previous searches.

Stateful search sessions – WebZ establishes a logical user session with the user's Web browser, allowing WebZ to track the state of each user's interaction with the software. Stateful search sessions allow WebZ to provide such sophisticated features as search history, record marking, and context-sensitive help.

Hot-link searching – This feature gives users the ability to initiate new searches from a record by clicking on the hot-linked term. Hot-link searching allows the user to find other similar records in the same database without returning to the search screen.

Local holdings – WebZ provides the capability of displaying local holdings information to the user, indicating circulation and location information. For WebZ to display this information, the Z39.50 server must support the OPAC record syntax, as defined in the Z39.50 protocol.