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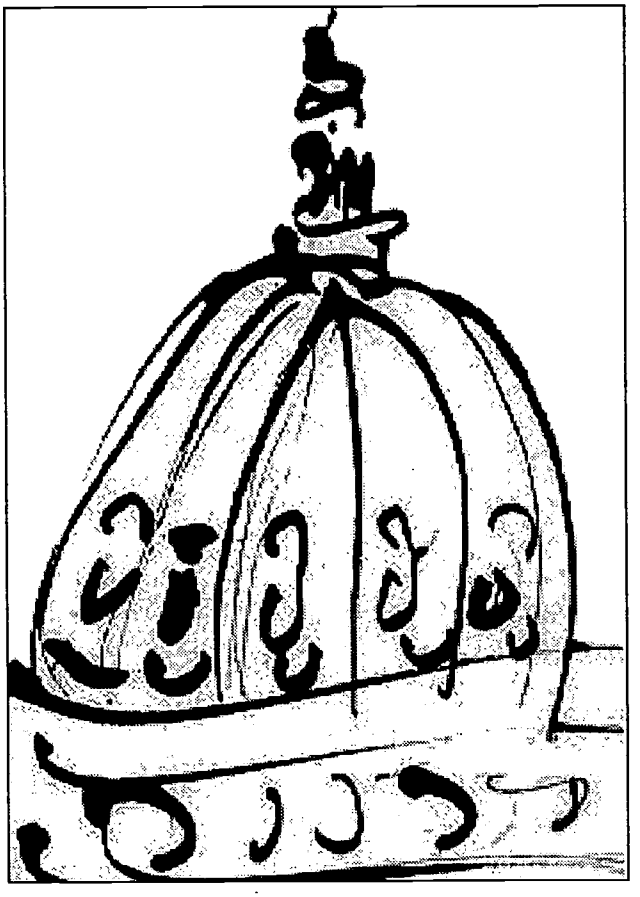
ABSTRACT

This 1996 National Commission on Libraries and Information Science (NCLIS) survey gathered data from a national sample of public libraries concerning the current level of public library involvement with the Internet. The purpose of this study to: (1) provide policymakers, researchers, and library professi with longitudinal data that measured changes in public library Internet involvement since the first survey in 1994; (2) identify costs for public library Internet services; and (3) identify issues and inform the policy debate concerning public library roles in the electronic networked environment. This final report is divided into three sections: Introduction; Study Results; and Progress and Issues. The introduction discusses the Telecommunications Act of 1996 and the Library Services and Construction Act/Library Services and Technology Act; intellectual property and the National Information Infrastructure; and an electronic federal depository library program. The second section discusses study methodology; public library demographics; accessing the Internet; the current state of public library Internet connectivity; Internet uses and public access services; and benefits to connecting to the Internet. The third section focuses on disparities; connectivity versus services; the goal of universal service; quality of network services; the life cycle of public library Internet development; and preparation for the next survey. Appendices include the survey instrument, survey alert, and cover letter, and information about the authors. (Contains 27 references, and 45 figures that present survey data.) (Author/AEF)

National Commission on
Libraries and Information Science

The 1996 National Survey of Public Libraries and the Internet:

Progress and Issues



Final Report

July 1996

John Carlo Bertot • **Charles R. McClure** • **Douglas L. Zweizig**

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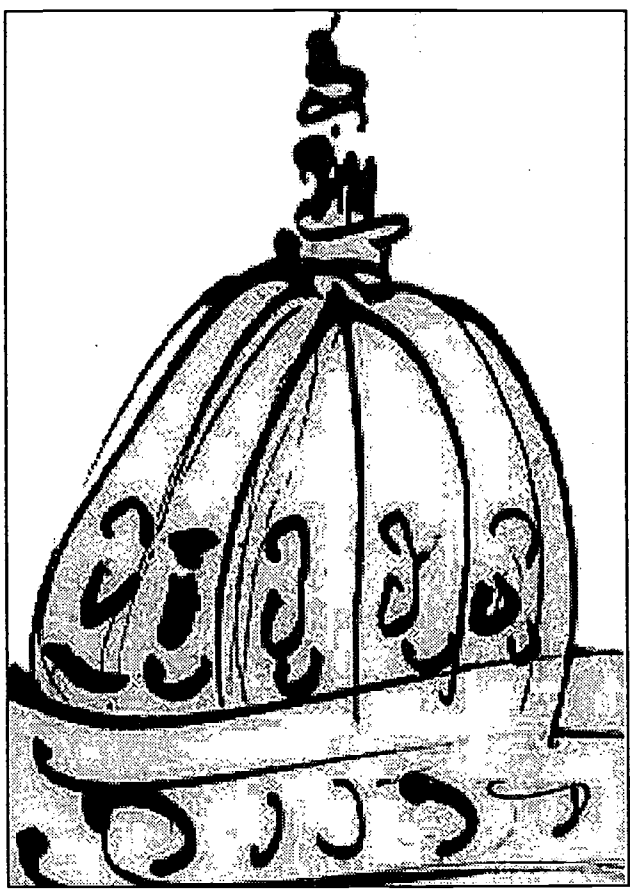

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United States
National Commission on
Libraries and Information Science

July 1996

The Honorable William J. Clinton
President of the United States
The White House
1600 Pennsylvania Avenue
Washington, D.C. 20500

The Honorable Al Gore, Jr.
Vice President of the United States
The Old Executive Office Building
Washington, D.C. 20501

Dear Mr. President and Mr. Vice President:

The Members of the U.S. National Commission on Libraries and Information Science (NCLIS) are pleased to present this report, The 1996 National Survey of Public Libraries and the Internet: Progress and Issues. This research responds to the Commission's statutory mandate to promote activities that extend and improve the Nation's library and information handling capability as essential links in the emerging global network infrastructure.

In 1994 NCLIS issued Public Libraries and the Internet: Study Results, Policy Issues, and Recommendations which reported that 20.9% of U.S. public libraries were connected to the Internet. Based on this research, the Commission sponsored a 1995 study of Internet costs for public libraries that were reported in Internet Costs and Cost Models for Public Libraries. These studies are based on the conviction that public libraries will be an essential component of the national information infrastructure of the future. The 9,050 public libraries in the U.S. provide the basis for extending the benefits of advanced information services to all Americans.

The Commission's 1996 survey of public libraries and the Internet was conducted in order to:

- determine the percentage of public libraries connected to the Internet in 1996;
- identify changes in public library connectivity between 1994 and 1996;
- project public library Internet involvement into the future;
- determine the percentage of public libraries that offer public access to Internet services;
- identify the type of Internet services public libraries are providing to the public.

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Our research in this area prompts the Commission's concern about the capacity of public libraries to serve as vital community links to networks. Although public library involvement with the Internet is increasing rapidly, there are serious discrepancies related to the level of public library Internet service, type of Internet connectivity, the costs for Internet, and the provision of Internet access services to the public.

The Commission's latest study of public libraries and the Internet reveals the following:

- Between 1994 and 1996 public library Internet connectivity increased 113% overall from 20.9% to 44.6%);
- By 1997, public library Internet connectivity may exceed 90%;
- Public library use of Internet varies with the size of population served;
- Public libraries in communities under 5,000 are significantly (59%) less likely to use the Internet than those serving populations from 100,000 to 1 million +;
- Public libraries in different regions of the U.S. have different levels of Internet-connectivity;
- Nearly 40% of public libraries without Internet have no plans to connect in the next 12 months;
- The NCLIS surveys of public library Internet involvement reveal discrepancies related to
    - the extent of connectivity
    - the type of connectivity
    - connectivity costs, and
    - the provision of Internet public access services.

The Commission's research prompts concern that public libraries serving smaller communities of 25,000 or less may not be able to provide public Internet access. Without Internet access, public libraries serving residents of smaller communities may lack any means of access. We must therefore work together to identify policies and programs so that public libraries in every community will fulfill a central role in assuring universal access to advanced information and communications services. To do less is to widen the gap between the information 'haves' and the 'have nots'.

The Members of the National Commission look forward to working with you to extend your leadership in connecting *"...every classroom, every clinic, every library, every hospital in America into a national information superhighway by the year 2000."*

Sincerely,

Jeanne Hurley Simon

Jeanne Hurley Simon
NCLIS Chairperson

Acknowledgments

The completion of this 1996 national survey of public libraries and the Internet is due, in large part, to the many public librarians who completed and returned the survey questionnaire. The high response rate to the survey indicates the continued interest on the part of the public library community in the use and development of the Internet. To all those who took the time to complete the questionnaires and provide the data that we analyzed and reported here, we thank you very much.

The authors would also like to express their thanks to members of the Advisory Board. These individuals provided guidance and suggestions, and participated in pretesting the survey instrument. Advisory Board members include: Bob Bocher, Wisconsin Department of Public Libraries; Craig Buthod, Seattle Public Library; Mary Lou Caskey, Mid-York Library System, Utica, NY; Carol DiPrete, Roger Williams University and Commissioner, National Commission on Libraries and Information Science (NCLIS); Keith Curry Lance, Colorado Department of Education; Mary Jo Lynch, American Library Association; Donna Mancini, the Public Library of Nashville and Davidson County; Amy Owen, Utah State Library Division; Barbara G. Smith, Maryland Division of Library Development and Services; and Eleanor Jo Rodger, Urban Libraries Council.

The support and encouragement of NCLIS to conduct this survey and to compare its findings to the one conducted in 1994 was most appreciated. Executive Director Peter R. Young helped to organize the study, provided suggestions and ideas for data collection and analysis, and worked with other organizations to involve them in the study. His direct involvement and assistance contributed significantly to the completion of the project. The support of the commissioners and NCLIS staff is also greatly appreciated.

Others to whom we are deeply indebted are the Federal-State Cooperative System (FSCS) Data Coordinators in each of the various states and staff at the state library agencies. These individuals worked very hard to encourage libraries to respond to the questionnaire. They contacted library directors, reminded them to complete the survey, and often visited them directly to encourage them to reply. Were it not for their assistance, the study would not have had the high response rate it enjoyed. Thank you very much for your help.

Finally, the authors would like to acknowledge the assistance of Beth Mahoney for her excellent work in the final production of this report. We also greatly appreciate the copyediting done by Martine Beachboard.

John Carlo Bertot
Charles R. McClure
Douglas L. Zweizig

July 1996

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INTRODUCTION

The *1996 National Survey of Public Libraries and the Internet* builds and expands upon the original 1994 National Commission on Libraries and Information Science (NCLIS) national study. During the two years since that first national study, a series of events occurred that continue to influence the development of the national and global information infrastructures in general and public library involvement in that infrastructure development in particular (U.S. Advisory Council on the National Information Infrastructure, 1996). These events include, but are not limited to:

- Passage of the *Telecommunications Act of 1996* (P.L. 104-104);
- Development of Universal Service guidelines by the Federal Communications Commission (FCC), in conjunction with the Joint Board, as mandated by the Telecommunications Act of 1996;
- Introduction of the Library Services and Technology Act (LSTA) (as part of H.R. 1617) as a replacement for the Library Services and Construction Act (LSCA) to substantially augment public library electronic network infrastructure development;
- Development of intellectual property legislation, based on the work of the Information Infrastructure Task Force Working Group on Intellectual Property Rights, suitable to the electronic publishing environment (Information Infrastructure Task Force, 1995); and,
- Transition by the Government Printing Office (GPO) to enhance its electronic government document services due to an increasing amount of agency electronic publications (Government Printing Office, 1996).

These policy initiatives create an extremely fluid and volatile policy context. On the one hand, the federal government is in the process of reducing its involvement in locally-based National Information Infrastructure (NII) initiatives through the passage of the *Telecommunications Act of 1996* and possible action on LSTA. On the other hand, the federal government is creating a regulatory framework that can dramatically affect the ability of such community-based institutions as the public library to participate in the NII through the FCC's Federal-State Joint Board development of Universal Service regulations. These policy initiatives may substantially affect the ability of public libraries to actively engage in the evolving NII.

The purpose of this section is for the authors to present a selective review of key policy initiatives, as defined above. Readers who desire a more extensive review of public library literature in relation to electronic networked services can refer to the following:

- *The Clinton administration and the National Information Infrastructure (NII)* (Bertot and McClure, 1996b);
- *Enhancing the role of public libraries in the National Information Infrastructure* (McClure, Bertot, and Beachboard, 1996);
- *Internet costs and cost models for public libraries* (McClure, Bertot, and Beachboard, 1995a);
- *Policy initiatives and strategies for enhancing the role of public libraries in the national information infrastructure (NII): Final Report* (McClure, Bertot, and Beachboard, 1995b);
- *Public access to the Internet* (Kahin and Keller, 1995); and,
- *Public libraries and the Internet: Study results, policy issues, and recommendations* (McClure, Bertot, and Zweizig, 1994).

The above references will provide readers with a more detailed review of public library involvement in the electronic networked environment and the policy context for that environment.

The Telecommunications Act of 1996 and the Federal-State Joint Board on Universal Service

The *Telecommunications Act of 1996* (P.L. 104-104) signaled the first major revision to the telecommunications regulatory environment since the break-up of AT&T in the early 1980s. Essentially, the Act deregulates the cable, local telephone, and long distance markets to allow regional bell operating companies (RBOCS), long distance carriers (e.g., MCI, Sprint, and AT&T), and cable companies to compete in each other's markets upon meeting certain anti-competitive benchmarks that demonstrate competitor access to cable, local telephone, and long distance carrier markets (Benton Foundation, 1996). The ultimate goal of the Act is to provide for a regulatory environment that fosters telecommunications advancements that lead to a more competitive nation and benefit consumers through competition in the telecommunications marketplace (Bertot and McClure, 1996b).

A critical and exceptionally complex notion of the NII that pervades the current policy debate concerning telecommunications reform is that of universal service/access. In general, universal access is a concept derived from the telephone industry and entails the provision of dial tone — not necessarily services — to all areas. Extending this notion to the NII essentially means that advanced telecommunications technologies — the wires, cables, etc. — should be available throughout the nation on an equitable basis.

Universal service, on the other hand, is based on the notion that market forces and consumer demand may determine the availability of services and content. In an advanced telecommunications environment this model implies that telecommunications carriers will provide telecommunications services in markets where there is a demand and reasonable expectation of profit.

The *Telecommunications Act of 1996* (P.L. 104-104), however, neither clearly defined universal access and service nor distinguished the two. Passage of the Act included provision for the Snowe-Rockfeller-Kerry-Exon amendment that provided for discounted rates for schools and libraries. The Act also mandated the creation of a Federal-State Joint Board, to be chaired by the FCC, to evolve a definition of universal service. Service and access are complementary aspects of connecting to and using the NII that require careful consideration and clarification. "Universal access to the information superhighway implies equal and reasonable opportunity for the individual to be connected to the Internet.... Universal service, however, implies some baseline or minimal level of Internet services to which the federal government assures the public it can access and use" (McClure, 1994, p. 13). These themes will be discussed in more detail in the concluding section of this report.

The current environment in which the FCC is to develop its universal uervice rulemaking and potentially provide for reduced service fees to such public institutions as public libraries and the K-12 community is such that:

- Approximately six million U.S. households currently do not receive any telephone service and a disproportionate share of these are low-income minority and rural households (National Telecommunications and Information Administration, 1995);

- Fifty percent of public schools have access to the Internet, but only 9% of all instructional rooms in those schools can access the Internet (U.S. Department of Education, 1996);

- As this study shows, 44.6% of public libraries have some type of Internet connection, but such connectivity varies by library population of legal service area and region; and,

- An increasing percentage of public libraries are connecting to the Internet and providing public access to Internet-based services through library connections (Public Library Association, 1995) — a finding substantiated by this study.

The FCC and Federal-State Joint Board, therefore, need to consider the variation in access to basic telephone service by households as well as the community-based public institution infrastructures' adequacy and capabilities.

Library Services and Construction Act/Library Services and Technology Act

Federal funding of libraries, particularly public libraries, is generally small in dollar amounts but significant in the effect it can have on the ability of public libraries to leverage local community resources to match Federal funding (McClure, Bertot, & Zweizig, 1994). The most significant of federal programs that funds public libraries is the Library Services and Construction Act (LSCA) (20 *USC* 16), a state-based matching fund program. LSCA, the only specific federal source of public library funding, is inadequate in its ability to assist public libraries to participate in the NII due to its non-competitive funding allocation, distribution of funds through state library agencies, and historical provision of construction funding (McClure, Bertot, & Zweizig, 1994). LSCA may need to undergo a transformation that specifically provides for public library-based electronic network initiatives. In part, the American Library Association (ALA)-sponsored LSTA is one such effort being debated by the 104th Congress (H.R. 1617). The intention is that LSTA, if passed, would replace LSCA as the primary federal funding mechanism for public libraries.

The LSTA is an effort by Congress, in part, to (H.R., 1617, Sec. 212(a)(3)(A, E)):

- Establish national library service goals for the 21st century. Such goals are that every person in America will be served by a library that—

  - Provides all users access to information through regional, State, national, and international electronic networks; and,

  - Provides adequate hours of operation, facilities, staff, collections, and electronic access to information.

LSTA essentially provides for two main grant categories: Information Access through Technology grants and Information Empowerment through Special Services grants. These grant categories enable and promote public libraries to develop and carry out advanced technology infrastructure development.

Included in the LSTA is the requirement that state library agencies perform an annual evaluation of the grant programs to demonstrate the effectiveness of the grants (Sec. 251(b)(1-5). As of spring 1996 a conference committee convened to discuss LSTA differences between the Senate and the House. Congressional inaction on LSTA has added to the unpredictability of the future role of libraries in the NII.

Intellectual Property and the NII

NII policy initiatives widely recognize the risks to and importance of protecting the intellectual property rights of authors and copyright holders in a pervasively networked environment. The administration committed itself to "investigating how to strengthen domestic copyright laws and international intellectual property treaties to prevent piracy and to protect the integrity of intellectual property" (Information Infrastructure Task Force, 1993, p. 5).

To that end, the Information Infrastructure Task Forc (IITF) Working Group on Intellectual Property published a preliminary draft report (green paper), *Intellectual Property and the National Information Infrastructure* (Working Group on Intellectual Property, 1994). The report concluded that, while major changes to the statute are not necessary, the Copyright Act does require some modification, including redefinition of "transmission" and "publication" and clarification of "first sale doctrine" (Information Industry Association, 1994). The report also called for a ban on devices or services designed to defeat technical protections that copyright owners developed to safeguard their works and identifies the need to better educate the public to understand intellectual property rights.

The 1994 report endorsed giving copyright owners an exclusive right to control digital transmissions of their works: "the initial Green Paper went too far in extending the exclusive rights of copyright holders and paid only superficial attention to the needs of users of electronic information" (ALAWON, 1995, p. 5). While current copyright law provides copyright owners a form of exclusive reproduction rights, "It has never before now given them an exclusive reading right...." (ALAWON, 1995, p. 5). Such protection, then, would provide copyright owners with control over both the *access to* and *distribution of* their material.

After a public comment period, the working group issued its final report, *Intellectual Property and the National Information Infrastructure: The Report of the Working Group on Intellectual Property Rights* (1995). The final report varied little from the initial Green Paper that the Working Group published. The report did, however, make the following key recommendations for copyright law amendment (Working Group on Intellectual Property Rights (1995, Appendix I):

- Redefine "distribution" and "publication" to include transmission;
- Redefine "transmit" to include the transmission of a reproduction; and,
- Exempt libraries from the one-copy limit by permitting libraries to possess three copies of material.

Some analysts from the education and library communities found that the final report was a legalistic document that went too far in protecting publishers' rights.

Intellectual property issues have important implications for the public, the library community, and the publishing community, and will influence the economic arrangements by which libraries will be able to make digital holdings available or, perhaps more significantly, gain access to digital holdings. Existing print-media publishers are becoming increasingly aware of the economic value of their media products. As more of these publishers form partnerships with commercial on-line service providers, public libraries may be forced to reconsider their libraries' economic interests.

The Senate and House introduced bills in the 104th Congress (S. 1284 and H.R. 2441, respectively) that essentially would modify current copyright law based on the recommendations of the working group. It remains unclear if the 104th Congress will act on these bills. The issues, however, will continue to be debated by stakeholders in the information production and consumption industries for some time to come.

An Electronic Federal Depository Library Program (FDLP)

The Government Printing Office (GPO) FDLP, originally created in the late 1800s to ensure an informed citizenry through the distribution of federal government publications to approximately 1400 libraries throughout the nation, is facing the need for fundamental change due to the increased reliance on electronic networks as a means to access and distribute government information.

The continued development of the NII is challenging the traditional means through which the public can access, and the federal government can disseminate, government information through the FDLP. The increasing use of and access to the Internet by the library community in general and the public library community in particular, provide an opportunity for significantly augmenting the FDLP -- neither the GPO, the public, nor libraries are limited to accessing and disseminating printed government documents and publications.

The Government Printing Office (GPO), under mandate of law (P.L. 104-53), undertook a study to determine the feasibility, requirements, and potential barriers to creating a more electronically-based FDLP (Government Printing Office, 1996).

In part, the GPO concluded that (Government Printing Office, pp. 3-5):

- There is widespread interest in expanding the content of the FDLP to make it more comprehensive, and a great deal of optimism that the rapid expansion of agency electronic publishing offers cost-effective options to do so.
- With the increasing emphasis on electronic dissemination and decreasing compliance with statutory requirements for agencies to print through GPO, identifying and obtaining information for the FDLP is becoming increasingly difficult.
- To ensure permanent public access to official electronic government information products, all of the institutional program stakeholders (information producing agencies, GPO, depository librar-

ies and National Archives and Records Administration (NARA) must cooperate to establish authenticity, provide persistent identification and description of government information products, and establish appropriate arrangements for its continued accessibility.

- In a distributed environment, where libraries and users often access government electronic information services rather than local collections, tools for identifying and locating information will be critical components of an effective program.

- For the successful implementation of a more electronic FDLP, the Congress, GPO and the library community must have additional information about future agency publishing plans, as well as an expert evaluation of the cost-effectiveness and usefulness of various electronic formats that may be utilized for depository library dissemination or access.

- While there are many benefits inherent in the use of electronic information, including more timely and broader public access, there are no conclusive data at this time to support the assertion that it will result in significant savings to the program as a whole in the next few years.

These findings identify the challenges that GPO will face in creating a more electronically based FDLP program. The challenges are formidable, but necessary, as the means of federal government document publication, dissemination, and access change considerably through the electronic networked environment.

The challenges facing the GPO FDLP, however, may serve to significantly alter and expand the role of public libraries in providing access to federal government information and services. The increased reliance of the federal government on electronic means of access to and dissemination of government information, combined with the increasing involvement with the Internet by public libraries, allows public libraries the potential to enhance access to electronic federal government information services.

The above discussion serves to partially set the policy context for this study. The increasing realization of the NII presents the public library community with numerous challenges concerning the role of public libraries in an electronic networked environment. On the one hand, through the ubiquitous and distributed nature of the Internet, public libraries have the potential to augment their role as community-based information hubs, acting essentially as network navigators, electronic resource locators, and electronic service providers. On the other hand, the electronic networked environment potentially redefines many aspects of public library policy: document and publication provision, intellectual property concerns, and the telecommunication rates to fund library services. New legislation may specifically support information technology applications for libraries. This study presents both longitudinal and descriptive data to inform policy makers, researchers, and the library community as to the ability of public libraries to successfully meet the challenges of the electronic networked environment.

STUDY RESULTS

This 1996 NCLIS survey gathered data from a national sample of public libraries concerning the current level of public library involvement with the Internet. The data collection occurred between January and March 1996. The purpose of this study was to: (1) provide policymakers, researchers, and library professionals with longitudinal data that measured changes in public library Internet involvement since the first *Public Libraries and the Internet* study (McClure, Bertot, and Zweizig, 1994); (2) Identify costs for public library Internet services; and, (3) Identify issues and inform the policy debate concerning public library roles in the electronic networked environment.

Methodology

This 1996 NCLIS-supported survey closely followed the methodology used in the 1994 survey in order to allow direct comparisons of results from the two surveys. These methods included the process of developing and testing the survey instrument, the drawing of the sample, and the method of drawing estimates from the responses.

Survey Instrument Development

The study team based the initial draft of the survey instrument on the survey form used in 1994, making modifications to reflect current Internet technologies and public library issues. Questions relating to costs of Internet activities were augmented from findings reported in the NCLIS-supported *Internet Costs and Cost Models for Public Libraries* (McClure, Bertot, and Beachboard, 1995). In addition, the Advisory Board for this study provided suggestions for topics to ad-

dress concerning public library involvement with the Internet. Key questions from the 1994 survey were maintained to provide longitudinal data for 1994-1996 public library Internet involvement. In November 1995, the Advisory Board reviewed a draft of the survey instrument. The study team used the comments from the board and NCLIS members and staff to produce a second version of the survey instrument.

Board members each pretested the second draft of the survey instrument with at least five public librarians of the type who would receive the final questionnaire. By December 20, 1995, the study team received over 35 completed pretest instruments along with comments from the Board members. The study team finalized the survey instrument on December 30, 1995, and mailed out the final survey to participating public libraries during the second week of 1996 with a request for response by January 31, 1996 (see Appendix A for a copy of the final survey instrument).

Survey Procedures

This study employed a number of devices to increase the likelihood of prompt response from libraries:

- Sending a postcard via first-class mail to sampled libraries one week before the survey mailing to alert the library director that the survey would be coming. The postcard explained the importance of prompt response and asked the library director to notify the survey office if a survey was not received as of January 15, 1996 (see Appendix B for a copy of the postcard).

- Sending a cover letter on NCLIS stationary and signed by Jeanne Hurley Simon, the chairperson of the Commission, along with the survey. The letter explained the purpose of the survey and stressed the importance of prompt response (see Appendix C for a copy of the letter).

- Providing notices in pertinent library literature to announce the conduct of the survey. An announcement appeared in *LJ Hotline* in an early 1996 issue, giving notice of the intended survey and its purpose, promising a report in the summer of 1996.

- Mailing surveys via first-class mail with a first-class stamp affixed to the return envelope.

- Sending a letter, through NCLIS, to each state library agency in early January 1996 with a list of those public libraries in the state that were included in the sample. This letter asked for any cooperation the state library agency could provide in ensuring a high response rate. State Data Coordinators for the Federal-State Cooperative System (FSCS) were especially helpful in following-up with non-respondents.

- Performing a second mailing of the survey on February 26, 1996 to 250 selected non-responding libraries to increase the response rate within certain regional and population of legal service area strata.

- Faxing each state library agency with non-responding libraries a list that included the names of non-responding libraries in early March 1996. The fax asked for assistance in increasing the response rate. Once again, the FSCS State Data Coordinators proved especially helpful in increasing the survey's response rate.

- Making the survey available on a Web site so that those libraries with graphical access to the World-Wide Web could complete the survey on-line. To review a copy of this survey, point your browser to: http://research.umbc.edu/~bertot/nclissurvey.html.

- Returning respondent phone call and email queries concerning survey questions and procedures.

Clearly, the cooperation of the state library agencies was instrumental in the ability of the researchers to obtain a high response rate in a matter of a few months.

Sampling and Data Analysis Procedures

The researchers used the same sample as used in the 1994 public library Internet study in order to measure longitudinal changes in public library involvement. For the 1994 survey, the sample was selected from the FSCS for Public Library Data 1991 Universe File of public libraries maintained by the National Center for Education Statistics (NCES). For the present survey, that sample was checked against the 1993 FSCS Universe File to verify that sampled libraries continued in the universe and to identify changes in library names and addresses. The 1991 FSCS list was composed of 9,050 public libraries, whereas the 1993 list contained a population of 8,929 public libraries.

Based on the above technique, a sample was drawn

of 1,495 public libraries. Within the original sample, the researchers in 1995 identified 21 public library changes, of which 15 were due to consolidations and name changes. The remaining six libraries were removed from the sample, leaving a sample size of 1,489. A total of 1,059 surveys were returned, for a response rate of 71.1%.

In drawing the original sample, the public library universe file was stratified by library legal service population[1] class (the legal service population classes were as follows: 1 Million+; 500,000-999,999; 250,000-499,999; 100,000-249,999; 50,000-99,999; 25,000-49,999; 10,000-24,999; 5,000-9,999; Under 5,000;) and, within legal service population class, by four Census Regions (the region groupings were as follows: MIDWEST: Illinois, Indiana, Iowa, Kansas, Michigan, Minnesota, Missouri, Nebraska, North Dakota, Ohio, South Dakota, Wisconsin; NORTHEAST: Connecticut, Maine, Massachusetts, New Hampshire, New Jersey, New York, Pennsylvania, Rhode Island, Vermont; SOUTH: Alabama, Arkansas, Delaware, Washington, DC, Florida, Georgia, Kentucky, Louisiana, Maryland, Mississippi, North Carolina, Oklahoma, South Carolina, Tennessee, Texas, Virginia, West Virginia; WEST: Alaska, Arizona, California, Colorado, Hawaii, Idaho, Montana, Nevada, New Mexico, Oregon, Utah, Washington, Wyoming). The sample was selected by NCES using a systematic probability proportional to size sampling procedure, the measure of size being the square root of the population of library legal service area. (For more detailed information on the sampling technique used in this study and the drawing of the sample from the NCES Public Library Universe File, contact Steven Kaufman at NCES or Douglas Zweizig at the University of Wisconsin-Madison.)

This sampling method assigns each sampled library a weight to reflect its contribution to the estimates for the population stratum to which it belongs. The sample included all larger libraries (those serving populations of 100,000 or greater), and thus those libraries each received a weight of one. Libraries serving smaller communities received larger weights to the degree that the proportion of their stratum sampled was smaller. Furthermore, after determining the final response rate, adjustments were made to the weights within sampling strata to allow for national estimates that compensated for non-responding libraries.

In order to produce a national estimate, the adjusted weights for the libraries that furnished a value were summed. This provided an estimated count of the libraries nationally with that value. For example, to estimate the number of libraries with an Internet connection (question 7 on the 1996 survey), the adjusted weights of all responding libraries that indicated they had some type of an Internet connection were summed.[2] Percentages were then calculated in the conventional way.

Any estimates to be derived in the future from this data set will need to follow these same procedures of computing estimates from the weights. Direct calculations from the sample data will not produce correct estimates.

Because the weights were determined within the population and region classes, estimates can be made for the population and region levels and through aggregation for the national level. Because of the sample size and the weighting procedure, estimates cannot be made for individual states or for other classes that might be of interest, such as consortia or library systems. The sample design was constructed in this manner in order to keep the sample size as small as possible and to allow a rapid reporting of data in this dynamic research area. Producing estimates at the state level would require such a large sample size that it would approach the population of libraries and would lose the advantage of a quick response survey.

Although estimates of the standard error are pos-

[1]Population of the legal service area is the number of people in the geographic area for which a public library has been established to offer services and from which (or on behalf of which) the library derives income, plus any area served under contract for which the library is the primary service provider (NCES, 1993, p. 109).

[2]As an example, Bridgeville Public Library of Delaware, based on the FSCS Population of Legal Service Area (less than 5,000) and Census Region categories (South), has been assigned a weighting factor of 9.75 by NCES. In producing national public library estimates for public libraries in the same Population and Region category, each Bridgeville Public Library variable response is multiplied by its assigned weight. Based on Bridgeville's indication of an Internet connection, it is estimated that 9.75 other public libraries in the same stratum have some type of an Internet connection. Totals for the stratum are achieved through summing all the weights for the responses in that stratum. Analysis for each public library and survey question must follow the above procedure to produce accurate national estimates.

sible with this sampling approach, they were not calculated for this quick response survey because their calculation is more complicated and time consuming than needed to produce the national estimates. Furthermore, such calculations require specialized software that is not written for the general user. Therefore, significance tests have not been performed. The quality of the estimates can be inferred from the sample quality achieved as shown in Figure 1 [and from the close match between estimates of expenditures from this sample and population data reported by NCES (1995)]. However, it should be kept in mind that the quality of estimates is directly related to the numbers providing responses. In producing national estimates, the re-weighting of responding public library data compensates for non-responding public libraries. The questions left blank or skipped by responding public libraries, however, do affect the precision of the national estimates. Overall response rates for specific questions are not included since, due to the weighted sample, one library response does not correspond to one library estimate. Thus, making the calculation of response rates for each question is impractical.

Longitudinal Comparisons

In order to be able to make direct comparisons between the 1994 and 1996 data, a set of key questions were asked in the same form. These questions were:

Question Number (1996)	Variable
Question 2	FTE Librarians
Question 3	Library Operating Expenditures
Question 4	Library Materials Expenditures
Question 6	Primary Motivation for Interest in the Internet (with the exception of the choice of "library governing body" that was added for 1996)
Question 7	Current Connection to the Internet
Question 13a	Dial-up Connection
Question 13b	Leased Line Connection (through aggregation)
Question 14	Type of Internet Provider

Other questions are not comparable with 1994 because of modifications in the questions made to reflect changes in public library Internet involvement and technology.

Quality of Data

An analysis of respondents indicated no non-response bias. The survey results are representative of national demographics indicating excellent representation of the broader public library population (see Figures 1 and 2).

Some Public Library Demographics

Public library expenditures and number of employees vary by both region and population of legal service area. As library population of legal service area increases, so does the number of full-time equivalents (FTEs) with American Library Association (ALA)-accredited Master in Library Science (MLS) in their title and material and operating expenditures. The national average of ALA-accredited MLS FTEs is 4.0, while the average public library having operating expenditures last fiscal year of $559,928.14 and material expenditures of $84,273.50 (see Figure 2). These figures closely match those found by NCES (1995), providing additional verification of the quality of the data.

Overall, Figure 2 shows that public libraries have increased operating and material expenditure budgets as compared to 1994 (McClure, Bertot, and Zweizig, 1994). The data do show, however, some notable decreases in library ALA-accredited MLS FTEs from 1994 to 1996 in the 1 million +, 500,000-999,999, and 25,000-49,999 (-9.6%, -22.0%, and -22.1%, respectively) population of legal service area categories and the Midwest and West (-11.1% and -14.5%, respectively) regional categories. It is unclear to the researchers as to specific reasons for these differences in FTE data. One possible explanation is that public libraries in those regional and population categories that responded to the survey have experienced some decrease in ALA-accredited MLS FTEs and operating expenditures that is magnified through the weighted sample. The magnification due to weighting, combined with some libraries that did not complete that information on the survey, can impact the responses to these questions. It is important to note, though, that the overall ALA-accredited MLS FTEs operating expenditure, and material expenditure data closely match the most recent NCES public library ALA-accredited MLS FTE and expenditure data (1995).

Figure 2 also clearly shows that, as library population of legal service area increases, so too do the aver-

Figure 1. Check on Study Sample and Response Quality.

	Percentage in Population*	Percentage of Respondents
1 million +	0.2%	0.2%
500,000-999,999	0.6%	0.6%
250,000-499,999	1.1%	1.0%
100,000-249,999	3.2%	3.4%
50,000-99,999	5.7%	5.8%
25,000-49,999	9.7%	9.9%
10,000-24,999	18.3%	18.2%
5,000-9,999	17.1%	17.2%
Less than 5,000	44.1%	43.6%

Total Number of Respondents = 1059 Response Rate = 71.1%

* *Using 1993 public library percentages.*

age number of library FTEs and the average operating and material expenditures. Figure 2 indicates, however, that the distribution of public library material and operating expenditures, as well as the number of FTE staff, is not even across the nation. As with the 1994 data, materials and operating expenditures for the last fiscal year and FTEs were greatest in the West, followed by the South.

Accessing the Internet

This section of the report presents findings concerning motivations and factors affecting public library involvement with the Internet.

Factors Affecting Public Library Involvement with the Internet

Public libraries indicate that several factors affect their involvement with the Internet.[3] As Figure 3 indicates, public libraries consider all identified factors to be important in determining public library Internet involvement, with importance ratings ranging from 1.46 to 1.94 (1=very important, 5=very unimportant). Key factors affecting public library Internet involvement include communications costs (1.46), followed by systems costs (1.52), the availability of state money (1.61), and a tie between the availability of in-house computer technical expertise and the availability of staff time to develop expertise on the Internet (1.64). In general, the data show that as public library population of legal service area decreases, the importance of the factors increases, particularly those factors related to Internet services costs.

While the survey did not ask public libraries to indicate the year in which the library Internet connection was established, data presented in Figure 5 show that a majority of public libraries serving population of legal service areas of 100,000 or greater had some type of Internet connection in 1994. Due to an established technology infrastructure and experience with the Internet, it is expected that Internet services costs and funding considerations would be less important to public libraries in these population service categories.

Figure 3 demonstrates few regional differences for factors affecting public library involvement with the Internet. In general, however, public libraries in the West consider Internet services costs and the availability of federal and/or state money to be less important than do public libraries in other regions.

Public Library Motivation for Interest in the Internet

As Figure 4 shows, 27.6% of public libraries consider statewide initiatives to be the primary motivation for public library interest in the Internet. In addition, 21.0% of public libraries indicate that the primary motivation for Internet interest comes from the library administration, closely followed by 20.6% indicating

[3]It is important to note that, although the survey provided a general description of these factors, public librarians may define these differently and have differing abilities to identify such factors. As such, these data are best seen as estimates of these factors affecting public library involvement with the Internet.

Figure 2. 1994-1996 Public Library Average ALA-Accredited MLS FTEs, Operating Expenditures, and Materials Expenditures by Population of Legal Service Area and Region.

Population of Legal Service Area

	1996			1994			Change in Percentage		
	FTEs	Operating Expenditures	Materials Expenditures	FTEs	Operating Expenditures	Materials Expenditures	FTEs	Operating Expenditures	Materials Expenditures
1 million +	167.9	$30,422,011	$3,907,868	185.8	$30,551,227	$3,517,661	-9.6%	-0.4%	11.1%
500,000-999,999	72.4	$14,365,313	$2,303,469	92.8	$14,338,160	$2,326,304	-22.0%	0.2%	-1.0%
250,000-4999,999	38.9	$6,624,655	$967,047	33.8	$5,329,118	$779,110	15.1%	24.3%	24.1%
100,000-249,999	16.2	$2,856,098	$418,778	15.6	$2,287,103	$355,837	3.8%	24.9%	17.7%
50,000-99,999	8.2	$1,198,756	$182,361	8.3	$1,111,280	$162,449	-1.2%	7.9%	12.3%
25,000-49,999	6.0	$725,418	$100,436	7.7	$627,939	$94,150	-22.1%	15.5%	6.7%
10,000-24,999	3.1	$353,533	$54,652	2.8	$282,987	$47,205	10.7%	24.9%	15.8%
5,000-9,999	1.6	$138,961	$22,515	1.3	$101,300	$20,270	23.1%	37.2%	11.1%
Less than 5,000	1.0	$39,463	$9,180	0.9	$25,928	$5,811	11.1%	52.2%	58.0%

Region

	1996			1994			Change in Percentage		
	FTEs	Operating Expenditures	Materials Expenditures	FTEs	Operating Expenditures	Materials Expenditures	FTEs	Operating Expenditures	Materials Expenditures
Midwest	3.2	$403,293	$65,832	3.6	$363,014	$60,848	-11.1%	11.1%	8.2%
Northeast	3.7	$449,817	$58,327	3.5	$390,635	$56,389	5.7%	15.2%	3.4%
South	5.6	$735,648	$120,264	4.5	$576,612	$96,445	24.4%	27.6%	24.7%
West	5.9	$1,096,018	$155,786	6.9	$997,899	$127,531	-14.5%	9.8%	22.2%
Overall	4.0	$559,928	$84,274	4.1	$484,068	$73,930	-2.4%	15.7%	14.0%

Figure 3. Factors Affecting Public Library Involvement with the Internet by Population of Legal Service Area and Region.

Population of Legal Servcie Area

	System/ Server Costs	Software Costs	Comm. Cost	Training/ Education Costs	Content/ Resources Costs	In-house Expertise	Staff Time	Federal Money	State Money
1 million +	1.97	3.15	1.94	2.70	3.13	2.39	2.13	2.87	2.46
500,000-999,999	2.14	2.47	2.13	2.09	2.25	1.75	1.94	3.28	2.93
250,000-499,999	1.78	2.22	1.78	2.34	2.54	1.76	1.82	2.47	2.21
100,000-249,999	1.65	2.17	1.72	2.28	2.68	1.83	1.74	2.57	2.17
50,000-99,999	1.86	2.33	1.64	2.67	2.55	2.02	1.72	2.46	2.06
25,000-49,999	1.73	2.10	1.77	2.12	2.31	1.88	1.66	2.38	1.86
10,000-24,999	1.72	2.15	1.59	1.90	2.25	1.75	1.49	2.04	1.84
5,000-9,999	2.00	1.70	1.31	1.74	1.79	1.60	1.29	1.51	1.39
Less than 5,000	1.33	1.48	1.32	1.56	1.62	1.49	1.49	1.52	1.41

1 = Very Important / 5 = Very Unimportant

Region

	System/ Server Costs	Software Costs	Comm. Cost	Training/ Education Costs	Content/ Resources Costs	In-house Expertise	Staff Time	Federal Money	State Money
Midwest	1.54	1.79	1.46	1.75	1.96	1.72	1.58	1.84	1.63
Northeast	1.56	1.76	1.49	1.82	1.89	1.58	1.38	1.75	1.57
South	1.43	1.81	1.40	1.79	1.86	1.63	1.49	1.69	1.49
West	1.54	1.89	1.45	2.03	2.14	1.61	1.54	2.08	1.90
Overall	**1.52**	**1.79**	**1.46**	**1.81**	**1.94**	**1.64**	**1.64**	**1.81**	**1.61**

interest by community strategic planning. There is a clear three-way split in terms of motivation for public library interest in the Internet by library population of legal service area: Library strategic planning serves as the primary impetus for public library Internet interest for the largest libraries, library administration provides library interest in medium-sized libraries, and statewide initiatives supply Internet interest in small libraries. In comparing the primary interest of public library Internet access to 1994, there is a dramatic increase in the motivation of community strategic planning (+17.4%) for public library Internet interest.

There are few regional differences in public library motivation for interest in the Internet (see Figure 4). Public libraries in all regions consider the primary motivation for library interest in the Internet to be statewide initiatives. Libraries in the South and West, however, consider community strategic planning to affect the library's interest in the Internet more heavily (24.5% and 23.6%, respectively) than do libraries in the Midwest and Northeast (19.2% and 18.7%, respectively). Moreover, libraries in the South and West experienced the largest increases in community strategic planning activities since 1994, 22.1% and 21.8%, respectively, as compared to 14.3% for libraries in the Midwest and 16.6% for libraries in the Northeast.

The Current State of Public Library Internet Connectivity

The following section details the current state of public library connectivity, including the percentage of public libraries connected to the Internet, the type(s) of Internet connection public libraries have, the future Internet connectivity plans non-Internet connected public libraries have, the type of network connection provider public libraries use, and the estimated cost of public library Internet services. Comparisons to the 1994 *Public Libraries and the Internet* study are made where possible.

Percentage of Public Libraries Connected to the Internet and Population Served

Figure 4. 1994-1996 Primary Motivation for Public Library Interest in the Internet by Population of Legal Service Area and Region.

Population of Legal Service Area

	1996						
	Library Strategic Planning	Statewide Initiatives	Library Administration	Library Governing Board	Community Strategic Planning	Internal Staff Expertise	Other
1 Million +	51.4%	0.0%	27.3%	0.0%	14.8%	0.0%	6.5%
500,000-999,999	51.3%	6.4%	19.9%	3.0%	6.4%	7.3%	5.8%
250,000-499,999	45.0%	11.0%	23.3%	0.0%	14.1%	6.7%	0.0%
100,000-249,000	28.1%	19.5%	21.3%	1.6%	18.1%	7.4%	4.0%
50,000-99,999	24.0%	18.1%	27.6%	0.6%	21.8%	3.7%	3.4%
25,000-49,999	24.8%	20.2%	24.9%	1.5%	16.8%	7.9%	3.9%
10,000-24,999	13.1%	25.2%	23.3%	2.5%	21.8%	9.5%	4.7%
5,000-9,999	12.7%	26.4%	19.8%	3.0%	27.0%	4.7%	6.3%
Less than 5,000	8.4%	34.1%	18.4%	8.8%	18.9%	4.3%	7.1%

Region

Midwest	13.1%	26.8%	19.6%	6.9%	19.2%	6.8%	7.6%
Northeast	16.3%	28.2%	25.0%	3.2%	18.7%	3.5%	5.1%
South	14.1%	26.6%	20.6%	5.4%	24.5%	4.9%	3.9%
West	12.9%	30.7%	16.0%	2.0%	23.6%	10.2%	4.6%
Overall	**14.2%**	**27.6%**	**21.0%**	**4.9%**	**20.6%**	**5.8%**	**5.8%**

Population of Legal Service Area

	1994						
	Library Strategic Planning	Statewide Initiatives	Library Administration	Library Governing Board	Community Strategic Planning	Internal Staff Expertise	Other
1 Million +	57.2%	0.0%	19.6%	-	0.0%	17.6%	5.6%
500,000-999,999	57.6%	13.5%	14.2%	-	0.0%	9.8%	4.9%
250,000-499,999	31.0%	22.8%	30.2%	-	1.3%	14.7%	0.0%
100,000-249,000	28.3%	16.4%	33.5%	-	3.9%	9.8%	8.1%
50,000-99,999	20.6%	23.2%	30.0%	-	2.4%	14.8%	9.0%
25,000-49,999	20.4%	28.1%	33.5%	-	2.2%	6.4%	10.1%
10,000-24,999	19.3%	29.3%	31.6%	-	2.4%	8.8%	8.7%
5,000-9,999	20.9%	32.8%	28.5%	-	2.5%	6.1%	9.3%
Less than 5,000	12.2%	41.0%	20.3%	-	4.4%	5.9%	16.2%

Region

Midwest	15.1%	33.3%	23.6%	-	4.9%	7.9%	15.2%
Northeast	20.3%	36.1%	21.4%	-	2.1%	9.1%	11.0%
South	15.1%	28.8%	39.8%	-	2.4%	4.5%	9.5%
West	26.4%	33.8%	25.7%	-	1.8%	6.8%	5.6%
Overall	**17.8%**	**33.1%**	**26.5%**	-	**3.2%**	**7.4%**	**11.7%**

Continued

Figure 4 (continued). 1994-1996 Primary Motivation for Public Library Interest in the Internet by Population of Legal Service Area and Region.

Population of Legal Service Area

	Change in Percentage						
	Library Strategic Planning	Statewide Initiatives	Library Administration	Library Governing Board	Community Strategic Planning	Internal Staff Expertise	Other
1 Million +	-5.8%	0.0%	7.7%	-	14.8%	-17.6%	0.9%
500,000-999,999	-6.3%	-7.1%	5.7%	-	6.4%	-2.5%	0.9%
250,000-499,999	14.0%	-11.8%	-6.9%	-	12.8%	-8.0%	0.0%
100,000-249,000	-0.2%	3.1%	-12.2%	-	14.2%	-2.4%	-4.1%
50,000-99,999	3.4%	-5.1%	-2.4%	-	19.4%	-11.1%	-5.6%
25,000-49,999	4.4%	-7.9%	-8.6%	-	14.6%	1.5%	-6.2%
10,000-24,999	-6.2%	-4.1%	-8.3%	-	19.4%	0.7%	-4.0%
5,000-9,999	-8.2%	-6.4%	-8.7%	-	24.5%	-1.4%	-3.0%
Less than 5,000	-3.8%	-6.9%	-1.9%	-	14.5%	-1.6%	-9.1%

Region

	Change in Percentage						
	Library Strategic Planning	Statewide Initiatives	Library Administration	Library Governing Board	Community Strategic Planning	Internal Staff Expertise	Other
Midwest	-2.0%	-6.5%	-4.0%	-	14.3%	-1.1%	-7.6%
Northeast	-4.0%	-7.9%	3.6%	-	16.6%	-5.6%	-5.9%
South	-1.0%	-2.2%	-19.2%	-	22.1%	0.4%	-5.6%
West	-13.5%	-3.1%	-9.7%	-	21.8%	3.4%	-1.0%
Overall	**-3.6%**	**-5.5%**	**-5.5%**	-	**17.4%**	**-1.6%**	**-5.9%**

At present, 44.6% of all public libraries have some type of Internet connection (see Figure 5). This is an increase of 23.7% from the 20.9% level of public library connectivity in 1994. In general, as public library population of legal service area increases, so too does the percentage of public library Internet connectivity, with 82.0% of public libraries with population of legal service areas of greater than 1 million and 31.3% of public libraries with population of legal service areas of less than 5,000 having some type of Internet connection. Indeed, nearly all public libraries with population of legal service areas of 100,000 or greater have some type of Internet connection (percentage of connectivity ranging from 82.0% to 96.1%). As Figure 5 indicates, the largest increases in public library Internet connectivity occurred in libraries with population of legal service areas between 25,000 and 249,999 (percentage increases ranging from 31.3% to 45.5%).

Public library Internet connectivity varies by region, with 53.7% of libraries in the West having some type of Internet connection, followed by 51.1% in the Northeast, 44.5% in the Midwest, and 39.0% in the South (see Figure 5). The greatest percentage of increase in Internet connectivity from 1994 occurred in the Midwest with 29.1%, followed by 25.5% in the West, 25.2% in the Northeast, and 20.4% in the South.

When public libraries not currently connected to the Internet were asked to indicate future Internet connectivity plans, 56.7% indicated that their libraries planned to have some type of Internet connection by March 1997 (see Figure 6). Of that 56.7%, 16.3% indicated that the library planned to have a library staff-only Internet connection, while 40.4% indicated that the library planned to have a library staff and public access Internet connection. As public library population of legal service area decreases, the percentage of public libraries indicating no Internet connection plans increases (percentages ranging from 0.0% to 47.3%). Public libraries that serve larger population of legal service areas, therefore, will continue to have greater

Figure 5. 1994-1996 Public Libraries Connected to the Internet by Population of Legal Service Area and Region.

Population of Legal Service Area

	1996	1994	Change in Percentage
1 million +	82.0%	77.0%	5.0%
500,000-999,999	93.1%	64.0%	29.1%
250,000-499,999	96.1%	76.0%	20.1%
100,000-249,999	88.2%	54.4%	33.8%
50,000-99,999	75.0%	43.7%	31.3%
25,000-49,999	73.1%	27.6%	45.5%
10,000-24,999	53.1%	23.2%	29.9%
5,000-9,999	40.6%	12.9%	27.7%
Less than 5,000	31.3%	13.3%	18.0%

Region

	1996	1994	Change in Percentage
Midwest	44.5%	15.4%	29.1%
Northeast	51.1%	25.9%	25.2%
South	39.0%	18.6%	20.4%
West	53.7%	28.2%	25.5%
Overall	44.6%	20.9%	23.7%

Figure 6. Public Libraries Planning to Connect to the Internet in the Next 12 Months by Population of Legal Service Area and Region.

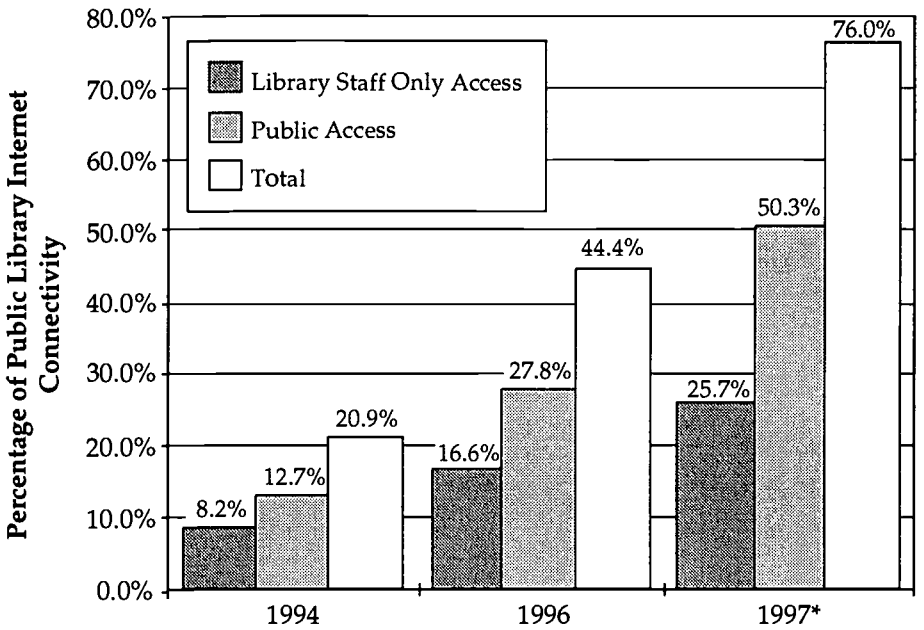
Population of Legal Service Area

	Library Staff Use Only	Library Staff Use and Public Access	No Connection Planned
1 million +	0.0%	0.0%	0.0%
500,000-999,999	25.7%	74.3%	0.0%
250,000-499,999	31.9%	68.1%	0.0%
100,000-249,999	25.4%	70.0%	4.6%
50,000-99,999	29.8%	53.3%	16.9%
25,000-49,999	30.5%	42.1%	27.4%
10,000-24,999	21.7%	43.0%	35.3%
5,000-9,999	18.4%	44.7%	37.0%
Less than 5,000	12.6%	40.1%	47.3%

Region

	Library Staff Use Only	Library Staff Use and Public Access	No Connection Planned
Midwest	20.5%	37.5%	42.0%
Northeast	18.0%	43.8%	38.2%
South	12.9%	40.2%	46.9%
West	9.0%	59.6%	31.4%
Overall	16.3%	40.4%	43.3%

Figure 7. 1994-1996 and Projected Public Library Internet Connectivity.



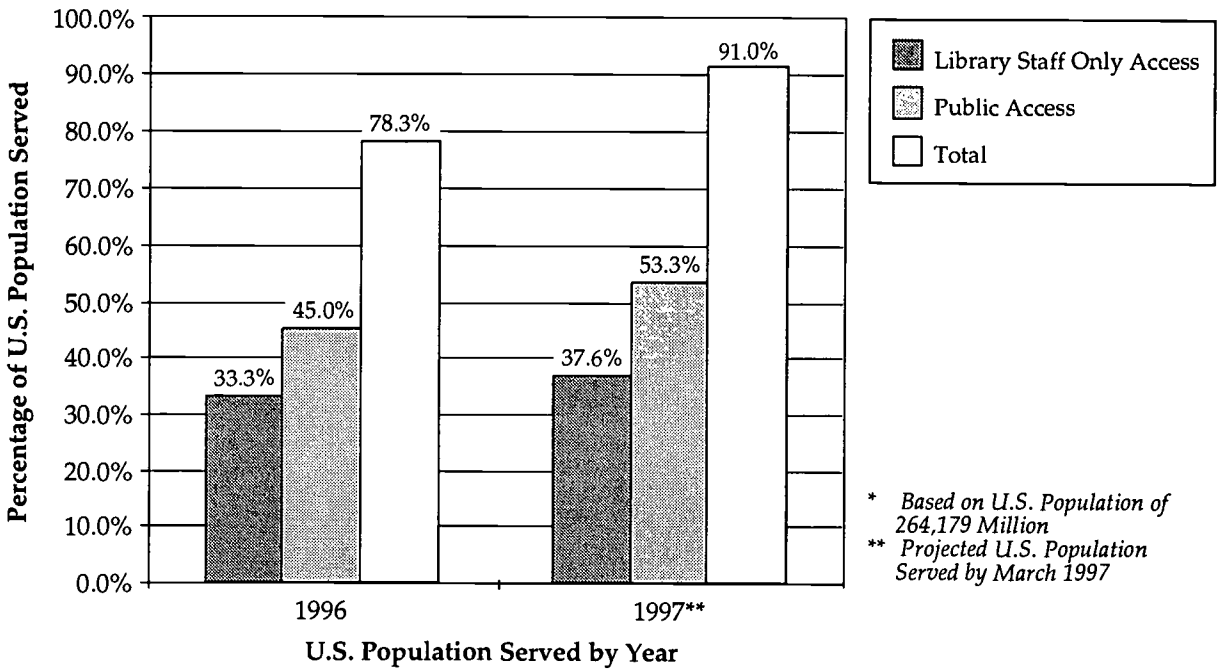
percentages of public library Internet connections in general and public access-capable connections in particular.

As Figure 6 shows, future public library Internet connection plans vary by region. Public libraries in the Midwest indicate the greatest percentage of library staff-only Internet connection plans with 20.5%, followed by 18.0% in the Northeast, 12.9% in the South, and 9.0% in the West. The near reverse trend is true for library staff and public access connection plans, with 59.6% of public libraries in the West indicating plans for library staff and public access, followed by 43.8% of libraries in the Northeast, 40.2% in the South, and 37.5% in the Midwest. Public libraries in the South indicate the highest percentage of "no planned Internet connection" with 46.9%, while public libraries in the West indicate the lowest percentage of "no planned Internet connection" with 31.4%. Such plans for Internet connectivity will continue the disparity in connection by region (as shown in Figure 5), with the West outpacing the rest of the nation.

Figure 7 provides a slightly different view of the past, current, and future state of public library Internet connectivity. Of the 20.9% of public libraries connected to the Internet in 1994, slightly more public libraries provided public access Internet services (12.7%) than Internet services for library staff only (8.2%). In 1996, the growth in public access Internet services increased to 27.8% with only 16.6% of public libraries having library staff-only Internet connections. Should public libraries not currently connected to the Internet follow through with their connection plans by March 1997, 76.0% of public libraries will have some type of Internet connection, of which 50.3% will provide public access Internet services and 25.7% will provide library staff-only Internet services. More public libraries that are connecting to the Internet, therefore, are providing public access Internet services than library staff-only Internet services. The authors note that the estimated 1997 public access figures may be underestimated due to some public libraries that currently have library staff-only connections offering public access Internet services in the future.

Establishing the current percentage of public libraries connected to the Internet was a critical aspect of this study to ascertain changes in connectivity since 1994, as well as to determine the current state of public library Internet connectivity. Equally as important, however, is determining what percentage of the U.S. population is served by a public library with some type of Internet connection. Based on February 1, 1996

Figure 8. U.S. Population Served by Public Libraries Connected to the Internet*.



Census data (U.S. Bureau of the Census, 1996) and a weighted estimate of the U.S. population served by a public library with Internet connectivity, 78.3% of the U.S. population is served by a public library that has an Internet connection (see Figure 8).[4] Of that 78.3%, 45.0% have access to a library that provides public access Internet services while 33.3% will have access to a library that provides staff only Internet services. In estimating the U.S. population served by an Internet-connected public library by March 1997, 91.0% of the U.S. population will be in a legal population area served by a public library that has an Internet connection. Of that 91.0%, 53.3% will have access to a library that provides public access Internet services while 37.6% will have access to a library that provides staff-only Internet services. Once again, the authors note the potential underestimating of percentage of the U.S. population that will have access to a public library that provides public access Internet services as libraries that currently only provide library staff only Internet services begin providing public access Internet services as well.

Figure 9 compares public libraries that currently have some type of Internet connection to those libraries that currently do not possess an Internet connection along the factors that affect current library involvement with the Internet (as presented in Figure 3, with 1=Very Important and 5=Very Unimportant). The data show that public libraries not currently connected to the Internet consistently rate cost factors (average importance rankings from 1.34 to 1.53), the availability of in-house expertise and staff time (average importance rankings of 1.51 and 1.40, respectively), and the availability of federal and state money (average importance rankings of 1.45 and 1.35, respectively) as more important than do currently connected libraries. Libraries without an Internet connection at present, therefore, identify the costs of Internet connectivity, the availability of state and federal money for connectivity, and the internal library preparedness as barriers to developing library Internet connections.

Type of Network Connection and Connection Provider

[4]These computations are based on the legal population served by public libraries as defined and reported in data described by NCES (1995).

Figure 9. Factors Affecting Public Library Involvement with the Internet by Libraries Connected to the Internet.

	System/ Server Costs	Software Costs	Comm. Cost	Training/ Education Costs	Content/ Resources Costs	In-house Expertise	Staff Time	Federal Money	State Money
Not Connected	1.34	1.52	1.29	1.53	1.50	1.51	1.40	1.45	1.35
Connected	1.74	2.09	1.66	2.05	2.43	1.80	1.61	2.23	1.91

1 = Very Important / 5 = Very Unimportant

The following data detail the type of Internet connection, bandwidth and speed of the connection, and Internet provider public libraries are currently using to access the Internet. The percentages presented for this section will not total to 100.0%, as libraries were asked to list all the types of connections, providers, and access speeds of their Internet connections. As the data show, many libraries have multiple types of connections and providers.

As Figure 10 shows, the most common type of dial-up Internet connection is text-based terminal access (46.2% of public libraries with a dial-up connection). This is followed by 28.4% of public libraries having a workstation Serial Line Internet Protocol (SLIP) or Point-to-Point (PPP) connection and 20.2% of public libraries having an Internet gateway (e.g., a commercial provider such as America On-Line) connection. It is interesting to note that public libraries, in general, have comparable percentages of dial-up Internet connections for all population of legal service area categories except for the less than 5,000 population of legal service area category, in which such libraries have the highest percentage of terminal access (50.9%) and the lowest percentage of workstation SLIP/PPP access (14.3%).

The type of public library Internet connection varies substantially by region (see Figure 10). Public libraries in the Midwest and Northeast are more likely to have dial-up text-based terminal Internet access (46.0% and 57.1%, respectively). Public libraries in the South and West, however, have relatively equal percentages of text-based terminal Internet access (33.2% and 39.7%, respectively) and workstation SLIP/PPP Internet access (36.7% and 38.8%, respectively).

In comparing the public library type of dial-up connection from 1994 to 1996, public libraries have, overall, decreased the percentage of text-based terminal access connections (-0.9%), increased the percentage of Internet gateway connections (+6.3%), and increased the percentage of workstation SLIP/PPP connections (+16.6%). Public libraries servicing population of legal service areas of 249,999 or less tend to have increased their workstation SLIP/PPP connections in greater percentages (percentages ranging from 11.9% to 28.1%) than public libraries servicing population of legal service areas of 250,000 or greater (percentages ranging from 7.6% to 17.2%). Interestingly, public libraries in the Midwest and Northeast increased the percentage of text-based terminal Internet access by 4.4% and 6.3%, respectively, as compared to public libraries in the South and West that decreased the percentage of text-based terminal Internet access by 13.6% and 7.2%, respectively. At the same time, public libraries in all regions increased their percentage of workstation SLIP/PPP access, led by public libraries in the South with 22.1% and the West with 22.0%.

Public library dial-up connections essentially operate at the same maximum modem speed (see Figure 11). In all, 32.6% of public library dial-up connections run at a baud-rate of 14,400 bits-per-second (bps), followed by 31.5% that run at a baud rate of 9,600bps, and 31.0% that run at a baud rate of 28,800bps. In general, public libraries that serve population of legal service areas of 10,000 or greater have higher percentages of 28,800bps modems than other public libraries (percentages ranging from 34.2% to 59.1%), while libraries that serve population of legal service areas of 9,999 or less have higher percentages of 9,600bps modems than other public libraries (percentages ranging from 32.6% to 46.2%). The distribution of 14,400bps modems is relatively constant across all library population of legal service areas. The very small public libraries, therefore, have slower Internet dial-up con-

Figure 10. 1994-1996 Public Library Type of Dial-Up Internet Connection by Population of Legal Service Area and Region.

	1996				1994 *				Change in Percentage			
	Terminal Access	Internet Gateway Access	Workstation SLIP/PPP Access	Other	Terminal Access	Internet Gateway Access	Workstation SLIP/PPP Access	Other	Terminal Access	Internet Gateway Access	Workstation SLIP/PPP Access	Other
1 Million +	39.3%	25.8%	34.9%	0.0%	40.5%	12.3%	17.7%	0.0%	-1.2%	13.5%	17.2%	0.0%
500,000-999,999	49.2%	13.0%	35.3%	2.4%	35.9%	9.3%	27.7%	8.3%	13.3%	3.7%	7.6%	-5.9%
250,000-499,999	49.7%	16.4%	30.7%	3.3%	48.7%	11.1%	21.2%	4.0%	1.0%	5.3%	9.5%	-0.7%
100,000-249,999	37.0%	22.8%	35.9%	4.4%	52.9%	13.1%	7.8%	8.5%	-15.9%	9.7%	28.1%	-4.1%
50,000-99,999	36.3%	22.6%	33.6%	7.6%	51.7%	18.7%	15.0%	6.1%	-15.4%	3.9%	18.6%	1.5%
25,000-49,999	43.8%	18.9%	35.3%	2.0%	54.3%	16.8%	19.5%	7.3%	-10.5%	2.1%	15.8%	-5.3%
10,000-24,999	48.5%	14.6%	32.7%	4.1%	47.4%	13.6%	15.2%	7.1%	1.1%	1.0%	17.5%	-3.0%
5,000-9,999	48.0%	14.8%	32.3%	4.9%	45.7%	26.9%	11.2%	8.0%	2.3%	-12.1%	21.1%	-3.1%
Less than 5,000	50.9%	26.7%	14.3%	8.2%	43.9%	8.1%	2.4%	17.2%	7.0%	18.6%	11.9%	-9.0%

Region

	1996				1994 *				Change in Percentage			
	Terminal Access	Internet Gateway Access	Workstation SLIP/PPP Access	Other	Terminal Access	Internet Gateway Access	Workstation SLIP/PPP Access	Other	Terminal Access	Internet Gateway Access	Workstation SLIP/PPP Access	Other
Midwest	46.0%	22.1%	25.9%	6.1%	41.6%	13.2%	13.8%	9.9%	4.4%	8.9%	12.1%	-3.8%
Northeast	57.1%	15.7%	21.7%	5.6%	50.8%	16.9%	7.1%	10.6%	6.3%	-1.2%	14.6%	-5.0%
South	33.2%	25.9%	36.7%	4.2%	46.8%	13.5%	14.6%	11.8%	-13.6%	12.4%	22.1%	-7.6%
West	39.7%	17.3%	38.8%	4.3%	46.9%	8.3%	16.8%	2.8%	-7.2%	9.0%	22.0%	1.5%
Overall	46.2%	20.2%	28.4%	5.3%	47.1%	13.9%	11.8%	9.4%	-0.9%	6.3%	16.6%	-4.1%

** Due to the slight difference in 1994-1996 connectivity survey questions, these percentages do not total 100%.*

Figure 11. Maximum Speed of Public Library Dial-Up Connection by Population of Legal Service Area and Region.

Population of Legal Service Area

	Speed of Connection			
	9600 bps	14400 bps	28800 bps	Other
1 million +	9.0%	25.8%	57.3%	7.9%
500,000-999,999	11.4%	29.5%	59.1%	0.0%
250,000-499,999	22.1%	39.8%	35.7%	2.5%
100,000-249,999	15.7%	38.1%	42.1%	4.1%
50,000-99,999	22.0%	33.2%	39.5%	5.4%
25,000-49,999	31.8%	25.6%	34.2%	8.4%
10,000-24,999	23.3%	32.9%	40.0%	3.7%
5,000-9,999	32.3%	27.8%	33.6%	6.2%
Less than 5,000	46.2%	37.3%	13.0%	3.5%

Region

	Speed of Connection			
	9600 bps	14400 bps	28800 bps	Other
Midwest	30.9%	33.6%	31.2%	4.3%
Northeast	43.9%	26.3%	23.2%	6.6%
South	22.4%	31.9%	42.0%	3.7%
West	17.6%	44.7%	32.9%	4.8%
Overall	31.5%	32.6%	31.0%	4.9%

nectivity capabilities than do medium-large public libraries.

As Figure 11 indicates, dial-up connection speed varies by region. Public libraries in the Midwest and Northeast have greater percentages of 9,600bps modems (30.9% and 43.9%, respectively) than do public libraries in the South and West (22.4% and 17.6%, respectively). Public libraries in the West are more apt to have a maximum modem speed of 14,400bps, with 44.7%, whereas public libraries in the South are more likely to have a maximum modem speed of 28,800bps, with 42.0%.

Public libraries that access the Internet through leased-line connections are more likely to do so through an on-line public access catalog (OPAC) gateway than through a local area network (LAN), with 48.7% and 37.6%, respectively (see Figure 12). In general, as public library population of legal service area increases, so too does the use of LANs. Meanwhile, as population of legal service area decreases, the use of OPAC gateway Internet access increases. An interesting exception for OPAC and LAN access to the Internet exists for public libraries with a population of legal service area of less than 5,000 — these libraries have the highest percentage, 64.1%, of LAN use for Internet access and the lowest percentage, 35.9%, for OPAC Internet access. Libraries in the Midwest and Northeast are more likely to have OPAC access to the Internet (48.4% and 58.7%, respectively) than libraries in the South and West (28.4% and 35.8%, respectively). Public libraries in the West have the highest percentage of LAN Internet access with 52.0%, followed by 37.1% in the Midwest, 27.1% in the South, and 25.5% in the Northeast.

The 1996 OPAC and LAN categories were combined to compare 1994 and 1996 public library leased line Internet access (see Figure 13). Overall, there is a 33.0% increase in public library leased-line access, with the most significant increases in leased-line access occurring in public libraries that serve population of legal service areas of 25,000 or greater (change in percentage ranging from 39.0% to 68.3%). The most significant increase in leased-line Internet access occurred in libraries in the West, 40.6%, and Northeast, 36.0%.

Public libraries with leased-line Internet connections most commonly access the Internet through a 56kbps line (see Figure 12) with 72.8%, followed by a T1 line with 18.2%, and Other with 9.0%. Leased-line

Figure 12. Public Library Type and Maximum Speed of Leased-Line Connection by Population of Legal Service Area and Region.

Population of Legal Service Area

	Type of Leased Line Connection			Speed of Leased Line Connection			
	On-line Public Access	Local Area Network	Other	56K	T1	T3	Other
1 million +	45.3%	39.9%	14.8%	44.8%	46.0%	0.0%	9.2%
500,000-999,999	46.2%	44.3%	9.5%	42.7%	57.3%	0.0%	0.0%
250,000-499,999	51.7%	39.4%	8.9%	58.1%	35.6%	0.0%	6.3%
100,000-249,999	42.7%	43.9%	13.4%	60.0%	28.0%	0.0%	12.1%
50,000-99,999	54.5%	37.7%	7.8%	63.7%	30.7%	0.0%	5.6%
25,000-49,999	49.8%	35.3%	14.9%	76.6%	18.2%	0.0%	5.2%
10,000-24,999	54.0%	28.6%	17.4%	82.1%	7.5%	0.0%	10.4%
5,000-9,999	52.1%	14.5%	33.4%	83.3%	0.0%	0.0%	16.7%
Less than 5,000	35.9%	64.1%	0.0%	86.4%	0.0%	0.0%	13.6%

Region

	Type of Leased Line Connection			Speed of Leased Line Connection			
	On-line Public Access	Local Area Network	Other	56K	T1	T3	Other
Midwest	48.4%	37.1%	14.5%	78.8%	12.3%	0.0%	8.9%
Northeast	58.7%	25.5%	15.8%	76.0%	13.4%	0.0%	10.6%
South	28.4%	27.1%	6.2%	64.2%	25.9%	0.0%	9.9%
West	35.8%	52.0%	12.1%	66.1%	27.6%	0.0%	6.2%
Overall	**48.7%**	**37.6%**	**13.7%**	**72.8%**	**18.2%**	**0.0%**	**9.0%**

Figure 13. 1994-1996 Public Library Leased-Line Connections by Population of Legal Service Area and Region.

Population of Legal Service Area

	1996	1994	Change in Percentage
1 Million +	82.4%	28.4%	54.0%
500,000-999,999	87.1%	18.8%	68.3%
250,000-499,999	78.2%	15.1%	63.1%
100,000-249,999	56.0%	17.0%	39.0%
50,000-99,999	48.4%	5.0%	43.4%
25,000-49,999	47.9%	2.1%	45.8%
10,000-24,999	45.9%	10.0%	35.9%
5,000-9,999	30.3%	2.0%	28.3%
Less than 5,000	23.5%	2.3%	21.2%

Region

	1996	1994	Change in Percentage
Midwest	40.8%	4.8%	36.0%
Northeast	33.4%	3.9%	29.5%
South	38.8%	9.8%	29.0%
West	53.3%	12.7%	40.6%
Overall	**39.6%**	**6.6%**	**33.0%**

connections in the Other category were nearly all Integrated Services Digital Network (ISDN) connections. It is interesting to note that no public libraries indicated the use of T3 Internet connectivity. As the library population of legal service area decreases, the percentage of public libraries with a 56kbps leased-line connection increases (percentages ranging from 42.7% to 86.4%). As the population of legal service area increases, however, so too does the percentage of T1 public library connections (percentage of leased-line ranging from 7.5% to 57.3%). No public library that serves a population of legal service area of 9,999 or less has a T1 connection.

Public libraries in the Midwest and Northeast have higher percentages of 56kbps connections with 78.8% and 76.0%, respectively, than do public libraries in the South and West, with 64.2% and 66.1%, respectively (see Figure 12). The opposite is true for T1 leased-line connections. Public libraries in the South and West have, by nearly a factor of two, greater percentages of T1 leased-line connections, with 25.9% and 27.6%, respectively, as compared to public libraries in the Midwest and Northeast, with 12.3% and 13.4%, respectively.

As Figure 14 demonstrates, public libraries make nearly equal use of state library network (19.0%), local and/or state government organization (18.5%), commercial (17.5%), and regional/statewide network (16.5%) Internet service providers. Libraries that serve population of legal service areas of 249,999 or less make more use of state library networks (percentages ranging from 16.3% to 29.0%) than do libraries that serve population of legal service areas of 250,000 or greater (percentages ranging from 0.0% to 12.6%). Public libraries that serve population of legal service areas of 50,000 and above use commercial Internet providers up to twice as much (percentages ranging from 33.2% to 41.0%) as libraries that serve population of legal service areas of 49,999 or less (percentages ranging from 9.1% to 27.3%). It is interesting to note that larger public libraries (those libraries that serve population of legal service areas of 250,000 or greater) and smaller libraries (those libraries that serve population of legal service areas of 24,999 or less) make more use of local and/or state government organizations as Internet service providers (percentages ranging from 17.5% to 27.5%) than do medium-sized libraries (those libraries that serve population of legal service areas between 25,000 and 249,999), with percentages ranging from 16.8% to 18.5%. Of particular interest as well is that over half of the libraries that serve population of legal service areas of 9,999 or less rely on a combination of state library networks, local and/or state government organizations, and local educational organizations for their Internet service.

The Other category, with an overall percentage of 11.3%, indicates some new developments in public library Internet service providers. Libraries indicating Other as an Internet service provider essentially identified two provider types: (1) Systems/automation vendors such as Data Research Associates, and (2) A hybrid Internet service provider approach that involved organizations such as a regional library consortium, state government, and commercial service providers.

Figure 14 also shows that libraries in the Midwest and Northeast tend to rely on local and/or state government organizations as Internet service providers (18.7% and 20.9%, respectively), followed by regional/statewide network providers (17.4% and 20.6%, respectively), state library networks (15.9% and 18.5%, respectively), and commercial providers (16.6% and 11.7%, respectively). Libraries in the South and West tend to rely on commercial providers (23.0% and 26.3%, respectively), followed by state library network providers (26.5% and 17.7%, respectively), local and/or state government service providers (15.6% and 16.1%, respectively), and local educational organization service providers (11.8% and 13.7%, respectively). Libraries in the South and West are, therefore, more apt to use commercial or state library networks as their Internet service providers, while libraries in the Midwest and Northeast are more likely to use local and/or state government or regional/statewide networks as their Internet service providers.

The 1994-1996 comparative data (see Figure 14) show that public libraries have moved from a reliance on statewide library network service providers (12.2%) to local and/or state government (+15.9%) and regional/statewide network service providers (+6.8%). Of particular interest is the large migration of public libraries that serve population of legal service areas of 24,999 or less that have made a large migration from statewide library network service providers (percentages ranging from -12.1% to -13.9%) to local and/or state government service providers (percentages ranging from +20.1% to +23.5%). The regional changes show three key aspects of public library Internet provider use changes: (1) There is an increased reliance in all regions on local and/or state government Internet service providers; (2) Public libraries in the South are using commercial providers in larger percentages than any other library region (+20.0%); and,

Figure 14. 1994-1996 Public Library Type of Network Connection Provider by Population of Legal Service Area and Region.

Population of Legal Service Area

	1996						
	Local/State Government	Commercial	Educational Organization	Free-Net	State Library Network	Regional/ Statewide Network	Other
1 million +	20.4%	33.8%	17.6%	14.8%	0.0%	21.3%	26.9%
500,000-999,999	17.5%	41.0%	16.9%	6.3%	9.4%	12.8%	21.0%
250,000-499,999	27.5%	34.9%	8.2%	6.3%	12.6%	28.1%	11.0%
100,000-249,999	16.8%	33.8%	15.5%	9.1%	23.3%	19.7%	15.4%
50,000-99,999	16.8%	33.2%	13.1%	3.9%	21.6%	28.8%	16.6%
25,000-49,999	18.5%	22.0%	17.8%	11.7%	25.5%	18.3%	12.7%
10,000-24,999	23.1%	27.3%	11.5%	5.4%	16.3%	23.6%	18.2%
5,000-9,999	22.1%	17.2%	10.8%	7.5%	20.9%	12.7%	17.2%
Less than 5,000	26.1%	9.1%	14.5%	5.3%	29.0%	18.3%	7.1%

Region

Midwest	18.7%	16.6%	13.2%	8.3%	15.9%	17.4%	9.9%
Northeast	20.9%	11.7%	8.5%	4.0%	18.5%	20.6%	15.8%
South	15.6%	23.0%	11.8%	5.2%	26.5%	8.8%	9.1%
West	16.1%	26.3%	13.7%	4.3%	17.7%	15.2%	6.9%
Overall	**18.5%**	**17.5%**	**11.4%**	**5.7%**	**19.0%**	**16.5%**	**11.3%**

Population of Legal Service Area

	1994						
1 million +	5.4%	21.9%	24.0%	0.0%	16.6%	11.0%	21.1%
500,000-999,999	2.1%	22.2%	15.9%	17.7%	17.0%	6.4%	10.7%
250,000-499,999	3.6%	27.7%	25.5%	2.4%	14.0%	13.5%	10.2%
100,000-249,999	4.0%	22.3%	16.4%	4.4%	20.7%	8.8%	22.0%
50,000-99,999	1.5%	11.3%	22.1%	5.2%	24.0%	14.9%	18.2%
25,000-49,999	4.3%	19.3%	15.6%	1.2%	33.7%	6.1%	16.7%
10,000-24,999	3.0%	14.1%	13.7%	5.7%	30.2%	7.3%	19.0%
5,000-9,999	0.0%	20.3%	7.8%	0.0%	33.2%	14.8%	17.3%
Less than 5,000	2.6%	5.9%	9.3%	10.2%	41.1%	8.7%	18.1%

Region

Midwest	2.6%	19.5%	5.7%	8.8%	25.7%	13.0%	20.0%
Northeast	3.1%	11.9%	13.4%	4.1%	33.8%	6.4%	22.2%
South	1.8%	3.0%	22.1%	3.2%	39.7%	15.0%	11.2%
West	2.3%	24.4%	21.5%	6.7%	25.0%	5.5%	12.5%
Overall	**2.6%**	**14.4%**	**14.0%**	**5.7%**	**31.2%**	**9.7%**	**18.1%**

Continued

Figure 14 (continued). 1994-1996 Public Library Type of Network Connection Provider by Population of Legal Service Area and Region.

Population of Legal Service Area

	Change in Percentage						
	Local/State Government	Commercial	Educational Organization	Free-Net	State Library Network	Regional/ Statewide Network	Other
1 million +	15.0%	11.9%	-6.4%	14.8%	-16.6%	10.3%	5.8%
500,000-999,999	15.4%	18.8%	1.0%	-11.4%	-7.6%	6.4%	10.3%
250,000-499,999	23.9%	7.2%	-17.3%	3.9%	-1.4%	14.6%	0.8%
100,000-249,999	12.8%	11.5%	-0.9%	4.7%	2.6%	10.9%	-6.6%
50,000-99,999	15.3%	21.9%	-9.0%	-1.3%	-2.4%	13.9%	-1.6%
25,000-49,999	14.2%	2.7%	2.2%	10.5%	-8.2%	12.2%	-4.0%
10,000-24,999	20.1%	13.2%	-2.2%	-0.3%	-13.9%	16.3%	-0.8%
5,000-9,999	22.1%	-3.1%	3.0%	7.5%	-12.3%	-2.1%	-0.1%
Less than 5,000	23.5%	3.2%	5.2%	-4.9%	-12.1%	9.6%	-11.0%

Region

	Change in Percentage						
	Local/State Government	Commercial	Educational Organization	Free-Net	State Library Network	Regional/ Statewide Network	Other
Midwest	16.1%	-2.9%	7.5%	-0.5%	-9.8%	4.4%	-10.1%
Northeast	17.8%	-0.2%	-4.9%	-0.1%	-15.3%	14.2%	-6.4%
South	13.8%	20.0%	-10.3%	2.0%	-13.2%	-6.2%	-2.1%
West	13.8%	1.9%	-7.8%	-2.4%	-7.3%	9.7%	-5.6%
Overall	**15.9%**	**3.1%**	**-2.6%**	**0.0%**	**-12.2%**	**6.8%**	**-6.8%**

(3) Public libraries in the Northeast and South have substantially reduced their use of state library network Internet service providers (-15.3% and -13.2%, respectively).

Public Library Information Technology (IT) Costs, Internet Service Costs, and Future Library Connection Resource Allocation

Public libraries spend an average of 4.2% of their operating expenditures on all library IT (see Figure 15). Overall, however, 30.2% of public libraries indicated that they do not know their current percentage of IT-related operating expenditures (see note 2 on page 9). Public libraries that serve population of legal service areas between 10,000 and 499,999 have the largest overall IT-related operating expenditure percentages (percentages ranging from 4.5% to 6.1%). Public libraries that serve population of legal service areas between 500,000-1 Million+ and Less than 5,000-9,999 expend the least percentage of library operating budgets on IT (percentages ranging from 1.7% to 3.8%).

To provide some sense of the overall public library IT-related expenditures in dollar amounts, the percentages of public library IT-related percentages were multiplied by the operating expenditure estimates provided in Figure 2. The authors would like to note that these are only rough estimates, particularly due to the 30.2% of respondents who indicated that they do not currently know their public library IT-related operating expenditures. Furthermore, due to rounding in operating expenditure dollar amounts and IT-related expenditure percentages, not all the dollar amounts in Figure 16 total to those presented in Figure 15.

Based on multiplying the IT-related operating expenditure percentages by the total library operating expenditures provided in Figure 2, public libraries spend an average of $23,516.98 on library IT (see Figure 16). As public library population of legal service area increases, IT-related expenditures increase. Public libraries that serve population of legal service ar-

Figure 15. Estimated Public Library Percentage of Operating Budget for Library IT and Percentage of Library IT Expenditures for Library Internet Services by Population of Legal Service Area and Region.

Population of Legal Service Area

	Estimated % for IT	IT Don't Know %	System %	Software %	Comm. %	Training %	Content %	Planning %	Other %
1 million +	1.7%	38.4%	43.0%	11.5%	17.0%	3.3%	2.9%	10.8%	11.5%
500,000-999,999	3.8%	29.4%	20.3%	10.2%	27.9%	11.5%	7.4%	10.8%	11.8%
250,000-499,999	4.5%	34.5%	31.0%	10.7%	23.8%	4.5%	3.9%	9.0%	17.2%
100,000-249,999	4.8%	26.0%	28.0%	17.3%	26.1%	9.1%	3.5%	6.5%	9.4%
50,000-99,999	5.1%	21.2%	31.9%	19.2%	19.2%	7.3%	7.3%	7.2%	8.0%
25,000-49,999	6.1%	19.3%	38.1%	14.4%	23.0%	10.3%	4.7%	3.7%	5.8%
10,000-24,999	4.9%	20.1%	32.8%	13.0%	17.6%	10.3%	6.7%	8.7%	10.9%
5,000-9,999	2.7%	35.4%	30.4%	11.7%	15.8%	4.4%	0.8%	5.8%	7.3%
Less than 5,000	3.2%	43.7%	33.0%	23.8%	16.0%	13.0%	8.5%	2.8%	2.8%

Region

	Estimated % for IT	IT Don't Know %	System %	Software %	Comm. %	Training %	Content %	Planning %	Other %
Midwest	3.8%	38.5%	31.6%	15.9%	25.4%	9.3%	5.3%	5.5%	7.0%
Northeast	3.4%	25.6%	35.2%	12.6%	19.9%	8.9%	7.2%	5.9%	10.3%
South	5.5%	21.9%	37.6%	23.1%	19.3%	9.4%	4.6%	7.0%	7.6%
West	6.1%	28.7%	27.2%	20.6%	24.8%	8.8%	4.5%	6.8%	7.3%
Overall	4.2%	30.2%	33.0%	15.6%	22.7%	9.1%	5.5%	6.1%	8.0%

Figure 16. Public Library Operating Expenditures Spent on Library IT by Population of Legal Service Area and Region.

Population of Legal Service Area

	Total Operating Expenditures on Library IT
1 Million +	$517,174.18
500,000-999,999	$545,881.88
250,000-499,999	$298,109.45
100,000-249,000	$137,092.71
50,000-99,999	$61,136.57
25,000-49,999	$44,250.53
10,000-24,999	$17,323.10
5,000-9,999	$3,751.95
Less than 5,000	$1,262.81

Region

	Total Operating Expenditures on Library IT
Midwest	$15,325.15
Northeast	$15,293.78
South	$40,460.61
West	$66,857.08
Overall	$23,516.98

eas of 1 Million+ spend an average of $517,178.18 on library IT as compared to public libraries that serve population of legal service areas of less than 5,000 that spend an average of $1,262.81 on library IT.

As Figures 15 and 16 show, public libraries in the West expend the most on library IT, with 6.1% ($66,857.08), followed by libraries in the South with 5.5% ($40,460.61), libraries in the Midwest with 3.8% ($15,325.15), and libraries in the Northeast with 3.4% ($15,293.78).

Public library participants were asked to estimate what portion of library IT-related expenditures went toward providing library Internet services (see Figure 15). Public libraries spend an average of 33.0% of their IT-related operating expenditures on system/server hardware costs, followed by 22.7% on communications hardware/fees, 15.6% on software costs, 9.1% on training and education costs, 8.0% on other Internet-service provision costs (e.g., building modifications and upgrades), 6.1% on program planning, management, and staffing costs, and 5.5% on content and resource development costs (see note 2 on page 9). A majority of public library Internet services IT-related operating funds, therefore, go towards hardware, software, and communications costs (71.3%). Public library training, content development, and planning percentage expenditures combined sum to only 20.7% of the total public library Internet-related IT expenditures. The overall Internet service expenditures hold relatively constant across public library population of legal service area categories.

The Internet services cost percentages, when combined with the estimated IT expenditures and operating expenditure figures, indicate that public libraries spend an average of $7,760.60 on system/server hardware costs, followed by $5,338.35 on communications hardware/fees, $3,668.65 on software costs, $2,140.05 on training and education costs, $1,881.36 on other Internet-service provision costs (e.g., building modifications and upgrades), $1,434.54 on program planning, management, and staffing costs, and $1,293.43 on content and resource development costs (see Figure 17). In general, as library population of legal service area increases, so too do total dollar amounts on Internet services costs. It is interesting to note that for public libraries with a population of legal service area between 500,000 and 999,999, the costs of communication hardware/fees exceed those of systems hardware costs. While not asked on this survey, this may have to do with one-time versus recurring Internet service costs — 64.0% of libraries in this category had an Internet connection in 1994. A majority of these libraries, therefore, would be investing in the maintenance — e.g., connection — costs of their Internet programs.

Internet service expenditure percentages and dollar amounts vary by public library region, with public libraries in the West and South spending substantially more on Internet services than public libraries in the Midwest and Northeast (see Figures 15-17). In all cost categories — system (expenditure range of $4,842.75 to $18,185.12), communication (expenditure range of $3,892.59 to $16,580.55), software (expenditure range of $1,927.02 to $13,772.56), training (expenditure range of $1,361.15 to $5,883.42), content (expenditure range of $812.23 to $3,008.57), and planning (expenditure range of $842.88 to $4,546.28) — libraries in the West and South outspend public libraries in the Midwest and Northeast by a factor or three or more, leading to substantial disparities in spending and incurred costs by public library region. As will be discussed in later sections of this report, these costs are generally related to the type of Internet connection libraries have and the services libraries provide through those connections — better connectivity and enhanced electronic services generally involve greater costs.

Figures 18-23 indicate the extent to which public library respondents thought that their library Internet services expenditures would remain the same, increase, or decrease over the next year. Once again, survey respondents had difficulty in estimating future Internet service expenditures, with percentages of "don't know" for the cost categories ranging from 27.5% to 37.8% (see Figures 18-23). Those who did respond, however, generally indicate that their Internet service-related expenditure will increase by 1-5% (percentages ranging from 14.3% to 23.0%) or greater than 5% (percentages ranging from 9.9% to 22.0%) across all cost categories. Almost a quarter (25.0%) of all public libraries did indicate that they anticipate their Internet-related expenditures to remain the same across all cost categories (percentages ranging from 25.1% to 28.4% — see Figures 18-23). In general, libraries serving population of legal service areas of 9,999 or less expect their current Internet-related cost expenditures to remain the same, while libraries serving population of legal service areas of 50,000 and above expect their Internet-related cost expenditures to increase. Such data indicate that the disparities in spending will accelerate the disparities in public library Internet connectivity and services, with public libraries that service larger population of legal service areas having substantially higher percentages of con-

Figure 17. Public Library Operating Expenditures Spent on Library Internet Services by Population of Legal Service Area and Region.

Population of Legal Service Area

	System Costs	Software Costs	Communications Costs	Training/ Education Costs	Content/ Resources Costs	Planning Costs	Other Costs
1 Million +	$222,384.90	$59,475.03	$87,919.61	$17,066.75	$14,998.05	$55,854.81	$59,475.03
500,000-999,999	$110,814.02	$55,679.95	$152,301.04	$62,776.42	$40,395.26	$58,955.24	$64,414.06
250,000-499,999	$92,413.93	$31,897.71	$70,950.05	$13,414.93	$11,626.27	$26,829.85	$51,274.83
100,000-249,000	$38,385.96	$23,717.04	$35,781.20	$12,475.44	$4,798.24	$8,911.03	$12,886.71
50,000-99,999	$19,502.57	$11,738.22	$11,738.22	$4,462.97	$4,462.97	$4,401.83	$4,890.93
25,000-49,999	$16,859.45	$6,372.08	$10,177.62	$4,557.80	$2,079.77	$1,637.27	$2,566.53
10,000-24,999	$5,681.98	$2,252.00	$3,048.87	$1,784.28	$1,160.65	$1,507.11	$1,888.22
5,000-9,999	$1,140.59	$438.98	$592.81	$165.09	$30.02	$217.61	$273.89
Less than 5,000	$416.73	$300.55	$202.05	$164.17	$107.34	$35.36	$35.36

Region

	System Costs	Software Costs	Communications Costs	Training/ Education Costs	Content/ Resources Costs	Planning Costs	Other Costs
Midwest	$4,842.75	$2,436.70	$3,892.59	$1,425.24	$812.23	$842.88	$1,072.76
Northeast	$5,383.41	$1,927.02	$3,043.46	$1,361.15	$1,101.15	$902.33	$1,575.26
South	$15,213.19	$9,346.40	$7,808.90	$3,803.30	$1,861.19	$2,832.24	$3,075.01
West	$18,185.12	$13,772.56	$16,580.55	$5,883.42	$3,008.57	$4,546.28	$4,880.57
Overall	$7,760.60	$3,668.65	$5,338.35	$2,140.05	$1,293.43	$1,434.54	$1,881.36

Figure 18. Public Library Estimated System/Server Hardware Resource Allocation for the Next Fiscal Year by Population of Legal Service Area and Region.

Population of Legal Service Area

	Decline	Remain the Same	Increase 1-5%	Increase > 5%	Don't Know
1 million +	16.5%	8.3%	17.1%	44.1%	14.1%
500,000-999,999	2.4%	8.6%	21.6%	51.4%	15.9%
250,000-499,999	8.1%	11.5%	32.5%	24.5%	23.4%
100,000-249,999	9.5%	13.5%	26.4%	28.8%	21.9%
50,000-99,999	13.3%	22.9%	22.5%	25.3%	16.0%
25,000-49,999	8.4%	11.4%	12.6%	16.1%	11.5%
10,000-24,999	11.6%	19.8%	14.4%	23.9%	30.2%
5,000-9,999	7.6%	34.3%	5.4%	16.1%	36.6%
Less than 5,000	6.5%	35.9%	6.5%	15.4%	35.6%

Region

	Decline	Remain the Same	Increase 1-5%	Increase > 5%	Don't Know
Midwest	11.0%	30.6%	9.8%	15.0%	33.7%
Northeast	9.9%	25.5%	11.1%	23.0%	30.5%
South	11.4%	18.7%	20.7%	26.8%	22.5%
West	5.7%	19.8%	25.6%	33.1%	15.7%
Overall	**10.0%**	**25.5%**	**14.3%**	**22.0%**	**28.2%**

Figure 19. Public Library Estimated System Communications Hardware/Fees Resource Allocation for the Next Fiscal Year by Population of Legal Service Area and Region.

Population of Legal Service Area

	Decline	Remain the Same	Increase 1-5%	Increase > 5%	Don't Know
1 million +	18.1%	9.0%	27.8%	29.6%	15.5%
500,000-999,999	5.5%	9.2%	23.8%	47.3%	14.2%
250,000-499,999	4.0%	9.9%	28.6%	34.6%	22.9%
100,000-249,999	4.8%	21.2%	28.5%	25.2%	20.4%
50,000-99,999	7.4%	30.2%	20.1%	45.0%	13.5%
25,000-49,999	4.8%	27.1%	23.1%	25.7%	19.3%
10,000-24,999	4.3%	19.9%	28.0%	17.1%	30.7%
5,000-9,999	3.8%	29.0%	22.5%	15.7%	29.1%
Less than 5,000	1.6%	29.3%	18.6%	11.8%	38.6%

Region

	Decline	Remain the Same	Increase 1-5%	Increase > 5%	Don't Know
Midwest	5.4%	29.2%	18.1%	17.4%	29.9%
Northeast	3.2%	20.8%	28.1%	11.5%	36.3%
South	3.6%	22.0%	23.7%	29.8%	20.9%
West	2.4%	29.4%	26.8%	29.2%	12.3%
Overall	**4.0%**	**25.7%**	**23.0%**	**19.7%**	**27.5%**

Figure 20. Public Library Estimated Software Resource Allocation for the Next Fiscal Year by Population of Legal Service Area and Region.

Population of Legal Service Area

	Decline	Remain the Same	Increase 1-5%	Increase > 5%	Don't Know
1 million +	17.9%	28.6%	8.9%	38.2%	15.3%
500,000-999,999	0.0%	9.1%	34.6%	42.0%	14.3%
250,000-499,999	2.4%	11.6%	44.5%	20.0%	21.5%
100,000-249,999	6.7%	23.2%	29.2%	20.2%	20.7%
50,000-99,999	10.3%	37.4%	20.1%	17.5%	14.7%
25,000-49,999	8.2%	23.8%	17.4%	28.0%	22.5%
10,000-24,999	3.9%	26.6%	20.1%	19.8%	29.5%
5,000-9,999	6.0%	29.2%	19.0%	13.9%	31.9%
Less than 5,000	8.9%	32.2%	14.8%	6.9%	37.2%

Region

	Decline	Remain the Same	Increase 1-5%	Increase > 5%	Don't Know
Midwest	11.0%	30.8%	13.8%	16.1%	28.2%
Northeast	1.8%	30.4%	21.9%	8.8%	37.1%
South	5.7%	23.6%	20.6%	27.8%	22.3%
West	6.8%	21.7%	30.7%	23.4%	17.3%
Overall	7.0%	28.1%	19.6%	17.3%	28.0%

Figure 21. Public Library Estimated Training and Education Resource Allocation for the Next Fiscal Year by Population of Legal Service Area and Region.

Population of Legal Service Area

	Decline	Remain the Same	Increase 1-5%	Increase > 5%	Don't Know
1 million +	8.3%	33.6%	8.3%	35.8%	14.1%
500,000-999,999	0.0%	13.9%	32.8%	39.8%	13.5%
250,000-499,999	1.6%	20.3%	27.4%	25.1%	25.6%
100,000-249,999	0.9%	28.1%	28.1%	22.4%	20.6%
50,000-99,999	31.0%	44.1%	18.6%	18.8%	15.3%
25,000-49,999	3.1%	20.4%	29.2%	25.1%	24.2%
10,000-24,999	4.9%	22.0%	25.7%	18.8%	28.6%
5,000-9,999	3.7%	19.7%	30.5%	11.4%	34.8%
Less than 5,000	5.2%	24.7%	11.7%	13.9%	44.5%

Region

	Decline	Remain the Same	Increase 1-5%	Increase > 5%	Don't Know
Midwest	5.8%	29.5%	17.2%	15.7%	31.8%
Northeast	0.5%	15.0%	28.1%	16.2%	40.3%
South	4.8%	30.0%	23.5%	20.8%	20.9%
West	1.6%	26.3%	26.3%	26.5%	19.3%
Overall	3.6%	25.1%	22.6%	18.3%	30.4%

Figure 22. Public Library Estimated Content/Resource Development Resource Allocation for the Next Fiscal Year by Population of Legal Service Area and Region.

Population of Legal Service Area

	Decline	Remain the Same	Increase 1-5%	Increase > 5%	Don't Know
1 million +	16.5%	16.5%	8.8%	44.1%	14.1%
500,000-999,999	0.0%	18.4%	28.3%	35.9%	17.5%
250,000-499,999	5.7%	20.7%	24.0%	19.9%	29.6%
100,000-249,999	3.1%	25.7%	27.0%	17.7%	26.5%
50,000-99,999	3.3%	26.6%	27.4%	16.8%	25.9%
25,000-49,999	0.0%	22.1%	25.8%	17.7%	34.4%
10,000-24,999	4.0%	27.9%	15.6%	14.4%	38.0%
5,000-9,999	8.2%	32.9%	18.1%	7.9%	33.0%
Less than 5,000	4.5%	31.9%	13.9%	0.0%	49.7%

Region

	Decline	Remain the Same	Increase 1-5%	Increase > 5%	Don't Know
Midwest	6.3%	29.8%	16.6%	11.9%	35.4%
Northeast	1.1%	27.3%	18.8%	3.4%	49.8%
South	3.3%	24.7%	20.8%	16.5%	34.6%
West	6.0%	30.0%	25.1%	17.6%	23.5%
Overall	**4.2%**	**28.4%**	**19.5%**	**11.0%**	**37.0%**

Figure 23. Public Library Estimated Program Planning, Management, and Staffing Resource Allocation for the Next Fiscal Year by Population of Legal Service Area and Region.

Population of Legal Service Area

	Decline	Remain the Same	Increase 1-5%	Increase > 5%	Don't Know
1 million +	24.8%	25.3%	0.0%	35.8%	14.1%
500,000-999,999	0.0%	28.7%	16.4%	28.4%	26.4%
250,000-499,999	3.6%	30.3%	17.3%	15.1%	33.7%
100,000-249,999	2.6%	26.3%	25.2%	16.6%	29.2%
50,000-99,999	4.3%	39.0%	17.5%	17.6%	21.5%
25,000-49,999	7.0%	27.3%	19.4%	15.5%	30.7%
10,000-24,999	7.3%	26.2%	16.5%	11.1%	39.0%
5,000-9,999	0.0%	35.4%	15.0%	5.6%	44.0%
Less than 5,000	4.7%	18.9%	27.1%	0.0%	49.2%

Region

	Decline	Remain the Same	Increase 1-5%	Increase > 5%	Don't Know
Midwest	8.1%	30.5%	18.5%	10.5%	32.4%
Northeast	3.4%	21.0%	18.1%	4.3%	53.2%
South	1.9%	27.5%	18.6%	15.6%	36.3%
West	1.2%	29.3%	31.6%	12.3%	25.6%
Overall	**4.8%**	**27.3%**	**20.2%**	**9.9%**	**37.8%**

nectivity and electronic service capabilities.

A relatively small percentage of public libraries expect their Internet-related cost expenditures to decrease (percentages ranging from 3.6% to 10% — see Figures 18-23). Interestingly, the highest percentage of libraries anticipating decreased expenditures are those, generally, with substantial Internet connectivity. It is, therefore, possible that anticipated expenditure reductions for, say, system and software costs, reflect a transition from one-time library investments in basic Internet connectivity to on-going connection maintenance.

Overall, public libraries in the West and South expect that their Internet-related cost expenditures will increase by nearly a factor of two over the next year compared to public libraries in the Midwest and Northeast across all cost categories (see Figures 18-23). Indeed, 50.0% or more of public libraries in the South and West expect their library Internet expenditures to increase by 1-5% or greater than 5% in the next year (see Figures 18-23). These figures indicate that discrepancies in Internet-related expenditures will increase, creating regions of higher quality and more pervasive connectivity in the South and West as compared to the Midwest and Northeast.

Internet Public Library Uses and Public Access Services

This section details the extent to which public library staffs make use of Internet-related resources and make Internet-based services available to library patrons. Library staff-related uses of the Internet include e-mail, listservs, and World-Wide Web (Web) sessions. Patron services encompass the above, but also include such Internet-related aspects as public access terminals, remote dial-in services, and Web browsing.

Weekly Public Library Uses of the Internet

Figures 24 through 27 show the predominant weekly public library uses of the Internet by library staff. Overall, 17.7% of public library staff do not use e-mail, followed by 53.0% who use e-mail less than 25 times per week, 16.4% who use e-mail 26-50 times per week, 5.5% who use e-mail 51-100 times per week, and 7.4% who use e-mail more than 100 times per week (see Figure 24). In general, public library staffs that serve population of legal service areas of 100,000 or greater make the greatest use of e-mail, while library staffs that serve population of legal service areas of 99,999 or less make the least amount of use of e-mail.

Figure 24. Overall Public Library Staff Weekly E-Mail Use by Population of Legal Service Area and Region.

Population of Legal Service Area

	Never	Less than 25 Times/Week	26-50 Times/Week	51-100 Times/Week	More than 100 Times/Week
1 million +	0.0%	13.9%	13.0%	20.4%	52.7%
500,000-999,999	2.1%	10.9%	14.0%	14.4%	58.7%
250,000-499,999	7.4%	15.4%	21.8%	13.8%	41.6%
100,000-249,999	6.8%	34.6%	27.2%	7.2%	24.1%
50,000-99,999	8.1%	44.2%	23.5%	10.4%	13.7%
25,000-49,999	8.5%	54.4%	18.3%	10.2%	8.7%
10,000-24,999	22.9%	50.9%	17.2%	6.3%	2.8%
5,000-9,999	21.3%	53.8%	19.5%	4.3%	1.2%
Less than 5,000	24.3%	65.3%	8.3%	0.0%	2.2%

Region

	Never	Less than 25 Times/Week	26-50 Times/Week	51-100 Times/Week	More than 100 Times/Week
Midwest	15.1%	58.0%	17.0%	3.9%	5.9%
Northeast	27.0%	44.3%	15.1%	6.2%	7.5%
South	14.0%	52.2%	17.6%	7.9%	8.3%
West	5.6%	61.9%	16.4%	5.3%	10.8%
Overall	17.7%	53.0%	16.4%	5.5%	7.4%

Figure 25. Overall Public Library Staff Weekly Listserv/Discussion Group Use by Population of Legal Service Area and Region.

Population of Legal Service Area

	Never	Less than 25 Times/Week	26-50 Times/Week	51-100 Times/Week	More than 100 Times/Week
1 million +	0.0%	20.4%	13.4%	14.3%	51.9%
500,000-999,999	2.1%	20.9%	25.9%	9.8%	41.3%
250,000-499,999	6.1%	29.3%	26.3%	8.2%	30.2%
100,000-249,999	13.6%	46.9%	15.3%	11.3%	12.9%
50,000-99,999	19.2%	52.7%	13.9%	7.8%	6.4%
25,000-49,999	24.2%	53.1%	13.7%	5.9%	3.0%
10,000-24,999	40.5%	44.5%	10.0%	2.9%	2.2%
5,000-9,999	61.8%	33.6%	2.4%	2.2%	0.0%
Less than 5,000	65.3%	24.2%	9.1%	1.4%	0.0%

Region

	Never	Less than 25 Times/Week	26-50 Times/Week	51-100 Times/Week	More than 100 Times/Week
Midwest	51.4%	32.2%	9.0%	4.1%	3.3%
Northeast	49.9%	34.7%	10.3%	3.4%	1.7%
South	27.3%	47.0%	15.6%	4.3%	5.7%
West	23.3%	55.3%	8.3%	5.4%	7.7%
Overall	43.3%	38.5%	10.5%	4.0%	3.7%

Figure 26. Overall Public Library Staff Weekly Bibliographic Utility (e.g., Accessing Card Catalogs) Use by Population of Legal Service Area and Region.

Population of Legal Service Area

	Never	Less than 25 Times/Week	26-50 Times/Week	51-100 Times/Week	More than 100 Times/Week
1 million +	6.5%	27.3%	13.4%	6.5%	46.3%
500,000-999,999	9.4%	19.0%	13.8%	10.9%	46.9%
250,000-499,999	15.4%	35.7%	7.4%	13.9%	27.6%
100,000-249,999	11.0%	47.5%	16.2%	11.8%	13.6%
50,000-99,999	17.5%	52.6%	14.9%	5.9%	9.1%
25,000-49,999	18.7%	55.4%	15.3%	5.0%	5.7%
10,000-24,999	24.1%	50.6%	14.8%	8.7%	1.8%
5,000-9,999	32.2%	51.6%	12.9%	1.5%	1.8%
Less than 5,000	42.3%	45.4%	10.9%	0.0%	1.4%

Region

	Never	Less than 25 Times/Week	26-50 Times/Week	51-100 Times/Week	More than 100 Times/Week
Midwest	32.4%	53.1%	7.4%	3.4%	3.6%
Northeast	33.6%	39.8%	19.8%	3.1%	3.6%
South	19.2%	50.3%	14.4%	8.3%	7.8%
West	11.1%	60.6%	12.4%	6.8%	9.0%
Overall	27.9%	49.1%	13.4%	4.6%	5.0%

Figure 27. Overall Public Library Staff Weekly World-Wide Web Sessions by Population of Legal Service Area and Region.

Population of Legal Service Area

	Never	Less than 25 Times/Week	26-50 Times/Week	51-100 Times/Week	More than 100 Times/Week
1 million +	6.5%	24.5%	20.8%	7.4%	40.8%
500,000-999,999	7.3%	17.1%	10.9%	17.2%	47.5%
250,000-499,999	15.7%	18.1%	23.2%	10.1%	32.8%
100,000-249,999	13.7%	37.5%	23.2%	11.5%	14.1%
50,000-99,999	10.3%	45.9%	24.7%	11.2%	8.0%
25,000-49,999	21.9%	42.7%	20.0%	7.0%	8.4%
10,000-24,999	30.6%	44.7%	17.2%	4.5%	3.1%
5,000-9,999	46.6%	39.6%	12.5%	1.3%	0.0%
Less than 5,000	50.7%	40.8%	6.5%	2.0%	0.0%

Region

	Never	Less than 25 Times/Week	26-50 Times/Week	51-100 Times/Week	More than 100 Times/Week
Midwest	37.1%	40.8%	14.5%	2.6%	4.9%
Northeast	45.4%	36.2%	10.7%	5.2%	2.5%
South	19.2%	48.8%	16.2%	9.1%	6.6%
West	13.1%	44.8%	25.8%	6.2%	10.2%
Overall	33.8%	41.1%	14.9%	5.0%	5.1%

Indeed, over 70.0% of public library staffs that serve population of legal service areas of 9,999 or less never use e-mail or use it less than 25 times per week. Public library staffs in the four regions make essentially the same amount of use of e-mail. Notable exceptions exist, however, with 27.0% of public library staffs in the Northeast never using e-mail and 10.8% of public library staffs in the West using e-mail more than 100 times per week.

Figure 25 shows that 43.3% of public library staffs never use Internet-based listservs or discussion groups in a given week, followed by 38.5% who use listservs or discussion groups less than 25 times per week, 10.5% who use listservs or discussion groups 26-50 times per week, 4.0% who use listservs or discussion groups 51-100 times per week, and 3.7% who use listservs or discussion groups more than 100 times per week. Overall, as public library population of legal service area increases, so too does public library staff use of listservs or discussion groups. Public library staffs that serve population of legal service areas of 250,000 or greater make substantially more use of listservs or discussion groups (percentages ranging from 30.2% to 51.9%) than do public library staffs that serve population of legal service areas of 249,999 or less (percentages ranging from 0.0% to 12.9%). In fact, 71.0% to over 95.0% of public library staffs that serve population of legal service areas of 99,999 or less either never use or use listservs or discussion groups less than 25 times per week.

As Figure 25 shows, public library staffs in the Midwest and Northeast are more apt to never use listservs or discussion groups (51.4% and 49.9%, respectively), whereas public library staffs in the South and West are more apt to use listservs or discussion groups at a rate of less than 25 times per week (47.0% and 55.3%, respectively).

Public library staffs make infrequent use of such Internet-based bibliographic utilities as card catalogs, with 27.9% of public library staffs never using bibliographic utilities per week, 49.1% who use bibliographic utilities less than 25 times per week, 13.4% who use bibliographic utilities 26-50 times per week, 4.6% who use bibliographic utilities 51-100 times per week, and 5.0% who use bibliographic utilities more than 100 times per week (see Figure 26). In general, public library staffs that serve population of legal service ar-

eas of 250,000 or greater make considerably more use of bibliographic utilities than do library staffs that serve population of legal service areas of 249,999 or less. In particular, over 70.0% of public library staffs that serve population of legal service areas of 99,999 or less never use or use bibliographic utilities less than 25 times per week. Public library staffs in the Midwest and Northeast are more likely to never use (32.4% and 33.6%, respectively) or use bibliographic utilities less than 25 times per week (53.1% and 39.8%, respectively).

Figure 26 shows that public library staffs in the South and West, however, are more likely to use bibliographic utilities less than 25 times per week (50.3% and 60.6%, respectively) or 26-50 times per week (14.4% and 12.4%, respectively). Public library staffs in the South and West, therefore, make greater use of Internet-based bibliographic utilities than do library staffs in the Midwest and Northeast.

As Figure 27 shows, public library staffs make infrequent use of the Web, with 33.8% of public library staffs who never use the Web, followed by 41.1% who use the Web less than 25 times per week, 14.9% who use the Web 26-50 times per week, 5.0% who use the Web 51-100 times per week, and 5.1% who use the Web more than 100 times per week. Overall, public library staffs that serve population of legal service areas of 250,000 or greater make considerably more use of the Web than do library staffs that serve population of legal service areas of 249,999 or less. Of particular interest is that nearly half of library staffs that serve population of legal service areas of 9,999 or less never use the Web (46.6% for public library staffs that serve a population of legal service area of 5,000-9,999 and 50.7% for public library staffs that serve a population of legal service area of less than 5,000) or do so less than 25 times per week (39.6% for public library staffs that serve a population of legal service area of 5,000-9,999 and 40.8%, for public library staffs that serve a population of legal service area of less than 5,000).

There are discrepancies in public library staff Web use by region, with a majority of public libraries staffs in the Midwest and Northeast never using (37.1% and 45.4%, respectively) or using the Web less than 25 times per week (40.8% and 36.2%, respectively). More public library staffs in the South and West, on the other hand, use the Web less than 25 times per week (48.8% and 44.8%, respectively) or 26-50 times per week (16.2% and 25.8%, respectively). As such, public library staffs of libraries in the South or West are more likely to use the Web than are public library staffs of libraries in the Midwest or Northeast.

Public Library Provision of Public Access Internet Services

Overall, a majority of public libraries do not provide public access Internet services (see Figure 28). A nearly even percentage of public libraries provide graphical Web public access services (23.7%), gopher-based public access services (22.7%), and text-based Web services (22.3%). Only 11.6% of public libraries provide public access newsgroup services, while just 10.0% of public libraries provide e-mail account services. Interestingly, public libraries that serve population of legal service areas of 5,000-9,999 and less than 5,000 provide the highest percentage of public access e-mail accounts (15.2% and 17.2%, respectively). Libraries that serve a population of legal service area of less than 5,000, however, have the lowest percentage of graphical Web service provision with 19.7% as compared to 36.9% of public libraries that serve a population of legal service area of 1 million+. It is worth noting that public libraries that serve population of legal service areas of 249,000 or less provide more public access to newsgroups (percentages ranging from 8.7% to 13.6%) than do public libraries that serve population of legal service areas of 250,000 or greater (percentages ranging from 6.2% to 8.8%).

Figure 28 also shows some noteworthy public access service differences by region. More libraries in the Midwest, 12.9%, provide e-mail account services than libraries in any other region. Libraries in the West, however, provide more newsgroup services, 16.1%, than other libraries. Overall, libraries in the Northeast provide a greater percentage of text-based Web services (27.7%), while libraries in the Midwest provide a higher percentage of graphical Web services (29.3%). Finally, libraries in the Northeast provide the greatest percentage, 28.5%, of gopher-based services.

In general, public libraries do not charge for their public access Internet services (see Figure 29). Of all public libraries providing public access Internet services, 3.6% have some type of fee for their graphical Web services, 3.3% have some type of fee for their e-mail account services, 3.1% have some type of fee for their text-based Web services, 1.7% have some type of fee for their gopher-based services, and 1.2% have some type of fee for their newsgroup services.

Of the 10.0% of public libraries that provide public access e-mail account services, 79.7% provide those

Figure 28. Overall Public Library Provision of Public Access Internet Services by Population of Legal Service Area and Region.

Population of Legal Service Area

	E-mail Accounts	Newsgroups Services	Text-Based WWW	Graphical WWW	Gopher-Based Resources	Other
1 million +	9.4%	8.8%	22.8%	36.9%	22.2%	0.0%
500,000-999,999	6.8%	6.8%	28.1%	26.8%	27.5%	4.0%
250,000-499,999	7.1%	6.2%	28.1%	23.9%	24.7%	10.1%
100,000-249,999	6.7%	13.2%	24.6%	27.8%	22.7%	4.9%
50,000-99,999	4.1%	13.4%	24.7%	25.3%	25.5%	6.9%
25,000-49,999	8.6%	12.3%	23.5%	26.3%	22.7%	6.6%
10,000-24,999	9.8%	13.6%	23.1%	27.8%	24.9%	0.7%
5,000-9,999	15.2%	8.7%	24.2%	26.6%	21.9%	3.5%
Less than 5,000	17.2%	13.6%	22.4%	19.7%	25.3%	1.7%

Region

	E-mail Accounts	Newsgroups Services	Text-Based WWW	Graphical WWW	Gopher-Based Resources	Other
Midwest	12.9%	10.9%	21.4%	29.3%	22.6%	2.9%
Northeast	9.0%	11.1%	27.7%	20.6%	28.5%	3.0%
South	9.8%	12.0%	23.7%	28.7%	21.8%	4.1%
West	10.6%	16.1%	21.7%	23.4%	22.6%	5.6%
Overall	**10.0%**	**11.6%**	**22.3%**	**23.7%**	**22.7%**	**3.5%**

services to patrons only at the main/central library, followed by 15.4% that provide those services to patrons at the main/central library and all library branches, and 4.9% that provide those services to patrons at the main/central library and some branches (see Figure 30). Public libraries that serve population of legal service areas of 100,000 or greater tend to provide public access e-mail account services in the main/central library and all branches of the main/central library or some branches (percentages range from 55.2% to 100.0%), whereas public libraries that serve population of legal service areas of 99,999 or less tend to provide public access e-mail account services in only the main/central library (percentages range from 42.5% to 100.0%). Nearly all libraries in the Midwest and Northeast provide e-mail account services in only the main/central library (94.5% and 95.8%, respectively), followed by libraries in the West with 65.2%. Half (50.0%) of libraries in the South, however, provide e-mail account services in the central/main library and all branches.

As Figure 31 demonstrates, 75.4% of the 11.6% of public libraries that provide newsgroup public access services provide such services at the main/central library only, followed by 17.3% that provide public access newsgroup services at the main/central library and all branches, and 7.2% that provide public access newsgroup services at the main/central library and some branches. A majority of public libraries that serve population of legal service areas of 100,000 or greater provide newsgroup services in the main/central li-

Figure 29. Overall Public Library Fee Charges for Public Access Internet Services by Population of Legal Service Area and Region.

E-mail Accounts	Newsgroups Services	Text-Based WWW	Graphical WWW	Gopher-Based Resources	Other
3.3%	1.2%	3.1%	3.6%	1.7%	0.3%

Figure 30. Public Library Public Access E-Mail Internet Services by Population of Legal Service Area and Region.

Population of Legal Service Area

	At Main/Central Library Only	At Main/Central Library & All Branches	At Main/Central Library & Some Branches
1 million +	0.0%	0.0%	100.0%
500,000-999,999	18.4%	81.6%	0.0%
250,000-499,999	12.5%	55.2%	32.2%
100,000-249,999	27.8%	66.2%	6.0%
50,000-99,999	42.5%	17.9%	39.5%
25,000-49,999	68.8%	21.2%	10.1%
10,000-24,999	83.8%	16.2%	0.0%
5,000-9,999	89.2%	10.8%	0.0%
Less than 5,000	100.0%	0.0%	0.0%

Region

	At Main/Central Library Only	At Main/Central Library & All Branches	At Main/Central Library & Some Branches
Midwest	94.5%	5.5%	0.0%
Northeast	95.8%	1.5%	2.7%
South	45.5%	50.0%	4.5%
West	65.2%	20.1%	14.8%
Overall	79.7%	15.4%	4.9%

Figure 31. Public Library Public Access Newsgroup Internet Services by Population of Legal Service Area and Region.

Population of Legal Service Area

	At Main/Central Library Only	At Main/Central Library & All Branches	At Main/Central Library & Some Branches
1 million +	0.0%	50.0%	50.0%
500,000-999,999	40.8%	36.9%	22.3%
250,000-499,999	15.6%	40.3%	44.1%
100,000-249,999	39.4%	42.2%	18.3%
50,000-99,999	62.8%	22.2%	15.0%
25,000-49,999	78.1%	14.8%	7.1%
10,000-24,999	77.6%	18.8%	3.6%
5,000-9,999	81.2%	18.8%	0.0%
Less than 5,000	100.0%	0.0%	0.0%

Region

	At Main/Central Library Only	At Main/Central Library & All Branches	At Main/Central Library & Some Branches
Midwest	88.9%	10.1%	1.0%
Northeast	82.4%	12.3%	5.3%
South	54.3%	33.1%	12.6%
West	70.4%	18.6%	11.0%
Overall	75.4%	17.3%	7.2%

brary and all branches or the main/central library and some branches (percentages range from 18.3% to 50.0%). Public libraries that serve population of legal service areas of 99,999 or less, however, generally provide public access newsgroup services in only the main/central library (percentages ranging from 62.8% to 100.0%).

A majority of libraries in all regions tend to provide newsgroup services in only the main/central library (percentages ranging from 54.3% to 88.9%). Libraries in the South and West, however, are more likely to provide patron newsgroup services in the main/central library and all branches (33.1% and 18.6%, respectively) or the main/central library and some branches (12.6% and 11.0%, respectively) than libraries in the Northeast and Midwest (10.1% and 12.3%, respectively, in the main/central library and all branches, and 1.0% and 5.3%, respectively, in the main/central library and some branches).

Of the 22.3% of public libraries that provide text-based public access Web services, 70.3% provide such services at the main/central library only, followed by 20.7% that provide text-based web services at the main/central library and all branches, and 9.0% that provide text-based web services at the main/central library and some branches (see Figure 32). Overall, public libraries that serve population of legal service areas of 100,000 greater provide text-based public access Web services at the main/central library and all branches (percentages ranging from 46.2% to 70.5%) or at the main/central library and some branches (percentages ranging from 13.9% to 40.2%). Public libraries that serve population of legal service areas of 99,999 or less essentially provide text-based Web services at the main/central library only (percentages ranging from 53.7% to 100.0%).

Libraries in the Midwest, Northeast, and West are most likely to provide text-based Web services at only the main/central library (percentages ranging from 64.6% to 88.6%). A majority of libraries in the South (55.8%), however, provide text-based Web services in the main/central library and some of all branches. Libraries in the South, therefore, provide more pervasive text-based Web patron services.

As Figure 33 indicates, of the 23.7% of public libraries that provide patron access graphical Web services, 80.6% of libraries provide such services at the main/central library only, followed by 10.1% that pro-

Figure 32. Public Library Public Access Text-Based World-Wide Web Internet Services by Population of Legal Service Area and Region.

Population of Legal Service Area

	At Main/Central Library Only	At Main/Central Library & All Branches	At Main/Central Library & Some Branches
1 million +	0.0%	61.6%	38.4%
500,000-999,999	14.3%	70.5%	15.3%
250,000-499,999	3.5%	56.3%	40.2%
100,000-249,999	40.0%	46.2%	13.9%
50,000-99,999	53.7%	23.3%	23.0%
25,000-49,999	79.0%	17.3%	3.7%
10,000-24,999	70.5%	20.8%	8.7%
5,000-9,999	90.0%	10.0%	0.0%
Less than 5,000	100.0%	0.0%	0.0%

Region

	At Main/Central Library Only	At Main/Central Library & All Branches	At Main/Central Library & Some Branches
Midwest	88.6%	10.7%	0.8%
Northeast	73.8%	20.9%	5.3%
South	44.2%	32.7%	23.1%
West	64.6%	22.5%	12.9%
Overall	70.3%	20.7%	9.0%

Figure 33. Public Library Public Access Graphical World-Wide Web Internet Services by Population of Legal Service Area and Region.

Population of Legal Service Area

	At Main/Central Library Only	At Main/Central Library & All Branches	At Main/Central Library & Some Branches
1 million +	13.5%	24.6%	61.9%
500,000-999,999	31.9%	27.3%	40.8%
250,000-499,999	28.1%	15.1%	56.8%
100,000-249,999	48.9%	30.8%	20.4%
50,000-99,999	71.8%	12.2%	16.1%
25,000-49,999	82.7%	10.1%	7.3%
10,000-24,999	91.3%	6.9%	1.8%
5,000-9,999	96.7%	3.3%	0.0%
Less than 5,000	100.0%	0.0%	0.0%

Region

	At Main/Central Library Only	At Main/Central Library & All Branches	At Main/Central Library & Some Branches
Midwest	89.1%	6.6%	4.3%
Northeast	93.8%	2.2%	4.0%
South	62.5%	21.0%	16.4%
West	70.2%	13.9%	15.8%
Overall	**80.6%**	**10.1%**	**9.3%**

vide graphical Web services at the main/central library and all branches, and 9.3% that provide graphical Web services at the main/central library and some branches. In general, public libraries that serve population of legal service areas of 100,000 or greater provide public access graphical Web services at the main/central library and all branches (percentages ranging from 15.1% to 30.8%) or at the main/central library and some branches (percentages ranging from 20.4% to 61.9%). Public libraries that serve population of legal service areas of 99,999 or less generally provide graphical Web services at only the main/central library (percentages ranging from 71.8% to 100.0%).

A majority of public libraries in the Midwest (89.1%), Northeast (93.8%), South (62.5%), and West (70.2%) provide graphical Web services at only the main/central library. Considerably more libraries in the South and West, however, are apt to provide graphical Web services at the main/central library and all branches (21.0% and 13.9%, respectively) at the main/central library and some branches (16.4% and 15.8%, respectively) than libraries in the Midwest and Northeast.

Of the 22.7% of public libraries that provide public access gopher services, 75.9% provide such services at the main/central library only, followed by 17.8% that provide gopher services at the main/central library and all branches, and 6.3% that provide gopher services at the main/central library and some branches (see Figure 34). Overall, public libraries that serve population of legal service areas of 100,000 or greater provide public access gopher services at the main/central library and all branches (percentages ranging from 19.7% to 62.3%) or at the main/central library and some branches (percentages ranging from 10.5% to 59.2%). Public libraries that serve population of legal service areas of 99,999 or less generally provide gopher services at only the main/central library (percentages ranging from 63.5% to 100.0%).

Libraries in the Midwest, Northeast, and West are most likely to provide gopher services at only the main/central library (percentages ranging from 65.8% to 86.1%). A majority of libraries in the South (51.7%), however, provide gopher services in the main/central library and all branches or the main/central library

Figure 34. Public Library Public Access Gopher Internet Services by Population of Legal Service Area and Region.

Population of Legal Service Area

	At Main/Central Library Only	At Main/Central Library & All Branches	At Main/Central Library & Some Branches
1 million +	21.1%	19.7%	59.2%
500,000-999,999	25.6%	62.3%	12.0%
250,000-499,999	12.4%	53.5%	34.1%
100,000-249,999	40.8%	48.7%	10.5%
50,000-99,999	63.5%	29.4%	7.1%
25,000-49,999	77.9%	13.7%	8.4%
10,000-24,999	78.3%	16.6%	5.1%
5,000-9,999	100.0%	0.0%	0.0%
Less than 5,000	100.0%	0.0%	0.0%

Region

	At Main/Central Library Only	At Main/Central Library & All Branches	At Main/Central Library & Some Branches
Midwest	86.1%	10.3%	3.5%
Northeast	83.7%	15.0%	1.3%
South	48.4%	38.5%	13.2%
West	65.8%	19.4%	14.8%
Overall	75.9%	17.8%	6.3%

and some branches. Public libraries in the South, therefore, provide more distributed public access gopher services to patrons.

In general, a vast majority of public libraries do not provide patrons with remote dial-in capabilities to library public access Internet services (see Figure 35). In all, 10.1% of public libraries provide dial-in text-based Web services, followed by 6.5% of public libraries that provide dial-in gopher services, 6.3% of public libraries that provide dial-in e-mail account services, 3.4% of public libraries that provide dial-in graphical Web services, and 2.6% of public libraries that provide dial-in newsgroup services. While a trend is difficult to discern among dial-in services by population of legal service area, the data show that, overall, as public library population of legal service area increases, so too does the provision of dial-in services. This is particularly true for text-based Web, graphical Web, and gopher services in public libraries that serve population of legal service areas of 250,000 or greater (percentages ranging from 0.0% to 33.1%). It is particularly interesting to note that the highest percentage of dial-in e-mail account services occurs in libraries that serve a population of legal service area of less than 5,000, with 10.4%.

Libraries in the Midwest and Northeast are more likely to provide dial-in capabilities to e-mail account services (7.0% and 7.9%, respectively) than libraries in the South and West (3.1% and 4.1%, respectively). Libraries in the Northeast and South are more likely to provide dial-in capabilities to text-based Web services (13.4% and 10.6%, respectively) than are libraries in the Midwest and West (7.9% and 2.5%, respectively). Other dial-in capabilities for public access Internet services appear relatively even across the four library regions.

Figure 36 presents the distribution of those public libraries that provide remote dial-in Internet services by population of legal service area and region. The data demonstrate an interesting split by population of legal service area: (1) In general, larger public libraries provide dial-in Web and gopher services, and (2) Smaller libraries provide dial-in e-mail account and newsgroup services. A different picture emerges, though, when looking at the data by region. Libraries in the Midwest and Northeast (35.7% and 30.5%, respectively) are approximately twice as likely to pro-

Figure 35. Overall Public Library Public Access Remote Dial-In Internet Services by Population of Legal Service Area and Region.

Population of Legal Service Area

	E-mail Accounts	Newsgroups Services	Text-Based WWW	Graphical WWW	Gopher-Based Resources
1 million +	0.0%	0.0%	7.4%	6.9%	0.0%
500,000-999,999	9.2%	6.7%	28.1%	10.1%	33.1%
250,000-499,999	6.8%	1.6%	27.0%	2.0%	18.2%
100,000-249,999	3.3%	3.5%	11.4%	2.2%	3.2%
50,000-99,999	1.8%	1.0%	11.4%	9.1%	4.5%
25,000-49,999	6.0%	3.0%	6.6%	4.0%	5.7%
10,000-24,999	7.0%	4.1%	11.1%	3.7%	7.3%
5,000-9,999	1.6%	1.6%	1.6%	1.6%	0.0%
Less than 5,000	10.4%	2.0%	12.9%	2.0%	9.2%

Region

	E-mail Accounts	Newsgroups Services	Text-Based WWW	Graphical WWW	Gopher-Based Resources
Midwest	7.0%	2.7%	7.9%	3.6%	5.4%
Northeast	7.9%	2.1%	13.4%	2.2%	8.3%
South	3.1%	2.2%	10.6%	5.2%	6.0%
West	4.1%	4.0%	2.5%	3.7%	5.7%
Overall	6.3%	2.6%	10.1%	3.4%	6.5%

Figure 36. Public Library Public Access Remote Dial-In Internet Services by Population of Legal Service Area and Region.

Population of Legal Service Area

	E-mail Accounts	Newsgroups Services	Text-Based WWW	Graphical WWW	Gopher-Based Resources
1 million +	0.0%	0.0%	51.6%	48.4%	0.0%
500,000-999,999	10.6%	7.7%	32.2%	11.6%	38.0%
250,000-499,999	12.2%	2.9%	48.6%	3.5%	32.8%
100,000-249,999	13.9%	14.9%	48.4%	9.2%	13.6%
50,000-99,999	6.4%	3.8%	40.9%	32.8%	16.1%
25,000-49,999	23.6%	11.9%	26.2%	15.9%	22.4%
10,000-24,999	21.0%	12.3%	33.5%	11.2%	21.9%
5,000-9,999	25.0%	25.0%	25.0%	25.0%	0.0%
Less than 5,000	28.5%	5.5%	35.4%	5.5%	25.2%

Region

	E-mail Accounts	Newsgroups Services	Text-Based WWW	Graphical WWW	Gopher-Based Resources
Midwest	35.7%	13.6%	40.3%	18.4%	27.7%
Northeast	30.5%	8.2%	51.5%	8.4%	31.9%
South	11.6%	8.2%	39.0%	19.3%	21.9%
West	19.7%	19.4%	35.3%	17.9%	27.3%
Overall	21.8%	8.9%	35.0%	11.8%	22.5%

Figure 37. Public Library Internet Services Component Costs by Libraries that Provide Public Access Graphical World-Wide Web Internet Services.

	System Costs	Software Costs	Communications Costs	Training/ Education Costs	Content/ Resources Costs	Planning Costs
No Graphical Web	35.3%	19.1%	24.3%	10.2%	5.1%	6.1%
Graphical Web	37.1%	12.3%	25.4%	9.2%	7.9%	8.0%
Overall	**35.8%**	**17.0%**	**24.7%**	**9.9%**	**6.0%**	**6.7%**

vide dial-in e-mail services than libraries in the South and West (11.6% and 19.7%, respectively). Furthermore, libraries in the Midwest and West (13.6% and 19.4%, respectively) are more likely than libraries in the Northeast and South to provide dial-in newsgroup services (both at 8.2%). Also, a majority, 51.5%, of libraries in the Northeast provide dial-in access to text-based Web services. Finally, libraries in the Midwest, South, and West (18.4%, 19.3%, and 17.9%, respectively) are twice as likely as libraries in the Northeast (8.4%) to offer dial-in graphical Web services.

Figures 37 and 38 compare the costs of Internet service provision (survey question 12) and type of public library Internet service provider (survey question 14) to public libraries currently providing graphical Web versus non-graphical Web access. Neither set of figures show substantial differences between libraries providing public access graphical versus non-graphical Web access, indicating that overall library Internet costs and Internet service providers for public library Internet connections are approximately the same for graphical and non-graphical Web library services.

Public libraries provide slightly more text-based public access terminals than graphical workstations, with 34.5% and 27.7%, respectively (see Figure 39). Interestingly, libraries serving population of legal service areas of 99,999 or less provide near equal percentages of public access text-based terminals and graphical workstations (percentages ranging from 22.4% to 36.0%), whereas public libraries serving population of legal service areas of 100,000 or greater provide a higher percentage of public access text-based terminals (percentages ranging from 39.7% to 59.9%) than graphical workstations (percentages ranging from 19.9% to 37.7%).

In terms of average public access terminal or workstation numbers, however, libraries that serve population of legal service areas of 100,000 or greater have considerably more available public access terminals (average number ranging from 11.1 to 109.1) and graphical workstations (average number ranging from 3.8 to 26.1) than do libraries that serve population of legal service areas of 99,999 or less (average number of text-based terminals ranging from 0.6 to 7.6, and average number of graphical workstations ranging from 0.5 to 2.9).

Also, as public library population of legal service area increases, so too do the percentage and average

Figure 38. Public Library Internet Service Providers by Libraries that Provide Public Access Graphical World-Wide Web Internet Services.

	Local / State Provider	Comm. Provider	Educational Provider	Free-Net	State Library	Regional / State	Other
No Graphical Web	17.0%	18.4%	12.3%	6.3%	17.1%	17.0%	12.0%
Graphical Web	19.3%	20.7%	10.7%	6.5%	22.2%	11.9%	8.8%
Overall	**17.6%**	**18.9%**	**11.9%**	**6.3%**	**18.4%**	**15.7%**	**11.2%**

Figure 39. Average Public Library Public Access and Staff Terminals and Graphical Workstations by Population of Legal Service Area and Region.

Population of Legal Service Area

	Percentage of Text-Based Terminals	Percentage of Graphical Workstations	Average Number of Text-Based Terminals	Average Number of Workstations	Percentage of Staff Terminals	Average Number of Staff Terminals
1 million +	39.8%	19.9%	109.1	19.8	71.8%	65.7
500,000-999,999	59.9%	37.7%	82.4	26.1	85.2%	75.4
250,000-499,999	40.7%	29.9%	35.5	12.8	77.4%	34.5
100,000-249,999	39.7%	29.7%	11.1	3.8	75.0%	12.6
50,000-99,999	35.2%	30.3%	7.6	2.9	77.2%	9.0
25,000-49,999	36.0%	34.6%	2.8	1.7	71.2%	5.5
10,000-24,999	33.7%	27.6%	2.5	0.9	68.4%	3.1
5,000-9,999	33.8%	27.3%	0.9	0.6	44.9%	1.1
Less than 5,000	31.7%	22.4%	0.6	0.5	39.5%	0.7

Region

	Percentage of Text-Based Terminals	Percentage of Graphical Workstations	Average Number of Text-Based Terminals	Average Number of Workstations	Percentage of Staff Terminals	Average Number of Staff Terminals
Midwest	30.3%	24.8%	4.2	1.6	55.8%	5.4
Northeast	39.1%	21.0%	2.5	0.9	53.1%	3.0
South	30.8%	38.6%	6.5	3.2	73.3%	6.6
West	39.4%	39.0%	11.4	3.5	61.2%	10.5
Overall	**34.5%**	**27.7%**	**4.9**	**1.9**	**58.5%**	**5.5**

number of terminals and/or workstations specifically for library staff use. Nearly 70.0% or more of public libraries that serve population of legal service areas of greater than 10,000 provide separate library staff Internet terminals and/or workstations (percentages ranging from 68.4% to 85.2%). Fewer than 45.0% of public libraries that serve population of legal service areas of less than 10,000, however, provide separate library staff Internet terminals and/or workstations (percentages ranging from 39.5% to 44.9%).

As Figure 39 shows, public libraries in the South and West are more likely than libraries in the Midwest and Northeast to have public access graphical workstations (38.6% and 39.0%, respectively, as compared to 24.8% and 21.0%, respectively), have a higher average number graphical workstations (3.2 and 3.5, respectively, as compared to 1.6 and 0.9, respectively), and provide staff-only Internet access terminals (73.3% and 61.2%, respectively, as compared to 55.8% and 53.1%, respectively). Overall, public libraries in the Northeast and West (39.1% and 39.4%, respectively) have a higher percentage of text-based public access terminals than do public libraries in the Midwest and South (30.3% and 30.8%, respectively). Libraries in the South and West, however, have a higher average number of text-based public access terminals (6.5 and 11.4, respectively), than do libraries in the Midwest and Northeast (4.2 and 2.5, respectively).

While the data show that, generally, as library population of legal service area increases the percentage and average number of public access and staff-only terminals/workstations increase, these percentages and numbers can be misleading. Based on the average population served and ALA-accredited MLS FTEs[4] by

Figure 40. Ratio of Public Library Public Access Terminals and Graphical Workstations to Average Library Population by Population of Legal Service Area and Region.

Population of Legal Service Area

	Average Population	Average Number of Text Terminals	Average Number of Workstations	Population Per Text Terminals	Population Per Workstations
1 million +	1,671,560	109.1	19.8	15,321	84,422
500,000-999,999	690,334	82.4	26.1	8,378	26,450
250,000-499,999	343,250	35.5	12.8	9,669	26,816
100,000-249,999	149,049	11.1	3.8	13,428	39,233
50,000-99,999	71,546	7.6	2.9	9,414	24,671
25,000-49,999	34,811	2.8	1.7	12,433	20,477
10,000-24,999	16,476	2.5	0.9	6,590	18,307
5,000-9,999	7,503	0.9	0.6	8,337	12,505
Less than 5,000	2,485	0.6	0.5	4,142	4,970

Region

	Average Population	Average Number of Text Terminals	Average Number of Workstations	Population Per Text Terminals	Population Per Workstations
Midwest	27,937	4.2	1.6	6,652	17,461
Northeast	34,042	2.5	0.9	13,617	37,824
South	91,945	6.5	3.2	14,145	28,733
West	102,811	11.4	3.5	9,019	29,375
Overall	**50,203**	**4.9**	**1.9**	**10,150**	**26,525**

responding libraries, Figures 40 and 41 provide ratio data of library public access terminals/workstations to the average library population served and library FTEs. These figures show large discrepancies in public access and staff-only terminal/workstation availability by library population of legal service area and region.

In general, as public library population of legal service area increases, the availability of public access terminals/workstations decreases. Indeed, patron populations served by public libraries with a population of legal service area of less than 5,000 are more able to gain access to a text-based terminal (a ratio of 1 terminal per an average population of 4,142) or graphical workstation (a ratio of 1 workstation per an average population of 4,970), as compared to patrons served by public libraries that serve a population of legal service area of 1 million+ (a ratio of 1 terminal per an average population of 15,321; a ratio of 1 workstation per an average population of 84,422). Such discrepancies do not exist with staff-only terminals/workstations, with nearly all libraries in the population of legal service area categories possessing an average ratio of 1 terminal per ALA-accredited MLS FTE (see Figure 41). The notable exception is libraries that serve a population of legal service area of 1 million+ — these libraries have an average ratio of 1 terminal to every 2 ALA-accredited MLS FTEs.

As Figure 40 shows, public libraries in the Midwest (1 terminal for every 6,652 persons) and West (1 terminal for every 9,019 persons) provide more public access text-based terminals to their populations served than do public libraries in the Northeast (1 terminal for every 13,617 persons) and South (1 terminal for

[4] It is important to note that the average FTE figures are based on library ALA/MLS professional staff as defined by the FSCS universe file. As such, the number of library staff using staff-only public access terminals/workstations could be higher than reported in Figure 38.

Figure 41. Ratio of Public Library Staff Terminals and/or Workstations to Library FTEs by Population of Legal Service Area and Region.

Population of Legal Service Area

	Average FTEs	Average Number of Staff Terminals Per Workstations	Terminals and/or Workstations Per FTE
1 million +	165.9	65.7	0.4
500,000-999,999	69.8	75.4	1.1
250,000-499,999	38.9	34.5	0.9
100,000-249,999	16.2	12.6	0.8
50,000-99,999	8.2	9.0	1.1
25,000-49,999	5.3	5.5	1.0
10,000-24,999	3.1	3.1	1.0
5,000-9,999	1.6	1.1	0.7
Less than 5,000	1.0	0.7	0.7

Region

	Average FTEs	Average Number of Staff Terminals Per Workstations	Terminals and/or Workstations Per FTE
Midwest	2.9	5.4	0.5
Northeast	3.7	3.0	1.2
South	5.6	6.6	0.8
West	5.4	10.5	0.5
Overall	**4.0**	**5.5**	**0.8**

every 14,145 persons). Public libraries in the Northeast provide the fewest public access graphical workstations (1 workstation for every 37,824 persons), followed by public libraries in the West (1 workstation for every 29,375 persons), public libraries in the South (1 workstation for every 28,733 persons), and public libraries in the Midwest (1 workstation for every 17,461 persons). As shown in Figure 41, public libraries in the Northeast and South have nearly twice as many staff-only terminals/workstations (1.2 and 0.8, respectively) as do libraries in the Midwest and West (both at 0.5).

Public Library Remote Dial-In Internet Services

Of those libraries that provide remote dial-in Internet services (see Figure 35), the average library dial-in service has 1.5 modems, of which 38.3% have a maximum modem speed of 9,600bps, followed by 35.4% that have a maximum modem speed of 28,800bps, and by 26.4% that have a maximum modem speed of 14,400bps (see Figure 42). Only 11.4% of public library remote dial-in services offer SLIP/PPP connections. As such, a vast majority of public library dial-in services are text-based. Of particular interest is that public libraries that serve population of legal service areas between 5,000 and 49,999 have the highest percentages of SLIP/PPP connections (percentages ranging between 13.7% and 20.7%) and 28,800bps modems (percentages ranging from 41.1% to 53.7%). Libraries that serve a population of legal service area of less than 5,000, however, have the lowest average number of dial-in service modems (0.2), the lowest percentage of SLIP/PPP connections (2.1%), and the lowest percentage of 28,800bps modems (15.0%).

As Figure 42 demonstrates, public library remote dial-in Internet services vary by library region, with libraries in the South and West offering a higher average number of dial-in modems (2.0 and 2.3, respectively) than libraries in the Midwest and Northeast (both at 1.2). Libraries in the West offer the highest percentage of SLIP/PPP connections with 18.7%, followed by libraries in the Northeast with 13.9%, libraries in the South with 12.3%, and libraries in the Mid-

Figure 42. Public Library Remote Dial-In Internet Service Configuration by Population of Legal Service Area and Region.

Population of Legal Service Area

	Configuration of Remote Dial-In Service		Maximum Speed of Connection		
	Average Maximum Number of Modems	SLIP/PPP	9600 bps	14400 bps	28800 bps
1 million +	12.3	7.4%	29.5%	41.9%	28.6%
500,000-999,999	18.7	9.7%	27.9%	28.8%	43.3%
250,000-499,999	6.4	10.0%	40.3%	36.7%	23.0%
100,000-249,999	2.9	12.8%	31.3%	38.8%	29.9%
50,000-99,999	1.6	9.6%	38.4%	24.2%	37.4%
25,000-49,999	1.4	13.7%	42.8%	16.1%	41.1%
10,000-24,999	1.8	16.6%	30.2%	18.0%	51.9%
5,000-9,999	0.3	20.7%	16.9%	29.4%	53.7%
Less than 5,000	0.2	2.1%	54.2%	30.7%	15.0%

Region

	Configuration of Remote Dial-In Service		Maximum Speed of Connection		
	Average Maximum Number of Modems	SLIP/PPP	9600 bps	14400 bps	28800 bps
Midwest	1.2	6.2%	47.6%	24.5%	27.8%
Northeast	1.2	13.9%	36.9%	17.5%	45.6%
South	2.0	12.3%	37.0%	29.7%	33.4%
West	2.3	18.7%	24.0%	37.9%	38.1%
Overall	**1.5**	**11.4%**	**38.3%**	**26.4%**	**35.4%**

west with 6.2%. Libraries in the Midwest have the highest percentage of 9,600bps modems (47.6%), while libraries in the West have the highest percentage of 14,400bps modems (37.9%), and libraries in the Northeast have the highest percentage of 28,800bps modems (45.6%).

Public Library World-Wide Web and Gopher Servers

Overall, 5.5% of public libraries maintain a gopher server and 10.7% maintain a Web server (see Figure 43). The percentage of public library gopher and Web servers increases as library population of legal service area increases. In all 55.1% of public libraries that serve a population of legal service area of 1 million+ that have a Web server and only 3.5% of public libraries that serve a population of legal service area of less than 5,000 that have a Web server. Similarly, 14.3% of public libraries that serve a population of 1 million+ operate a gopher server, while 3.8% of libraries that serve a population of legal service area of less than 5,000 operate a gopher server. Of particular interest is that public libraries that serve population of legal service areas of 250,000 or greater are more likely to maintain both a Web and gopher server (percentages ranging from 10.6% to 16.8%) than are public libraries that serve population of legal service areas of 249,999 or less (percentages ranging from 0.0% to 5.4%).

Nearly the same percentage of public libraries in the four regions maintain a gopher server, with libraries in the West, 6.0%, maintaining the highest percentage of gopher servers (see Figure 43). Libraries in the West and South, however, maintain nearly twice the percentage of Web servers (17.7% and 15.3%, respectively) as do libraries in the Midwest and Northeast (9.8% and 6.5%, respectively). The data also show that libraries in the South and West (2.3% and 2.1%, respectively) are more likely than libraries in the Midwest and Northeast (1.5% and 1.3%, respectively) to main-

Figure 43. Percentage of Public Library Gopher/World-Wide Web Servers by Population of Legal Service Area and Region.

Population of Legal Service Area

	Gopher Server	Web Server	Percent Both
1 million +	14.3%	55.1%	14.3%
500,000-999,999	24.8%	49.2%	16.8%
250,000-499,999	14.5%	35.6%	10.6%
100,000-249,999	10.3%	24.3%	5.4%
50,000-99,999	5.0%	16.9%	2.9%
25,000-49,999	7.0%	13.7%	2.6%
10,000-24,999	4.8%	11.2%	0.0%
5,000-9,999	3.0%	3.5%	1.0%
Less than 5,000	3.8%	3.5%	0.0%

Region

	Gopher Server	Web Server	Percent Both
Midwest	5.5%	9.8%	1.5%
Northeast	5.6%	6.5%	1.3%
South	4.7%	17.7%	2.3%
West	6.0%	15.3%	2.1%
Overall	5.5%	10.7%	1.7%

tain both a gopher and a Web server.

A vast majority of public library gopher or Web servers are operated by library staff (see Figure 44). Notable exceptions exist, however for libraries that serve population of legal service areas between 10,000 and 49,999. These libraries indicate a higher use of local organizations, commercial providers, and Other institutions as operators of their Web and gopher services. A review of the Other category responses indicates that these libraries rely on statewide library agencies and combinations of local organizations and commercial providers to operate and maintain their Web and gopher servers. Libraries in the Midwest and South tend to rely on Other (35.2% and 45.4%, respectively) statewide library agencies and regional library consortia to maintain their Web and gopher servers more so than libraries in the Northeast and South. Interestingly, more libraries in the West (12.9%) than any other region rely on local organizations to operate their Web or gopher servers, while more libraries in the Northeast (11.9%) and South (11.1%) rely on commercial providers to run their Web and gopher servers.

Identified Public Library Benefits to Connecting to the Internet

The survey obtained data from public libraries describing the most important benefit gained by their library through the library's Internet connection. The written responses were grouped according to an overall coding scheme derived from the data (see Figure 45). Due to the qualitative nature of the question, these responses are not weighted. Overall, the top three most important benefits of connecting to the Internet are the ability of libraries to:

(1) Access electronic Internet-based information, with 219 mentions;

(2) Communicate with other professionals, libraries and the public, with 79 mentions; and,

(3) Enhance reference service capabilities, with 72 mentions.

Public libraries find other benefits to connecting to the Internet, including improving the quality of library services, enhancing the library's status with the public, and reducing costs by acquiring library material via the Internet.

The above section presented the data from the survey. The next section identifies issues concerning pub-

Figure 44. Primary Public Library Gopher/World-Wide Web Server Operator by Population of Legal Service Area and Region.

Population of Legal Service Area

	Library Staff	Local Organization	Commercial Provider	Other
1 million +	86.8%	0.0%	0.0%	13.2%
500,000-999,999	79.5%	3.5%	9.4%	7.7%
250,000-499,999	68.0%	0.0%	10.1%	21.9%
100,000-249,999	58.6%	11.7%	4.3%	25.3%
50,000-99,999	59.5%	0.0%	3.0%	37.6%
25,000-49,999	57.7%	15.2%	10.9%	16.3%
10,000-24,999	16.1%	0.0%	19.2%	64.6%
5,000-9,999	66.5%	0.0%	0.0%	33.5%
Less than 5,000	91.5%	0.0%	0.0%	8.5%

Region

	Library Staff	Local Organization	Commercial Provider	Other
Midwest	60.3%	3.1%	1.3%	35.2%
Northeast	59.0%	1.7%	11.9%	27.4%
South	42.6%	0.9%	11.1%	45.4%
West	70.6%	12.9%	4.5%	11.9%
Overall	58.6%	3.9%	7.3%	30.1%

lic library involvement with the Internet and evolving NII based on the survey data.

PROGRESS AND ISSUES

Public libraries deserve some congratulations and recognition for the strides they have made in connecting to the Internet and in moving into the global information superhighway. Not only has there been a significant increase in connectivity, but public libraries are committing significant resources to support their information technology (IT) infrastructure, increasing the number and band-width of their connections to the Internet, and providing additional public access terminals for their communities to access the Internet directly. Many public libraries are rapidly embracing the global networked environment and are implementing strategies to provide networked information services to their patrons.

The findings presented in the previous section of the report show that public libraries in the United States have made impressive gains in connectivity: from 21% of public libraries connected to the Internet in 1994; to 44% connected in 1996; and a projected 76% connected by March 1997. In terms of public access to the Internet, public libraries went from 13% providing public access to the Internet in 1994, to 28% in 1996, and to a projected 50% by March 1997 (see Figures 5-7).

Thus, on the one hand significant progress is being made by public libraries to transition into the global networked environment — and those making this transition can take pride in their accomplishments. On the other hand, while these statistics are impressive, the data also identify a number of issues and concerns regarding public libraries and their move onto the Internet. This final section of the report identifies selected topics and issues for additional discussion.

Disparities Remain

By 1997 virtually all public libraries serving populations of 100,000 or greater will have Internet connections (see Figures 5 and 6). But for communities of 99,999 or less, a significant percentage of the libraries will have no connections and even fewer will provide public access to the Internet. Indeed, for public libraries serving populations of less than 5,000 almost half

Figure 45. Identified Public Library Benefits That Internet Connectivity Provides.

Benefit *	Totals **
Access access to information available on or through the Internet	219
Communication email with other professionals, libraries and public	79
Reference reference service improved (by speed, by providing current info)	72
Services the quality of library services were improved	35
Continuing Education training or education for staff and public	25
Public Relations providing Internet service improved library status with public	21
Cost Savings libraries able to acquire new or expensive resources now available through the Internet	14
No Benefit no benefit from Internet (not connected long enough, too busy to use)	13
Inter-Library Loan benefit seen in Inter-Library Loan	11
Resource Sharing with other agencies (government, libraries)	6
Cataloging improved cataloging work	4
Grand Total	**499**

* *Of the 499 benefits listed by respondents, some libraries listed two or more.*

** *Due to the qualitative nature of the data, these responses are not weighted*

will not have any type of Internet connectivity by March 1997. In terms of regions, 47% of libraries in the South will not have connections to the Internet whereas only 31% in the West will not have connections.

In comparing the percent of public libraries that provide public access to the Internet from 1994, to 1996, and projected to 1997, the growth rate is much smaller than the rate that the libraries are obtaining Internet access for the library only (see Figure 6). Thus, despite significant gains in overall connectivity only 50% of the public libraries are projected to be able to provide public access to the Internet by March 1997. The vast majority of the public libraries *not* providing public access to the Internet serve populations of 99,999 or less.

Disparities also remain regarding the *type* of connectivity that the various public libraries have to the Internet. Roughly half of the libraries serving populations of 500,000 or more have T1 connectivity to the Internet, whereas very few of the libraries serving populations of 49,999 or less have T1 connectivity (see Figure 12). Interestingly, the South and West have almost twice as many libraries connected with T1 compared to libraries in the Midwest and the Northeast. The type of connectivity enjoyed by the library has a significant impact on the level and type of networked services that the library can then provide.

Additional disparities occur in terms of the resources that public libraries commit to information technology expenditures. Average annual public library IT operating expenditures in the West are $66,857 compared to $15,325 in the Northeast — or about four times greater IT expenditures in public libraries in the West than in the Northeast (see Figure 16). Annual

average communication costs for public libraries are $5,338, but in the West they average $16,580 (see Figure 17). Overall, public libraries in the West have greater expenditures for Internet-related costs, have higher connectivity rates, and provide a greater extent and type of Internet services. The perception of what types of costs, e.g., hardware, software, communications, etc., have the greatest impact on the public library's involvement in the Internet also vary considerably (survey question 5) depending on the population size the library serves.

As shown earlier in the report, public libraries in the West and South expect that their Internet-related cost expenditures will increase by nearly a factor of two over the next year compared to public libraries in the Midwest and Northeast. Other significant differences in expected increases in Internet-related expenditures are likely to *increase* disparities in public library Internet connectivity and services in the future.

Given these disparities in IT expenditures, connectivity rates, and the type of connectivity available to public libraries, additional disparities appear, then, in terms of the types of Internet-based services that the libraries can provide. Just as one example, approximately 50% of public libraries serving populations of 500,000 or more have Web servers whereas only 17% of the libraries serving populations of 50,000 - 99,999 have Web servers — and only 3.5% of the libraries serving populations of 9,999 or less have such Web-based services (see Figure 43).

Another perspective, however, on disparities in access comes from examining the number of public library workstations available per population. For libraries serving populations of one million or more there are 84,422 individuals per workstation compared to the overall average of 26,525 individuals per workstation (see Figure 40). Thus, one could conclude that by one measure, public libraries serving larger population centers have much greater connectivity rates that those serving smaller population centers. But, in fact, it may be more difficult for a user to access the available workstations in the library serving that larger population center than in a library serving the smaller population center.

As readers review the various Figures in this report, a range of other disparities are apparent among public libraries regarding their use of the Internet. National and state policymakers as well as the public library community, however, have yet to determine goals for resolving such disparities or agreeing on strategies to minimize such disparities. Indeed, now that we know such disparities exist in terms of connectivity, type of connectivity, and ability to provide networked services to the public, what should be done? Who, or what organizations, are responsible for dealing with these issues? Is it inevitable that such disparities will exist?

Connectivity Versus Services

The data reported from this study should *not* be interpreted to mean that because most public libraries will soon have some type of Internet connectivity, they are providing a range of Internet-based services and resources. There are a number of different levels of connectivity that should be identified:

- Dial-up Connectivity: The library can, through the use of a workstation and modem, access the Internet in text mode only.
- Dial-up Connectivity with SLIP/PPP: The library can, through the use of a workstation and modem with SLIP/PPP access the Internet in full graphics mode — although such access is likely to be painfully slow.
- Dedicated Line Connectivity: The library typically has leased a dedicated line from a (relatively) slow bandwidth of 56K, to perhaps ISDN, to T1, or perhaps to T3.

In each of these situations, connectivity may be provided for library staff only, or for the public and the library staff. As the data from this survey suggest, public library connectivity has increased, but the *level* and *extent* of public library connectivity still require significant improvement to provide high quality networked services.

In terms of services and resources provision, there are also a number of levels to be considered:

- No Services or Resources Provided. In this situation, the public library simply provides access to the Internet. Patrons use a library workstation to access resources and services provided by others on the Internet.
- Resources Provision. The library makes available information resources such as databases, electronic newsletters, local government information, etc. In effect, the library transfers patron access from print sources to electronic sources.

- Self-Assisted Services. This type of networked services allows the user to access resources, and without the assistance of another, put a hold on a book, make a reservation to attend a library program, or manipulate data.

- Interactive Services. In this type of service the patron may engage in interactive video reference services with library staff, participate in a discussion about a best seller, or collaborate with other users in the use of particular library resources.

- Knowledge-based Services. In this situation, the library provides on-demand, customized information services: for example, the library automatically informs the user electronically that, based on her previous reading habits, a new book has arrived or a certain Web site may be of interest to her, etc.

These levels of resource and services provisions are illustrative only to make the point that most public libraries have yet to proceed much beyond resources provision and some self-assisted services. For example, the data show that 31% of public libraries with connectivity to the Internet have such connectivity via a 28.8 baud dial-up modem (see Figure 11). While such connectivity is better than nothing, it does not enable the access to and delivery of advanced and high quality services. Acceptable and high quality resource provision, self-assisted, interactive, and knowledge-based services require high-bandwidth at the T1 level and beyond.

The Figures that show 78.3% of the population of the library legal service area being served by a public library with some type of Internet connectivity in 1996 and projected to be 91% of the American population in 1997 may sound impressive but can be very misleading (see Figures 7 and 8). In fact, a library that has one Internet dial-up connection and serves a legal population of about 200,000 provides relatively poor Internet-based connectivity, and possibly offers no services as described above; whereas there can be another public library also serving a population of about 200,000 with 28 public access workstations, with T1 connectivity, managing its own Website, and offering a range of networked services. Both public libraries, for purposes of these Figures, provide their population with Internet connectivity.

Thus, the sound bite that by March 1997 one can project 76% of public libraries to be connected to the Internet can be extremely misleading until further analysis determines the *type, extent, and impact* of connectivity that the library has, and the *degree* and *quality* to which networked electronic resources and services are also being provided by the library. It is important to recognize that being connected to the Internet is only a first, albeit important, step for public libraries as they transition to the global networked environment. Many additional steps are required — some of which we may not now know — for the library to be a successful and effective provider of networked information resources and services.

The Goal of Universal Service

The goal of public libraries to provide Universal Service to the public for access to the Internet is one that has received much attention and discussion during recent years. But as this discussion and policy debate continues, there is little agreement on what constitutes "Universal Service" and what types of "services" constitute basic and advanced services. What is known, however, is that connectivity to the Internet is *not* provision of networked services. Thus, policy makers should not confuse the data from this survey describing levels of connectivity with the degree to which public libraries provide networked-based services.

As this report is being written, the FCC Federal-State Joint Board is in the process of developing rules to implement universal service provisions mandated in the *Telecommunications Act of 1996* (P.L. 104-104 section 254). As discussed in the introduction to this report, libraries and schools may receive special attention to provide affordable access to the Internet and the availability to Internet services. Section 254b offers the following principles to advance Universal Service:

- Quality and Rates: Quality services should be available at just, reasonable, and affordable rates.

- Access to Advanced Services: Access to advanced telecommunications and information services should be provided to all regions of the Nation.

- Access in Rural and High Cost Areas: Consumers in all regions of the Nation, including low-income consumers and those in rural, insular, and high cost areas, should have access to telecommunications and information services . . . that are reasonably comparable to those services provided

in urban areas and that are available at rates that are reasonably comparable to rates charged for similar services in urban areas.

- Equitable and Nondiscriminatory Contributions: All providers of telecommunications services should make an equitable and non-discriminatory contribution to the preservation and advancement of universal service.

- Access to Advanced Telecommunications Services for Schools, Health Care, and Libraries: Elementary and secondary schools and classrooms, health care providers, and libraries should have access to advanced telecommunications services as described in subsection (h).

- Additional Principles: Such other principles as the Joint Board and the Commission determine are necessary and appropriate for the protection of the public interest, convenience, and necessity and are consistent with this Act.

Later, in section (B) of the universal services provision, the law states, "all telecommunications carriers serving a geographic area shall . . . provide such services to elementary schools, secondary schools, and libraries for educational purposes at rates less than the amounts charged for similar services to other parties."

Such language raises very complicated issues. For example, the data reported in this survey suggest that approximately 25% of public libraries that serve 9% of the country's population will require an Internet connection after March 1997 (see Figures 5-8). The data also show that these public libraries have small communities, typically 5,000 or under, and often are located in rural areas. For a host of reasons, the costs to connect the last 25% of public libraries and the costs for those libraries to provide networked services are likely to be significant. At what point can it be said that public libraries are providing "universal service" to the public? At a 75% connectivity rate? When 90% provide Web-based information resources and services?

As the FCC and the Federal-State Joint Board develop rules to implement these and other universal services provisions, it is important to recognize that serious disparities already exist in the provision of Internet connectivity and services through public libraries. The extent to which these disparities can be resolved by the *Telecommunications Act of 1996*, by states, local communities, and the public library community has yet to be determined.

Quality of Network Services

Just as public library connectivity to the Internet is not service, connectivity to the Internet, in and of itself, does not mean that the library manages and evaluates its Internet connections and services effectively. Data reported from this survey do not address the quality of the networked services that are being provided, the extent to which members in the library's community use such services, or the degree to which networked meet the needs of the library's community.

The 1996 survey data found that only 10.7% of public libraries maintain a Website (see Figure 43). Knowing this statistic is useful but in reality, users of public library Websites know that the quality of these sites varies considerably. Some Websites have only a homepage with a picture of the library and its hours of operation. Others have extensive online services, access to their OPAC, online reference and referral services, and links to other Websites. The public library community is only beginning to identify quality standards and criteria of excellence for assessing networked services and determining the degree to which these services meet community information needs.

Determining what exactly constitutes the "network" or "networked services" is a complicated task in itself. Yet, without a clear sense of how best to define these terms, evaluation will be difficult. Public library administrators may wish to think of the network as comprising these components:

- Technical infrastructure: the hardware, software, equipment, communication lines, and technical aspects of the network.

- Content: the information resources available on the network.

- Services: the activities in which users can engage and the services that users may use to complete various tasks.

- Support: the assistance and support services provided to help users better use the network.

- Management: the human resources, governance, planning, and fiscal aspects of the network.

These five basic components suggest the general areas where public library administrators can begin as-

sessment efforts of their networks and networked services.

Public libraries were early adapters in the use of performance measures with the publication of *Output Measures for Public Libraries* (Van House, et. al., 1987). As public libraries extend their Internet connectivity and services, thought will need to be given to developing networked-based performance measures. Such measures can:

- Identify the successful and less successful aspects of the network and network services in light of user needs and institutional goals.
- Provide trend data to assess changes in the network and network services over time.
- Assist decision makers in allocating or reallocating resources and in planning for future network development.
- Assist network managers in justifying expenditures and accounting for those expenditures.
- Monitor network activities and services to detect any changes in activities or the quality of services.
- Determine the degree to which users are satisfied with the network and network services.
- Serve as a first step in benchmarking (identifying best-practice performance, using that performance as a goal, investigating the factors that led to the performance, and then trying to replicate that level of performance).

Simply stated, performance measures ask decision makers to answer the questions: How well is the service or activity doing what the library claims it should be doing? At what cost? And with what effects?

There are a number of ways to categorize the measures that will be needed. One approach is to think of measures in the following areas:

- Extensiveness: this is a measure of the amount or extent to which the services are provided: for example, the number and types of people using the service.
- Efficiency: this is a measure of the cost or resources required to provide the service: for example, cost per service transaction.
- Effectiveness: an effectiveness measure is one that focuses attention on the degree to which the objectives of the program or service are met.
- Service quality: such measures are concerned with how well a service or activity is done: e.g., percentage of transactions where users acquire the information they need.
- Impact: an impact measure focuses attention on the benefit or result of the service or activity: e.g., the degree to which using Internet services empowers the user to resolve other problems or improved his/her quality of life.
- Usefulness: this is a measure of appropriateness, the degree to which the services are useful or appropriate for the individual user: e.g., percentage of services of interest to different types of user audiences.

These areas for assessment suggest the importance of considering different types of measures in assessing various aspects of network activities and services for public libraries.

In a broader organizational context, resource allocation, planning, and improving services require measurement and evaluation of networked information services. Without measures that can evaluate particular services, decision makers must rely on intuition and anecdotal information as a basis for assessing the usefulness and value of a particular service. Perhaps most importantly, measurement and evaluation provide users with an opportunity to offer feedback on how well services are meeting their needs. To a large degree, however, public library administrators have limited knowledge about the performance and quality of their networked activities and services.

Developing, operationalizing, and validating a range of performance measures is essential if public libraries intend to: determine which networked information services are effective; understand the impact of networking on the educational process; and identify the costs required to build and maintain the network. Without such information, administrators of networked systems and services will be unable to justify such services and unable to determine the degree to which they meet user needs.

Public libraries will need to develop a regular program of data collection, performance measures, and

related statistics of networking activities and services. Many public libraries are already seeing evidence that "hits" on their Websites are going up while circulation rates stay stagnant or decline; or that networked-based reference and referral transactions are increasing while traditional measures of reference transactions (on-site) stay the same or decline. Traditional performance measures will need to be augmented to assess the public library's activities and performance in the networked environment (Bertot and McClure, 1996c).

Life Cycle of Public Library Internet Development

A life cycle of public library Internet development appears to be emerging. Briefly, that life cycle is awareness of the Internet, planning and obtaining Internet connectivity, learning how to use the Internet and acquire resources and services successfully, using the connectivity for internal library operations, making public access to the Internet available, training the public in Internet use, upgrading connectivity and bandwidth, putting up library electronic resources on the Internet, developing evaluation techniques, and providing a range of innovative and networked-based services. Throughout this process there is an ongoing adoption and beta-testing of new technologies and services. While other components of this life cycle are likely, it suggests a general process that many public libraries follow in their Internet development.

The analysis of data reported from this survey, as well as that reported in the 1994 survey, lacks a context in terms of this life cycle. This life cycle occurs over a number of years, and while some public libraries may take greater or lesser time within these various stages, the library's place in this life cycle can provide an important context in understanding other data that they reported from the survey. Thus, in hindsight, an excellent additional question that should have been included on the survey is: *How many years has this library been connected to the Internet?*

For example, libraries reported costs for various types of Internet-related expenditures (question 12). A library that has just begun its connectivity may have significant start-up and capital expenditures compared to a library that has been connected for three years and is now in the process of developing Internet services. Within a particular region, it would be especially interesting to have information describing costs or types of connectivity in light of this life cycle. Data might be much more understandable when being compared across regions or across different populations served.

Knowing the stage at which a public library is involved in the life cycle of Internet development would also help researchers and policymakers to better understand the type of connectivity to the library and the type and extent of Internet-based services that the library provides. Thus, when reviewing the data reported in this survey, one cannot ascertain connectivity or services provision in light of the library's experience and stage in Internet development. This "lesson" as well as others identified in the next section should be considered if the survey is repeated in 1998.

Preparing for the Next Survey

The 1994 survey was prompted primarily because of the opportunity, then, to obtain national data describing public libraries and the Internet that could be used to resolve policy issues regarding the role of libraries in the NII. As a result of the 1994 survey data, NCLIS and others were able to provide testimony, meet with federal policy makers, and work to extend the role of public libraries in the NII. The 1994 survey data remained the only comprehensive descriptive data available that described public library involvement and use of the Internet until the publication of the 1996 data reported here.

As stated earlier in this report, the 1996 survey had less focus on affecting NII policy than on (1) obtaining longitudinal data such that trends in public library use of the Internet could be identified, (2) descriptive information about public library use of the Internet could be used for internal library planning, and (3) key issues affecting the future development of public libraries in the Internet could be identified. In fact, however, data from the 1996 survey were analyzed and reported in April, 1996 to the FCC, Federal-State Joint Board on universal service regarding disparities in public library Internet access and use. Such data may affect FCC rulemaking to promote policies that assist libraries have more affortable access to networked services.

Additional analyses and assessment of key issues can be done with the data reported here. Furthermore, there are numerous other topics and issues that the survey was not able to address due to space and resource limitations. The authors hope that others will use data from this survey to expand discussion of issues and topics only introduced in this report. Indeed,

leaders in the public library community should begin to consider, now, how a 1998 survey might be undertaken, which organizations should be or are willing to sponsor such an effort, and possibly revising the methodology used when conducting the next survey.

NCLIS has taken on responsibility for conducting the 1994 and 1996 surveys. Increasingly, however, additional resources beyond those from NCLIS will be needed to continue the administration of the survey. Federal agencies such as the Department of Education, the National Center for Educational Statistics (NCES), and others have shown interest in these surveys. Additional organizations such as the American Library Association (ALA), the Public Library Association (PLA), the Urban Libraries Council (ULC), the Chief Officers of State Library Agencies (COSLA), participation from the private and publishing sectors, and perhaps individual public libraries might join in a consortium to support a next public libraries and the Internet survey.

Future surveys should also consider different methods for data collection either as part of a national survey or as replacement for the written questionnaire survey that has been used for the 1994 and 1996 surveys. For example, the authors experimented with mounting the 1996 survey on a Website and encouraged all libraries receiving the survey to respond via that Website (Bertot and McClure, 1996a; to view a copy, point your browser to http://research.umbc.edu/~bertot/nclissurvey.html). Some 60 libraries did respond via the Website and provided suggestions for how the survey might be better administered electronically in the future.

Another area that future surveys might address is topics related to the *quality* of networked services provided by public libraries. As discussed earlier in this section, descriptive counts that stress the extensiveness of services, while useful, will need to be extended such that a range of performance measures assessing effectiveness, impact, and quality of services can be assessed. The national surveys conducted in 1994 and 1996 may provide a basis for developing such measures.

The authors have found that the level of effort required to obtain high response rates to the surveys, i.e., 77% in 1994 and 71% in 1996, is significant and time consuming. Yet, due to the sampling and weighting scheme used (as developed by NCES) and discussed earlier in the methods section of this report, such high response rates are essential if the survey is to result in accurate and generalizable data. Indeed, even with the high response rates obtained thus far, the method does not allow for generalization of findings to individual states.

Thought might also be given to extending or revising the data collection to allow for follow-up activities. For example, the data reported here seem to present some anomalies in terms of connectivity levels across different regions of the country. Survey data produces findings that are primarily *descriptive* and only to a limited extent might they be *explanatory*. Since the data are *descriptive* only, follow-up site visits, phone interviews, focus group sessions, electronic surveys or discussions, etc. might be used to better *explain* the findings.

Although the authors suggest that a broader base of support be established for conducting future public libraries and the Internet surveys, and although we suggest rethinking aspects of the method with the objective of improving the usefulness of survey results, we believe that such a survey every two years is *essential* for the public library community and policy makers to:

- Obtain data describing the growth, trends, and issues related to public libraries' use and involvement in the Internet.
- Provide a common base of information from which individuals from different stakeholder groups can discuss and analyze the role of public libraries in the networked environment equally.
- Make known to the library community and federal, state, and local policy makers information and issues describing how public library involvement in the Internet affects the public good.
- Assess individual library network development and plans for future network services.
- Better plan for and design public library involvement in the Internet to best benefit the public at large.

The benefits from such national surveys are clear. The importance of conducting such surveys has been dem-

onstrated on numerous occasions. Thus, the challenge for improving and extending this survey is one that must be addressed and resolved.

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Appendix A

Survey Instrument

Survey of Public Library Internet Use

Instructions: This survey is about your library's level of involvement with or use of the Internet. Please take the time to answer the questions below by marking the appropriate selection or filling in answers as necessary. Your responses will assist us to gain an understanding of public library uses of the Internet. Thank you for your participation! **PLEASE RETURN YOUR QUESTIONNAIRE BY JANUARY 31, 1996. For questions concerning the survey, contact:**

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If your library is not now using the Internet, please fill out questions 1 to 8 and return.

PART A: General Library Information and Internet Connection Issues; To be completed by the library director

1. Name of person responding: _____ Title: _____
2. Total number of librarians (include ALA/MLS and others with the title) in FTE: _____
3. What were the **total library operating expenditures** for the last completed fiscal year? $_____
4. What were the **total library materials expenditures** for the last completed fiscal year? $_____
5. Please assess the degree to which the following possible factors affect your library's **current level of involvement** with the Internet: **(PLEASE CIRCLE ONE NUMBER FOR EACH ITEM)**

	Very Important				Very Unimportant	Don't Know
a) Costs of system/server hardware (*e.g., workstations, terminals, servers*)	1	2	3	4	5	❑
b) Costs of software (*e.g., operating systems—Unix, Windows NT — applications software—WordPerfect*)	1	2	3	4	5	❑
c) Costs of communications hardware/fees (*e.g., routers, modems, long distance charges*)	1	2	3	4	5	❑
d) Costs of training and education (*for staff and users*)	1	2	3	4	5	❑
e) Costs of content/resource development (*e.g., special collections development, Web home page development*)	1	2	3	4	5	❑
f) Availability of in-house computer technical expertise	1	2	3	4	5	❑
g) Availability of staff time to develop expertise on the Internet	1	2	3	4	5	❑
h) Availability of federal money	1	2	3	4	5	❑
i) Availability of state money	1	2	3	4	5	❑
j) Other (*please specify*): _____	1	2	3	4	5	❑

6. Interest in the Internet at this library is motivated **primarily** by : **(CHECK [X] ONE ONLY)**

- ❑ Library strategic planning
- ❑ State-wide network initiatives
- ❑ Interest of the library administration
- ❑ Interest of the library governing body
- ❑ Community interest
- ❑ Internal staff expertise
- ❑ Other (*please specify*): _____

7. Is your library **currently connected to the Internet** in any way?

- ❑ YES **(please complete questions 9 through 19)**
- ❑ NO **(please complete question 8)**

8. If your library **does not now have** any access to the Internet, does your library **plan to connect to the Internet** in any way in the next 12 months? **(CHECK [X] ONE ONLY)**

   ❑ YES, for library staff use only
   ❑ YES, for library staff use AND public access
   ❑ NO Internet connection planned in the next 12 months

THANK YOU FOR YOUR PARTICIPATION! Please return the questionnaire in the enclosed envelope.

PART B: Internet Benefit and Cost Issues; To be completed by the library director or library employee with most knowledge of the library's use of the Internet

9. Name of person responding: _____ Title: _____

   Internet e-mail address: _____

10. Please describe the **most important benefit** to your library that having access to the Internet provides:

11. Please **estimate** the overall percentage of total library operating expenditures for **ALL** information technologies (IT) for the **last completed fiscal year** (to include hardware/software costs, OPAC /CD-ROM subscription fees, telecommunication costs, training, CD-ROM, etc.):

    Estimated Percentage for IT: _____ % ❑ Don't know

12. Please **estimate** the percentage of total library operating expenditures for all information technologies (IT) associated with providing Internet–related services for staff and patrons for the **last completed fiscal year** AND **estimate** the amount of increase or decrease you anticipate for the next fiscal year for these Internet costs: **(PLEASE COMPLETE FOR EACH ROW)**

COST CATEGORY	ESTIMATED % OF IT EXPENDITURES	ANTICIPATED EXPENDITURE				
		Decline	Remain Same	Increase 1-5%	Increase >5%	Don't Know
a) System/server hardware costs (*e.g., workstations, servers*)	_____%	❑	❑	❑	❑	❑
b) Software costs (*e.g., operating systems— Unix — applications software — WordPerfect*)	_____%	❑	❑	❑	❑	❑
c) Communications hardware/fees (*e.g., routers, modems, long distance charges*)	_____%	❑	❑	❑	❑	❑
d) Training and education costs (*for staff and users*)	_____%	❑	❑	❑	❑	❑
e) Content/resource development costs (*e.g., special collections development, Web home page development*)	_____%	❑	❑	❑	❑	❑
f) Program planning/management/ staffing costs (*e.g., RFP development/ analysis, consultant fees*)	_____%	❑	❑	❑	❑	❑
g) Other (*please specify*): _____	_____%	❑	❑	❑	❑	❑
TOTAL EXPENDITURES FOR IT	100 %					

PART C: Library Internet Connection and Service Issues; To be completed by the library director or library employee with most knowledge of the library's use of the Internet

13. What **type of connection** to the Internet AND **maximum connection speed** does your library have?

(a) **Dial-Up** → **FASTEST Dial-up Speed of Connection**

(CHECK [X] ALL THAT APPLY)

- ❑ Terminal access (*e.g., via text only [non-graphical] access*)
- ❑ Internet gateway access (*e.g., via commercial on-line provider such as America On-Line & CompuServe*)
- ❑ Workstation SLIP (Serial Line Internet Protocol) or PPP (Point to Point Protocol) access
- ❑ Other (*please specify*): _____
- ❑ None

(CHECK [X] ONE ONLY)

- ❑ 9600 bits per second or less
- ❑ 14,400 bits per second
- ❑ 28,800 bits per second or greater
- ❑ Other (*please specify*): _____

(b) **Leased Line** → **FASTEST Leased-Line Speed of Connection**

(CHECK [X] ALL THAT APPLY)

- ❑ On-line Public Access Catalog (OPAC) gateway
- ❑ Local Area Network (LAN) access
- ❑ Other (*please specify*): _____
- ❑ None

(CHECK [X] ONE ONLY)

- ❑ 56 K (bits per second)
- ❑ T1 (1.5 million bits per second)
- ❑ T3 (45 million bits per second)
- ❑ Other (*please specify*): _____

14. What **type of Internet connection provider** does your library use? **(CHECK [X] ALL THAT APPLY)**

- ❑ Local/state government organization (*e.g., county/state information services department*)
- ❑ Commercial provider (*e.g., PSI, Delphi, America On-Line, CompuServe, etc.*)
- ❑ Local educational organization (*e.g., community college or university*)
- ❑ Free-net (*e.g., a community run network such as Cleveland Freenet, Big Sky*)
- ❑ State library network (*e.g., a state-wide network run by the state library agency such as Maryland's Sailor network, Nebrask@ Online, etc.*)
- ❑ Regional/statewide network provider (*e.g., NYSERNet, Solinet, NorthWestNet, etc.*)
- ❑ Other (*please specify*): _____

15. Please **ESTIMATE the number of uses** in your library of the following Internet activities **by library staff** in a typical week: **(CHECK [X] ONE FOR EACH QUESTION)**

		NUMBER OF USES BY STAFF PER WEEK				
	Never	Less than 25 times/wk	26-50 times/wk	51-100 times/wk	More than 100 times/wk
a) Electronic Mail	❑	❑	❑	❑	❑
b) Listservs/Discussion Groups	❑	❑	❑	❑	❑
c) Bibliographic Utilities (*e.g., accessing card catalogs*)	❑	❑	❑	❑	❑
d) World-Wide Web sessions	❑	❑	❑	❑	❑
e) Other (*please specify*): _____	❑	❑	❑	❑	❑

PART D: Public Access Issues; To be completed by the library director or library employee with most knowledge of the library's use of the Internet

16. Please indicate whether your library **provides patrons the following types of Internet services** AND whether your library **charges patron fees** for such services: **(CHECK [X] ALL THAT APPLY)**

INTERNET SERVICE	No	Yes				Fee for Service	
		At Main/ Central Library Only	At Main/ Central Library and All Branches	At Main/ Central Library and Some Branches	Remote/ Dial-in Service	Yes	No
E-mail accounts (*e.g., e-mail services*)							
Newsgroup services (*e.g., access to newsgroup readers*)							
Text-based World-Wide Web browsing (*e.g., using Lynx software*)							
Graphical World-Wide Web browsing (*e.g., using Netscape or Mosaic software*)							
Gopher-based resource location							
Other: (*please specify*) _____							

17. Please describe **the type** AND **number** of your main/central library's public access terminals: **(CHECK [X] ALL THAT APPLY)**

- ❑ Terminals with text-based interfaces (*e.g., VT-100 terminals, PCs/compatibles or Macs with terminal emulation software*) _____ Number of terminals
- ❑ Workstations with graphical interfaces (*e.g., Windows PCs or Macs*) _____ Number of workstations

→ Are there additional terminals/workstations just for library staff access? ❑ Yes ❑ No
If yes, how many? _____ Number of terminals/workstations

18. If applicable, please describe your main/central library's **remote/dial-in service**:

a) Maximum number of modem connections available to patrons: _____ Connections
b) Is this either SLIP (Serial Line Internet Protocol) or PPP (Point to Point Protocol) access? ❑ Yes ❑ No
c) **Fastest** supported speed of connection:
- ❑ 9600 bits per second or less second
- ❑ 14,400 bits per second
- ❑ 28,800 bits per second or greater

19. If your library operates a gopher and/or web server, is it **primarily** operated by: **(CHECK [X] ONLY ONE)**

- ❑ Library staff?
- ❑ A local community organization (*e.g., community college*)?
- ❑ A commercial Internet provider (*e.g., PSI*)?
- ❑ Other (*please specify*): _____

→ Please provide your library's gopher and/or web server address(es):

Gopher: telnet _____
Web: http://_____

THANK YOU FOR YOUR PARTICIPATION! Please return the questionnaire in the enclosed envelope

Appendix B

Survey Alert

SURVEY OF PUBLIC LIBRARY INTERNET USE
University of Maryland Baltimore County
Department of Information Systems
5401 Wilkens Avenue
Baltimore, Maryland 21228

First Class Mail

NOTICE:
SURVEY ALERT FOR THE LIBRARY DIRECTOR

Dear Library Director: December 1995

The **National Commission on Libraries and Information Science** is conducting a national fast-response survey of the **involvement of public libraries in the Internet.** John Carlo Bertot, Charles R. McClure, and Douglas L. Zweizig are co-principal investigators for the study.

This study is a follow-up to the **Commission's** 1994 study of public library Internet involvement. The results from the study will provide critical information that charts the 1994-1996 changes in public library Internet connectivity and collects information about public library Internet costs, options, and benefits for library and policy officials.

As with the 1994 study, your library has been selected to be in the sample drawn by the National Center for Education Statistics. The survey will be mailed in early January and will ask for a response by the end of the month.

It is extremely important that your library respond, whether or not your library responded to the 1994 survey or is presently using the Internet. If you have any questions or have not received your survey by January 15, please contact:

John Carlo Bertot
SURVEY OF PUBLIC LIBRARY INTERNET USE
University of Maryland Baltimore County
Department of Information Systems
5401 Wilkens Avenue
Baltimore, Maryland 21228

Phone: (410) 455-3883
Fax: (410) 455-1073
email: bertot@umbc.edu

THANK YOU FOR YOU HELP!

Appendix C

Survey Cover Letter

United States
National Commission on
Libraries and Information Science

January 1996

Dear Public Library Director:

The U.S. National Commission on Libraries and Information Science (NCLIS) as a permanent, independent Federal agency, is charged by law (P.L. 91-345) to advise the President and Congress on National library and information services policies. In 1996 the Commission is conducting a study to assess public library use of the Internet. John C. Bertot, assistant professor at the Department of Information Systems, University of Maryland Baltimore County; Dr. Charles R. McClure, distinguished professor at the School of Information Studies at Syracuse University; and Dr. Douglas L. Zweizig, professor at the School of Library and Information Studies at the University of Wisconsin - Madison are investigators for NCLIS for the public libraries and the Internet project.

As a result of a similar study in 1994, NCLIS found that 20.9% of public libraries were connected to the Internet. The 1996 survey will chart 1994-1996 changes in the amount and type of public library connectivity. Study findings will provide essential information for libraries and policy officials about the type and costs of Internet services, as well as the options and benefits of Internet connectivity, especially in the provision of public access to the Internet. Your library's participation in this study will assist the National Commission in advising policy makers about the roles of public libraries in the National network infrastructure.

Your institution has been selected to participate in this study based on your response to the 1994 survey. Your library's response is very important to the validity of this study. Your library's response to the questionnaire accompanying this letter will be treated in confidence; no individual libraries will be identified in the NCLIS report resulting from this study. **A quick response survey questionnaire is attached to this letter. The survey asks about your library's plans for and/or present use of the Internet.** If you have a member of your staff who is responsible for your library's Internet connection, please forward this survey to that person for completion, after you have responded to the Library Director questions.

If you have questions regarding this survey please contact John C. Bertot, Department of Information Systems, University of Maryland Baltimore County, 5401 Wilkins Avenue, Baltimore, MD 21228-5398. Phone (410) 455-3883 - voice. Fax (410) 455-1073. Internet address: bertot@umbc.edu Thank you for taking the time to **return the completed survey questionnaire by 31 January 1995** by using the enclosed postage paid envelope. In appreciation for your cooperation, we will be pleased to provide you with a copy of the final project report.

Sincerely,

Jeanne Hurley Simon

Jeanne Hurley Simon
NCLIS Chairperson

About the Authors

John Carlo Bertot <bertot@umbc.edu> is Assistant Professor at the Department of Information Systems, University of Maryland Baltimore County, where he teaches courses in federal and state government information management and policies and management information systems. He has published articles and reports on federal, State, and county government information policy and the use of information technology to deliver government information and services. Most recently, he was co-author, with Charles R. McClure, of the *Sailor Assessment Final Report: Findings and Future Sailor Development* (Baltimore, MD: Division of Library Development and Services, 1996), a study undertaken to develop electronic network performance measures using Maryland's Sailor network, and *Internet Costs and Cost Models for Public Libraries* (Washington, DC: National Commission on Libraries and Information Science, 1995). He also served as co-principal investigator, with McClure, in the 1995 National Science Foundation - funded study, *Policy Initiatives and Strategies for Enhancing the Role of Public Libraries in the National Information Infrastructure.*

Charles R. McClure <cmcclure@mailbox.syr.edu> is Distinguished Professor at the School of Information Studies, Syracuse University, where he teaches courses in U.S. government information management and policies, information resources management, library/information center management, and planning and evaluation of information services. He completed his doctorate in library and information services at Rutgers University. He has authored some thirty monographs and over 180 articles, reports, and chapters on topics related to library and information center planning, evaluation, management, information resources management, networking, and government information. McClure's research activities have won a number of national awards from the American Library Association, the Association of Library and Information Science Education, and the American Society for Information Science. McClure is the associate editor *Government Information Quarterly* and was the founding editor of the journal *Internet Research: Electronic Networking Applications and Policy.* His latest books are *Assessing the Academic Networked Environment: Strategies and Options* (Washington, DC: Coalition for Networked Information, 1996) and his co-edited book *Federal Information Policies in the 1990s* (Norwood, NJ: Ablex Publishing Corp., 1996).

Douglas L. Zweizig <dzweizig@facstaff.wisc.edu> is a Professor at the School of Library and Information Studies at the University of Wisconsin-Madison. He has conducted national studies of literacy activities in libraries and financial practices in public libraries and publishes in the literature of planning and evaluation for libraries. From 1990 to 1994, he was the project director for the Public Library Association's Public Library Data Service. He has been actively involved in the American Library Association and is a frequent speaker at many professional meetings and conferences. From 1993 to 1995, he was the co-principal investigator for the U.S. Department of Education-funded project, "Evaluating Library Programs and Services," and lead author of *The TELL IT! Manual; The complete program for evaluating library performance* (Chicago: IL: American Library Association, 1996). He is co-author, with Charles R. McClure, of the publications *Planning and Role Setting for Public Libraries* and *Output Measures for Public Libraries*, 2nd ed. (Chicago: IL: American Library Association, 1987). Currently, he is co-principal investigator for the multi-year National Evaluation of the DeWitt Wallace-Reader's Digest Fund Library Power project.

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