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Public Libraries and the Internet 2007:

Report to the American Library Association

Submitted to:

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III. SELECTED KEY FINDINGS

The below presents selected key findings from the national survey. These are not meant to be exhaustive, but rather, serve to highlight a range of findings that the survey identified.

Libraries as Community Access Computing and Internet Access Points

Public libraries continue to provide important public access computing and Internet access in their communities:

- 99.7 percent of public library branches are connected to the Internet;
- 99.1 percent of public library branches offer public Internet access;
- 54.2 percent of public library branches offer wireless Internet access, up from 36.7 percent in 2006;
- 100 percent of urban library branches are connected to the Internet; and
- Public library branches have an average of 10.7 public access workstations, with rural libraries having an average of 7.1 workstations and high poverty libraries having 25.4 workstations.

Together these findings demonstrate the extent to which public libraries serve their communities through Internet connectivity.

The Infrastructure Plateau

Public libraries may have reached a plateau along two key infrastructure measures of Internet workstations and bandwidth. Key findings from the survey indicate that:

- In 2007, 32.9 percent of connected public library branches have connection speeds of 769kbps-1.5mbps, down slightly from 34.4 percent in 2006;
- In 2007, 29.2 percent have connection speeds of greater than 1.5mbps compared to 28.9 percent in 2006; and
- Bandwidth speed has decreased slightly since last year, with 62.1 percent of public library branches having connection speeds of greater than 769kbps in 2007 compared to 63.3 percent in 2006.
- The average number of public access Internet workstations is 10.7, a number that has not changed significantly since 2002 (2002: 10.8; 2004: 10.4; 2006: 10.7).

Clearly, the average number of workstations has remained consistent for four survey cycles. It remains to be seen if public library bandwidth is also beginning to plateau.

Future Developments

In the future, public libraries plan to add, replace, or upgrade workstations and make other enhancements to their public access computing and Internet access services:

- 17.2 percent of public library branches plan to add more workstations within the next year, while 21.7 percent of branches are considering doing so;
- 50.1 percent of public library branches plan to replace some workstations within the next year. Of the 50.1 percent of libraries, 25.0 percent have plans to replace a definite number of workstations, with an average replacement of 6.2 workstations;
- A total of 28.9 percent of public library branches plan to upgrade some workstations within the next year. Of the 28.9 percent, 7.1 percent have plans to upgrade a definite number of workstations, with an average upgrade of 6.6 workstations; and
- 17.4 percent plan to add wireless access within the next year, which means that over 71 percent of public libraries would then offer wireless access.

These data demonstrate the continual cycle of upgrades and enhancements that connectivity and public access computers require.

Challenges Remain

Challenges remain as public libraries continue to improve their public access computing and Internet access services:

- 52.3 percent of public library branches indicate that their connection speeds are inadequate to meet user demands some or all of the time;
- Only 21.9 percent of public library branches indicate that the number of workstations they currently have is adequate to meet patron demands at all times;
- 57.8 percent of public library branches have no plans to add workstations in the next year;
- Space (76.1 percent), cost factors (72.6 percent), and availability of electrical outlets, cabling, or other infrastructure (31.2 percent) most commonly influence decisions to add public access Internet workstations;
- Rural public libraries tend to have the fewest hours open, fewest public access workstations, fewest workstations to be added, replaced, or upgraded, and are less likely to offer public access Internet workstations; and
- Lack of space for workstations and/or necessary equipment (48.2 percent) and no access to adequate telecommunications services (27.1 percent) most commonly influence public library branches' ability to provide public Internet access to patrons.

The data show, therefore, that although public libraries provide a wide range of Internet-based services and resources, along with a robust public access computing infrastructure, public libraries are under pressure to meet all the demands that public access computing requires, face a range of limitations, and may even be at capacity or unable to overcome some barriers (e.g., space and other physical plant limitations).

IV. SELECTED IMPLICATIONS FROM THE SURVEY

This section discusses selected key implications of the survey's findings. In doing so, the discussion looks across a range of data from the survey to identify key issues and challenges that public libraries face in providing, maintaining, and enhancing public access to the Internet and computing.

The Addition, Upgrade, and Replacement Challenge

The survey data indicate (see Figures 7 through 14) that the average number of public access workstations is 10.7, a figure that has not changed significantly since the 2002 *Public Libraries and the Internet* study (the average number in 2002 was 10.8; the average number in 2004 was 10.4; the average number in 2006 was 10.7). Moreover, Figures 9 through 11 demonstrate that libraries are by and large not adding workstations (58 percent of libraries have no plans to add workstations in the coming year, and another 29 percent are "considering" adding but don't know how many). Nor are libraries upgrading existing workstations; rather, they are essentially pursuing a workstation replacement strategy (nearly 50 percent, see Figure 10).

Combined with the survey data on wireless Internet access in which respondents indicated that 51.9 percent of libraries are providing wireless access to expand service rather than adding workstations (see Figure 17), it is clear that public libraries are neither adding nor upgrading workstations. Instead, they are replacing what workstations they have to the extent possible and expanding public access by allowing patrons to bring in their own technology.

Reasons that respondents cited for the inability to add workstations (see Figure 13) include space (76.1 percent), cost (72.6 percent), and infrastructure (e.g., cabling, electrical outlets; 31.2 percent). Reasons cited for the inability to replace public access workstations include cost (84.1 percent), maintenance (maintenance (37.8 percent), and staff (28.1 percent) (see Figure 14). Thus the challenges faced by libraries in enhancing their public access workstation infrastructure include a range of cost, building, and personnel issues.

The Infrastructure Challenge

The 2007 survey asked a range of questions that assessed the ability of public library infrastructure to provide public access Internet and computing services. The questions were exploratory and provided initial views of library capabilities. Essentially, respondents reported that they face a range of challenges that are best summarized as follows (see Figures 13 through 15 and 17):

- Building. Library buildings are out of space and cannot support more workstations; they are insufficiently wired to support more cable drops; and they are insufficiently wired for the power requirements of workstations and patron-provided laptops.
- Cost. Respondents indicated that funding workstation replacements, upgrades, bandwidth enhancements, and a range of other services related to public Internet access and computing was a major issue.

- Staff. Respondents indicated that staff skills and time were factors in their decisions to upgrade their public access infrastructure. Lacking dedicated IT staff proved a particular burden to many public libraries.

Together, these data point to what may be the beginning of a trend: that public libraries have essentially added as much public access infrastructure possible with their current buildings. Moreover, they have a range of challenges in moving the public access technologies forward with their current funding and staffing levels and skills.

Quality of Public Access

A key issue woven through the survey's findings is that, while public libraries provide a substantial *amount* of public access Internet and computing service, the overall physical infrastructure they are able to provide may be lacking in *quality*. Take the below data points as examples:

- Bandwidth has essentially remained unchanged since the 2006 survey. For example, 62.1 percent of public libraries report connection speeds of greater than 769kbps, as compared to 63.3 percent in 2006 (see Figure 19).
- Overall, 16.6 percent of respondents reported that their connection is the maximum speed that they can acquire, 18.1 percent cannot afford to increase their bandwidth, and 19.3 percent indicated that they could increase their bandwidth but had no plans to do so. Thus, over 50 percent of libraries indicate that they will not be increasing their bandwidth for a range of reasons – affordability, ability, or availability (see Figure 23).
- At the same time, roughly 52 percent of respondents reported that their connectivity speed is insufficient some or all of the time (see Figure 22). This is up about 6 percent from 2006.
- Nearly 80 percent of respondents report that they have insufficient workstations some (58.8 percent) or all (18.7 percent) of the time (see Figure 15). These figures are fairly consistent with the 2006 survey findings, in which 13.7 percent of respondents reported insufficient workstations all of the time and 71.7 percent of respondents reported insufficient workstations some of the time (see Figure 32 in the 2006 report).
- Just below 50 percent of public libraries report that their wireless connections share the same bandwidth as their public access workstations (see Figure 21).

Together, these data point to a public library public access infrastructure that is increasingly unable to keep up with the demands of the Web 2.0 environment[1] – an environment that requires increasingly sophisticated workstations, substantial bandwidth, and a range of resources that libraries are beginning to indicate that they may not be able to support.

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[1] Originally a phrase coined by O'Reilly Media, Web 2.0 in general refers to Web-based technologies which promote and facilitate interaction and collaboration among and between a range of user groups. These technologies require libraries to provide an increasingly complex range of computing and bandwidth technologies.

The Technology Budget Challenge

The survey asked libraries to identify their technology budget expenditures by a broad range of categories by fiscal year – staff salaries, hardware, software, and telecommunications. Respondents by and large were unable to provide answers to these questions, as there was a roughly 50 percent drop off in question completion on these items (see Figures 51 through 66). Discussions with librarians completing the survey indicated a range of reasons for their inability to answer the technology budget questions accurately. These include the following:

- Lack of a technology budget. A number of respondents, particularly those from smaller rural libraries, stated that their libraries do not have a separate technology budget and that all funds are expended from a general operating budget. In short, there is only ad hoc technology budgeting in these libraries.
- Lack of knowledge regarding technology expenditures. Some respondents indicated that their libraries have a general technology budget, but that they do not formally track their technology expenditures.
- Inability to report as asked. For some respondents whose libraries do have technology budgets, they were unable to report the technology expenditures as requested due to their library's internal or city/county budgeting processes.
- Time factor. Some respondents simply indicated that they were unwilling to take the time to complete the budget questions, as the questions were time consuming.

With this limited knowledge of expenditures related to Internet services and infrastructure, planning for future Internet services and infrastructure becomes problematic. In addition, this limited knowledge of expenditures related to Internet services and infrastructure also limits how well the librarians can evaluate the purchase and use of this technology. Thus, if the public library community wishes to improve its overall management (planning and evaluation) of technology in the library, better control over technology-related expenditures is necessary.

Extensive Range of Library Services Provided

The data document a very broad range of Internet-based services provided by public libraries. When one reviews the types of Internet services libraries provide that are considered critical (Figure 24), the overall growth in Public Access Internet Services (Figure 27), the types of technology training provided (Figure 25) and expanding services such as E-government (Figure 29), this range of services is significant. And for many communities, the public library is the only organization in that community that can provide these services. Indeed, as Figure 31 indicates, 73.1 percent of respondents indicate that their public library is the only provider of free public Internet access in the library's community.

Interestingly, the Federal government provides only very limited direct technology support to public libraries (Figures 51-58), yet the argument could be made that the many Internet-based services libraries provide – and especially E-government services – directly support numerous Federal programs and services. With public libraries moving into the provision of disaster and emergency planning services (Figure 28), many of which support the

Federal government, a reconsideration of the nature and extent of Federal technology support to public libraries may be needed.

The challenge for public librarians is the degree to which they can maintain and/or expand upon these services in the future. With the rapid development of new services and applications that the web environment produces and the move to Web 2.0 applications, librarians will be challenged to both provide quality bandwidth, information technology infrastructure as well as new services.

Importance of Public Library Provided Internet Access

Taking a broad view of the survey findings clearly demonstrates, for a range of reasons, the importance of public library provided Internet access. The range of services provided by the public library in the Web-based environment includes support of education (K-12 and beyond); E-government services; electronic reference services; access to an astounding amount of books, reports, articles and other material; communication with others around the country and the world; and numerous indicators of how this public access improves the users' overall quality of life (see also Figure 27 and 28).

Two additional factors indicating the importance of public library provided access are first, that that nation-wide, 73 percent of libraries responded that they are the only free public access to the Internet in their community (Figures 31 and 93) and second, that the demand to use the public access workstation is consistently greater than the workstations available (Figures 15 and 70). In short, the impacts and benefits resulting from public library free public access to the Internet is significant – and were it not for public libraries many residents of the country would have significantly reduced Internet-based services or no access/services at all.

V. ADDITIONAL VIEWS OF THE DATA

In addition to the national and state-level crosstabulation and frequency data analysis, the study team engaged in geographic information system (GIS)-based analysis of selected survey data. The goals of this analysis were to:

- Conduct preliminary experimental data analysis at the state level to represent national trends;
- Demonstrate the potential of GIS-based analysis;
- Provide alternate views of the survey data; and
- Graphically represent additional analysis.

Below are selected graphical representations of public access workstation, bandwidth, and wireless connectivity.

As Figure GIS-1 demonstrates, the Southwestern, Southeastern, selected Midwestern, and Midatlantic states, as well as California, tend to have the highest average number of public access workstations available for patron use. Figure GIS-2 shows that wireless access is most prevalent in Texas, selected Midwestern states, and the Northeast.
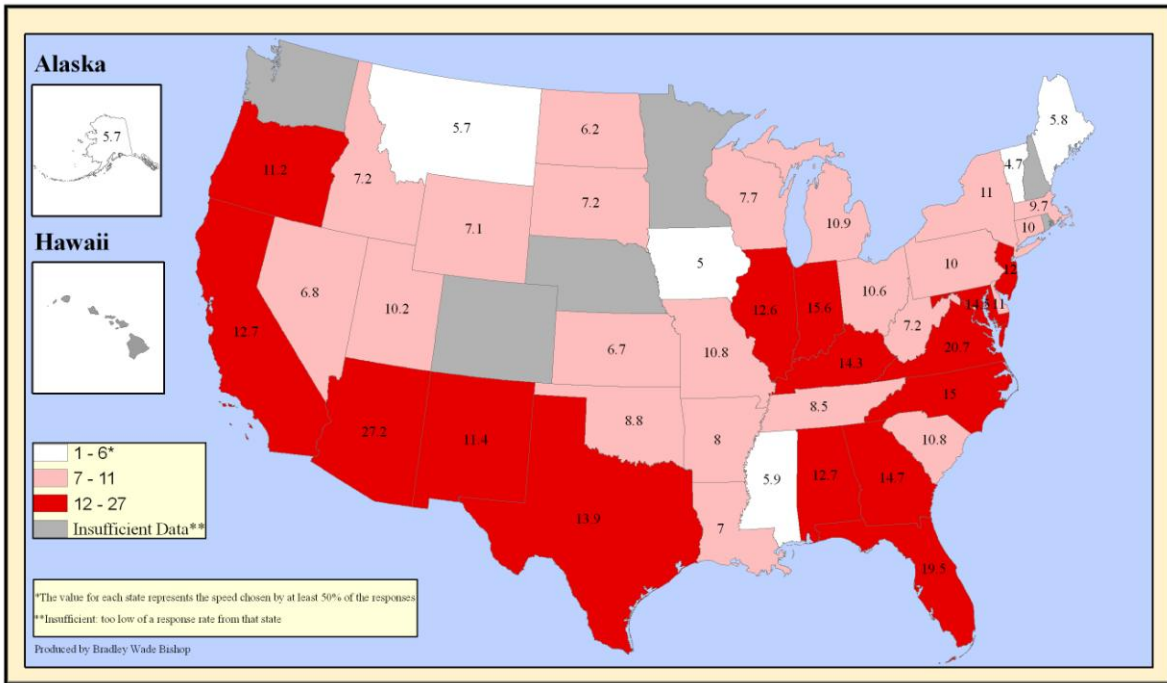
Figure GIS-1. Average Number of Public Access Workstations by State.
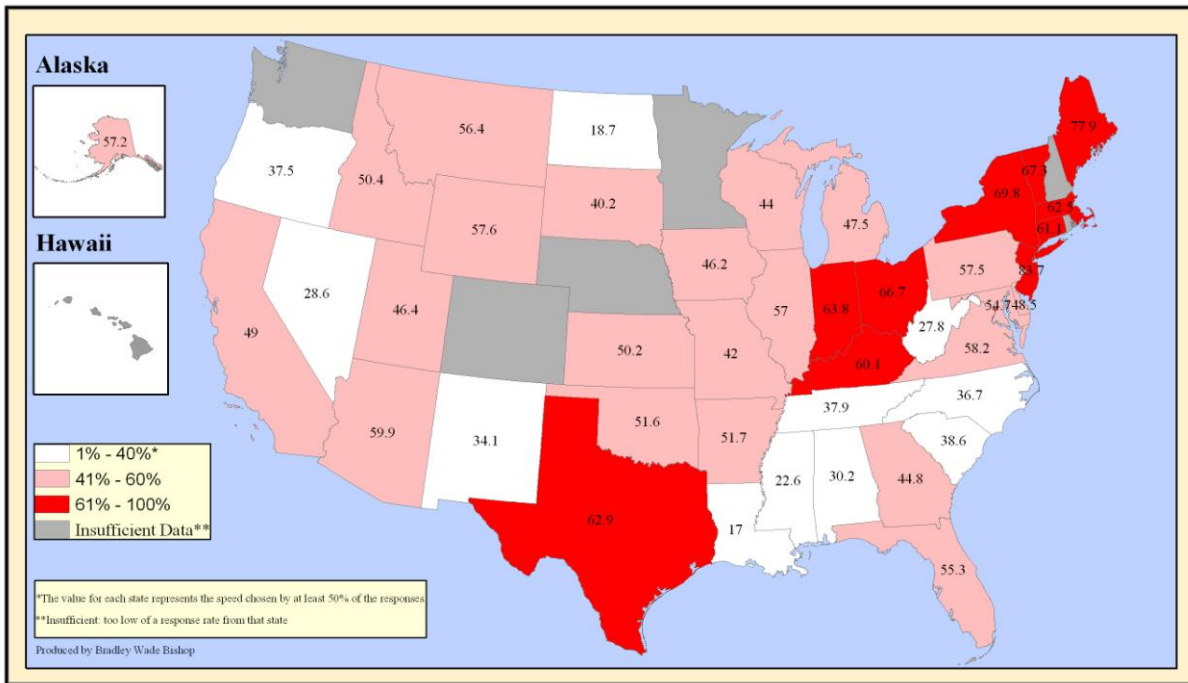
Figure GIS-2. Wireless Internet Access by State.

Figure GIS-3 offers a view on public library bandwidth. By looking at public library bandwidth below 769kbps, greater than 769kbps but less that 1.5MBPS (T1), and 1.5MBPS (T1) or greater, it is clear that few states have 50% or more of their public libraries with connections of a T1 or greater. Indeed, Arizona, Maryland, and Connecticut are the only states in which 50% or more of their public libraries have T1 or better connectivity. The data also show that the rural states by and large, though not in all cases, to have low connectivity speeds.
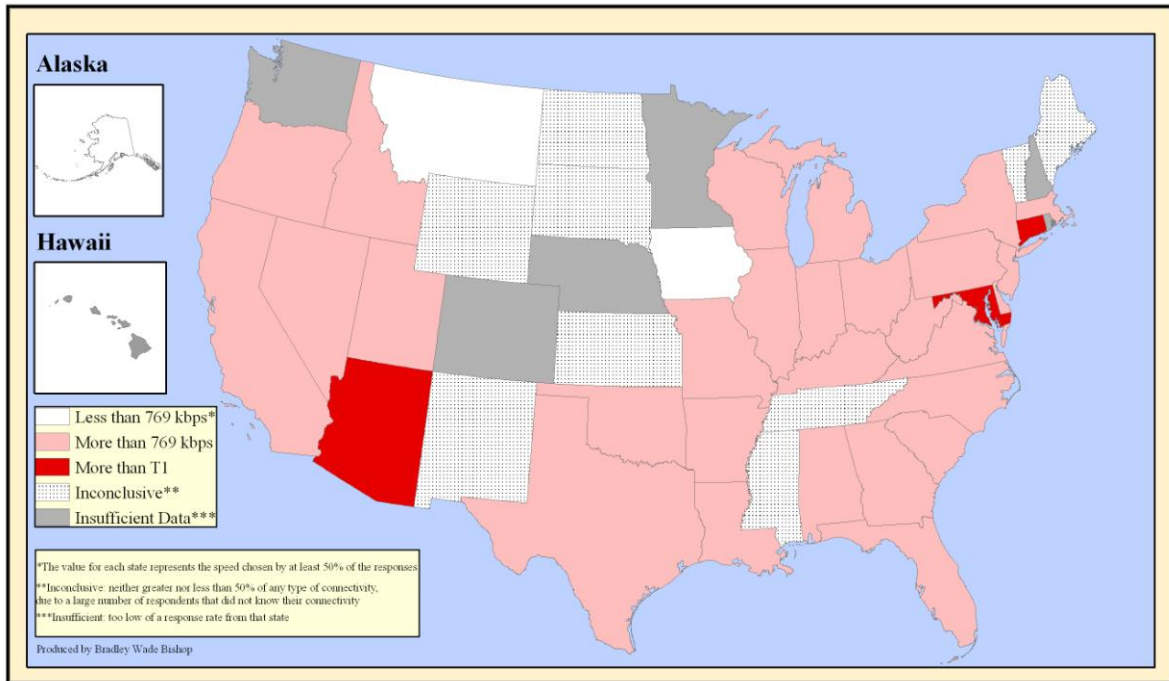

Figure GIS-3. Public Library Bandwidth by State.

There are a range of additional figures that could be generated from the survey data. The above are merely some selected findings for illustrative purposes. And yet, they demonstrate that the data can show different trends when represented through GIS analysis.