

Technology Plan

for the

Harnett County Public Library

2007-2012

RB Software & Consulting
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Executive Summary

This report makes the following recommendations for consideration by the staff of the Harnett County Public Library.

1. The Harnett County Public Library should centralize control of the technologies used in its member libraries. *(Centralizing control over the technologies used by the member libraries would solve several problems in the application of these technologies to library service. Centralizing control would also make it easier for the library staff to manage the technologies.)*
2. The Harnett County Public Library should implement a new fiber optic network. *(The increased bandwidth provided by the proposed network will provide faster access to the Internet for the staff members and users at the member libraries. Such a network will also provide better overall management of the library's technology resources.)*
3. Following the implementation of a new fiber optic network, the Harnett County Public Library should implement wireless access at all member libraries. *(Users will be able to connect to the network from a wider range of locations and will be able to save work to their own computers.)*
4. The Harnett County Public Library should purchase an automated telephone notification and renewal module for its integrated online library system. *(The module will free staff to focus on other work, provide more effective notifications to library users at less expense, and provide information about the library and about user accounts 24 hours a day, 7 days a week.)*
5. The Harnett County Public Library should investigate, but not purchase at this time, the federated search and Web portal available for its integrated online library system. *(While the tools provided by Vspaces represent enhancements to the typical search process, it is not clear that the benefits outweigh the costs to the library at this time.)*

6. The Harnett County Public Library should implement a system to manage its public computers. *(The heavy use of the library's public access computers requires a great deal of staff oversight. Without a system to automatically manage the public computers, the staff of the library will be called upon to devote more time to these day-to-day problems.)*
7. The Harnett County Public Library should implement self check-out at its headquarters library in Lillington. *(One way of relieving the heavy workload on the library staff is to enable the library's users to check out their own materials.)*
8. The Harnett County Public Library should investigate RFID technology for inventory control, loss protection, and self check-out. *(An RFID system will improve the efficiency of staff members in checking materials out and in, inventorying the materials, ensuring that materials are reshelved correctly, and protecting the materials against theft.)*
9. The Harnett County Public Library should evaluate its Website to enhance its ability to promote the library and its programs and services. *(An improved Website will benefit library users by providing them with more information and better access to the library's programs and services.)*
10. The Harnett County Public Library should continue to focus on training its staff to make better use of the new technologies. *(In order to ensure the proper and effective use of the technology, a firm commitment to staff development is needed. Otherwise, the benefits of the technology will not be fully realized.)*
11. The Harnett County Public Library should explore alternatives for funding the new technologies. *(Funds must be obtained to acquire the hardware, software, licenses, services, and staff needed to implement the recommendations of this plan. Furthermore, funds must be budgeted annually to maintain existing technology, to update or replace obsolete technology on a regularly scheduled basis, and to provide necessary staff support.)*
12. The Harnett County Public Library should establish a framework and methodology for ongoing technology assessment, planning, and budgeting. *(A good planning process is needed to ensure the best return on the library's investment.)*

Introduction

The Harnett County Public Library, with a headquarters in Lillington, North Carolina, is a public library serving the citizens of Harnett County through its headquarters library as well as member libraries in Anderson Creek, Angier, Coats, Dunn, and Erwin. The Harnett County Public Library currently receives funding primarily from two sources: local funds from Harnett County and state aid from the State of North Carolina. In addition, the library receives occasional funding through federal aid from the Library Services and Technology Act, which is administered by the State Library of North Carolina, and non-governmental grants. The library also receives a discount on telecommunications services through the Universal Service program, established by the 1996 Telecommunications Act.

In January 2007, the Harnett County Public Library received a federally-funded LSTA (Library Services and Technology Act) grant to develop a technology plan for its library system. The library's previous technology plan was out of date, and as the library staff noted in their grant application, "the library needs to have an updated plan that addresses the use of technology in providing ... services to users." The library staff were also motivated by the fact that "the library's current technology plan for Universal Service Discount eligibility expires on June 30, 2007. An updated plan is needed."

The library contracted with Dr. Robert Burgin of RB Software & Consulting of Cary, North Carolina, for the development of the technology plan. An outside consultant was sought due to the lack of staff time and expertise in this area, and Dr. Burgin was selected due to his 30 years of experience in library education, library consulting, and library administration.

The recommendations made in this report are based on information gathered during site visits to the Harnett County Public Library on August 29, 2006, and February 23, 2007, as well as telephone and email communications with various individuals.

The recommendations in this report form the basis of a five-year technology plan for the Harnett County Public Library.

Areas of Strength

While it is the nature of a technology plan to focus on areas where improvement in the use of technology is needed, it should be pointed out that the Harnett County Public Library displays several areas of strength with respect to its use of technology to support and enhance library services to its users. The library and its staff should be commended for these accomplishments.

Vubis Smart Integrated Online Library System. The Harnett County Public Library currently uses Infor's Vubis Smart integrated online library system to support a wide range of library functions, including the circulation and cataloging of materials, the provision of an online catalog of the library's holdings, the management of serials, the acquisitions of new materials, the management of community information, and the management of digitized information. The major components of the system include:

- Circulation, which allows staff to efficiently check out materials to users and to check in materials that users have returned. The module also allows staff to monitor overdue materials and items that users have placed on reserve. The circulation module must support a quick interaction with users in order to ensure a high degree of user satisfaction.
- Cataloging, which allows staff to manage the central database of the library's holdings. Because all of the other modules access this central database to carry out their work, the cataloging function is extremely important to the efficient operation of the entire integrated online library system.
- The online catalog, which allows staff and users to access a wide variety of library resources, including the records that were traditionally maintained in the library's card catalog. Again, the ability of the online catalog to provide users with adequate search tools is very important in helping users find the materials to meet their needs.

- The serials module, which helps staff manage the 400-plus serials that the library subscribes to.
- The acquisitions module, which allows staff to order and keep track of orders for the 11,000 or more books that are added to the collection every year.
- The community information module, which allows the staff to make information about churches, civic organizations, businesses, and health-related organizations available to the library's users through the online catalog.
- The digital module, which allows the staff to make 800 historically significant local photographs available to the library's users through the online catalog.

There is little doubt that the Vubis Smart system makes the work of the library staff far more efficient and effective than would be possible in a manual environment. Likewise, the provision of public access to the library's catalog and other resources improves the level of service that can be offered to the users of the library. The fact that every public library in North Carolina that is eligible for state aid and every college and university library in North Carolina uses an integrated online library system is evidence that these systems are essential to the day-to-day functioning of such libraries.

The Vubis Smart system that the Harnett County Public Library uses is one of the ten most frequently used systems by public and academic libraries. According to the most recent *Library Journal* report (April 1, 2007), the Vubis Smart system is installed in over 270 libraries worldwide and is supported by a staff of 77.

The Harnett County Public Library is the only library in North Carolina to use such a system, but the library staff are very familiar with the system and appear to be using the full extent of its capabilities. Staff members of the Harnett County Public Library are also heavily involved in the international users' groups for customers of Infor's Vubis Smart system. One staff member is the group's treasurer, and another is a former president. Continued participation in the users' group is important, because it enables users of the Vubis Smart system to help one another with problems and because it allows the library staff to be aware of new developments with the vendor's products and to be aware of any problems with the Vubis Smart system that other libraries have faced and resolved.

Network Support Manager. The Harnett County Public Library is fortunate to have a staff member to manage and coordinate its technologies. Having a Network Support Manager on staff is consistent with the generally-accepted rule of thumb that an organization should have one support staff position for every forty to fifty workstations and with the North Carolina Public Library Directors Association's 1998 "Guidelines for North Carolina Public Libraries" (<http://statelibrary.dcr.state.nc.us/ncplda/guidelines.htm>), which recommend that "At least one full-time computer technician is designated for every 50 computer workstations and related printers and peripherals."

Not only is the position valuable, but the individual who currently serves in the position is highly knowledgeable and has a good understanding both of the current technologies used by the library as well as the areas in which improvements are possible. As the "Network Evaluation" performed by Virginia-based Vitruvian Technologies, Inc., (see Appendix 1) points out, "Overall IT support for this library system is well above the normal for most public library systems in rural area."

Number of Internet-accessible computers. According to the 2005-2006 statistics from the State Library of North Carolina (the most recent available), the Harnett County Public Library provides 3.20 public Internet-accessible computers per 5,000 people served. This ranks 15th of the 50 county libraries in North Carolina and is well above the median of 2.65 computers per 5,000 people served.

Many of these computers were originally provided by a grant of \$116,000 from the Bill and Melinda Gates Foundation's Library Program in 2000-2001 and a \$26,000 Gates Foundation Staying Connected Grant for the purchase of more Internet-accessible computers in 2005-2006. The Harnett County Public Library also benefits from a strong equipment replacement policy and a leased plan for its staff computers.

Recommendation 1

The Harnett County Public Library should centralize control of the technologies used in its member libraries.

Assessment of the Current Situation

The Harnett County Public Library is made up of a headquarters library in Lillington and member libraries in Anderson Creek, Angier, Coats, Dunn, and Erwin. However, the libraries operate as more or less independent libraries and not as a single countywide library system *per se*.

For example, the headquarters library in Lillington (which is designated by the State Library of North Carolina as *the* Harnett County Public Library) receives funding from the county of Harnett, and some of these funds are used to support the operations of the member libraries. In fact, the staff of the headquarters library estimate spending over \$60,000 per year on the member libraries, based on 2005-2006, the last complete fiscal year at the time this report was written. Costs for services provided to the member libraries include the following.

- Books for the member libraries are cataloged at an approximate cost of \$20,600 per year.
- Software maintenance for the Vubis Smart integrated online library system is provided at a cost of over \$14,700 per year.
- Software for the public computers at the member libraries is provided at a cost of almost \$4,000 per year.
- DSL for the member libraries is provided at a cost of approximately \$3,200 per year.

- Overdue notices are mailed for the member libraries at a cost of approximately \$2,670 per year.
- Barcode labels for the member libraries' books are provided at a cost of nearly \$275 per year.

On the other hand, the member libraries also receive funding from the municipalities in which they are located. These funds are appropriated to the member libraries and are allocated by the member libraries without any oversight or control by the staff of the Harnett County Public Library. In 2006-2007, these appropriations were estimated to be \$132,400 for Angier, \$19,379 for Coats, and \$191,615 for Dunn.

The staff of the member libraries are also employees of the municipalities in which the libraries are located. The director of the Harnett County Public Library has no authority over these employees.

This lack of central control over the operations of the member libraries extends to the technologies used by these libraries and introduces problems in the application of these technologies to library service at the member libraries. These problems include:

- **Lack of consistent funding for equipment.** There is no consistent funding for new equipment and equipment replacement throughout the member libraries. Some of the computers used in the member libraries were purchased by the Harnett County Public Library or provided through grants. Others have been purchased by the local municipalities. The result is that some of the computers in the member libraries are quite old; some machines were purchased in 2001 and are well beyond their usable life. Likewise, because some of the computers are owned by the member libraries, it is also harder to provide consistent computing resources among the member libraries. The Harnett County Public Library cannot move computers from member library to member library as needed to equalize the resources in each library.
- **Lack of consistent technology use policies.** Because technology use policies are controlled locally by the individual member library, session lengths on public

computers, policies concerning which specific Websites can be accessed, and filtering options on individual machines are not consistent from library to library.

- **Lack of consistent network security.** There is no consistent application of firewall technology throughout the member libraries, and the Internet connections at the member libraries are thereby less secure than they should be. None of the member libraries uses a firewall beyond what is built into the routers being used to provide access to the Internet. While the router firewalls do provide some degree of protection against hackers and other unwanted intrusions, they do not provide the high level of protection provided by a more comprehensive solution like the SonicWall firewall that is used at the headquarters library in Lillington.
- **Lack of consistent Websites.** While some of the member libraries have their own Websites, there is no consistent look and feel among the Websites of the libraries in Harnett County. Furthermore, neither the Angier Library's Website (<http://www.angier.org/departme-707.asp?d=38&s=detail>), the Dunn Library's Website (<http://www.dunn-nc.org/library/>), nor the Erwin Library's Website (<http://www.erwin-nc.org/dept-library.cfm>) links to the Harnett County Public Library Website.

These inconsistencies result in a lower quality of library service to the citizens of Harnett County and its municipalities. These inconsistencies also make the management of technology on the part of the library staff members more difficult and less efficient than might be the case if there were more central control over the technologies.

Recommendation

The Harnett County Public Library should centralize control of the technologies used in its member libraries.

Centralizing control over the technologies used by the member libraries would solve the problems in the application of these technologies to library service mentioned

above. Centralizing control would also make it easier for the library staff to manage the technologies.

- **Lack of consistent funding for equipment.** Centralized funding for the equipment used in the libraries in Harnett County would result in both newer equipment in the libraries and more consistent computing resources among the libraries. The Harnett County Public Library would be able to move computers from member library to member library as needed to equalize the resources in each library. As Vitruvian's "Network Evaluation" notes, "If all library assets were owned and controlled by the County Library system, the library could move patron machines from branch to branch as necessary to equalize the resources in each branch much better. This would also allow for better 'flight' management and would reduce the resources needed to manage these machines." Furthermore, computers could be allocated so that those being used for a given function would be the same model or as close as possible to the same model. As Vitruvian's "Network Evaluation" argues, "This method significantly reduces the work necessary by the library to maintain the machines."
- **Lack of consistent technology use policies.** If technology use policies were controlled centrally, then policies like session lengths on public computers and filtering options on individual machines could be consistently enforced from library to library. This would provide more consistent service to the users of the libraries in Harnett County and make the management of the resources easier.
- **Lack of consistent network security.** Implementing the SonicWall firewall that is used at the headquarters library in Lillington would provide the member libraries with stronger security for their Internet connections.
- **Lack of consistent Websites.** Centralized control of the Websites of the libraries in Harnett County would lead to a more consistent look and feel for these sites and would ensure that each library's site links to those of the other libraries in the county. The result would be better Web-based services to the citizens of Harnett County.

True county system. The current independent status of the member libraries is tied to issues that extend beyond those related to the technologies, of course. In fact, the lack of centralized control over the operations of the member libraries runs counter to the standard model of county library service in North Carolina. Almost all of the county libraries in North Carolina are true *county* systems, meaning that funding and staff are provided at the county level. Staff are county employees and are supervised by the county library director. This approach has proven to be far more efficient and effective in providing library services than the fragmented approach of having service provided by individual municipal libraries.

It is beyond the scope of this technology plan to make specific recommendations regarding the governance of the public libraries in Harnett County, but it is strongly suggested that having a true county system would lead to better library service to the citizens of Harnett County.

There are many ways in which a partnership between the municipal governments and the county government could be established. In some county systems, for example, the municipalities provide the library facilities and the utilities while the county provides funding for staff, materials, and other operating expenditures.

The library staff is encouraged to explore the different ways in which a true county system might be established and operated in Harnett County. The assistance of State Library staff or even an outside consultant should be considered. The library staff may also wish to consult with the directors of other county libraries that have recently made the transition to county department status. Two of the most recent are the Burke County Public Library in Morganton and the Cleveland County Library System in Shelby.

Leveraging current support. As an alternative, the Harnett County Public Library staff may consider leveraging its support to the member libraries by contracting with the libraries to provide these services. In return, the member libraries would agree to abide by countywide policies and procedures and would risk losing the services if they violate the terms of the contract. For example, in return for the use of the Vubis Smart integrated online library system (for which the Harnett County Public Library

provides software maintenance and hardware), the member libraries would agree to implement consistent policies for checking out library materials. In return for participating in programs such as the Gates Foundation's Library Program, which provided the member libraries with four computers and a server each, the municipalities would agree to fund an equipment replacement policy similar to that of the Harnett County Public Library. In return for the use of DSL connections to the Internet and antivirus software for the public computers (which the Harnett County Public Library provides), the member libraries would agree to use consistent, countywide policies regarding session lengths on public computers, which specific Websites can be accessed, and filtering options on individual machines.

Such attempts to leverage support to the member libraries is, of course, politically sensitive, and the library staff would need to consult with the County Attorney and the County Manager before proceeding, but the option should be considered.

Potential Costs

The ideas explored in this recommendation address the ways in which funds are allocated and should not result in added costs. In fact, establishing centralized control of the technologies used by the libraries in Harnett County should result in more efficient management of the resources and could save money and staff time.

Recommendation 2

The Harnett County Public Library should implement a new fiber optic network.

Assessment of the Current Situation

The Harnett County Public Library currently provides Internet access to its branches in the following manner:

- Headquarters library in Lillington: 5 MB connection, shared with the Harnett County government offices
- Angier, Coats, Dunn, and Erwin Libraries: 5 MB DSL connections paid for by the Harnett County Public Library
- Anderson Creek Library: Local school network connection ¹

The DSL connections at the member libraries are too slow, according to feedback from the library staff. As the library staff noted in their grant application, “there have been complaints from staff and users at the branch libraries about the lack of adequate Internet bandwidth.” Slow connectivity is a particular problem in Dunn, the largest of the member libraries.

The member library Internet connections are also less secure than they should be, because none of the member libraries uses a firewall beyond what is built into the routers being used to provide access to the Internet. While the router firewalls do provide some degree of protection against hackers and other unwanted intrusions, they do not provide the high level of protection provided by a more comprehensive solution like the SonicWall firewall that is used at the headquarters library in Lillington.

¹ The assessment and recommendations outlined here do not pertain to the Anderson Creek Library, which is currently on and will remain on the school network.

The Harnett County Public Library plans to improve the bandwidth and security provided to the member libraries by migrating to a Sprint/Embarq fiber optic network at the beginning of the 2007-2008 fiscal year. The planned network will connect the member libraries directly to the headquarters library in Lillington via a connection that provides 10 MB of incoming bandwidth and 5 MB of outgoing bandwidth. All Internet traffic will be routed through Lillington via a 5 MB Sprint/Embarq direct connection to the Internet. The proposed network will also allow for a single central firewall at the network perimeter as opposed to the individual SonicWall firewalls currently used at the member libraries.

The library has applied for an E-rate discount to assist with the costs of implementing the network.

Recommendation

The Harnett County Public Library should implement a new fiber optic network.

The increased bandwidth provided by the proposed network will resolve the slow DSL connections at the member libraries and thereby provide faster access to the Internet for the staff members and users at these libraries. The proposed network will also provide better overall management of the library's technology resources.

Improved network performance. The increased bandwidth provided by the proposed network will improve services to both library users and library staff. Users will have faster access to the Internet. Library staff will see faster response times when using the Vubis Smart integrated online library system and other applications that rely on the network between the libraries. As Vitruvian's "Network Evaluation" notes, "The library should also see significantly improved network performance in their automation system and other network critical applications."

The increased bandwidth will resolve current problems related to the slow DSL connections at the member libraries and will enable the Harnett County Public Library to implement wireless access at all member libraries. (See Recommendation 3.)

Improved management of technology resources. While the improved network performance due to increased bandwidth may be the most obvious result of the proposed network, improved management of technology resources may be the most important, and the library staff should take advantage of the opportunities provided by centralized solutions for security updates, antivirus software, and the like. As Vitruvian's "Network Evaluation" points out, "Centralized solutions for security updates, antivirus software, etc. can be deployed, thereby reducing overall management tasks necessary to maintain the machines."

As noted earlier, the proposed network will allow for a single central firewall at the network perimeter as opposed to the individual SonicWall firewalls currently used at the member libraries. Consolidating these separate firewalls into a single firewall will greatly simplify the overall security of the network. In addition, because the SonicWall firewall can be used for content filtering, a single central firewall will allow the library to standardize content filtering throughout the system. Centralized content filtering is highly recommended, given the State Library of North Carolina's requirement that every library applying for funding through the State Library filter the library's Internet-accessible computers and enforce an Internet safety policy. Because of this requirement, it is far better that content filtering be handled centrally and consistently than left to the individual member libraries.

Another example of improved management of technology resources is antivirus support. Currently, antivirus protection is provided at the headquarters library in Lillington by Trend Micro, using a centralized server-based network management approach. However, in the member libraries, antivirus protection is provided by Symantec's Norton Antivirus at the individual machine level. The proposed network will allow the member libraries' computers to be protected using the server-based network management approach provided by Trend Micro. This centralized approach will standardize antivirus protection throughout the network, thereby providing better protection against viruses and more timely and consistent updates to virus signatures. The result will be better antivirus protection in all of the member libraries.

Finally, the proposed network will also enable desktop security on the public computers to be standardized using the network-controllable Centurion Guard software

that is already in place at the headquarters library in Lillington. This standardization will result in better security in all of the member libraries.

Service at specific member libraries. The “Network Evaluation” provided by Vitruvian makes specific recommendations at two of the member libraries, and the library staff should take these into consideration. First, the evaluation argues that new network drops in Erwin are not needed, even though Sprint/Embarq has recommended these in order to take advantage of the proposed network. According to Vitruvian’s report, “Given that the network connection from Erwin to Lillington will be a maximum of 5MB and the internal network will typically run at 100MB (provided the common switch for those machines is a 100MB switch and not an older 10MB switch), there is no advantage to adding additional network drops. If the switch is an older 10MB switch, it should be upgraded to a 100MB switch. The actual network choke point is on the Sprint/Embarq side – not the Erwin branch internal network.”

Security audit. While the proposed network will provide many advantages to the Harnett County Public Library staff and users, there are also some added security concerns. For example, as the Vitruvian “Network Evaluation” points out, “With the proposed topology, a patron with a laptop using a branch library’s wireless connections to the internet will be behind the library’s firewall.”

These security issues can be dealt with, but the library staff and the county IT staff need to be aware of such concerns. The “Network Evaluation” performed by Vitruvian notes that the security issues “can be overcome using the routers and library managed switches and wireless access points” and recommends that “A thorough network security audit should be performed during and after the transition to the new topology.”

In order to mitigate the risks to its computer hardware and infrastructure, the Harnett County Public Library should conduct a one-time full security audit of its networked resources and should then conduct annual audits. A complete security audit will perform both external and internal tests. For example, tests from outside the library can identify any weaknesses in the infrastructure by using the same tools available to

hackers as well as specialized network and security software. Tests from inside the library can identify vulnerabilities through tests conducted without special access to the network as well as tests conducted with full administrative access to the network. All computers can be checked to ensure that security patches and services packs are installed for all software on the machines. Issues related to the library's security policies can be examined as well as physical security.

Potential Costs

Improved network performance. The cost of the proposed fiber optic network is \$75,000 per year for the first three years. The annual cost may be less after the first three years of operation.

The library has applied for an E-rate discount to assist with the costs of implementing the network. If the application is approved, then implementation should begin in early July 2007. The library hopes to receive approval in June 2007.

If the library does not receive the E-rate discount, it is not clear whether they will be able to afford the network. This would be unfortunate, because in spite of the high cost of the proposed network, the benefits to library staff and users would be substantial.

If the library does not receive the E-rate discount, the staff should request the funds from Harnett County as part of its local allocation to the library. If that request is not successful, then the library staff should explore alternatives for funding the proposed network. (See Recommendation 11.)

Improved management of technology resources. The costs associated with improving the management of technology resources have been included in the proposal for the fiber optic network. These include a new firewall, which will cost approximately \$5,000 and will allow for a single central firewall at the network perimeter as opposed to the individual SonicWall firewalls currently used at the member libraries.

The costs of additional licenses for Trend Micro antivirus protection are also included in the proposal and total approximately \$3 per computer per year. Because

the licenses for Trend Micro antivirus protection are less expensive than the licenses for the Symantec product currently used by the member libraries, the overall cost to the Harnett County Public Library system will be less.

Licenses to allow desktop security on the public computers in the member libraries to be standardized using the network-controllable Centurion Guard software would total approximately \$32 per computer to purchase and \$3 per year per computer to maintain. There are 25 computers in the member libraries that would connect to the proposed network, so the total cost of this recommendation will be \$800 to purchase and \$75 per year to maintain.

Service at specific member libraries. If a 100 MB switch is needed at the Erwin library, then one can be purchased for less than \$100. The library's Network Support Manager or the county IT staff should be able to install the switch.

Security audit. The library should hire an experienced firm to conduct its security audit. An estimate received from one such firm stated that a full security audit would cost approximately \$4,000. Annual audits should then cost approximately \$2,000 each. The cost to correct any problems uncovered by the audit cannot be estimated at this time. Considering the amount of money spent by the library on electronic resources and computer hardware, a one-time cost of \$4,000 and an annual cost of \$2,000 represent very inexpensive insurance against potential catastrophes. The time required to complete a full security audit of the networked resources of the library is roughly one week.

Funding Note

The library currently plans to use local funding, with the E-rate discount, to pay for the fiber optic network.

Another option for funding some of the costs associated with the network might be the Internet Infrastructure Improvement Grants that are administered by the State Library of North Carolina. As the Information and Guidelines document for the grants

(http://statelibrary.dcr.state.nc.us/lsta/III_GL_07-08.pdf) notes, they provide funding for projects that “will implement or develop technological infrastructure solutions to problems or issues that hinder the library’s ability to provide optimal and well-managed user access to the Internet and online content, such as NC LIVE resources, North Carolina ECHO, and StartSquad.org.” Specific examples in the Information and Guidelines document include “improvements in the library’s telecommunications infrastructure for increased bandwidth capacity” as well as “hardware and software to improve network and user security.” Some of the first-year costs of implementing the fiber optic network and the means of improving the management of technology resources may be eligible.

The maximum grant request is \$100,000, and the minimum grant request is \$5,000. The local contribution to the project must equal a minimum of 25 per cent of the amount of federal funds requested. Applicants must first submit a letter of intent and then be authorized by the State Library staff to submit a full application. The deadline for the letter of intent is typically mid-November, and the deadline for grant applications is typically mid-February.

If the first-year costs of the fiber optic network were \$75,000, the library would be able to apply for a grant of \$60,000 if it could obtain \$15,000 in local matching funds. The ongoing costs of the fiber optic network would, of course, not be eligible.

The staff of the Harnett County Public Library are encouraged to discuss the possibility of applying for an Internet Infrastructure Improvement Grant with members of the State Library staff.

Recommendation 3

Following the implementation of a new fiber optic network, the Harnett County Public Library should implement wireless access at all member libraries.

Assessment of the Current Situation

The Harnett County Public Library currently provides wireless access to the Internet at the headquarters library in Lillington and at the Angier Public Library. However, wireless access is not provided to the users of the other member libraries: Anderson Creek, Coats, Dunn, and Erwin.

Wireless Internet access represents a valuable service to public library users, many of whom may be able to afford a laptop computer but not Internet access. Installing wireless access enables the library to provide more users with access to the Internet without necessarily increasing the number of library-owned computers. An informal survey in July 2006 found that 33 of 51 responding North Carolina public libraries (65 per cent) provided wireless Internet access to the public and that another 9 (18 per cent) planned to provide wireless access during 2007.

Recommendation

*Following the implementation of a new fiber optic network, the Harnett County Public Library should implement wireless access at all member libraries.*²

² This recommendation is consistent with the "Network Evaluation" conducted by Vitruvian Technologies (see Appendix A), which states that "Current library trends are to provide wireless access for the patrons, and the technology plan should include wireless access for patron laptops in all branches."

Wireless access has been popular in Lillington and Angier and should provide the same advantages to library users and to the member libraries as are realized in the two libraries with such service. The advantages of wireless access include the ability to connect to the network from a wider range of locations than would be available with wired-only access and the ability to save any work done online to the user's own computer instead of having to save work to a diskette and then copy it to the user's computer at a later time. The advantages to the library include the ability to expand Internet access to its users without having to purchase and maintain additional hardware and without having to find space to locate the additional computers.

Because of the bandwidth needed to implement wireless access without affecting the current level of network performance at the member libraries, the Harnett County Public Library should wait until the proposed implementation of a fiber optic network. (See Recommendation 2.) As Vitruvian's "Network Evaluation" points out, the proposed increase in bandwidth to the libraries "will adequately support the minimal additional load of wireless patron access in any branch." In fact, the proposed bandwidth should be sufficient to prevent any problems with individuals "hogging" too much bandwidth. If bandwidth usage by wireless users does become a problem, then limits on the total amount of bandwidth available to wireless users can be limited at the router.

Other security concerns can also be dealt with at the hardware level. As the "Network Evaluation" notes, "Care should be taken when setting up the new topology to ensure that library network resources are adequately protected from patron machines, including patron wireless laptops. With the proposed topology, a patron with a laptop using a branch library's wireless connections to the internet will be behind the library's firewall. This can be overcome using the routers and library managed switches and wireless access points."

The libraries would be one of the few Internet "hot spots" in Dunn and Erwin. A search of "hot spots" on Intel's site (<http://intel.jiwire.com/>) revealed only two other "hot spots" in Dunn, a McDonald's restaurant and a Holiday Inn. A search of "hot spots" in Erwin found only one, the UPS store. No "hot spots" were found in Coats or Anderson Creek. The Harnett County Public Library has the opportunity to offer a valuable service to the citizens of these towns.

In addition to the technological aspects of providing wireless access in the headquarters library in Lillington, the library staff will need to consider a number of policy issues related to wireless access.

Filtering. While planning for wireless access, the library staff will need to decide how to handle filtering on the wireless network. There is a split among librarians regarding whether the Children's Internet Protection Act (CIPA) mandates filtering on computers that access the Internet in the library but that are not owned by the library. On the one hand, CIPA refers to the need for a library to have a technology protection measure in place "with respect to any of *its* computers with Internet access." The prevailing opinion in the library world is that "its computers" does not cover patron laptops. On the other hand, several libraries that serve as "hot spots" (including the Public Library of Charlotte and Mecklenburg County and the Braswell Memorial Public Library in North Carolina) believe that CIPA refers to Internet access in the library regardless of who owns the computer that is accessing the Internet.

This confusion is not limited to librarians. The Universal Service Administrative Company, the governmental entity that oversees CIPA, recently issued the following note in its May 5, 2006, "Schools and Libraries News Brief":

This becomes especially important if, for example, a library provides wireless Internet access and patrons can bring in and use their own computers to access the Internet. Internet access must be filtered in order to comply with CIPA, so the use of an individual computer that lacks filtering technology is not in compliance with CIPA.

The May 26 news brief, however, noted that "This language has been deleted from the archived version of the News Brief posted on the USAC Website, and other minor changes were made consistent with this deletion." In other words, the government itself is not clear whether CIPA mandates filtering on computers that access the Internet in the library but that are not owned by the library.

The staff of the Harnett County Public Library currently filter wireless access at Lillington but not at Angier. However, if wireless is implemented following the implementation of a new fiber optic network and the single central firewall at the network perimeter that the new network makes possible, then all computers accessing the Internet (including those accessing it via wireless) will be filtered.

Providing a Web site for instructions and frequently asked questions.

Library users will likely have a number of questions about wireless access, and many of these questions will be repeated. In order to save the time of both users and staff, the library staff should create a Web site with information on its wireless access, such as those provided by the Public Library of Charlotte and Mecklenburg County (North Carolina) at http://www.plcmc.org/about_us/policieswireless.asp, the Westlake (Ohio) Public Library at <http://www.westlakelibrary.org/connectfast/wireless.html>, and the San Mateo (California) County Library at <http://www.smcl.org/libraries/wifi.html>. The library's Website currently has a page of information on wireless access at the headquarters library in Lillington, but it might better provide the information in a question-and-answer format.

Making policies clear. Library staff members should make clear the policies that govern the access of the wireless network. Again, these policies can be provided on a library Web site. For example, the Public Library of Charlotte and Mecklenburg County (North Carolina) provides a copy of its "Wireless Network Access Policy" at http://www.plcmc.org/about_us/policieswireless.asp.

Library staff training. Library staff will be required to provide some level of support for access to the wireless network. Library staff will be asked by users to troubleshoot problems, to explain how to access the wireless network, and so forth. Consequently, it is important that library staff – especially those in the member libraries – be trained to answer basic questions about wireless access.

Ongoing evaluation. Regardless of how members of the library staff decide to implement wireless access in the member libraries of the Harnett County Public Library, it is imperative that staff members conduct an ongoing evaluation of the service and make adjustments as necessary. Such an evaluation should include both technological issues (for example, the amount of traffic and the adequacy of the bandwidth provided) as well as service issues (for example, whether sufficient information is being provided to potential users of the service).

The experience of others. Other public libraries across the United States have implemented wireless “hot spots,” of course, and the staff of the Harnett County Public Library should be able to benefit from their experiences. For example, the Public Library of Charlotte and Mecklenburg County (North Carolina) provides a copy of its “Wireless Network Access Policy” and a “Wireless FAQ” at http://www.plcmc.org/about_us/policieswireless.asp. Likewise, the San Mateo (California) County Library provides its users with a helpful FAQ on the library’s “hot spot” service at <http://www.smcl.org/libraries/wifi.html>. As other sites make clear, the library will need to explain to users how to connect to the Internet through the library’s wireless network and will also need to remind users if the library’s Internet access policy applies to all computers attached to the library’s network.

Potential Costs

The cost of providing wireless access at the four member libraries that do not currently offer it should be approximately \$300. G-level wireless routers, such as those marketed by Linksys, should be adequate, and these cost roughly \$75 each.

Funding

The funding for this recommendation will likely come from the library’s local budget. While the implementation of wireless access may be funded through the Internet Infrastructure Improvement Grants that are administered by the State Library of

North Carolina, the minimum grant request is \$5,000. The cost of this recommendation is much less than this minimum.

On the other hand, if the Harnett County Public Library has other projects that fit the guidelines of the Internet Infrastructure Improvement Grants and that exceed the minimum grant request, then wireless access could be included in an application for these funds.

The library staff should see the Information and Guidelines document for the grants (http://statelibrary.dcr.state.nc.us/lsta/III_GL_07-08.pdf). The maximum grant request is \$100,000, and the minimum grant request is \$5,000. The local contribution to the project must equal a minimum of 25 per cent of the amount of federal funds requested. Applicants must first submit a letter of intent and then be authorized by the State Library staff to submit a full application. The deadline for the letter of intent is typically mid-November, and the deadline for grant applications is typically mid-February.

Recommendation 4

The Harnett County Public Library should purchase an automated telephone notification and renewal module for its integrated online library system.

Assessment of the Current Situation

As noted above, the Harnett County Public Library currently uses Infor's Vubis Smart integrated online library system to support a wide range of library functions, including the circulation of materials. The system's circulation module allows staff to efficiently check out materials to users and to check in materials that users have returned. The module also allows staff to monitor overdue materials and items that users have placed on reserve. The circulation module supports a quick interaction with users to ensure a high degree of user satisfaction.

However, some aspects of the work of staff in checking out materials to the library's users still rely on manual procedures. For example, a large amount of staff time is spent contacting library users who have overdue materials or who have reserved materials. Even more staff time is spent answering questions from library users who want to renew materials or who want more information about the library or their accounts.

Reliance on these manual procedures is a particular problem for the Harnett County Public Library, which is extremely understaffed. According to 2005-2006 statistics, the library ranked in the bottom 10 among county libraries in North Carolina in terms of FTE staff per 25,000 people served. Because of this situation, it is important that the staff use automation to make the work of the library staff more efficient and effective than would be possible in a manual environment.

Alternative – Automated Telephone Notification and Renewal Systems

As noted above, a large amount of staff time is currently devoted to manual tasks such as contacting library users who have overdue or reserved materials and answering questions from library users who want to renew materials or who want more information about the library or their accounts. Many of these tasks can be automated through a telephone notification and renewal system, such as the one marketed by iTiva, which will work in conjunction with the library's Vubis Smart integrated online system.

The iTiva Automated Telephone Notification and Renewal System handles these tasks automatically, thus freeing staff to focus on other work. Because telephone costs are less than printing and postage costs, the library will also save money by having to print and mail far fewer overdue and reserve notices. Because telephone messages are faster and more effective than mailed notices, overdue items will be returned to the library sooner and will be available for other users more quickly. Finally, because the system is available 24 hours a day, 7 days a week, library patrons may renew items, review their accounts, or obtain information on the library any time of the day and any day of the week.

The iTiva Automated Telephone Notification and Renewal System works with the Vubis Smart integrated online system that the Harnett County Public Library currently uses. The Vubis Smart system sends library notice information to the iTiva system, which then notifies individual library users at scheduled times. The iTiva system provides reports to show that the notifications have been delivered.

Further information on the iTiva Automated Telephone Notification and Renewal System can be found under the links to "Message" and "Connect" at the TalkingTech Website (<http://www.talkingtech.com/Products.aspx?route=itiva>).

Recommendation

The Harnett County Public Library should purchase an automated telephone notification and renewal module for its integrated online library system.

Purchasing and implementing the iTiva system will enable the Harnett County Public Library to free staff to focus on other work, to provide more effective notifications to library users at less expense, and to provide information about the library and about user accounts 24 hours a day, 7 days a week. (In fact, according to the vendor of the iTiva system, most libraries save enough staff time to offset the costs of the system within 12 to 18 months.)

Potential Costs

Based on an estimate from the Vubis Smart representative, the cost of hardware, software, and installation for the iTiva system will be \$14,850. In addition, there will be an annual maintenance cost of \$1,375.

Funding Note

It is likely that the only source of funding for this recommendation would be local money. None of the current LSTA grant programs administered by the State Library appear to cover the costs associated with a telephone notification and renewal module.

However, the State Library is currently drafting a new five-year LSTA plan and may include grant programs to allow the purchase of certain integrated library system modules. The library staff are urged to stay informed on developments in this area.

Recommendation 5

The Harnett County Public Library should investigate, but not purchase at this time, the federated search and Web portal available for its integrated online library system.

Assessment of the Current Situation

The Harnett County Public Library provides its users with access to the many resources of the Internet through its public-access computers. The library also provides its users with access to complete articles from over 16,000 newspapers, journals, magazines, and encyclopedias as well as indexing for over 25,000 periodical titles through NC LIVE (North Carolina Libraries for Virtual Education). In order to make it easier for its users to find the online resources they need, the library staff have also grouped links to many of these resources on its Website at <http://www.harnett.org/library/hintres.htm>.

In spite of the wealth of resources that the Harnett County Public Library and other libraries provide to their users, searching for information is often a tricky endeavor. For example, a user conducting a thorough search will need to consult multiple resources. Doing so will require the user to repeat her or his search with each resource and to learn the particular interface that a given resource uses. These interfaces range widely in their complexity. In some cases, the user will have to remember a password in order to search a given resource. Searches can be difficult to craft, and information needs can be difficult to express. If results are found, they are limited to the specific resources searched by the user, even though resources not searched by the user may also contain pertinent information.

Alternative – Federated Searching and Other Tools

In order to make the process of searching for information on the Internet and in licensed databases, some vendors have created tools such as federated searching, which allows a user to search several databases using a single search interface, or personalization tools, which allow users to save searches or preferences for how the search interface works. One such tool is the Vspaces Federated Search & Web Portal, which is marketed by Infor (the vendor of the Vubis Smart system used by the Harnett County Public Library). The Vspaces product provides users with several tools to improve their ability to search for information on the Internet and in databases licensed by the library. These tools include:

- Federated searching, which allows a user to search several databases using a single search interface. Without this tool, users who search multiple resources would have to repeat the search several times (one for each resource) and would have to understand the different interfaces of the different resources. Federated searching makes the process of searching multiple databases much more manageable. Vspaces also handles authentication for the various resources being searched and makes sure that only authorized individuals can access specific resources.
- Resource discovery, which allows the library to group its resources by type or subject, thus making them more useful. For example, the library might group all of its newspaper databases into a single category; a user could then search this group of resources. Vspaces also allows the library to create pre-defined searches, again making the search process easier for the user.
- Data enrichment, which provides links to resources related to those found in the original search and which also helps users reformulate or expand their searches.
- Personalization, which allows users to store their own preferences in the search interface and which also allows the library to create group profiles to customize the search interface to groups of users.

- Enhanced services, which links Vspaces users to traditional circulation functions such as online reservations and renewals and which also allows users to rate and review items that they have retrieved through the system.

As an example of the federated search, consider the implementation of Vspaces at the library of the Vrije Universiteit Brussel (<http://tinyurl.com/2ym5dh>). A search of a topic (like “Einstein”) retrieves items from the library catalog, Amazon.com, the Vrije Universiteit Brussel Website, the BBC news, and Google. The results from this federated search are grouped by the resource from which they were retrieved, and individual items can then be selected for further information. The single federated search in this example is far more convenient than would be the five separate searches needed to retrieve the same information from the individual resources.

Recommendation

The Harnett County Public Library should investigate, but not purchase at this time, the federated search and Web portal available for its integrated online library system.

Technology is typically used in libraries either to make staff more efficient or to improve the level of direct service to the library’s users. The iTiva Automated Telephone Notification and Renewal System recommended earlier in this report would make the staff of the Harnett County Public Library more efficient. The Vspaces Federated Search & Web Portal would improve direct service to the library’s users by improving their ability to search for information on the Internet and in databases licensed by the library.

Nevertheless, this report recommends that the staff of the Harnett County Public Library investigate, but not purchase at this time, the Vspaces product. While the tools provided by Vspaces represent enhancements to the typical search process, it is not clear that the benefits outweigh the costs to the library at this time. The library may wish to survey the users of its Website or the users of its Internet resources to determine whether there would be adequate demand for this product. Library staff

should also attempt to see demonstrations of VSpaces at the 2007 ALA Conference in Washington, D.C. and at the 2007 User Group Meeting in Montreal.

Another concern is that the Vspaces product is simply too new and unproven. Infor currently does not have an online V-spaces demo, and the only example of a Vspaces implementation that could be found on the Web was at the Vrije Universiteit Brussel (<http://tinyurl.com/2ym5dh>). It would be best for the staff of the Harnett County Public Library to monitor developments with the Vspaces product at this time and consider purchase at a later date, after the product has had time to mature.

Potential Costs

There are two options for implementing Vspaces, and the potential costs of the system will depend on which option the Harnett County Public Library decides to pursue.

Table 1
Relative Costs of Vspaces Options

Year	Library's Server	ASP Solution
1	\$22,700.00	\$ 9,000.00
2	\$25,400.00	\$15,000.00
3	\$28,100.00	\$21,000.00
4	\$30,800.00	\$27,000.00
5	\$33,500.00	\$33,000.00
6	\$36,200.00	\$39,000.00
7	\$38,900.00	\$45,000.00

The system can be loaded on the server that the library currently uses for its online catalog using Cache DBMS (database management system) software. The primary advantages of this approach are that it is the most common way of implementing software in libraries and other organizations and that the library maintains greater control of the system. By contrast, the primary disadvantages of this approach

are the higher initial costs, the greater bandwidth requirements at the library, and the need for a staff member who can maintain the software.

Alternatively, a hosted ASP solution is available. In this approach, the vendor hosts the software on a server at its site, and the users of the client library (in this case, the Harnett County Public Library) access the system via the Internet. The advantages of the ASP approach are that there are lower bandwidth requirements at the library, no need for staff to maintain the software, and lower initial costs. The disadvantages of the ASP solution are the loss of control and the higher long-term costs.

Table 1 shows the relative costs of the two options over a period of seven years. If the portal is loaded onto the server that the library currently uses for its online catalog, then the cost of purchasing the Vspaces Federated Search and Web Portal is \$20,000 plus an annual maintenance fee of \$2,700. If the ASP solution is selected, then the cost would be \$3,000 for initial set-up and an annual subscription fee of approximately \$6,000. As Table 1 shows, the ASP solution would be the less expensive option for the first five years. After the fifth year, the option of loading the software on the library's server is less expensive.

Funding Note

It is likely that the only source of funding for this recommendation would be local money. None of the current LSTA grant programs administered by the State Library appear to cover the costs associated with a federated search and Web portal like Vspaces.

However, the State Library is currently drafting a new five-year LSTA plan and may include grant programs to allow the purchase of certain integrated library system modules. The library staff are urged to stay informed on developments in this area.

Recommendation 6

The Harnett County Public Library should implement a system to manage its public computers.

Assessment of the Current Situation

The Harnett County Public Library provides 45 computers for use by its adult patrons at the library's six locations. These public access computers are primarily used for Internet access but are occasionally used for word processing and other purposes.

The computers appear to be heavily used by the public, based on observations made during site visits and based on the fact that the number of users of public access computers exceeded 45,000 in 2005-2006, the last year for which statistics are available. In fact, there are 2.77 public access computers per FTE staff member at the library, the 7th highest ratio among the state's 50 county libraries.

In other words, the number of public access computers and the heavy use of these computers requires a great deal of staff oversight, which is a serious problem given the small number of staff at the Harnett County Public Library.

Public access computers, such as those provided by the Harnett County Public Library, entail several management problems:

- Authentication, i.e., restricting the use of the library's resources. The computers themselves may need to be restricted to library borrowers or to borrowers who do not have excessive fines or other fees owed to the library. In addition, specific resources – software or databases – may need to be restricted to specific users.
- Scheduling, i.e., providing a way for users to schedule specific times to use the computers.

- Time management, i.e., restricting the amount of time that any individual can use a computer.
- Print management, i.e., allowing the library to charge for printing and thereby recover the costs of paper, toner, and other resources associated with printing.
- Record keeping, i.e., tracking the number of times and the amount of time that resources are used.

The staff members of the Harnett County Public Library currently handle all of the tasks related to managing public access computers and printers manually.

Authentication is handled by having the staff “check out” computers using the library’s integrated online system. The computers are “checked out” for one hour at a time, although patrons can use a computer indefinitely if no one is waiting. Scheduling is not done at present. Record keeping is handled by the integrated online system.

Users may print to a printer at the check-out desk for 10 cents per page. Users get their print jobs from the staff, and staff members collect the money that users owe. But users often press the print button multiple times or print long documents when only one or two pages are needed. They are then often unwilling to pay the full cost associated with their printing, and staff must resolve these disputes. Color printing is not allowed, even though the library has the hardware to support this service, because of abuse and mistakes.

Unfortunately, these computer management problems require a great deal of staff time, and the library staff too often find themselves dealing with problems related to the computers and printers rather than with performing their library-related duties. The demands associated with managing computer use in the library make the work of the staff less effective and less efficient than it might otherwise be.

Alternative – PC Management Systems

Several vendors provide software solutions for the management of public access computers such as those provided by the Harnett County Public Library. These include:

- CybraryN Solutions, which provides these capabilities through its CybraryN product. See <http://www.cybraryn.com/> for more information.
- EnvisionWare, which provides authentication, scheduling, time management, and record keeping through its PC Reservation product and print management through its LPT:One product. For more information, see <http://www.envisionware.com/>.
- Pharos, which provides authentication, scheduling, time management, and record keeping through its SignUp product and print management through its Uniprint product. See http://www.pharos.com/Public_Library/index.html for more information.
- SAM, which provides these capabilities through its Comprise product. See <http://www.comprisetechologies.com/libraries.htm> for more information.

Products such as these provide solutions to the management problems outlined above.

- Authentication. The use of public access computers can be restricted to library borrowers or to borrowers who have paid all of their fines. Likewise, specific resources – software or databases – can be restricted to valid users or to classes of users. Borrowers who have overdue fines or other fees owed to the library can be denied access. Some products can display the library's Internet Use Policy on the computer screen and require that users agree to it before accessing Internet resources.
- Scheduling. Library users can reserve library computers for specific times in advance, thus allowing the library to ensure the equitable and fair use of its public access computers. Some systems allow reservations to be made from outside the library via the library's Web site. Some systems send email reminders to users who have reserved computers. Systems such as these eliminate manual signup sheets and waiting lines.

- Time management. The time spent by individual users can be monitored and automatically enforced so that a user can no longer access the resources when his or her time is up. The abuse of time limits based on library policies is eliminated, and because the process is automated, confrontations between staff and users are avoided. Again, this capability allows the library to ensure the equitable and fair use of its public access computers.
- Print management. The library can use these products to charge for printing from its public access computers. Charges can be established for printer quality, paper size, color printing, and other special needs. This approach helps the library recover the costs associated with printing at its public access computers and, because patrons pay before they print, this approach also minimizes paper and toner waste. (The experience of most libraries is that such waste is reduced by 50 per cent with print management software.)
- Support for wireless printing. Some PC management systems allow users with laptops to access the library's public printers under the same print management control that governs wired computers.
- Record keeping. Detailed reports of the use of the computers can be provided to library staff. These reports may include information on the use of specific software, databases, and other resources. This information will be helpful in making decisions regarding the allocation of library funds and in providing statistics on the use of electronic resources, which are required by the State Library of North Carolina on an annual basis.

For any vendor, there are a number of ways to implement a system to manage the library's public computers. These alternative approaches vary with the degree of staff involvement required.

For example, a very simple approach would require the library to purchase the following:

- Software for authentication, scheduling, time management, print management, and record keeping.
- A computer workstation to serve as the management console for the system.
- A computer workstation and printer to serve as a print release station. After a user has approved a print job, it is queued at the print release station until that user provides a print card (sold by the library staff) to the system. The cost of the print job is deducted from the print card, and the user's job is printed.

The advantages of this simple approach include removing the work of scheduling and time management from the library staff and increasing the library's ability to recover the costs associated with printing. The major disadvantage is that it requires the staff to sell print cards and to revalue print cards that have been spent. While the amount of staff time required to do this is far less than that amount of staff time currently being spent overseeing the public access computers, it may still be too burdensome.

If the library wishes to reduce staff involvement even further, it could purchase a card dispenser and revaluing station, which would enable users to purchase and revalue their own print cards or a less expensive coin-bill attachment to the print release station.

Recommendation

*The Harnett County Public Library should implement a system to manage its public computers.*³

The system should provide authentication, scheduling, time management, print management, and record keeping. A minimal system that relies on staff to sell print cards would be an acceptable way to implement management of the library's public computers, and a coin-bill attachment to the print release station would reduce the staff time devoted to computer management even more.

³ This recommendation is consistent with the "Network Evaluation" conducted by Vitruvian Technologies, which states that "Internet usage and staff time required to manage internet machines should be reviewed over the course of the technology plan to determine if a public PC reservation or print management system is warranted."

The heavy use of the library's public access computers requires a great deal of staff oversight. Without a system to automatically handle the authentication, scheduling, time management, print management, and record keeping tasks outlined above, the staff of the Harnett County Public Library will be called upon to devote more time to these day-to-day problems, thus making their work less effective and less efficient. Without an effective system to ensure that users pay for printing, the library may lose potential revenue.

The implementation of a software solution to manage its public computers would benefit both the library staff and the library users. Staff would be able to spend more time on their library-related duties. The library could better enforce its policies on the use of public computers. Print costs could be recovered, and paper and toner waste could be minimized. Information on the use of computers and resources could be better tracked. Library users would benefit from the more equitable use of the computers, the elimination of manual signup sheets and waiting lines, and the elimination of the potential abuse of time limits by some users.

Potential Costs

Based on an estimate from Envisionware, the cost of a system to manage the 45 computers used by adult patrons at the library's six locations would be \$29,175. This includes installation of the system and training by the vendor. These costs assume that the library staff would sell print cards to allow users to pay for the cost of print jobs.

If the library wishes to reduce staff involvement even further, it could purchase coin-bill attachments to the print release stations at each location. These attachments cost approximately \$2,590 each and would total \$15,540 for the Harnett County Public Library's six locations. Thus the overall cost would be \$29,175 if the staff sell print cards and \$44,715 if coin-bill attachments are used.

In addition, annual software maintenance costs of approximately \$3,330 will be required.

The costs above assume that the library has three servers that could function as the management console, the print release station, and an authentication server for the

system. If not, then an additional \$4,500 (approximately \$1,500 per server) will be required to purchase this equipment. The costs above also assume that the library has printers for use by the public. If not, then another \$4,800 (approximately \$800 per printer for six printers) will be required. The overall cost would then be \$38,475 if the staff sell print cards and \$54,015 if coin-bill attachments are used.

Funding

The annual costs of this recommendation could be covered by the library's existing budget. The costs of installation and other non-recurring costs might also be covered by the library's regular budget through a one-time allocation.

However, another option for funding the installation and non-recurring costs of the system would be federal grant monies administered by the State Library of North Carolina through the Internet Infrastructure Improvement Grants program. According to the program guidelines, this program provides grants to libraries to "develop technological infrastructure solutions to problems or issues that hinder the library's ability to provide optimal user access to the Internet and online content, such as NC LIVE resources, North Carolina ECHO, and StartSquad.org. Examples include: *systems to manage access to workstations or printing*; hardware and software to improve network and user security; special equipment for training or demonstrations; and improvements in the library's telecommunications infrastructure for increased bandwidth capacity."

Clearly, the acquisition of a system to manage the public computers at the Harnett County Public Library would qualify for funding under this program. Several similar projects have been funded in other public libraries in North Carolina over the past few years.

The maximum grant request is \$100,000, and the minimum grant request is \$7,500. There is a required local match of 25 per cent for this grant. Given the maximum cost of implementing the recommended system (\$54,015 with the coin-bill attachment to the print release stations), an LSTA grant of \$43,212 and a local match of

\$10,803 would be needed. The local match could be provided from the library budget as a one-time allocation.

Recommendation 7

The Harnett County Public Library should implement self check-out at its headquarters library in Lillington.

Assessment of the Current Situation

The Harnett County Public Library system checked out over 327,000 books, CDs, DVDs, and other materials to its users during 2005-2006 (the last fiscal year for which statistics are available). Checking out this volume of materials places a heavy workload on the library staff and, because the process of checking out materials is sometimes time-consuming, may lead to patrons waiting in line to check out materials. Long lines at the check-out desk may, in turn, lead to patron dissatisfaction with the library.

This is a particularly serious problem for the Harnett County Public Library, which is understaffed and ranks 41st among the state's 50 county library systems in the number of FTE staff per 25,000 persons in the library's service area. In fact, the ratio of circulation of materials to FTE library staff for the Harnett County Public Library is the 19th highest among the state's county library systems.

Recommendation

The Harnett County Public Library should implement self check-out at its headquarters library in Lillington.

One way of relieving this heavy workload on the library staff is to enable the library's users to check out their own materials, much as grocery stores now have self check-out lanes. Self-check stations allow patrons to check out their own materials without staff assistance, thus freeing the staff to focus on other work and to spend a

greater percentage of time serving patrons in other ways. Allowing library users the option of checking out their own materials also provides those users with greater privacy.

Self-check stations typically consist of a standard computer workstation with a touch screen monitor to allow users to select options, a barcode scanner for reading the barcode on the items being checked out, and a receipt printer so that the user will have a printed list of items checked out and due dates. The software on the computer workstation interacts with the library's integrated online library system to verify that the user has a valid library card and does not owe fines. The software also allows the self check-out transaction to be entered into the library's database of circulation transactions.

Potential Costs

The costs associated with this recommendation are based on a proposal received by Tech Logic, an RFID vendor. These costs total \$6,832 for the initial costs and \$628 for ongoing costs. In addition, the proposal assumes that the library will supply a PC with keyboard, a desktop printer for receipts, and a barcode scanner compatible with the library's Vubis Smart system.

The self check-out station includes the following:

- Self Check-Out "Package" \$ 3,142

Includes one ELO 17" Flat Touch Screen, one monitor switch and video splitter cable, Tech Logic CircIT Software Suite, and the first year warranty and license.

- Installation and training \$ 3,600
- Shipping and handling \$ 90

The cost of support for the self check-out station in the second year is \$628.

Funding Note

There are no federal grant programs administered by the State Library of North Carolina that would cover the expenses associated with a self check-out station for the Harnett County Public Library. The funding for this recommendation would need to be raised locally.

However, the State Library is currently drafting a new five-year LSTA plan and may include grant programs to allow the purchase of certain integrated library system modules. The library staff are urged to stay informed on developments in this area.

Recommendation 8

The Harnett County Public Library should investigate RFID technology for inventory control, loss protection, and self check-out.

Assessment of the Current Situation

The Harnett County Public Library system provides its users with access to almost 182,000 books and over 14,000 non-print materials like CDs, DVDs, and videotapes. Its users checked out the books nearly 252,000 times during 2005-2006 (the last fiscal year for which statistics are available) and checked out the non-print materials over 74,000 times during the same period.

Maintaining and checking out these large collections of materials lead to a number of problems for public library staff members, including those of the Harnett County Public Library system: checking materials out and in; inventorying the materials; ensuring that materials are reshelved correctly; and protecting the materials against theft.

Checking materials out and in. Staff must spend time checking materials out to patrons and checking materials back in when patrons return them. Both processes are time-consuming and may lead to patrons waiting in line to check out materials and to delays in getting materials back on the shelves for use by other patrons. Both of these situations can lead to patron dissatisfaction with the library.

These are serious problems for the staff of the Harnett County Public Library system, particularly since the Harnett County Public Library is understaffed and ranks 41st among the state's 50 county library systems in the number of FTE staff per 25,000 persons in the library's service area.

Inventorying the materials. Staff must spend a great deal of time conducting periodic inventories of the library's collections so that the library has an accurate record of these materials. Without such inventories, the library's online catalog will be incorrect and show that the library owns materials that it, in fact, does not own. Such inaccuracies, in turn, will lead to patron frustration and dissatisfaction with the library. Unfortunately, complete inventories of the library's collections are time-consuming and therefore rarely attempted. The last full inventory at the Harnett County Public Library system was conducted in 1988, when the library moved to its current location.

Ensuring that materials are reshelfed correctly. Staff must also spend a great deal of time checking the shelves to ensure that items (particularly books) are in the proper shelf order. If this "shelf reading" is not constantly done, more and more items become out of place and more difficult, if not impossible, for patrons to locate. Misshelved items lead to patron frustration and dissatisfaction with the library.

Protecting the materials against theft. The materials in the library's collections need to be protected against loss through theft. Unfortunately, theft of library materials is an ongoing problem, especially in the Harnett County Public Library system, which does not currently use any type of security system in its libraries. A 1995 study of Ohio public libraries estimated that as many as 12 per cent of the books in that state's public libraries were missing due to theft. Protecting its collections against theft is particularly important at the headquarters library in Lillington, which houses a valuable genealogy and local history collection.

Alternative – RFID Systems

Libraries have attempted to solve these problems through a variety of means, but most solutions require a large investment in staff time. A recent approach, based on RFID (an acronym for Radio Frequency Identification), appears to provide a more effective and efficient solution to these problems.

RFID is a wireless data collection technology that uses electronic tags for storing data. Like bar codes, these tags are used to identify items like the library's books, CDs, DVDs, and other items. However, while bar codes must be brought close to a scanner for reading, RFID tags can be read when they are within the proximity of a transmitted radio signal. This capability provides RFID systems with several advantages over systems based on bar codes or electromagnetic tags.

Library RFID systems typically have three components: RFID tags, readers, and servers. The RFID tags are inserted into the library's materials and identify each item with unique information, which may include information for circulation purposes, such as the physical location of the item. RFID tags may also include a "theft bit," which allows the tag to serve as a security device. The readers include staff workstations for checking materials in and out, patron self-check stations, longer-range walk-through exit sensors to read RFID tags for security purposes, book drop readers that can automatically check in library materials, and portable devices to read items on the shelves to inventory the collection or to locate missing and misplaced items. Servers or docking stations contain the software that interfaces with the automated library system.

Library RFID systems help solve the problems, outlined above, that library staff members face in maintaining and checking out their collections of materials: checking materials out and in; inventorying the materials; ensuring that materials are reshelved correctly; and protecting the materials against theft.

Checking materials out and in. RFID systems make checking out library materials more efficient in several ways. RFID check-out units speed up the process of checking out materials because multiple items can be checked out at one time; by contrast, systems that use bar codes (like the one used by the Harnett County Public Library system) require that materials be checked out one item at a time. RFID check-out units also speed up the check-out process because they don't require that items be precisely aligned under the reader, as do bar code scanners. Self-check stations can also be purchased for RFID systems, thus allowing patrons to check out their own materials without staff assistance.

Finally, RFID systems speed up the process of checking in materials. As with check-out, multiple items can be checked in at one time with an RFID system, and check-in does not require that items be precisely aligned under the reader. RFID readers can also be integrated with library book drops to enable check-in to occur when patrons return their materials to the book drops. In fact, RFID systems can be equipped with sorting systems that sort returned materials and speed up the process of returning checked-in items to the shelves. Libraries with RFID systems have reported savings in staff time for checking in and checking out materials of as much as 85 per cent.

More recent RFID tags work well with a wide range of materials, including books, CDs, DVDs, and videotapes. In fact, hub tags for CDs and DVDs, side label tags for VHS tapes, and audiocassette tags have the same life span as RFID tags for books.

Inventorying the materials. RFID systems may include portable readers that speed up the process of inventorying a library's collections. Staff members can take inventory by simply walking through the library's book stacks with a portable reader and scanning the shelves for items. Typically, a single staff member can inventory 5,000 items per hour with an RFID reader.

Ensuring that materials are reshelved correctly. The same portable readers enable library staff members to check the shelves more quickly for items that are missing or misshelved. Typically, an audible alarm sounds when an out-of-place item is detected.

Protecting the materials against theft. RFID systems may include anti-theft gates that sound an audible alarm if materials that have not been cleared are passed through them. Thus, library staff will be alerted whenever someone attempts to remove library materials without first checking them out. RFID anti-theft systems tend to be more accurate than electromagnetic anti-theft systems used in many libraries; libraries that have used both types of system report a 50 to 75 per cent reduction in false alarms when switching from electromagnetic systems to RFID systems.

Recommendation

*The Harnett County Public Library should investigate RFID technology for inventory control, loss protection, and self check-out.*⁴

An RFID system will improve the efficiency of staff members in checking materials out and in, inventorying the materials, ensuring that materials are reshelved correctly, and protecting the materials against theft. Staff members will then be able to spend a greater percentage of time on direct service to patrons.

In addition to these general advantages, certain benefits are particularly relevant to the Harnett County Public Library system. First, as noted earlier, the Harnett County Public Library is understaffed, and anything that will improve the efficiency of the staff's work will be extremely helpful. RFID systems make checking out library materials more efficient and speed up the process of inventorying library collections. RFID systems may also allow patrons to check out their own materials without staff assistance, thus freeing staff to do other work.

Second, none of the libraries of the Harnett County Public Library system has adequate security for their materials at the present time. The addition of RFID anti-theft gates would provide much-needed security for the library's materials.

This report recommends that the Harnett County Public Library system purchase an RFID system for its headquarters library in Lillington. The benefits related to staff time, security of materials, and the like will be more fully realized at the headquarters library, which holds the majority of the system's collection and represents the majority of the system's circulation. If the RFID system proves to be successful at the headquarters library, it can be expanded into the branch libraries later.

Basic system components. At a minimum, the library should purchase and implement an RFID system that will allow for self-checkout, inventory control, and a

⁴ This recommendation is consistent with the "Network Evaluation" conducted by Vitruvian Technologies, which states that "the library technology plan should allow for review of emerging and developing technologies such as RFID."

greater degree of security for the materials in the library's collection. The recommended basic system will consist of the following components:

- Three combo workstations. These workstations will be used for checking in and checking out materials and would replace the workstations currently being used at the circulation desk. Combo stations, which serve as self check-out stations while allowing library staff to monitor the stations and to thereby more easily assist patrons who need help, are recommended for this basic system. Each station would include a touch screen, a barcode scanner, and a receipt printer.
- A dual-walkway security gate system. These gates will provide security by sounding an audible alarm if materials that have not been cleared are passed through them. Such gates will alert library staff if someone attempts to remove library materials without first checking them out.
- RFID tags. Because of the expense of the RFID tags and the time required to attach them to the items, it is recommended that the Harnett County Public Library not tag all of the items in its collection but instead limit RFID tagging to the reference collection in Lillington, the genealogy collection in Lillington, and the new books, DVDs, and CDs added to the collection in Lillington during the year. This represents approximately 25,000 tags for books and 1,000 tags for DVDs and CDs.
- One portable inventory reader. This device can be used by staff to conduct inventories of the collections or to check the shelves for missing or misshelved items.
- Rental for one portable tagging workstation. These stations would be needed during the implementation of the system only and would assist staff with the process of tagging the items in the library's collection. Because the additional work stations will no longer be needed after the tagging has been completed, rental units are recommended.

Automated materials handling. The basic system recommended above does not include an automated materials handling system, which could be used by the library to automatically check-in materials and route these items to bins, depending on the eventual destination of the materials. While such a system would be beneficial to the library staff and would save the staff time associated with checking in and routing materials (some vendors claim that such systems reduce the time to get books back on the shelves by 50 per cent), an automated materials handling system would likely be too expensive for the library in the near future. The cost of even a simple automated check-in system would likely exceed \$130,000 to acquire and \$6,000 to \$12,000 per year for a service agreement. Nevertheless, the staff of the Harnett County Public Library should be aware of developments in the automated materials handling system technology and should monitor costs of such systems.

Implementation. The amount of time required to implement this recommendation will depend on the amount of time required to tag the items in the library's collection. The system recommended here includes 25,000 RFID tags for books and 1,000 RFID tags for DVDs and CDs. The existing barcodes for each item would be scanned into a conversion station, and a programmed RFID tag would then be placed on the item. At a conservative rate of three items per minute⁵, the items that the library wishes to protect could be tagged in approximately 18 staff-days. If a team of two staff members and volunteers were used, the entire project could be completed in less than two weeks.

After the initial tagging, all new items could be tagged during processing or could be ordered with an RFID tag inserted by the book jobber for a small additional cost.

Vendors. There are a number of vendors of RFID systems. Most are independent companies whose systems work with any automated library system that provides support for the SIP2 protocol. On the other hand, there are vendors, like Tech Logic, that have been acquired by vendors of automated library systems; in Tech

⁵ Some sources estimate that items can be tagged at a higher rate of six per minute.

Logic's case, the company was recently purchased by The Library Corporation. This report recommends that the Harnett County Public Library system consider a wide range of vendors of RFID systems and that the library staff issue a Request for Proposals for an RFID system. This approach will ensure that the library acquires an RFID system that is most appropriate to its needs at the best possible price.

Potential Costs

The costs associated with this recommendation are based on a proposal received by Tech Logic, an RFID vendor. The cost of the proposal for the basic RFID system outlined earlier is \$70,870 for the initial costs and \$11,326 for ongoing costs. The system recommended in this report includes the following:

- Three combo workstations at \$11,052 each \$ 33,156

In addition to the initial cost, there is an ongoing annual maintenance cost of \$6,631 for the three combo workstations and \$1,200 for support for the CircIT software that provides the system's functionality.

- One dual-walkway security gate system \$ 12,925

In addition to the initial cost, there is an ongoing annual maintenance cost of \$2,585 for the gate system.

- RFID tags \$ 12,000

Includes 25,000 RFID tags for books at 46 cents each and 1,000 RFID tags for DVDs and CDs at 50 cents each. If the library staff wish to tag more items, then this cost would increase.

- One portable inventory reader \$ 4,550

In addition to the initial cost, there is an estimated ongoing annual maintenance cost of \$910 for the inventory reader.

- Supplies for tagging station \$ 264
- Installation and training on site \$ 6,000
- Shipping and handling \$ 1,475

- Rental for one portable tagging workstation \$ 500

As noted earlier, the items that the library wishes to protect could be tagged in approximately 18 staff-days. The total listed here includes one month's rent plus shipping and handling for the workstation. A refundable security deposit of \$1,500 is also required.

Funding Note

There are no federal grant programs administered by the State Library of North Carolina that would cover the expenses associated with a stand-alone RFID system for the Harnett County Public Library. The funding for this recommendation would need to be raised locally.

Library staff members are urged to follow the example of several libraries that have successfully raised funds locally to help purchase RFID systems. These include the Richland County (SC) Public Library, whose Friends committed over \$100,000 to assist the library in the implementation of a self checkout system using RFID technology, and the Seattle Public Library, whose staff members were able to include funding of an RFID system in the funds for construction of a new Central Branch.

However, the State Library is currently drafting a new five-year LSTA plan and may include grant programs to allow the purchase of RFID systems. The library staff are urged to stay informed on developments in this area.

Recommendation 9

The Harnett County Public Library should evaluate its Website to enhance its ability to promote the library and its programs and services.

Assessment of the Current Situation

The Harnett County Public Library currently has a Website that is used to promote the library and its programs and services (<http://www.harnett.org/LIBRARY/>).⁶ The types of information and services that are included on the Website include:

- A link to the library's online catalog
- A group of links for kids
- A group of links to resources of local interest, including local authors, local history, and obituaries
- A group of miscellaneous links for adults, including links to a guide to services in Harnett County written in Spanish, information on the library's book club, etc.
- A group of links about the library itself, including links to library information, the library's long-range plan, and information on volunteering
- A group of links to job information, Internet resources, the State Library of North Carolina, and the most popular NC LIVE resources
- A group of links to information about Harnett County government and the local communities
- Links to MyLibraryDV resources for downloadable videos
- Links to various search engines

⁶ There is also a Web page with information on the Harnett County Public Library on the Harnett County government site at <http://www.harnett.org/lib/>. The suggestions made in this recommendation pertain to the information on that site as well.

The Website is hosted on a server maintained by Harnett County's IT department, and library staff members maintain the Website. The Website promotes the library and its services and provides direct service to the users of the library. The Website thereby helps the library meet the important goals of providing better service to its users and (by providing users with self-service opportunities like the online catalog or links to information on the library itself) improving the efficiency of its staff.

Recommendation

The Harnett County Public Library should evaluate its Website to enhance its ability to promote the library and its programs and services.

Evaluating the library's Website and adding content will greatly enhance its ability to promote the library and its programs and services.

Website analysis. In particular, the staff of the library should conduct an in-depth analysis of the current Website in order to identify potential areas for improvement. This kind of analysis could be particularly helpful for the Harnett County Public Library's Website, which attempts to present a great deal of information to its users and to do so in an attractive and innovative manner.

There are a number of ways in which such an analysis can be conducted, including the following:

- Identify broken links on the library's Website. One of the more important tasks of maintaining a Website is the periodic checking of links to determine whether the links on the Website are still accurate. Links may become outdated for several reasons, including Website restructuring (by far the most common reason). The Watchfire Web XACT tool at <http://webxact.watchfire.com/> will report broken links on pages submitted to it for analysis. Freeware products such as Xenu (<http://home.snafu.de/tilman/xenulink.html>) can also be used to check broken links. A Xenu scan of the Harnett County Public Library Website during the

drafting of this report revealed a number of broken links at the time of the scan (see Appendix 3), so this kind of analysis needs to be performed on an ongoing basis.

- Analyze the library's Website usability. Website usability has been defined as "The ease with which visitors are able to use a Website." ("Marketing Terms.com," http://www.marketingterms.com/dictionary/web_site_usability/) Usability is extremely important for a Website, because if visitors find a site difficult to use, they are more likely to get frustrated and leave and may form a bad impression of the organization that hosts the Website. One recent, popular set of usability guidelines is that developed by Jakob Nielsen and Marie Tahir in their book, *Homepage Usability: 50 Websites Deconstructed* (Indianapolis, IN: New Riders Publishing, 2002). The book focuses on the homepages of fifty well-known organizations and provides over 100 criteria for usability as well as other recommendations for determining and improving the level of usability of any Website. A usability analysis of the Harnett County Public Library Website would ensure that its users are less likely to be frustrated and more likely to find what they are looking for. For example:
 - All of the icons on the library's home page are links except for the newspaper icon. This may confuse some users and may discourage individuals from using the library's Website. If so, a usability analysis would suggest making the newspaper icon a clickable link as well.
 - The "Spanish Resource Manual" link on the home page takes the user to a guide to services in Harnett County written in Spanish, but the link itself is written in English. This may serve as a barrier to the Spanish-speaking individuals for whom the information is intended, and a usability analysis would suggest writing the text of the link in either Spanish only or in both Spanish and English.
 - The Vubis Sm@rt icon on the home page is a link, but it opens a new tab or window, and pop-up blockers (which many new browsers use) will refuse to open the new tab or window. This behavior is explained in text below the

icon, but the text is small and gray and hard to read. A usability analysis would suggest that the explanatory text should be more obvious or that the link should even behave differently.⁷

- Provide a search box on the homepage. According to Jakob Nielsen, the primary expert on usability and the co-author of *Homepage Usability: 50 Websites Deconstructed*, “Search is one of the most important elements of the homepage, and it’s essential that users be able to find it easily and use it effortlessly.” In fact, Nielsen’s studies have found that half of all users are “search-dominant,” and he argues that Websites should provide users with a search box on the homepage so that the Website can be easily searched. The Harnett County Public Library’s Website does not include such a search function, and implementing one would greatly improve the usability of the site to its users. The library staff can create such a search function through Google’s SiteSearch service at <http://www.google.com/services/free.html> by simply specifying the domain name of the library’s Website, and by then customizing the look and feel of the results page. Google produces the HTML code for the search box, which can then be cut and paste into the library’s web pages.
- Determine the Website’s accessibility to individuals with visual and other disabilities. The Harnett County Public Library serves such individuals and should ensure the accessibility of its Website to them. An accessibility analysis can be conducted by submitting the individual pages of the library’s Website to the Watchfire Web XACT tool at <http://webxact.watchfire.com/>, mentioned earlier. This tool tests for compliance with government standards and offers suggestions for improving a site’s accessibility based on the Web Content Accessibility Guidelines provided by the World Wide Web Consortium’s (W3C) Web Access Initiative. For example, WebXACT notes that the library’s homepage does not use ALT tags and alternative text for its images; these would improve accessibility by allowing the alternative text to be displayed in place of the

⁷ The link to the online catalog at the Kenosha (Wisconsin) Public Library does not open a new window or a new tab. See <http://www.kenosha.lib.wi.us/>.

images under certain circumstances, including when a screen reader is being used by a visually impaired user. In all, the analysis found twelve instances of one Priority 1 accessibility error, 74 instances of three Priority 2 errors, and twelve instances of three Priority 3 errors.

- Analyze the Website's log file. Web servers, like the one that hosts the Website of the Harnett County Public Library, store data about the use of the Websites that they maintain. This includes data about the pages, files, and images that are requested by users of the site as well as data about the users themselves. These data are stored in log files. An analysis of the log files for its Website can provide the library with valuable information about the site's use and its visitors, including lists of the most requested pages on the site.
- Conduct a Web-based survey of users of the Website. Even more information on the use of the library's Website can be obtained through a Web-based survey, such as the pop-up surveys used by companies such as SurveySite (<http://www.surveysite.com>). Such pop-up surveys can ask a visitor if she or he would be willing to complete a short online survey about the site. If the visitor declines, then the window disappears and the visitor is allowed to continue browsing the Web. If the visitor agrees, then she or he is redirected to a Web page containing a survey to be filled out and submitted on the Web. Cookies can be used to ensure that visitors are not asked more than once to participate in the survey. The pop-up survey can be limited to specific pages of the library's Website if desired. If a pop-up survey is too complicated to implement, the library staff can use a generic Web page survey, such as the one used by Central Piedmont Community College at <http://surveys.cpcc.edu/19363/19363.htm>.

Better utilization of electronic books through NetLibrary. The Harnett County Public Library has access to a collection of over 22,000 electronic books (or ebooks) and e-audiobooks through NetLibrary (one of the databases provided through NC LIVE). NetLibrary contains the full text of these English-language books and unabridged audio versions of best-sellers and language study courses.

These titles represent a potentially valuable set of resources for the users of the library. Unfortunately, in the Harnett County Public Library and in most libraries across the state, the NetLibrary collection is underused. The staff of the library should consider various ways in which to increase the use of these electronic books.

- Do a better job of publicizing the NetLibrary resources. There is a prominent NC LIVE link among the navigation buttons that appear on library's homepage but no mention of or link to NetLibrary, either on the library's home page or on its "Internet Resources" page. A link and a brief description of NetLibrary should be provided on one of those pages, and even more might be done to highlight the service. For example, a separate page describing the resources and highlighting specific areas of the collection (such as that provided on the Denver Public Library's Website at <http://denverlibrary.org/booksmedia/books/netlibrary.html>) would be helpful. The NetLibrary Website also has a section on promoting ebooks at <http://library.netlibrary.com/Tools.aspx>; this site includes logos, graphics, a marketing kit, and other promotional materials.
- In particular, highlight specific parts of the NetLibrary collection. The NetLibrary collection includes Cliffs Notes, the SAMS "Teach Yourself" series, and other titles of interest to users of the Harnett County Public Library. Lists of these and other areas of the NetLibrary collection might improve their level of use at the library. The most popular NetLibrary titles or the "eBook of the Month" (see <http://library.netlibrary.com/eBookOfTheMonth.aspx>) could also be listed.
- Provide links to the titles in the NetLibrary collection from the library's catalog. This approach will show users of the catalog that a title is available via NetLibrary and should increase the use of these materials. These links can be implemented by adding a link to the NetLibrary record in the 856 field of the MARC record for the title in the library's catalog. MARC records for the NC LIVE collection of NetLibrary books can also be downloaded from the NC LIVE site at <http://www.nclive.org/netlibmarc.phtml?BL=5> and loaded into the library's catalog.

- Make it easier for users to set up an account and a password. The NetLibrary collection can be accessed by any library user from home or the library only if the user has set up an account and password *from a workstation in the library*. This process is somewhat cumbersome but is required by NetLibrary. Nevertheless, the library should do what it can to make the process easier. Printed materials explaining how to set up a NetLibrary account could be used, or the library's Website could include instructions of how to set up an account. The Denver Public Library's site at <http://denverlibrary.org/booksmedia/books/netlibrary.html> includes step-by-step instructions for setting up an account.
- Encourage staff to become familiar with NetLibrary. The more familiar staff members are with the resource, the more likely they will be to promote it and to use it when helping library users. The NC LIVE site has an excellent FAQ for NetLibrary at <http://www.nclive.org/faq/netlibraryfaq.phtml>, which contains a great deal of information about the resources.

Children's version of the catalog. The library staff should consider creating a children's version of the online catalog. This can be accomplished by creating a hierarchy of links and icons to represent the links. An example can be found at the Niagara Falls Public Library's KidsCat at <http://nfplib.niagara.com/niagvw/vubis.csp?Profile=KidsCat>. If the user selects the "Animals" link, for example, and then the "Birds" link on the resulting page and the "Birds of Prey" link on the next page, the user finds a list of books on this topic.

The advantage of using this approach with children is that it makes the process of searching the library's collection far easier. The use of the icons also makes the catalog more attractive to the children.

Enhanced content in the catalog. Traditionally, library catalogs include only bibliographic information (author, title, subject headings, and the like) and status information for each item in the collection. Recently, a number of vendors have begun offering enhanced content for library catalogs. These enhancements include cover images and tables of contents for items in the catalog, annotations for audio and video items, special headings for fiction and biographies, series information for fiction, a "Find

Similar Titles” function, and book reviews. First chapters and excerpts, lists of awards won, author notes, and summaries are also available for many titles.

The enhanced content makes the user’s experience with the library’s catalog far richer than it would otherwise be with a traditional catalog. The enhanced content also makes it easier for users to locate items of interest to them and thus allows them to better utilize the library’s collections.

Additional content on the Website. In addition to better utilization of the content that the library has access to (NetLibrary and NC LIVE, for example), there is also a need for additional content on the Harnett County Public Library’s Website. There are many possibilities for providing additional content on the library’s Website. For example, the Detroit Public Library offers “computer storytime,” a set of Web activities organized by themes and including online games and a Shockwave coloring book. (See http://www.detroit.lib.mi.us/childrens_library/storytime.htm.) The Waukesha (Wisconsin) Public Library offers several online games as part of its “Kid’s Corner” at <http://www.waukesha.lib.wi.us/kc/games.shtml>. The New York Public Library offers coloring pages on its Website at <http://kids.nypl.org/arts/coloring.cfm>. Examples of multimedia content for adults include the virtual tour of the Public Library of Charlotte and Mecklenburg County at <http://www.plcmc.org/services/default.asp> (see “Take a Tour of Our Services”). The “Innovative Internet Applications in Libraries” site at <http://www.wiltonlibrary.org/innovate.html> provides further examples of innovative projects in libraries across the United States, and the library staff should consider implementing similar projects in their own library.

Potential Costs

Website analysis. The staff of the library could conduct many of the analyses of the library’s Website that were discussed above, thus restricting the costs of such a project to staff time only. If an outside consultant were hired to do a full analysis of the Website, the cost would likely be around \$10,000.

Better utilization of electronic books through NetLibrary. None of the recommendations listed above will cost the library beyond staff time. The Harnett

County Public Library has access to the NetLibrary collection through NC LIVE, which is funded by the state legislature.

Children's version of the catalog. Creating a children's version of the online catalog will cost the library nothing beyond the staff time invested in creating a hierarchy of links and creating or finding icons to represent the links.

Enhanced content in the catalog. Implementing enhanced bibliographic content through a provider like Syndetic Solutions would cost an estimated \$2,500 for initial purchase plus \$1,000 to set up the Vubis Smart integrated online library system to support the enhanced content. Ongoing costs include \$1,000 per year for a subscription to the Syndetic content and \$300 per year in additional software maintenance for the Vubis Smart system.

Additional content on the Website. Implementing the recommendation regarding additional content outlined above will cost the library nothing beyond the staff time involved.

Funding Note

There are no federal grant programs administered by the State Library of North Carolina that would cover the expenses associated with this recommendation. Any funding would need to be raised locally.

Recommendation 10

The Harnett County Public Library should continue to focus on training its staff to make better use of the new technologies.

Assessment of the Current Situation

Too often, the emphasis in technology planning is placed on the hardware and software aspects of technology. However, in order to ensure the proper and effective use of the technology, a firm commitment to staff development is needed. Otherwise, the benefits of the technology will not be fully realized.

Staff training is especially important for the Harnett County Public Library. As noted earlier, the library is understaffed and ranks 41st among the state's 50 county library systems in the number of FTE staff per 25,000 persons in the library's service area. Because there are so few staff members to assist library users, individual staff members need to be as well trained as possible so that the service that they provide is efficient and effective. In addition, only four staff members have a Master's degree in Library Science and the training in library technology that such a degree entails. In the absence of formal training, on-the-job staff training takes on increased significance.

Currently, the Harnett County Public Library allocates approximately \$2,000 per year for staff training and another \$5,000 per year for travel, primarily to training opportunities away from the library. The library's commitment to staff training is addressed in several places in the library's "Technology Plan for Universal Service Discount Eligibility" (see Appendix 2), which notes that "The Harnett County Public Library System is committed to training. Workshop participation has been encouraged. Continuing education funds support workshop attendance for interested member library staff in work-related topics of interest."

Recommendation

The Harnett County Public Library should continue to focus on training its staff to make better use of the new technologies. In particular, the library should focus on determining the specific training needed by staff to accomplish the Harnett County Public Library's mission and long range plan, the options for providing that training, and the techniques to maximize the transfer of training so that the desired changes in understanding and skill level do take place.

Specifically, the staff of the Harnett County Public Library should develop a staff training plan in keeping with the North Carolina Public Library Directors Association's 1998 "Guidelines for North Carolina Public Libraries" (<http://statelibrary.dcr.state.nc.us/ncplda/guidelines.htm>), which recommend that:

The library supports and encourages staff to enhance basic skills, acquire new skills, keep current on new developments in public libraries, and renew their enthusiasm for library work. Attendance at library conferences, participation in course work, seminars, and other in-service training offerings all provide opportunities for library staff to improve their knowledge base and to add new skills. The library provides paid work time and funding for related expenses for such training. Special emphasis is placed on the need to train staff in the use and maintenance of information technologies.

- a. At least 2% of the personnel budget is allocated to in-service training and continuing education.
- b. Each library brings its staff together annually for a minimum of eight hours of education and training.
- c. Each library has an established in-service training schedule that includes provision for each staff member to participate in at least one opportunity annually for education and training.

In order to improve the skills of the current staff, the Harnett County Public Library should focus on three aspects of staff training:

- What training is needed by staff?
- Where can training be found?
- How can transfer of training be maximized?

What Training Is Needed? The first step is to determine what staff training is needed, and this goal can best be achieved by conducting both an organizational training needs assessment and individual training needs assessments.

The organizational needs assessment should focus on the technological skills needed by the staff to accomplish the Harnett County Public Library's mission of providing "its users with the means to meet their recreational reading interests; to continue to learn throughout their lives; to find, evaluate, and use information in a variety of formats; to get answers to their questions; and to enhance their formal education from preschool through high school." This mission is best accomplished by having staff members consider which technologies best help the library meet its goals.

Individual training needs assessments can be accomplished by having all staff members develop individual training plans based on the organizational needs (defined above) and their individual skill levels. Every staff member should identify those areas of the technology in which she or he needs training in order to contribute to the mission of the library.

Staff members may find the State Library's "Competencies in Technology" document to be helpful in identifying possible training needs. The document is available on the Web at <http://statelibrary.dcr.state.nc.us/ce/competencies.pdf>. Staff members may also be interested in the "Learning 2.0" approach taken by the Public Library of Charlotte and Mecklenburg County, which includes a list of 23 exercises that staff can do to assess their knowledge of the Internet and Web 2.0. See <http://plcmcl2-things.blogspot.com/> for the list of exercises.

Acquiring or improving these specific skills should be included in individual staff work plans and monitored by the library director, who should assist staff members in finding training opportunities in the areas identified as important.

The library may also wish to conduct “a learning needs assessment with the staff of all county libraries to see where there are training gaps and then design training to bring everyone to the same level of expertise,” as mentioned in the library’s “Technology Plan for Universal Service Discount Eligibility.”

Where Can Training Be Found? Staff training is available from several sources, and the director and the staff of the Harnett County Public Library should continue to monitor these sources to ensure that staff members are aware of training opportunities that are relevant to their needs and to the needs of the library. Sources of staff training include:

- The State Library of North Carolina, which sponsors a number of workshops for librarians in the state. Workshops are announced periodically on the State Library’s continuing education Website (<http://statelibrary.dcr.state.nc.us/ce/conted.htm>). For example, classes sponsored by the State Library in the spring of 2007 have included “NC LIVE Ready Reference Resources” and “NC LIVE Business Resources.” Workshops typically cost \$20 for a one-day session and are often held in multiple locations throughout the state. Several workshops are held online, which allows staff members to learn without leaving the library.
- Library associations, such as the North Carolina Library Association and the American Library Association, offer workshops on a wide range of topics. The workshops sponsored by the North Carolina Library Association would be particularly attractive to the staff of the Harnett County Public Library, because they are held in the state and are usually less expensive than those sponsored by the American Library Association. Continuing education opportunities are announced on the North Carolina Library Association Website at <http://www.nclaonline.org/>.

- The Central Carolina Community College's Harnett County Campus and Campbell University offer courses that may be relevant to the needs of the staff of the Harnett County Public Library. Both the community college and the university offer distance learning classes online as well as traditional classes. These courses require a greater commitment of time and money but also provide more in-depth instruction. Further information is available on the Web at <http://www.cccc.edu/> and <http://www.campbell.edu/>.
- Library schools also offer staff training opportunities, and the staff of the Harnett County Public Library should be aware of these options. They range from one-time workshops to distance education programs that lead to the Masters degree in Library Science. The Websites of the various schools should be consulted for specific opportunities.
- The library staff may consider contracting with individuals to provide the kinds of training that are needed. One potentially inexpensive option might be to use one of the Master Trainers who have been trained by the State Library to conduct technology-related staff training. More details about the Master Trainers are available at <http://statelibrary.dcr.state.nc.us/mtrainer/index.html>.
- The Harnett County Public Library should consider having one of its staff members participate in the State Library's Master Trainer program, thereby enhancing her or his skills in training for both staff members and library users. The State Library pays all hotel, meal, and travel expenses for individuals selected for the Master Trainer program. The most recent Master Trainer class was held in 2006-2007, and the next class is being planned for 2008-2009. Library staff should contact Raye Oldham, the State Library's continuing education consultant for further information.
- The Harnett County Public Library may wish to develop its own list of staff competencies, and the State Library's "Competencies in Technology" document may be helpful in identifying possible training needs. The staff should also refer to the March/April 2007 issue of *Library Technology Report*, which focuses on

technology competencies and training for libraries. The full text of the issue is available on NC LIVE.

- The Harnett County Public Library may wish to adapt the “Learning 2.0” approach taken by the Public Library of Charlotte and Mecklenburg County, which was mentioned earlier. This program includes a list of 23 exercises that staff can do to assess and expand their knowledge of the Internet and Web 2.0. See <http://plcmcl2-things.blogspot.com/> for the list of exercises and see <http://plcmclearning.blogspot.com/> for a list of libraries that have adapted this approach. (The Loudon County Public Library in Virginia is a particularly good example. See <http://learningatlcppl.blogspot.com/>).

Transfer of Training. Libraries and other employers devote considerable time and money to continuing education and staff development. Some researchers have estimated that from \$40 to \$70 billion is spent annually in the United States on formal training and \$240 billion on informal on-the-job training. Others estimate that over \$500 per employee is spent per year on training activities.

The purpose of continuing education, staff development, and training is to produce a desired change, and these activities are of little value if the desired changes in behavior, attitude, understanding, or skill level do not take place. Unfortunately, there is evidence that transfer of training rarely takes place. Some researchers suggest that, on average, only 40 per cent of the content of management development programs transfers to the work place immediately after training, only 25 per cent is still being applied six months later, and a mere 15 per cent is being applied at the end of a year. Others have stated that only 10 per cent of training expenditures result in observable changes in on-the-job behavior.

If the Harnett County Public Library is going to focus on staff training, then part of that focus should be on transfer of training, i.e., ensuring that the desired changes in behavior, attitude, understanding, and skill level do take place.

A number of articles and books on transfer of training (most notably, *Transfer of Training: Action-Packed Strategies to Ensure High Payoff from Training Investments* by Mary Broad and J.W. Newstrom [Reading, MA: Addison-Wesley, 1992]) have

suggested ways in which the transfer of skills gained in training can be maximized. These techniques can be implemented as part of the staff training effort at the Harnett County Public Library:

- Selecting staff to attend training on the basis of individualized training plans
- Selecting staff to attend training according to established criteria used for all employees
- Prior to training, conferring with staff regarding performance expectations following the training
- Arranging to have a staff member's work covered during the training period
- Allowing staff preparation time before the training session
- Planning assessment procedures to use when staff members are back on the job
- Working with staff to practice ways to reinforce the use of new job behaviors related to the training
- Scheduling a meeting with staff back on the job to plan the use of their new skills, ideas, or information
- Developing opportunities for staff to use their new skills, ideas, or information immediately on the job
- Providing staff with checklists or worksheets related to their new skills, ideas, or information for use on the job
- Providing counseling or coaching related to the use of the new skills, ideas, or information on the job
- Asking newly-trained staff to share their training experience and learning with co-workers on the job
- Holding regular meetings of groups of trainees to discuss the use of new behaviors and skills
- Giving staff positive reinforcement for desired performance related to their training
- Requesting reports from staff on the use of new skills, ideas, or information and knowledge on the job

Potential Costs

If the Harnett County Public Library follows the guideline above and devotes 2 per cent of its personnel budget to in-service training and continuing education, then the costs of providing staff training (based on the library's 2005-2006 personnel expenditures) would have been roughly \$11,040 in that fiscal year. That amount would have provided approximately \$470 in staff training for each full-time staff equivalent. The library currently spends about \$7,000 on travel and training for staff, so an increase would be warranted.

Trained staff can better serve the users of the library and can provide a better return on the investment in the technology. The satisfaction of library users will increase, and the library will be more likely to accomplish its mission and achieve its goals. By contrast, if the library fails to provide library staff with adequate training in the technology, service to patrons will degrade as technologies continue to change and become more sophisticated. If adequate staff training does not accompany the implementation of the recommendations made in this report, the technology will not be used in a cost-effective manner.

Funding Note

The most obvious source of the funding for staff training is the library's annual operating budget. The library should include sufficient funds to provide training to its staff members in its annual budget request. A reasonable target is 2 per cent of the library's personnel expenditures. The funds devoted to staff training would have a substantial return on the investment, would protect the investment that the County has already made in the technology, and would provide tangible benefits to the citizens of Harnett County.

Staff members may also consider taking advantage of the State Library's Career Enrichment Grant Program, a program to aid North Carolina library staff by funding

participation in selected library conferences. Grant funds were available in 2006-2007 to support library staff attendance at ten different conferences, including the Library and Information Technology Association Conference in Nashville, the Computers in Libraries Conference in Arlington, and the American Library Association conference in Washington. Grant funds may be used to cover conference registration, meals, lodging, and transportation at these conferences. The maximum amount of a grant is \$1,000, and the minimum is \$300; and a 10 per cent match is required. See <http://statelibrary.dcr.state.nc.us/lsta/cegrant.htm> for further information.

One option suggested above, having a staff member participate in the State Library's Master Trainer program, would improve in-house training for both staff members and library users but would cost the library nothing, as the State Library covers the costs associated with Master Trainer program participation. As noted above, the next Master Trainer class is expected to be 2008-2009. Library staff should contact Raye Oldham, the State Library's continuing education consultant for further information.

Recommendation 11

The Harnett County Public Library should explore alternatives for funding the new technologies.

Assessment of the Current Situation

Any technology plan must address the need for funds to implement the plan. Funds must be obtained to acquire the hardware, software, licenses, services, and staff needed to implement the recommendations of this plan. Furthermore, funds must be budgeted annually to maintain existing technology, to update or replace obsolete technology on a regularly scheduled basis, and to provide necessary staff support. Specific funding options have been explored for each of the recommendations made in this report, and the current recommendation discusses funding in more general terms.

The Harnett County Public Library currently receives funding primarily from two sources: local funds from Harnett County and state aid from the State of North Carolina. In addition, the library receives occasional funding through federal aid from the Library Services and Technology Act, which is administered by the State Library of North Carolina, and non-governmental grants. The library also receives a discount on telecommunications services through the Universal Service program, established by the 1996 Telecommunications Act.

Local Funding. Local funding for the operations of the Harnett County Public Library comes from Harnett County. In the most recent fiscal year for which statistics are available from the State Library (2005-2006), local funding for the Harnett County Public Library totaled \$599,869. This funding totaled approximately 72 per cent of the library's total operating income.

State of North Carolina. The Harnett County Public Library receives state funding through the State Aid to Public Libraries program that is administered by the State Library of North Carolina. In the most recent fiscal year for which statistics are available from the State Library (2005-2006), this funding totaled \$176,254 or approximately 21 per cent of the library's total operating income.

LSTA. Federal funding to public libraries in the United States is provided primarily through the Library Services and Technology Act (LSTA), which is administered in each state by the state library. In North Carolina, LSTA funds are administered by the State Library of North Carolina, in conjunction with a Five Year Plan for Implementation and an LSTA Advisory Committee, which is composed of leaders from the state's library community.

The Harnett County Public Library has received \$110,159 in LSTA grants since 1998-1999:

- A Basic Equipment Grant totaling \$7,690 in April 1998.
- A Basic Equipment Grant totaling \$10,000 in January 1999.
- An Enhanced Connectivity Grant totaling \$45,498 in October 1999.
- An NC ECHO Digitization Starter Grant totaling \$6,019 in November 2002.
- A Planning Grant totaling \$13,500 in June 2002.
- A Strengthening Library Collections Grant totaling 20,000 in December 2002.
- A Planning Grant totaling \$13,200 in June 2004.
- A Technology Planning Grant totaling \$19,656 in December 2006.

Non-governmental grants. The Harnett County Public Library staff have also obtained grants from private companies or foundations, most notably a grant from the Bill and Melinda Gates Foundation's Library Program in 2000-2001. This grant totaled almost \$116,000 and provided five computers (four workstations and one server) each to the headquarters library in Lillington and the member libraries in Anderson Creek, Angier, Coats, Dunn, and Erwin. The grant also provided an 11-computer training lab at

the headquarters library in Lillington. In 2005-2006, the library received over \$26,000 in a Gates Foundation Staying Connected Grant for the purchase of more Internet-accessible computers.

E-rate. The Universal Service provision of the 1996 Telecommunications Act (commonly referred to as E-rate) mandates discounted rates for telecommunications services for libraries and schools. The E-rate program allows eligible schools and libraries to purchase commercially available telecommunications services, Internet access, and internal connections at discounted rates. Thus, the cost of these telecommunications services to the Harnett County Public Library is less than it would be if the Universal Service provision were not in place. In 2005-2006, the library received a refund of approximately \$5,562 from the E-rate program: \$3,450 for the headquarters library in Lillington and \$2,112 for the Dunn Library. The current discount for the Harnett County Public Library is 80 per cent of eligible expenses.

Recommendation

The staff, board members, and supporters of the Harnett County Public Library should explore alternatives for funding the new technologies. In some cases, this will entail seeking continued or increased funding from existing sources. In other cases, the library staff, with assistance from library board members and other supporters of the library, must identify and pursue new sources of funding.

Local Funding. Local funding for the Harnett County Public Library totaled \$599,869 in 2005-2006 or \$5.90 per capita for the service population.⁸

This per capita figure ranks 48th among the state's 50 county library systems and reflects the relative poverty of Harnett County and the local communities. In fact,

⁸ Local funding figures for the Harnett County Public Library and its member libraries are somewhat misleading, because the funding provided by the municipalities to the member libraries are not considered local income for the county library by the State Library of North Carolina, which gathers statistics on public libraries in the state. If the estimated income for the member libraries were included, however, the local funding provided to the Harnett County Public Library and its member libraries would still rank only 41st among the state's 50 county library systems.

according to the Public School Forum of North Carolina,⁹ Harnett County ranks 97th of North Carolina's 100 counties in total adjusted property valuation divided by the number of students in the county, a measure of the real estate wealth available to support education and other governmental programs, including libraries. The Public School Forum also ranks Harnett County 87th out of the state's 100 counties in its ability to pay for educational services, based on total adjusted revenues minus mandated social service payments. In other words, there is little local government revenue and therefore little funding available for the Harnett County Public Library.

In spite of this lack of local government funding, however, the library does a fairly good job of raising local funds and receives a percentage of local revenues that is near the median for all public libraries in North Carolina. In 2002-2003 (the last fiscal year for which these figures are available), the Harnett County Public Library received approximately 1.3 per cent of locally available funds and ranked 61st out of North Carolina's 100 counties on this measure.

Library board members, the library staff, and other supporters of the library need to be aware of the challenges of funding the library's operations in this extremely poor county and need to work extremely hard both to ensure the continued level of local funding to the Harnett County Public Library and to work for increased local funding to the library. Actions to achieve these goals include:

- Communicating the importance of local funding to local funding authorities. Any reduction in local funding would make it difficult for the library to provide adequate services to its users. Furthermore, because the library must maintain its level of local funding from year to year in order to continue to receive state funding, any attempts to cut local funding to the library could cause the loss of further funds.
- Advocating for increases in local funding. As noted above, the current level of per capita local support for the library ranks 48th among the state's 50 county library systems. The \$5.90 per capita in local support for the Harnett County

⁹ "2004 North Carolina Local School Finance Study." Raleigh, NC: Public School Forum of North Carolina, 2005.

Public Library is less than half of the median local per capita support for county libraries in North Carolina (\$13.11). Increased local funding is needed to ensure the library's ability to provide adequate services to its users and to implement the recommendations of this technology plan. While this may be challenging, given the extreme poverty and lack of local funds available in Harnett County, it is important for the continued success of the Harnett County Public Library – particularly with respect to new technologies – that the effort be made.

- Showing that library staff and supporters are working hard to identify and pursue other sources of funding. It is important that local funding authorities understand that members of the library staff are making every possible effort to find alternative sources of funding.

State of North Carolina. As noted above, the Harnett County Public Library receives approximately 21 per cent of its operating income as state funding through the State Aid to Public Libraries program that is administered by the State Library of North Carolina. This funding is governed by a formula that is partly based on the population of the library's service population and partly based on the per capita income of the library's service population. There is obviously little that the library staff can do to affect the amount of state funding that the library receives.

However, there are several actions that library board members, the library staff, and other supporters of the library can take to ensure the continued availability of and perhaps even an increase in state funding to the Harnett County Public Library:

- Communicating the importance of state funding to local and state funding authorities. State aid represents a large portion (approximately 21 per cent) of the total operating income of the Harnett County Public Library; in fact, this is the 9th highest percentage of total operating income from state aid for any county library in North Carolina. Consequently, any reductions in that funding make it difficult for the library to provide adequate services to its users. Due to the state's recent fiscal situation, State Aid to Public Libraries has fluctuated in recent years, and the allocation to the Harnett County Public Library was reduced from

\$166,977 in 1999-2000 to \$144,395 in 2001-2002 before rising to \$176,254 in 2005-2006 and \$183,737 (planned) in 2006-2007.

- Communicating the requirements for the library to receive state funding to local funding authorities. These requirements include a mandate that the library maintain its local funding from year to year unless local funding for the library is reduced as part of an overall general budgetary reduction reflecting local economic conditions and local government fiscal constraints. Attempts to cut local funding to the library may jeopardize state funding.¹⁰
- Advocating for increases in the State Aid to Public Libraries program. In the past, the North Carolina Public Library Directors Association has occasionally advocated an increase in the Aid to Public Libraries fund. For example, one proposal presented to the General Assembly in 2006 recommended an increase of \$3.7 million to the program. This increase would raise the total expenditure from \$15.9 million to \$19.4 million. If funding were increased to this level, it could result in an increase in state aid to the Harnett County Public Library of approximately 19 per cent or \$35,160. Library board members, the library staff, and other supporters of the library should encourage their state legislators to support increases in the State Aid to Public Libraries program.

LSTA. As noted above, the State Library of North Carolina administers federal funding to public libraries in the state through various grants programs, which are funded by the Library Services and Technology Act (LSTA). The Harnett County Public Library has received \$110,159 in such funds since 1998-1999; this total ranks 28th among the state's 50 county libraries. Library board members, the library staff, and other supporters of the library should continue the pursuit of federal funds, while

¹⁰ As this report was being written, changes were being proposed to the North Carolina Administrative Code that governs the State Aid to Public Libraries program. These proposed changes included a change in the requirement that the library maintain its local funding from year to year to a requirement that local funding not drop below the average of the three previous fiscal years. The staff of the Harnett County Public Library should be aware of the proposed changes and the potential impact on local funding. The proposed changes are available at <http://www.ncoah.com/rules/register/Volume21Issue23June12007.pdf>.

working for increased levels of local funding to the library. Actions to achieve this goal include:

- Continuing to filter the library's Internet-accessible computers and continuing to enforce its Internet safety policy. These actions will ensure that the library will be eligible to receive LSTA funds in the future. The State Library now requires that "Every library that submits an application for funding to the State Library *must* include the appropriate CIPA certification documents as part of its application package. This applies to all grant applicants – no matter what type of library or what type of grant." (See the State Library's CIPA certification guidelines at <http://statelibrary.dcr.state.nc.us/lsta/certguidelines07.pdf>.) The LSTA CIPA certification documents specify that any public library intending to use LSTA funds to purchase computers for accessing the Internet or to pay for direct costs to access the Internet must have an Internet safety policy in place and that the policy must include "a technology protection measure," i.e., a filter.
- Being aware of LSTA grant programs and pursuing those that are pertinent to the library's goals as aggressively as possible. LSTA grant programs have been mentioned in conjunction with several of the recommendations made in this plan, and the library staff should work to obtain these grants.
- Communicating the importance of federal funding to Congressional representatives. It is particularly important that those in Congress be aware of the local impact of federal money.

Non-governmental grants. The Foundation Center's report (*Foundation Growth and Giving Estimates: Current Outlook, 2007 Edition*, available on the Web at <http://foundationcenter.org/gainknowledge/research/pdf/fgge07.pdf>) reports that there are more than 71,000 grantmaking foundations in the United States and that these organizations made grants totaling \$40.7 billion in 2006. It may be possible for the Harnett County Public Library to obtain grants from private companies and foundations, but these require that the staff members identify such grants and apply for them. The following actions may help the staff in these efforts:

- Obtaining information about grants from private companies and foundations. Staff should consult the article by Janice Steed Lewis (“Making Connections: North Carolina Libraries and Grantmaking Foundations”) in the Spring/Summer 2002 issue of *North Carolina Libraries*. The article provides information on foundations that have made grants to libraries in the state in recent years and foundations that may be potential benefactors in the future. The article includes tables showing the foundations that made grants, the libraries to which they made grants, and the amount of each grant. The Lewis article also identifies a number of Web and print resources for information on foundations, including the following:
 - The Foundation Center (<http://fdncenter.org/>) provides a wide range of information on philanthropy in the United States. Of particular interest is the Foundation Finder, a free database that provides basic information on 80,000 private and community foundations. The Foundation Directory Online provides more information on the foundations but is available only through subscription.
 - GuideStar: The National Database of Nonprofit Organizations (<http://www.guidestar.org/>) also provides a free searchable database of information on foundations and other nonprofit organizations.
 - GrantSmart (<http://grantsmart.org/>) provides a similar free database of information on foundations.
 - Capital Development Services (<http://www.capdev.com/>) publishes *North Carolina Giving Online*, an online directory of foundations in North Carolina. The directory is available through subscription.
- Monitoring the “Library Grants” blog at <http://librarygrants.blogspot.com/>. The blog is maintained by Stephanie Gerding and Pam MacKellar, whose book (*Grants for Libraries: A How-to-Do-It Manual*, Neal-Schuman 2006) should also be consulted.

- Being aware of the fundraising process. Again, two articles from *North Carolina Libraries* (Joline R. Ezzell's "A Twelve-Step Program for Stronger Grant Proposals," *North Carolina Libraries* 53 [Spring 1995]: 6 – 7; and Steve Sumerford, "Careful Planning: The Fundraising Edge," *North Carolina Libraries* 53 [Spring 1995]: 3 – 5) may prove helpful to staff of the Harnett County Public Library.

E-rate. The E-rate discounts represent a small source of funding for the Harnett County Public Library. In 2005-2006, the library received a refund of approximately \$5,562 from the E-rate program. The library needs to continue making the best use of this program by:

- Continuing to filter the library's Internet-accessible computers and continuing to enforce its Internet safety policy. These actions will ensure that the library will be eligible to receive the E-rate discount in the future.
- Taking advantage of the E-rate discount as much as possible. In 2005-2006, the library received a refund of approximately \$5,562 from the E-rate program. This amount is somewhat less than what most county libraries serving similar populations in North Carolina received. In fact, the average E-rate discount received in 2005-2006 by the ten county libraries closest in population size to the Harnett County Public Library was almost \$9,400. The library's staff should discuss potential E-rate applications with the State Library's Consultant for Public Library Networking and should be familiar with the list of services that are eligible for discounts (<http://www.universalservice.org/sl/tools/eligible-services-list.aspx>). For example, basic telephone service, T-1 lines, wireless telecommunications services, and the installation and maintenance of internal connections are eligible for discounts. The equipment needed to transport information within a library – including routers, hubs, network file servers (including the necessary software), and wireless local area networks – is eligible for discounts. By contrast, equipment such as computers (with the exception of network file servers) and other hardware, software (with the exception of the software required for the

operation of network file servers), fax machines, modems, teacher training, and upgrades to the electrical system are not eligible for discounts.

- Communicating the importance of the E-rate discount program to Congressional representatives. It is particularly important that those in Congress be aware of the local impact of this program, especially in relatively poor, rural counties like Harnett. As the library's "Technology Plan for Universal Service Discount Eligibility" recommends, the library and its supporters should be "an advocate of local and statewide telecommunications initiatives that involve libraries including the E-Rate telecommunications effort lead by the State Library."

Recommendation 12

The Harnett County Public Library should establish a framework and methodology for ongoing technology assessment, planning, and budgeting.

Assessment of the Current Situation

A process to ensure ongoing technology assessment, planning, and budgeting is necessary to ensure that the goals and objectives of the Harnett County Public Library's technology plan are actually implemented and that library staff members are aware of new challenges and opportunities. As the library staff noted in their grant application, "because the technology is constantly developing, staff need a process by which they can determine whether the solutions proposed in the plan will solve the problems or deficiencies that have been identified."

Ongoing technology planning is especially important for the Harnett County Public Library for two reasons. First, the library has made a heavy investment in its technologies. This investment can be seen in the fact that the library ranks 15th out of the 50 county libraries in North Carolina in the number of public Internet workstations per 5,000 people.

Second, the Harnett County Public Library is relatively poor, ranking 48th among the state's 50 county library systems in per capita income. Because the library is so poorly funded, the staff must make extra efforts to ensure that the funds that are allocated are spent wisely.¹¹ This is best accomplished by having in place a process of ongoing technology assessment, planning, and budgeting.

¹¹ There is evidence that the staff does allocate the limited funds in a very effective manner. The Harnett County Public Library ranks 5th among the 50 county libraries in the state in cost to circulate a book, a measure of the staff's efficiency in allocating its resources.

A good planning process is needed to ensure that the library continues to meet the demands of its users and that the library receives the best return on its investment in the technology.

Alternatives and Recommendations

There are several areas on which the library staff should focus as it develops a process of ongoing technology planning.

Planning in general. Technology planning takes place within the larger context of planning in general, and so it is important that library staff members implement an ongoing general planning process. An up-to-date strategic plan is also a requirement for the library to receive state funding through the State Aid to Public Libraries program discussed earlier.

The library's current strategic plan covers the period from 2003 through 2007. The plan was developed with the assistance of a community-based Planning Committee, a library staff team, and an outside consultant and followed the community-based planning process recommended by the Public Library Association (Sandra Nelson, *The New Planning for Results* [Chicago: American Library Association, 2001]). The plan was meant to guide the library through 2007 only, and consequently a new planning process needs to be initiated in the near future.

Evaluating and updating the technology plan. An evaluation process is needed to ensure that the goals and objectives of the Harnett County Public Library's technology plan are actually implemented. This is best done on a regular basis (at least annually) at staff meetings and meetings of the library board. The easiest way to evaluate the technology plan is to tie the evaluation process to the list of recommendations made in the report. For example, a goal may be to implement a system to manage the library's public computers, as described in Recommendation 6. The evaluation process would be a simple matter of determining whether that goal has

been met. If a goal has not been met, then library staff should examine the obstacles to meeting that goal and determine an action plan for overcoming the obstacles.

A similar process may be used to update the plan. Because the technologies change so rapidly, the library staff should review the technology plan on a regular basis to determine whether it is still relevant or whether new challenges and opportunities should be incorporated into it. As part of this process of keeping the technology plan updated, the library staff may wish to consult the American Library Association's publication, Diane Mayo's *Technology for Results: Developing Service-Based Plans* (Chicago, IL: American Library Association, 2005).

Surveys of user satisfaction. The library staff should also consider conducting periodic surveys of users to determine the impact of the implementation of the recommendations in this report. For example, following the implementation of a system to manage the library's public computers, the library staff could survey users to determine their level of satisfaction with the system.

User surveys can be conducted in a number of ways, including paper surveys, telephone surveys, and Web surveys. They can be ongoing or can be conducted at specific times. They can focus on satisfaction with library services in general or on more specific aspects of the library. User surveys can be small and inexpensive projects, conducted by the staff, or they can be larger and more complex and conducted by professionals. The staff should consider the possibility of surveys to determine user satisfaction and should familiarize themselves with resources such as George R. Plosker's article, "Conducting User Surveys: An Ongoing Information Imperative," *Online* 26 (September/October 2002): 64-68 and Gail Junion-Metz and Derrek L. Metz's book, *Instant Web Forms and Surveys for Public Libraries* (New York: Neal-Schuman, 2001).

Ongoing awareness. As Vitruvian's "Network Evaluation" notes, "Because of the fast emerging nature of the technology industry, any Library Technology Plan should

include a review and assessment of emerging technologies as they relate to the Library's future technology goals.”

In particular, the library staff should remain aware of developments in library technology by attending state and national conferences, including the biennial conference of the North Carolina Library Association and the annual midwinter and summer conferences of the American Library Association. Staff who attend these conferences can attend programs that highlight innovative uses of the technology in other libraries and can visit the exhibits to learn about the latest developments by technology vendors.

The library staff should also be aware of what other libraries are doing to use the technologies in innovative ways. Staff can gather ideas through attending conferences such as those mentioned above. In addition, the “Innovative Internet Applications in Libraries” site at <http://www.wiltonlibrary.org/innovate.html> provides links to innovative projects in libraries across the United States. The Harnett County Public Library staff should be aware of these and other projects and should consider ways to implement similar projects in their own library.

Potential Costs and Funding

Planning in general. If members of the Harnett County Public Library staff choose to use the planning process outlined in *The New Planning for Results*, then they should consider applying for an EZ Planning Grant from the State Library of North Carolina. These grants are provided “to encourage and support effective planning in public and academic libraries by enabling them to secure the services of a qualified consultant to assist with ... general planning for programs and services.” Libraries may apply for up to \$15,000, and there is no local match. There will be some costs associated with such a project that the library will be required to bear; a reasonable total cost for supplies, photocopying, printing, postage, and refreshments would be \$1,500.

Typically, there are two annual deadlines for these grants: a February deadline for implementation in July and a November deadline for implementation in January.

Staff should consult the State Library's Website at <http://statelibrary.dcr.state.nc.us/lsta/lsta.htm> for further information.

Evaluating and updating the technology plan. There are no costs associated with periodically evaluating and updating the technology plan beyond the staff time required to do so.

Surveys of user satisfaction. As noted earlier, user surveys can be small and inexpensive projects, conducted by the staff, or they can be larger and more complex and conducted by professionals. The cost of any user survey will therefore vary, depending on the scope of the project. It would be possible, however, to gather valuable information on user satisfaction for very little cost beyond staff time.

Ongoing awareness. As noted above in Recommendation 10, the costs associated with staff attending conferences may be handled by the library's operating budget or through the State Library's Career Enrichment Grant Program, a program to aid North Carolina library staff by funding participation in selected library conferences. Grant funds were available in 2006-2007 to support library staff attendance at ten different conferences, including the Library and Information Technology Association Conference in Nashville, the Computers in Libraries Conference in Arlington, and the American Library Association conference in Washington. Grant funds may be used to cover conference registration, meals, lodging, and transportation at these conferences. The maximum amount of a grant is \$1,000, and the minimum is \$300; and a 10 per cent match is required. See <http://statelibrary.dcr.state.nc.us/lsta/cegrant.htm> for further information.

Appendix 1

Network Evaluation by Vitruvian Technologies, Inc.

VITRUVIAN TECHNOLOGIES, INC.

Harnett County Public Library

Network Evaluation

Background and Goals

Harnett County Public Library is in the process of writing their long range technology plan. As part of that plan, Vitrotech was asked to evaluate the current technology in place at the library, existing network upgrade plans and to make recommendations relating to the library's technology. As part of that evaluation, in March 2007 Vitrotech performed an on-site assessment with Harnett County Public Library, and discussed current and future technology issues with the Library Director and Network Support Manager.

The Harnett County Public Library system consists of a main branch in Lillington, NC, and outlying branches in Dunn, Erwin, Coats, Angier and Anderson Creek.

The existing library network consists of two servers (a library automation system server and the Public Access Catalog server) hosted at the main branch, and 93 workstations of varying levels throughout the system available for staff and public use. The network is currently connected to the internet via 5MB DSL connections at the Dunn, Erwin, Coats, and Angier branches. The main branch in Lillington is connected to the Internet through a 5MB connection shared with the Harnett County Government offices. The Anderson Creek branch is connected to the internet via the local school network.

The library has a current plan in place to change the network topology to a Sprint/Embarq provided fiber optic network connecting the branches directly to the main branch via 10MB in/5MB out connection. The main branch will then provide connectivity directly through Embarq for all branches via 5MB connection. The plan is pending e-Rate funding for the upcoming fiscal year, and if approved will be implemented soon after the beginning of the fiscal year.

Vitrotech's goal during the evaluation was to review existing network topologies and practices, review the existing upgrade plan, and to evaluate the overall library technology system, identifying strong areas and areas needing improvement.

Evaluation

During the initial on-site assessment, Vitrotech interviewed the library's Network Support Manager to get a better feel for the existing network and current technology policies in place at the library. The Network Support Manager acts as a central contact for all technology issues for the library, maintains the existing equipment and provides general technical support to the end users. The Harnett County IT Department provides actual network support to the libraries in conjunction with the library's current Internet Service Providers. Overall IT support for this library system is well above the normal for most public library systems in rural area.

Sprint/Embarq has proposed a significant change to the library's network topology. Under the new plan, all branches will connect directly to the main branch in Lillington via fiber optic and Sprint's internal network using a 10MB in/5MB out circuit at Lillington. Each branch will have 5MB available both inbound and outbound. Additionally, all internet traffic will route through Lillington via a 5MB Sprint/Embarq connection directly to the Internet. Current expectations are that the e-Rate funding will be approved and the library plans to implement this new topology as soon as funding and the circuits are available.

Network security in the branches is generally provided using SonicWall firewalls. Security in the main branch is provided via SonicWall firewall provided and maintained by the Harnett County IT Department. Currently, some county servers are physically hosted on the library premises. No building physical security is currently in place other than general perimeter security via locks on the doors.

There are a total of 93 computers available for library staff and patron use. Of those 93, approximately 21 are available for exclusive staff use (including circulation machines) with the remainder available for public use. Purchase dates on existing equipment in use ranges from January 2001 to October 2006. With the exception of 4 public I-Mac machines in use at Anderson Creek that are owned and maintained by the school system (but available for public use), all machines are running current Windows operating systems.

The library currently has an equipment replacement policy in use. Generally, public machines are owned by the library system, and staff machines are under a 3-4 year lease agreement. Staff machines throughout the system are generally funded, managed and maintained by the County Library system. Funding for public machines comes directly from the local municipalities, and therefore the actual replacement cycle of these machines is out of the control of the county system. Due to varying funding levels for the branches, some branch equipment is nearing 6 years old, with some of those machines not planned for replacement until Fiscal Year 2009. With fiscal control of the branch machines held by the municipalities, the County Library System has a difficult time maintaining a standardized equipment replacement policy. Large scale equipment replacement budgeting has generally been accomplished via grants available to the library.

Antivirus support throughout the main branch is provided by Trend Micro, using a centralized server based network management solution. Outside the main branch, antivirus support is through Symantec's Norton Antivirus at the individual machine level. Under the existing topology, this method of antivirus support is adequate, however a new standardized solution should be considered after the change to the network topology.

Desktop security on public machines is generally provided by Centurion Guard, either by physical device or software. Spyware prevention is via the installed antivirus system on each machine and PC Defender software.

General technology use policies are controlled locally by each individual branch, including session lengths, use policies concerning specific websites and filtering options on individual machines.

The Harnett County Public Library System was an original beta site for the Microsoft Windows based Vubis library automation system from GEAC. Due to their initial status, technical support for the Vubis system is generally good, and the system functions adequately to meet the library's intended automation system goals. The Vubis library automation server and the Vubis Public Access Catalog server currently run Windows 2003 Server and are generally up to date with all current critical security patches.

The main branch provides centralized cataloguing. Branches are permitted to add duplicates to the database since each individual branch purchases their own books.

Software licensing is generally up to date and adequate. New replacement computers are purchased with new software licenses as needed.

The library is not currently using any PC reservation system for public machines, and no print management system is in place.

Recommendations

Like many North Carolina public library systems, the Harnett County Public Library has largely depended on grants to provide large scale equipment replacements. Many new machines were installed in 2001 with grant machines from the Bill and Melinda Gates Foundation. In that original plan, the Foundation provided the seed to bring technology to library systems that might not otherwise be able to provide public access machines to their patrons. The original intention of that plan was that during the course of the grant, localities would develop replacement policies for their existing technology, including identifying local funding sources. In 2006, additional grant money was available to replace those machines (at the 5 year point). Like many libraries, the replacement machines were generally put in place as additional machines rather than a straight one-for-one replacement of existing equipment.

The design of existing computer equipment provides for adequate mechanical and electrical performance for about 5 years. Beyond that, the machine has typically become obsolete as far as technology goes, and is beyond economical repair when parts fail. Many repair parts for those older machines are no longer available, and newer replacement parts

may or may not work in the older machine. When an older machine breaks, it is very typically cheaper to replace the machine rather than to attempt repeated repairs.

The library system generally has a good equipment replacement policy in place for staff machines, which are controlled by the County Library system. Those staff machines are under 3 or 4 year equipment leases that provide for new machines on a periodic basis. Because the system has been phased in over a number of years, "flights" of machines can contain many different models, increasing management of these resources. Vitrotech recommends that all machines that are being used for the same function be of the same model number (i.e., all circ machines throughout the system should be exactly the same, all staff machines throughout the system should be the same, all PAC machines should be the same, etc.). This method significantly reduces the work necessary by the library to maintain the machines.

Because public machines are generally owned by the branch and funded through the local municipalities, there is a wide disparity among the branches for public machines. Many public machines were replaced using grant money in 2006, but many older machines are still in use throughout the system, and some are not slated for replacement until Fiscal Year 2009. These machines, purchased in 2001, will be 8 years old by then – well beyond their usable life. Currently no method to replace these machines exists if they should fail. If this method of funding local public machines is kept in place, local municipalities should be urged strongly to identify funding that will allow for adequate equipment replacement every 4-5 years. Local municipalities might also find it easier to budget for equipment replacements annually if they consider equipment leases for public machines.

With local ownership of some machines, it is also harder to reduce the disparity between branches. If all library assets were owned and controlled by the County Library system, the library could move patron machines from branch to branch as necessary to equalize the resources in each branch much better. This would also allow for better "flight" management and would reduce the resources needed to manage these machines.

The library system is on track with their change in topology scheduled for later this year. The network topology designed by Sprint/Embarq will provide better overall network management and performance. Centralized solutions for security updates, antivirus software, etc. can be deployed, thereby reducing overall management tasks necessary to maintain the machines. The library should also see significantly improved network performance in their automation system and other network critical applications.

Based on diagrams supplied by the library for the new topology, Sprint/Embarq will manage the perimeter routers for the network. Typically, Sprint/Embarq technicians in the eastern half of North Carolina can become bogged down with multiple system issues and may not be able to respond quickly if minor changes needed in the router configurations are needed. The County IT staff may be able to absorb the minor additional load if help is needed by the library, but if not the library should consider some outsourced network support on a case by case basis after the new topology is in place.

The new topology also allows for one central firewall solution at the perimeter which will simplify overall network security. Because the SonicWall firewall will also be used for content filtering, the firewall solution also provides for more standardization of content filtering throughout the system.

Care should be taken when setting up the new topology to ensure that library network resources are adequately protected from patron machines, including patron wireless laptops. With the proposed topology, a patron with a laptop using a branch library's wireless connections to the internet will be behind the library's firewall. This can be overcome using the routers and library managed switches and wireless access points. A thorough network security audit should be performed during and after the transition to the new topology.

Sprint/Embarq has suggested that new network drops for each public machine be installed in Erwin to take advantage of the new service. Given that the network connection from Erwin to Lillington will be a maximum of 5MB and the internal network will typically run at 100MB (provided the common switch for those machines is a 100MB switch and not an older 10MB switch), there is no advantage to adding additional network drops. If the switch is an older 10MB switch, it should be upgraded to a 100MB switch. The actual network choke point is on the Sprint/Embarq side – not the Erwin branch internal network.

There is also a note on the new topology drawings that suggest that the new switch at the Angier branch cannot be located where the current DSL connection is, and the branch will require 3 additional drops to the circ desk. If there is one wire from the demarcation point for the new Sprint/Embarq circuit to the existing DSL connection point,

Sprint/Embarq can extend the demarcation point at minimal cost and would not require additional wiring. The only restriction will be physical space necessary for the router/switch. As long as there is space available for the new router/switch, then the router can be located where the existing DSL router is located provided the demarcation point is extended.

Once the new topology is in place, the library should consider a change to the Trend Micro antivirus product currently in place in the main branch to standardize the antivirus solution throughout the network. Centralized management and control of the antivirus system will provide better and more timely updates to virus signatures and provide better security for the overall network. Similarly, the patron desktop security suites should be standardized using network controllable Centurion Guard technologies available and already in place at the main branch.

As long as county server assets are housed physically in the main branch in Lillington, physical security of the building is a concern. There are many mission critical functions served by those servers, and a loss due to theft or fire would have a significant impact on county and library operations. Also, because the servers are centrally housed at the library, Vitrotech recommends an aggressive network security audit program be verified in place not only at the library but at the county as well.

After the new network topology is in place, the Dunn branch wishes to provide wireless access if bandwidth will allow it. Based on the proposed bandwidth in the new topology, the bandwidth will adequately support the minimal additional load of wireless patron access in any branch. Current library trends are to provide wireless access for the patrons, and the technology plan should include wireless access for patron laptops in all branches. Additionally, the technology plan should provide for review of the need for printing from patron laptops. This emerging trend is becoming more and more available to the public at internet cafes and should be considered for library use in the future if patron demand warrants it.

Internet usage and staff time required to manage internet machines should be reviewed over the course of the technology plan to determine if a public PC reservation or print management system is warranted. These systems allow for automatic patron sign-up for public access computers, and minimize the time necessary for staff to manage them.

Additionally, the library technology plan should allow for review of emerging and developing technologies such as RFID. The library has indicated some possible future interest in RFID systems for public libraries.

General Notes and Disclaimer

New technologies are rapidly emerging. The above recommendations are based on Vitrotech's on-site assessment, discussions with the Library concerning the goals of the library and anticipated usage, technologies currently in place and tested at other libraries, and other factors. These recommendations are by no means the only method available to meet the intended goal of the project, but reflect Vitrotech's best assessment of the goals, current and planned network setup and currently available technologies that meet the Library's intended goals both now and in the short term future. Because of the fast emerging nature of the technology industry, any Library Technology Plan should include a review and assessment of emerging technologies as they relate to the Library's future technology goals.

Submitted:

Barry Moore
Project Manager, Vitrotech

Appendix 2

Harnett County Public Library's Technology Plan for Universal Service Discount Eligibility

HARNETT COUNTY PUBLIC LIBRARY
TECHNOLOGY PLAN
FOR UNIVERSAL SERVICE DISCOUNT ELIGIBILITY
Date Written: October 20, 2006

1. Library Name

Harnett County Public Library System

2. Library's Mission Statement

In order to achieve its vision, the Harnett County Library System provides its users with the means to meet their recreational reading interests; to continue to learn throughout their lives; to find, evaluate, and use information in a variety of formats; to get answers to their questions; and to enhance their formal education from preschool through high school.

3. Technology Plan

Describe the library's strategy for using information technologies, including the integration of technology into library services to support and extend services and/or to assure an efficiently and effectively managed organization. All services being requested (including such non-basic telecom services as Centrex and voicemail) have been addressed in the technology plan and relate to service goals.

Introduction

In support of the mission of the Harnett County Public Library System, it is necessary to incorporate the use of state of the art technologies. This document will outline the areas that have been and will continue to be monitored and evaluated, as well as the strategies to implement these technologies. This document is a working document and is subject to change.

The administration will continue to take the lead and offer staff time away from work, as well as time during office hours to learn and practice their new computer skills. The library will work closely with the County's IT department and the County school system in order to establish a more cohesive communications infrastructure.

Networking and telecommunications are barriers that have been improving in recent years, and will continue to improve with the restructuring of the telecommunications in the near future. Harnett County Public Library System and its member libraries need to be involved as advocates and participants in any local, regional, statewide, and national telecommunications initiatives.

The three goals that we have been pursuing are: networking with other libraries in the area; membership in and advocacy of the NCLIVE initiative; and using this library's IOLS as a community information center and a gateway to other libraries via the Internet.

The Harnett County Public Library System recognizes that our member libraries would best be served by Internet connections through high-speed lines. Until we are

able to do this, member libraries are using the Internet through DSL and cable Internet access from our local companies.

Components of library automation are taking an increasing share of public library resources and they must be used effectively.

The Harnett County Library System offers member libraries a variety of automation services that include maintenance and repair of equipment, purchase and installation of hardware and software, training, consultation, and other technical support issues.

Because library automation technologies are constantly changing, planning is necessary to select, install, operate, learn and teach these new technologies so that they can provide optimal benefits to Harnett County Library System member libraries. Primary concerns in selection of these technologies are cost, ease of use, benefits to library patrons, and the amount of required staff support.

As a North Carolina public library system, the Harnett County system also operates within a funding and planning structure of the Department of Cultural Resources, Division of State Library. The State Library has funded several automation activities in the past. And this library system will participate in the grant process in the future to support technology.

As a library system, our role includes offering leadership and direction for our member libraries.

Developing a long-range technology plan

All staff members and member libraries, as well as the County's IT department and when appropriate, the Harnett County Board of Education, will be sources of information and suggestions. A hardware and software inventory has been maintained on a Microsoft Access database and is available for inspection. A final draft of this long range plan will be presented to the board of Harnett County Library System for its approval and endorsement. Upon publication, copies shall be sent to State Library of North Carolina.

Telecommunications

The current telecommunications environment has changed significantly in the past fifteen years. In addition to traditional telephone service, the library offers Telefacsimile (FAX) service to the staff and public. Charges for the service have been set by the library board and the County. Wireless Internet access is also available to the public at the County Library location.

Digital services link the Harnett County Library System members to the headquarters much more efficiently and economically than before. Member libraries connect to **Infor** Vubis Smart IOL System through the Internet via DSL or cable internet connections.

The library has made efforts to join with other agencies that also recognize the need to develop a telecommunication strategy. Already this library system is working with the County IT department. The IT Department is currently upgrading the T-1 line that is located in the library to a 5 MB line for the library that will be separate from the other county departments. We are also exploring the option of long range Ethernet among all public libraries in Harnett County.

At this time, the municipal libraries (Angier, Coats, Erwin) are connected through Charter Cable and DSL from EMBARQ, with four newly-installed PCs each from the Gates Foundation grant and additional computers as they have been able to afford.

The Dunn library previously installed a partial T-1 (128k) line, with grants from the State Library of North Carolina and the Gates Foundation, but has found this not to be the most economic solution to their access problems. They currently have a DSL line, and are considering a second line to improve access.

The Anderson Creek Branch Library is connected through the Harnett County Public School System's partial T-1 line at the Anderson Creek Primary School.

TECHNOLOGY ASSESSMENT FORM 2007-2010 attached

Library Automation

The library is currently using Infor's Vubis Smart integrated online library system, which includes web-based online catalog, circulation, cataloging, serials, acquisitions, community information, and digital modules. Our IOLS is currently running on a Microsoft platform. The software patches are upgraded periodically (annually) by INFOR Technical Support staff. There are no plans to change vendors at this time; the platform is stable.

Recommendations:

Harnett County Public Library System

1. Continue to train staff on use of the IOLS in order to make better use of its functionality.
2. Begin planning for future upgrades and add-on products that are related to this library automation system. (for example, VLink, Syndetic Solutions, which a

provider of specialized bibliographic data to enhance the library online catalog; and pc-print management, and pc-

3. Review fee structure. Currently, fees for member libraries are calculated using circulations per library divided by the cost of maintenance of hardware and software. These costs are not charged back to the member libraries at this time.
4. Be an advocate of local and statewide telecommunications initiatives that involve libraries including the E-Rate telecommunications effort lead by the State Library.

Member libraries

1. Continue to train staff on use of the IOLS in order to make better use of its functionality.
2. Continue to prepare for new technologies by conducting inventories, weeding collections and ensuring that all records entered into the database adhere to the MARC format to ensure quality in online catalog;
3. Actively participate in local telecommunication initiatives.

The Internet

The potential of the Internet to assist with library reference work is limitless. The following points serve to illustrate its use:

- It is an expansive resource for information, which grows rapidly each day.
- Searching data on the Internet has become easier as indexing becomes better organized and more sophisticated.
- Web-based browsers have become the standard for all types of functions, including interfacing with libraries' catalogs.
- The general public will benefit from Internet resources with the assistance of trained professionals. Trained professionals will have the experience in mastering search techniques and subsequently identifying reliable information resources.

From these basic premises the Harnett County Public Library System developed its strategic plan for Internet access at member libraries. An understanding of the potential benefits of the Internet has been the basis for motivating libraries into the process of adopting the Internet as part of library service for the community. Now that all library sites have Internet access and electronic mail service, it makes all cooperative efforts easier—from book borrowing to training one another.

Electronic mail has been the first level of Internet access. All library staff has become efficient in the use of electronic mail and their e-mail accounts are available via the web using Microsoft Exchange.

Participation in electronic discussion groups has become an integral part of work. Staff participates as time allows in discussion groups for a wide range of interests interest to librarians. Some are: NCLA-L, PUBLIB, STUMPERS-L, NCKIDS-L.

The Internet empowers our member libraries with information capabilities that would not otherwise be possible through individual purchases. Our rural library system will become more crucial to the community with this new outlet of current information, which is vital for community and local economic development.

Access

Access to the Internet is achieved by this library system in several ways. The County's T-1 line supplied through **Embarq**. This library does not currently request e-Rate reimbursement for this service. In the past year, the county library has taken responsibility to install and fund DSL lines in each of the libraries to enhance the cable access to the Internet in their libraries. The partial T-1 line that was installed in the Dunn Public Library has also been replaced with DSL. They are currently looking at purchasing a second DSL line for the staff computers only. E-rate funds currently subsidize all DSL lines. The Anderson Creek Branch Library is connected to our library system through the fractional T-1 line supplied by the Harnett County Board of Education.

CIPA

Because of current law, filtering software and hardware has been in place for the past three years. *SonicWall* Internet Security Appliance, a state-of-the-art security platform that include an ICSA-certified firewall with security services including network anti-virus, IPSec VPN, digital certificate authentication and content filtering were installed in June 2004 in the headquarters library. It is used for all computers on the county computer system. *Spysweeper*, Internet Content Filtering software is installed in all the municipal libraries. The Anderson Creek Branch is behind the Anderson Creek Primary School firewall, *SonicWall*.

See also Attachment II (Library Internet Use Policy)

Web Presence

The Library website was developed and is maintained in-house by library staff. The library director and the network support manager handle most of the web design. All members of the staff contribute to content as necessary. The web pages are updated on an as-needed basis, with reviews annually for broken links and outdated information.

Training

All library staff is comfortable with electronic mail. The Harnett County Public Library System is committed to training. Workshop participation has been encouraged. Continuing education funds support workshop attendance for interested member library staff in work-related topics of interest.

With the Gates grants and the Sustainability Grant from the State Library, that provided computers to establish a computer training lab, this library continues to provide training sessions for staff, county employees and the public on topics such as e-mail, using the Internet, Word, MS Excel, Publisher and other Microsoft Products.

Recommendations:

Harnett County Public Library System

1. All staff will continue to use electronic mail as a primary source of communication.

2. All staff will engage in continuing education activities to develop proficiency with the use of Internet resources.
3. Staff will be expected to train and assist member library staff and the public in Internet navigation.
4. The Harnett County Public Library System will continue to apply for E-Rate to reduce the cost of telecommunications for the libraries.
5. The Harnett County Public Library System will work closely with local municipalities in developing new telecommunications infrastructures for the public interest.
6. The Harnett County Public Library System will support the State Library in the development of a gateway to the Internet via the NCLIVE project.
7. The Harnett County Public Library System will work to develop partnerships with other county departments, the public school system, community college system, and the private university in order to achieve Internet access for all libraries in the county and the public.
8. A training program patterned after successful in-house workshops at other libraries has been designed to teach the staff of all libraries and the public. Currently, the library provides training classes twice a year on various computer applications as interest and needs arise. NC LIVE training classes will be designed to train library patrons locally.
9. We will continue to instill confidence in the library as a resource that includes use of the Internet.
10. The Harnett County Public Library System and member libraries will continue to work together to market our newest information resource.

Member Libraries

1. Member libraries have incorporated the Internet into their library service now have access through cable or direct connection. They have also received additional microcomputers, through the State from the Bill and Melinda Gates Foundation.
2. Member library staff is encouraged to participate in continuing education opportunities for training at approved continuing education agencies at the expense of the Harnett County Public Library System as requested.

Electronic Reference and Interlibrary Loan Service

Introduction

The emphasis in this library system will be accessing the on-line resources of NCLIVE, as well as supporting and actively lobbying for the future of NCLIVE and the acquisitions of additional resources through this medium and other consortia. The reference staff will continue to borrow and lend items through the OCLC system.

Recommendations:

Harnett County Library

1. The Harnett County Public Library System will continue to purchase online databases that are not duplicated through the NCLIVE project. Specific purchases have not been identified other than Ancestry.com since NCLIVE has picked up Heritage Quest and Learn-A-Test. We will explore options for additional electronic resources.
2. Harnett County Public Library System reference and automation staff will keep member library staff informed of new developments in electronic reference sources, through memos and direct discussion. Staff will be available for advice on purchase and use of electronic information resources.

Member Libraries

1. Increase the number of computers available to the public. The Gates Grant and the State Library's sustainability grant have given more opportunity to designate at least one computer for use by the children in each municipal library.
2. Actively use and encourage the public to make use of the NC LIVE resources.
3. Attend NCLIVE training sessions, either in person, or at the County library when NC LIVE web-based training is offered.

Interlibrary Loan Services

Benefits

Electronic forwarding, storage, and filling of interlibrary loan requests can shorten the time it takes to route and process requests for patrons. The County Library participates in the State Library's OCLC project as a selective user. By these means, we are able to access the holdings of all libraries in the state and in the world.

Recommendations:

1. Cross train staff to process interlibrary loan requests, to ensure continual service to the public.
2. Explore option of becoming an associate member of OCLC via the State Library.
3. Explore the feasibility of adding the Harnett County Library Holdings to the OCLC database.
4. Begin accepting ILL requests via e-mail and form-generation via our web page.

Office Automation

Benefits

The Bill & Melinda Gates Foundation grant has given all libraries the opportunity to learn about the Microsoft Office suite of software programs for office productivity. Office automation now permits even the smallest of libraries to write reports, maintain files, develop budgets, and produce a wide variety of graphics for library use. In addition, microcomputers and application software available to complete these tasks are becoming increasingly inexpensive. The affordability of microcomputers makes it possible for libraries to provide additional computers for use by their staffs.

Both hardware and software have been systematically replaced so that all computers in the county library are Pentium-based and on a 3- or 4-year lease

program. The standard software suite is Microsoft Office (current release), running under the latest release of Windows operating system, including the networking of computers.

Issues

For most of the member libraries microcomputer literacy will have to be a major component of any long-range office automation plan. It will be necessary to increase the libraries' awareness of the potential of office automation and confirm that the minimum competencies that are recommended by the State Library are achieved. This will be promoted by offering workshops in office automation, such as Word and Excel.

Member libraries are already committed to office automation, but more opportunities for training are needed to make sure that all library staff is using tools to their advantage, especially the use of word processors, databases, and spreadsheets.

Because member libraries have the same software, it will allow the County Library staff to support and assist libraries with their office automation needs. We will also be able to assist the municipal libraries in purchasing additional licenses to put the same suite of software on office PCs.

Computer replacement Policy

See Attachment I. Computer Replacement Policy

Training

Training at this point is currently done on an as-needed basis.

Recommendations:

All libraries

1. It is recommended that member libraries should adopt the county replacement policy for equipment.
2. Software packages for basic library and office functions have been acquired and are kept up-to-date. Microsoft Office Professional, and Windows XP, are the current software packages supported by this Library System.
3. Current versions of Adobe PageMaker, Photoshop, Print Master, Publisher and FrontPage for web design provide the library staff with desktop publishing tools.
4. The library needs to do a learning needs assessment with the staff of all county libraries to see where there are training gaps and then design training to bring everyone to the same level of expertise.

4. Technology Assessment

- A. Attach technology inventories for each building in your library system.

Attachments III-VIII

B. Describe new or replacement equipment needed to continue or expand library services. Be sure to include budget estimates and identify potential funding sources for each in Table 6.B.

We presently adhere to County's Computer replacement policy, staff and public computers are currently on a 3-year lease program. We also allocate \$5,000 for computer supplies, parts, software upgrades, etc. each year in our materials budget.

5. Staff Training

Describe plans for training library staff in effective use of technology to support library service goals. What knowledge and skills are needed to help staff meet service goals? How will staff receive needed training? Be sure to include budget for professional development in table 6.B.

Included in narrative

6. Budget

A. Eligible Expenses

What telecommunication services, Internet access, and/or internal connections do you intend to apply for E-rate discounts on during the next three years? For each service, provide the following information:

Eligible Service	Annual Cost After Discount	Source(s) of funding
Telephone service	\$ 1,051.92	Harnett County Public Library Budget
DSL services (to municipal libraries)	\$4320	Harnett County Public Library Budget
Long-range Ethernet (if approved by SLD)	\$12,500	Harnett County Public Library Budget

B. Ineligible Expenses

What other equipment, maintenance, services that are not e-rate eligible are required to implement this plan? The library must have sufficient budget to acquire and support the non-discounted portions of the e-rate requests for using telecommunications and information technology (the hardware, software, professional development, and other services that will be needed). For each, provide the following information:

Product / Service	Annual Cost	Source(s) of funding
INFOR Vubis Smart Automation maintenance	\$32650	Harnett County Public Library Budget
Subscription to Ancestry.com	\$1365.00	Harnett County Public Library Budget
Internet Filtering Software	\$2883	Harnett County Public Library Budget

Telecommunications charges	\$2,000 (library's part of county line, Other paid from IT budget)	Harnett County Public Library Budget
PC lease	\$13561	Harnett County Public Library Budget
Staff Training	\$2000	Harnett County Public Library Budget
Staff travel	\$5000.00	Harnett County Public Library Budget
Computer parts/supplies software	\$5,000	Harnett County Public Library Budget

7. Evaluation

How will the library evaluate the effectiveness of technology in accomplishing its service goals?

Circulation statistics will reflect the number of users of the Internet and non Internet activities. We will monitor monthly use reports of the NC LIVE applications, the number of "hits" on our main web page. We will count the number of people who receive training in the use of the Microsoft Suite as well as NC LIVE, and bibliographic instruction.

How will the library monitor and document progress in meeting the objectives of this plan?

We will do a user satisfaction survey. This survey will also include the staff of all municipal libraries and county library staff.

In addition to measuring services, consider how the evaluation will be used to update and modify the technology plan.

- Apply for a Technology Planning Grant 2006-07 and update this plan.
- Review the technology plan annually for revisions.
- Review the number of workstations per capita and adjust as necessary.
- Scan the technology environment and make adjustments as new opportunities arise.

8. Certification & Approval

SUBMITTED BY

Library Director: _____ Date _____

APPROVED BY

State Library: _____ Date _____

Attachment I.

Harnett County Public Library Computer Equipment Replacement Policy

The Harnett County Public Library recognizes the impact that technology is having on library services. The library also recognizes the need to adapt to the rapid change in the way information is delivered. To that end, the HCPL will audit its computer hardware and software inventory on an annual basis. This replacement policy will ensure that the library adapts appropriately to changes in the delivery of electronic information and applies to computer systems, PCs, networking and telecommunication functions used at the library for the public and the staff.

For the purposes of this policy, the library has divided its information technology resources into two categories: Personal computers / peripherals and Servers/ Networks. Personal Computers/ Peripherals refers to computer hardware, software and peripherals that patrons and staff use directly for library functions. Servers/Networks refers to servers, local area networks (LANs), wide area networks (WANs) and telecommunications equipment/services that generally are transparent to the average user.

Personal Computers/ peripherals are divided into three classes:

- Research stations: PCs and peripherals that provide patrons and staff with integrated multimedia access to all library electronic resources including the Internet.
- Local-use stations are PCs and peripherals that provide library patrons and staff with applications such as word processing or CD-ROM programs, and children's computers, but are not used for the Internet or IOLS functions.
- Obsolete are those PCs and peripherals that are no longer useful for library applications. These will be cannibalized for spare parts, or given to the IT department where such parts can be used with PCs still in operation, or declared surplus.

Upgrade/Replacement/redeployment cycle. Personal Computers/ Peripherals will be replaced on a schedule in keeping with county practice and policy, currently three to four years. In the event funding is insufficient to address all replacement needs, priority will be given to those personal computers and peripherals most inadequate to carry out assigned functions in relation to demand for that function.

In addition, in the third quarter of each fiscal year, staff under the direction of the library's network support manager will assess the state of the library's personal computers and peripherals to determine need and priority for upgrade, replacement and redeployment. Priority will be given to a class of computers or individual computers based on ability to carry out assigned functions. Request for the necessary funds will be included in the next fiscal year's budget.

- **Upgrade.** The library will upgrade personal computer/peripheral hardware and software as long as upgrading is cost-effective and maintains the computer at the level suited for the assigned function or the function into which the PC/Peripheral is redeployed.
- **Replacement.** The library will replace personal computers on a schedule in keeping with best industry practice. In addition, the library will replace personal computers and peripherals with new equipment as necessary to provide optimum effectiveness, based on assessments in the third quarter of each fiscal year or more frequently as needed.
- **Redeployment.** The library will redeploy PCs/Peripherals whenever possible, if the library cannot make use of them, they will be given to the IT Department to redeploy to other county departments or declared as surplus.

Server/Network

Server/Network is divided into four classes: server hardware/software; network hardware/software; LAN connectivity and WAN/Internet Connectivity. As these elements are part of the library's integrated online library system, vendor upgrades and system requirements will play a significant role in determining the upgrade path and need for replacement. However, the library will generally replace equipment in keeping with best industry practice and otherwise as follows:

- **Server hardware/software.** The network support manager with the IT Department will assess server capability on the following occasions: when an expansion of existing use or a new use is planned or required; when vendor-supplied upgrades are implemented or necessary; when vendor support and maintenance contracts expire or are to be renewed; and otherwise in keeping with best industry practice. Replacement and upgrades will be planned and budgeted in accordance with these assessments.
- **Network Hardware/Software** will be assessed and upgraded as above. The network support manager along with the IT department will also monitor new developments in network technology to determine, in communication with the library's automation vendor, if replacement of existing technology is desirable, feasible and cost effective.
- **LAN Connectivity** will be assessed as above. The network support manager along with the IT department will monitor new developments in network

technology to determine if replacement of existing technology is desirable, feasible and cost-effective.

- WAN Connectivity will be assessed as above. Special attention will be paid to bandwidth requirements as library PCs are moved to the Research Level. Under the direction of the IT Department, the library network support manager will monitor new developments in network technology to determine if replacement of existing technology is desirable, feasible and cost effective with respect to the connectivity of the branch libraries.

Standards for new purchases

Personal computers/ peripherals. All personal computers will move to a 3-4 year lease/purchase plan through the IT Department. These new computers must meet the following criteria:

- New leases will meet or exceed the technical specifications of mid-range PCs and peripherals commercial available at the time the new purchase is planned.
- New leases will meet or exceed any applicable third-party standards/specifications, such as those put in place by NC LIVE / State Library or the automation vendor.
- New leases will be upgradeable to the degree that the library can expect to use or redeploy the equipment over at least three years.

Server/Network. New leasing of this equipment are not likely to occur without overhaul or replacement of the library automation system, or if the server is at capacity. The director, network support manager and IT Department will review this policy every year and make recommendations for changes. This policy may be reviewed and updated otherwise as needed with recommendations for changes to the IT Department and to the Board of Commissioners.

Approved By: _____

Date _____

Attachment II.

**Harnett County Public Library
Policy for Using the Internet and the World Wide Web**

Please read this document carefully before signing on at the Internet terminal.

Essential to the mission of the Harnett County Public Library is ensuring that the people of Harnett County have the right and means to free and open access to ideas and information which are fundamental to a democracy. The library will protect intellectual freedom, promote literacy, encourage lifelong learning, and provide library materials and information services.

Throughout its history the Harnett County Public Library has made information available in a variety of formats. The library's computer system provides the opportunity to integrate electronic resources from information networks around the world with the library's other resources.

The Library has chosen to offer access to the Internet and the World Wide Web because there is a wealth of information that is personally, professionally, and culturally enriching to individuals of all ages. In the same manner, it enables access to some material that may be offensive, disturbing or illegal. The Library encourages you to be a responsible and considerate citizen in your use of the Internet and World Wide Web in this public setting. The Library recognizes that it has a responsibility to set policies and guidelines to encourage the public's responsible and appropriate use of these resources within the Library's buildings. The Library's intent is to address possible IT use rather than eliminating the Internet and World Wide Web resources as a whole.

Your use of these resources is made possible through facilities, equipment and communications technology purchased with public funds--with that use comes responsibility. This network shall be used in a responsible manner and there can be no use of the services in an illegal, malicious, or obscene manner.

In offering Internet access, the Library cannot guarantee that information found through the Internet is accurate, authoritative, or factual. Nor can the Library control access points that often change rapidly and unpredictably. Individual users are reminded that they are responsible for the sites they choose to access.

Parents of minor children are responsible for the child's use of the Internet through the Library's connections. As with other Library materials, restriction of a child's access is the responsibility of the parent/legal guardian. Children twelve years and younger must be accompanied by a parent or guardian when accessing the Internet through the Library's connections. ***Siblings or others under seventeen years of age are not appropriate substitutes.***

If you feel that information you have obtained via the Internet is inaccurate, or offensive, we suggest that you contact the original producer/distributor of that information.

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If you feel that information you have obtained via the Internet is inaccurate, or offensive, we suggest that you contact the original producer/distributor of that information.

INTERNET ACCEPTABLE USE AGREEMENT

Internet use will be managed in a manner consistent with the Library's *Policies and Procedures*, which have been adopted and are posted in the library.

In an effort to ensure that the use of the Internet is consistent with the mission of the Harnett County Public Library the following regulations shall apply.

The library reserves the right to require all prospective users to attend an orientation session as a condition for access to the library Internet stations. Orientation will include training in the use of software and hardware, and guidelines for the responsible care of library equipment.

We believe the benefits of Internet access as an expanding information source far exceed any disadvantages. Library users access the Internet at their own discretion. Ultimately, as with other library materials, a child's access to the Internet is the responsibility of the parent.

Rules/Restrictions/Warnings

Access to the Internet is available to patrons on a first come, first served basis. A patron must first check in at the circulation desk. If the terminal is in use it will be possible to sign up for a time to use the Internet computer.

Many public libraries strictly limit the amount of time daily and the number of times per week that patrons may use Internet terminals. We ask that all patrons using the Internet at the Harnett County Public Library will be reasonable in their requests for Internet access. Patrons who have been at a terminal for more than one hour (1 hour) may be asked to give up their spot if all other terminals are being used and other patrons are waiting.

Because our library system is dependent upon Federal funding, we have installed a technology protection measure that blocks or filters Internet access to some Internet sites that are not in accordance with any policy or procedure of the Harnett County Public Library.

The technology protection measure that blocks or filters Internet access may be disabled by a staff member of the Harnett County Library for bona fide research purposes by an adult.

A Harnett County Library staff member may override the technology protection measure that blocks or filters Internet access for a minor to access a site with legitimate educational value that is wrongly blocked by the technology protection measure that blocks or filters Internet access.

All computers with Internet access protects against access through such computers and the following actions will not be allowed:

- *Users may not access inappropriate matter, such as matter that is obscene, pornographic, including child pornography, threatening, harmful to minors, or otherwise in violation of community standards*
- *Users may not engage in unlawful activities or misrepresentation. Users may not attempt unauthorized access (including hacking) to any computer system.*
- *Users must be careful not to expose themselves to dangerous situations. Users must be cautious when using e-mail, chat rooms, instant messaging, discussion groups, newsgroups, game rooms, and all other forms of communications.*
- *Users may not violate copyright laws or software license restrictions.*
- *Users may not make unauthorized disclosure of, use of, or dissemination of a minor's personal information by means of the Internet, e-mail or any other electronic technology. A minor must have the authorization of their parent or guardian to disclose their own personal information*

*Violations of these rules may result in a loss of access as well as appropriate legal action **and are considered disruptive behavior.** (See rules for disruptive behavior.)*

Providing access to information on the Internet does not necessarily constitute an endorsement of the content of any of that information by the Harnett County Public Library system.

Approved By: _____ Date 1-21-97

*Ronnie Faulkner Chair,
Harnett County Library Board of Trustees
**Amended by Board vote 10-25-2000
Amended by Board vote 5-10-2002
Amended by Board vote 1-26-2004***

Appendix 3

Broken Links on the Harnett County Public Library's Website

This table lists the broken links on the Harnett County Public Library’s Website that were found during the drafting of this report. Xenu was used to identify the broken links.

Library Page	Broken Link
Business Information (http://www.harnett.org/LIBRARY/hbus.htm)	"Business, Economics, and Labor" link
Children’s Resources from NC LIVE (http://www.harnett.org/LIBRARY/ncliveforkids.htm)	"Login to GeoWeb" link
Costumes for the Harvest Ball (http://www.harnett.org/LIBRARY/costume_rental.htm)	Photo in second row of table
Educational Web Sites (http://www.harnett.org/LIBRARY/nlwsites.htm)	"American Homeschool Association" link "Cornell Theory Center K-12 Gateways" link "Social Studies/North Carolina / Carolina Clips/Virtual Visits" link "CIA World Fact Book" link "Federal Web Locator" link "Language and Literacy Home Page" link "National Museum of Art" link "The Why Files" link
Favorite References (http://www.harnett.org/LIBRARY/href.htm)	"Campbell University" link "Local Government Network" link "IRS – The Digital Daily ..." link "MedAccess" link "Wal-Mart Online" link "The Guide to Museums and Cultural Resources on the Web" link "NASCAR Online" link First two "Hot Wrestling Links" links "Thomas Wolfe" link "North Carolina's Famous Outer Banks" link

	<p>"North Carolina's Lighthouses" second link</p> <p>"Publicly Accessible Mid Atlantic Coast Lighthouses" link</p> <p>"State Library of North Carolina – Genealogical Research in North Carolina" link</p>
<p>Harnett County Historical Quilt (http://www.harnett.org/LIBRARY/Quilt/Quilt%20Squares/library%20logo.htm)</p>	<p>Icon under "National Public Library Logo"</p>
<p>Harnett County Historical Quilt (http://www.harnett.org/LIBRARY/Quilt/Quilt%20Squares/tobacco%20barn.htm)</p>	<p>Icon under "The Tobacco Barn"</p>
<p>Harnett Seal (http://www.harnett.org/LIBRARY/harnettseal.htm)</p>	<p>Harnett Family Links: http://home.comcast.net/~knoxcop/cornelius.htm</p>
<p>Home page (http://www.harnett.org/LIBRARY)</p>	<p>Link to CSS file (format.css)</p>
<p>Just for Kids (http://www.harnett.org/LIBRARY/hirkids.htm)</p>	<p>"Kiddie Network" link</p>
<p>Library Employees (http://www.harnett.org/LIBRARY/Employee.htm)</p>	<p>Icon to right of Kim Sirosis text</p>
<p>Our County and Towns (http://www.harnett.org/LIBRARY/hcominf.htm)</p>	<p>"Login to GeoWeb" link</p> <p>"Harnett County, N.C. Historical Newspapers" link</p>
<p>Section 4, Blocks 33-65 (http://www.harnett.org/LIBRARY/lillington/blocks33-65.htm)</p>	<p>Photo at Block 53-54</p>

Note also that some links, particular those to the Internet Public Library from the "Favorite References" page (the "Computers & Internet Reference" link, the "Associations on the Net" link, the "Philosophy Sources on the Internet" link, etc.), do work but take the user to a Web page that does not seem consistent with what would be expected.

In addition, some links (such as the "Obituaries" link on the home page) take the user to a page (<http://www.harnett.org/obituary-database.asp>), but in this case, the page is empty.