

APPENDIX G – Technology Assessment

Thomas Memorial Library

Cape Elizabeth, Maine

The Thomas Memorial Library seeks to improve library services for the residents of Cape Elizabeth and to provide quality space in which to deliver those services. The library recognizes the critical role that information technology (IT) has in libraries in the 21st century and that IT affects both the library facility and the library's services.

The current Technology Plan for the library states:

“The vision of the Thomas Memorial Library for technology is to support and enhance the efforts of library staff to provide high quality customer service to all citizens and to provide easy, equitable access to multiple sources of information. We believe that technology will:

- Expedite our methods of communicating with customers
- Position the library as a primary source of information for the community
- Foster enhanced communication and collaboration among library staff across the state
- Provide easy access to all library services for all users, whether inside a library facility or at their home or business.”

The goals of the library as stated in the Technology Plan are:

- Address the technology training needs of the library staff
- Expand and enhance the online public access catalog
- Expand scope of the library's web site
- Provide electronic resources to the public

The staff's examples (listed below) of how the library is currently using technology well focuses primarily on basic applications of technology in public libraries.

- Minerva (shared online catalog) (2)
- Online requesting (3)
- Networked resources and file-sharing for staff
- Interlibrary loan
- Online databases
- Computers for circulation and reference
- Locating materials quickly for the patrons
- Computers for public use
- Online catalog

- Managing patron records
- Library website
- Using an iPod and iTunes for story time

As the staff's list of the most critical technology issues that the library faces shows, basic needs are the primary hurdles preventing the library from advancing its use of technology.

- Lack of staff time to keep abreast of developments
- Lack of adequate funding for upgrades (3)
- Lack of time for enough staff training (3)
- Keeping the existing technology up and running
- Keeping the shared bibliographic database clean

An additional issue not listed is the physical facility itself, which presents issues both in terms of lack of available space and the ability to integrate technology with the pre-automation facility.

Staff input was collected in response to a questionnaire distributed by the technology consultant. The consultant interviewed staff and observed library use during an on-site visit in July 2008.

As the library considers its current and future physical facilities, the library has the opportunity to consider further development of its technology implementation. The following findings and recommendations are primarily focused on issues and technologies that impact physical space and facility design.

IT Management and Network Infrastructure

Key Findings and Observations

- Given that the building pre-dates computer technology, has multiple levels, and has many structural design features that inhibit typical wiring installations, the degree to which information technology has already been implemented in the building(s) should be seen as an accomplishment in and of itself.
- The building lacks a structured technology infrastructure, and the building design and construction make the installation of an appropriate infrastructure difficult. In such an infrastructure design, wiring closets would exist on each floor connected by a backbone. However, as has already been noted, running cabling throughout the current facility has proven difficult.
- Technology infrastructure should be out of sight and secure in spaces dedicated for that purpose following industry standards and best practices. This is not the case in the Thomas Memorial Library. The wiring closet (racks of switches) in the children's area is in an open, unsecured space. The wiring closet for the adult side is in a locked closet which is also used for storage by the Arts Commission; however, only library staff has the key. While a slightly better situation than in children's, it is still far from ideal. A switch above the ceiling next to the Director's office serves as the third "wiring closet".

The lack of "suitably located and wired telecommunications room/closet to manage incoming cabling and house routers, hubs, and other telecommunications equipment for the distribution of electronic communication throughout the library" is the primary area where the library is deficient according to the 2007 "Maine Public Library Standards, Striving for Excellence" as published by the Maine Library Association.

- Individual cabling runs have been added on an as-needed basis, resulting in an unstructured infrastructure design and leaving no additional capacity or flexibility in terms of location or additional equipment. An integrated structured design is easier and more cost-effective to manage.
- The library is connected via fiber optic cable to the school district, which has a T-3 connection to the Internet. The fiber connection comes into the mechanical room in the lower level.

- Due to the lack of a structured technology infrastructure and the limited electrical power capacity, the facility lacks the flexibility to add today's technologies as well as new technologies that will be needed in the future.
- Wireless access is provided in some public spaces, but the construction materials of the building have created challenges in distributing a strong signal throughout the building.
- No dedicated space is currently allocated or available in the library for the management of the technology in the library.
- Servers are not located at the library. Town servers and school servers (depending on the specific application and use) provide space for library digital storage.
- Through an agreement between the town and the school, the school IT staff supports the library's technology.
- The computers and other IT equipment are replaced but on an as-needed basis rather than based on a pre-determined replacement schedule.
- Portable audio visual systems rather than installed systems are used for programming and in meeting rooms.

Recommended Technology for New/Expanded/Renovated Library Facilities

- When planning for the design, expansion, or renovation of library buildings, include dedicated spaces for the management of IT, including Telecommunications Closets and an IT Workroom. A dedicated Server Room is not mandatory as long as the library continues to use server resources located elsewhere, such as the school, town offices, and state library. However, allocating space for a Server Room would give the library flexibility in the future should any of these services be relocated in-house. An alternate approach would be to provide space for a small server rack in the Main Equipment Room or Main Distribution Frame (MDF).
- Bring the incoming telecommunications services into the Main Equipment Room.
- As a temporary measure for adding computers, wireless may be considered as long as the network is designed with the appropriate security. In the long term,

a building-wide integrated technology infrastructure must be designed and implemented.

- Follow a regularly scheduled replacement of computers, printers, and critical network equipment. Industry standards and best practices recommend a three to four year replacement schedule. Budgeting for a replacement of one-third to one-fourth annually is recommended with computer technology being considered an ongoing operational cost rather than a capital expenditure. Staff efficiency and customer service are negatively affected by outdated equipment and applications.
- Provide equipment to present and record programs and meetings. In dedicated meeting rooms, install stationery, dedicated equipment including screen and/or large flat panel display(s), projector, sound system, recording system, connection for multiple personal devices including laptops, DVD players, and MP3 players.
- Provide CCTV connections in all meeting and conference rooms.

Staff Comments on Technology that should be Changed

The IT staff member, who has primary responsibility for supporting the library, identified the priorities as follows:

- Design and install a structured technology infrastructure.
- Provide additional network drops (jacks) to increase capacity and flexibility.
- Add video surveillance system.
- Plan for the use of proximity cards for access security (Schools are now implementing.)
- Increase wireless access to cover the entire building.
- Reassess the existing staff computers for replacement or reallocation.

Technology for Staff

Key Findings and Observations

- Staff desks and service desks are equipped with the basic IT equipment to enable library staff members to perform their jobs today. Some location changes and furnishing changes can be made to improve staff efficiency.
- The lack of a fax machine and the location of the printers were the biggest concerns of the library's staff.
- Staff and the public use the printer located at the Circulation Desk, but the printer is not appropriate for the location or the use. The printer was purchased through a group order coordinated by the town purchasing office.
- Due dates are stamped in materials which are checked out.
- Circulation tasks, including check-out, check-in, and sorting, are handled manually, with transactions tracked and managed through the shared integrated library system.
- Much of the existing staff furniture was acquired prior to technology and is not ergonomic.
- No space exists for either the library or the Historical Society to digitize local resources, should they desire to do so. Having local resources in digital format can increase and improve access for both staff and public and increase the number of users.
- As shown by the statements in the library's Technology Plan, library staff recognizes that one area where technology is changing is in options for communicating with others, including library users. Examples of new options include sending notification messages via texting, web conferencing, and use of social networking sites.

Recommended Technology for New/Expanded/Renovated Library Facilities

- Allocate space for a printer in the redesign of the Circulation Desk. Shift public printing to self-pay and locate the public printer in public services.
- Provide fax functionality only as part of a multifunction machine (printer/scanner/fax). Do not allocate separate space for a standalone fax machine. In the current facility, this is subject to the addition of an analog phone line as current phones are digital.
- Use receipt printers to print date due slips. Printed receipts are replacing date due cards or stamping individual items in many public libraries. The receipts are automatically generated at the end of checkout and printed by small receipt printers at the circulation station, including in both staff and self-service checkout. While some patrons dislike this system others prefer it. Some libraries generate dated slips that patrons can pick up and place in each book if they prefer to have the due date in each item.
- Plan to accommodate RFID collection management and circulation for use now or in the future. RFID should be considered especially if circulation continues to increase. Specific components that must be designed to accommodate RFID include:
 - Circulation check-in and check-out stations
 - Book returns
 - Technical Services tagging or processing stations
 - Materials Security or exit gates (optional)
 - Self-Check Stations
- Plan one primary book return which is either RFID or can be equipped with RFID later. Rooms where returned materials enter the building from the outside must be fireproofed.
- Along with RFID, consider allocating space for a small sorter, two or three bin, attached to the primary book return in an expanded or new facility, especially if circulation continues to increase. As an example of the space required, one two-bin system on the market is approximately 33" long, 24" wide, and 30" high without the bins, and one three-bin system has a footprint of 76" long and 30" wide without the bins. (Bin footprints vary, for example 26"x26", 32"x32", 21"x37", and 29"x37".) Until a specific system is selected, the exact space requirements will not be known.
- Technology for staff must include computers and telephones for staff conveniently located at service and staff desks, networked printers with both

color and black and white capabilities, copiers with color and black and white capabilities, fax capability, and document scanners conveniently located for multiple staff use. Multifunction machines may be used.

- Provide a minimum of one computer per staff desk and one computer per staff member on desk duty at service desks. Provide both black and white and color printers conveniently located for staff efficiency. Printers and copiers should be on the network.
- The furniture used in staff offices should be ergonomically designed specifically for computer use. Typical, furniture design features should include:
 - Adjustable monitor shelf or stand
 - Adjustable keyboard and mouse tray
 - Adequate desktop grommets
 - Cable management.
- Library furniture and office systems provide wiring harnesses, channels, and grommets for wire-management. These features should be considered when selecting all partitions, desks, tables, and carrels.
- Desktop (work surface) space should be large enough to accommodate the monitor (including wide screen or dual monitors) and a variety of peripherals which may include barcode scanner/RFID reader, and telephone. Some staff desks may also need space to accommodate a local printer or multi-function device.
- Offices should be configured with a minimum of duplex data jacks (and voice for analog phone systems, if applicable) and power outlets on at least two different walls within an office, ideally on each wall. Data jack and power outlet placement should take into account the furniture design and placement to avoid having data jacks and power outlets inaccessible behind desk modesty panels, bookcases or credenzas.
- Equip staff workstations with headphones, microphones, and cameras to support multiple communication options.

Staff Comments on Technology that is Missing for Staff

Comments from library staff on technology that is missing for staff focus on staff efficiency. Some impact staff and building design, such as space for printers at the service desks and for the public.

- Availability of more technology training opportunities for staff
- CD/DVD disc repair unit
- Fax capability (3)
- Printers in the Children's and Adult sections of the library (2)
- Printer at each of the three service desks (2)
- Color printer
- 3rd computer at the Circulation desk
- Millennium offline software for the Macintosh
- Phone on each staff desk
- Computer at Reference powerful enough to handle all of the Millennium tasks
- Automated telephone system for patron notification

Staff Comments on Changes in Staff Technology Location

- The system printer behind the Circulation Desk is very large. (It was part of a town wide lease agreement, and we were not able to influence this because of unit cost concerns.)
- Copier location in the Children's Room (2)
- The CD/DVD disc repair unit should be in an area accessible to all staff.
- A printer is provided at each of the two reference desks.
- The circulation area has limited space for the amount of work that needs to be done.
- A fax machine should probably be placed in Adult Reference.

Technology for the Public

Key Findings and Observations

- Nine computers are available for public Internet access, with four in the adult area, two in the teen area, and three in the children’s area. Staff estimated that four to five times a week, one person may be waiting to use the adult computers. Monthly statistics show that the amount of public computer usage is relatively consistent throughout the year.

Counts of patrons who use the Internet computers, based on the sign-up sheets, show that usage of the public Internet computers has been declining since Fiscal Year 2005. The count of public computers has remained constant in recent years. Library-reported counts for the most recent three years include:

- FY05 3,037
- FY06 2,948
- FY07 2,873

During this same period, broadband access in homes across the country has increased, as reported in the Pew Internet & American Life Project “Home Broadband Adoption 2008”. Homes with higher household incomes adopt broadband the fastest. “Census 2000” from the U.S. Census Bureau reports the median household income for Cape Elizabeth as \$72,359. From 2005 to 2008, the category of \$50K-\$75K has seen an increase from 35% to 67% of homes with broadband Internet access.

	2005 % with home broadband	2006 % with home broadband	2007 % with home broadband	2008 % with home broadband
Household Income				
Under \$20,000	13	18	28	25
\$20K-\$30K	19	27	34	42
\$30K-\$40K	26	40	40	49
\$40K-\$50K	28	47	52	60
\$50K-\$75K	35	48	58	67
\$75K-\$100K	51	67	70	82
Over \$100K	62	68	82	85

Few focus group participants commented on difficulties in accessing the public computers or even using the public computers.

- The public Internet computers in the adult room are not in the line of sight from the Reference Desk.
- Three dedicated catalog computers are available, two in the adult area and one in the children's area. This quantity is sufficient for the current quantity of users.
- Payment for printing is collected at the circulation desk, where the public printer is located.
- Copiers have printing capability and are on the network.
- Reservations and sign-up for the public computers are staff-mediated, but staff report that this task does not require much staff time.
- Wireless access has been limited because it was based on the school's approach, which required individual laptops to be registered on the school's network. However, changes are planned to open the access more in line with the services of a public library, which will likely result in an increased number of laptop users.
- A number of students bring laptops into the library to use due to the school's program of providing laptops to middle school students and the high school's program of checking out laptops to students.
- Minimal power outlets and public seating are available for laptop users.
- Computer training is offered by Community Services, not the library.
- Library staff handles all circulation tasks; no self-service is offered.
- The library has begun to utilize technology in programming.

Recommended Technology for New/Expanded/Renovated Library Facilities

- Provide separate groupings of computers in the adult area, children's area, and teen area, with Public Access Catalogs in each primary public service area.

- Locate public computers in easy sight of staff at the service desk in that area and within easy public access to the service desk to request assistance.
- Include early literacy programs on one children's Internet computer or add one computer for that purpose.
- Plan space to accommodate a quantity of public Internet computers equal to one per every 1,000 population or an alternate quantity of one per every 15-20 visits per day, which are two common methods used to assess and project the quantity of public Internet computers for public libraries. Using these approaches, the library's current quantity of nine public Internet computers is sufficient.

Of course, new developments in technology and broadband distribution may require changes to the formula in the future. Changes in population and demographics can also affect the public's use of the library's computers. The library should continually evaluate the quantity of public computers needed to meet the demand based on actual usage.

- Provide seating and power for WiFi users at least in an equal quantity as seating for library-provided public Internet computers. WiFi access for personal laptops may be of more or equal interest to library users, especially if the library becomes a destination or third place.
- Consider self-service as an alternative to staff-mediated sign-up and reservation of public computers. If the amount of staff time required is small, the current approach may be acceptable, but the computers should be located within staff view from the Reference Desk for proper management. If the quantity of computers and amount of usage increase, the cost of a self-service application may be more cost effective than using staff time, especially if service is improved.
- Locate the public printer in an easily accessible central location or in each of the primary groupings of public Internet computers.
- Consider self-service/self-pay public printing.
- Offer printing for WiFi users.
- Consider consolidating printing and copying functions in one device.

- Provide at least one computer station in each teen and children’s area where two persons can easily work together. Characteristics of these stations include allowing more floor and desktop space to easily accommodate two persons, providing multiple headsets for the computer, and consideration of placement of the computer so that nearby users are not impacted. Such an arrangement is particularly helpful where parents can work with youth. All early learning computers should accommodate two persons.

- The furniture selected to house the various pieces of equipment should be able to accommodate a wide variety of CPU designs. Furniture must not be designed for one size of footprint or style of equipment but be flexible to accommodate future equipment designs and combinations. The furniture selected should accommodate standup or sit down configuration, be ADA compliant, and provide adequate cable management. Some public work areas and groupings of public computers must accommodate multiple persons working together on a project, with more than one of the group using public computers or their own personal laptops.

- Include power connections for mobile devices in library furniture for the public areas and meeting rooms. Such units, which retract flush with the furniture (a conference room tabletop, for example) when not in use or are mounted flush with the furniture (such as contained within a table leg), are both attractive and functional. Providing library users with access to only wall or floor outlets can result in cables and cords strung across pathways, resulting in unsafe conditions or requiring users to place equipment, and to work in, places never intended for such use.

- Equip any small group study rooms with wireless access, flat panel displays, and connections for various personal devices such as laptops and MP3 players.

- Support production of multimedia presentations and reports by equipping at least one public computer in the adult grouping and one in the teen grouping with a flatbed scanner and multimedia authoring and editing software.

- Offer self-check as an option, including one positioned at a height for children. For self-check to be successful,
 - staff sees self-check as the preferred circulation choice;
 - multiple self-service units exist and are conveniently located;
 - the units must be clearly visible to patrons;
 - assistance from library staff must be readily available without requiring a patron to leave the self-check station;

- easy step-by-step instructions must be presented by the self-check unit;
 - barcodes on patron cards and barcodes or RFID tags on materials must be quickly and correctly read;
 - blocks are set at a high enough level to minimize the need for a patron to move to the circulation desk to remove a block;
 - returned materials for which there are limits, such as DVDs, are checked in upon return so that the patron is not blocked from checking out additional items in the same visit;
 - self-check units must be reliable;
 - and all material types must be supported.
- Plan for the development of self-service beyond self-checkout, including self-pay and self-check-in as an option.
 - Promote the resources of the Historical Society by displaying digital images of resources on flat panel displays (both inside and outside of the Historical Society's room) or via an interactive kiosk.
 - Add interest to the Art Gallery by sharing information about the artists or the art via video and audio using flat panel displays and speakers (or headphones).
 - Utilize a dynamic, digital signage system with large screen monitors in the public areas to welcome users and promote library services. Monitors should be easily visible and in key locations, such as the entrance lobby, at service desks, and the entrance to primary public service areas including children's and the technology center.

Staff Comments on Technology that is Missing

- More public computers (for adults and teens) (2)
- Scanner (4)
- Color copier (3)
- Early literacy computers
- Fax (3)
- PAC for visually low-vision patrons
- ADA compliant PAC
- Magnifying reader for low-vision patrons
- Public printer near the computers
- At least one more public PC (not Macintosh)

- Self-check
- Receipt printer

While fax service is often among the services which public library staff list as missing for the public, few public libraries, which the library consultant has visited, have offered the service, typically due to the availability of the service elsewhere in the community and the difficulty in offering it as a self-service. All of the other services which the staff listed should be addressed in any new, expanded, or renovated facility.

Staff Comments on Changes in Public Technology Location

- Separate computers from quiet study and reading areas
- Printers in the Children's and Adult areas (4)
- We have limited floor space and the placement and furniture used for our public workstations are a problem: they are too tight!
- Public computers could be located closer to the Adult Reference Desk.
- The central location of the children's computers as they are now is good.
- The copier location in the children's area needs to be adjusted so that it is not cutting into the space for toddlers.
- Small compact desk top printer for staff at the Circulation Desk
- Color printer available for public use
- Public computers and printer should be within view of the Reference Desks.