

Technology Plan
Boston Public Library/Metro Boston Library Network
July 1, 2013 – June 30, 2016

I. Introduction

This document serves as the official technology plan for the Metro Boston Library network (MBLN) governing the network and system technology components and their required dependencies that are eligible for eRate funding. This plan covers the three year period from July 2013 through June 2016.

The Boston Public Library is the lead member of the Metro Boston Library Network (MBLN). MBLN Services are provided to members of the network under the auspices and direction of the Boston Public Library, with the guidance and direction of the MBLN Policy Advisory Group. Strategic and technology direction for the network is managed by the BPL's IT leadership team in conjunction with both the MBLN Policy Advisory Group and the Boston Public Library's Leadership.

Mission Statement (for the Boston Public Library):

The Boston Public Library's mission is to preserve and provide access to historical record of our society, and to serve the cultural, educational, and informational needs of the City and the Commonwealth.

The Boston Public Library has adopted a set of principles to guide its services and activities, which include the services to MBLN members and their constituents.

- I. **User-Centered Institution.** The BPL is a user-centered institution with services that anticipate and respond to neighborhood interests and the changing demographics of the City and Commonwealth.
- II. **Community Gathering.** The BPL exists to serve and sustain communities that foster discovery, reading, thinking, conversing, teaching, and learning, in accessible, sustainable, and welcoming facilities throughout the City, as well as with an engaging online presence.
- III. **BPL Special Collections.** The BPL is committed to the ongoing development and preservation of its distinctive special collections, which provide citizens from all walks of life with access to their common cultural heritage.
- IV. **Center of Knowledge.** The BPL is a center of knowledge that serves researchers, lifelong learners, and the intellectually curious through its incomparable collections, digital resources, and access to other scholarly networks.
- V. **Children and Teens.** The BPL fosters the love of reading and skills in critical and creative thinking among children and teens – from early literacy through mature

readership – by offering a slate of services that provide academic support and intellectual growth.

- VI. **Access and Innovation.** The BPL provides access to and training in innovative technology, electronic resources, and digital information through its own holdings and its strategic position within the wider world of knowledge.
- VII. **Sustainable Organization.** The BPL depends on sustainability of resources through a judicious stewardship of finances; active employee participation and professional development in an environment of dignity and respect; and partnerships that enrich services, expand outreach, and leverage public investment through private support.
- VIII. **Fun.** The BPL leads the way for people of all ages with recreational reading and media, invigorating programs, user-created content, and opportunities for discovery in settings that are stimulating and engaging.

Traditional services across the network are now enhanced by the importance of providing stable and reliable internet access, and digital access to library services, both through public access computers, desktops, laptops and a range of mobile devices, both those supplied by the libraries and owned by patrons.

Significant and continued monetary support and staffing resources are required for libraries to keep current technology viable and to incorporate new technologies at an accelerated rate. While it is an important element of our mission to acquire and implement new tools, it is equally important for the Boston Public Library and the Metro Boston Library Network to review the overall technological infrastructure in place and to apply modifications, to improve efficiency in service delivery as well as in the management and maintenance of all systems. Libraries provide vital access to cultural, educational and informational materials using online services that users demand. This plan focuses on the continuing renewal, consolidation, revitalization and expansion of technologies to support delivery of rapidly evolving library services in the coming fiscal years.

The 2010 study¹ by the American Library Association on public library funding and technology access cites three significant themes in its findings:

1. Libraries have expanded technology resources, particularly around workforce development and e-government, to meet rising demand;
2. Many libraries are hampered by outmoded buildings and funding reductions that threaten every aspect of service, including available staff and hours open;
3. Public Libraries need sustained support for their services to ensure that the safety net they provide to millions in the United States remains in place.

¹ American Library Association. (2010) "Libraries Connect Communities: Public Library Funding & Technology Access Study 2009 – 2010."

While the Boston Public Library and the Metropolitan Boston Library Network have realized success in these areas, continued attention to these challenges and the application of resources continue to be a high priority. This plan addresses these themes and will also ensure that the Library has comprehensive technology planning and support for the period July 2013 through June 2016. While the member institutions of the MBLN continue to maintain their independent broader strategic plans budgets and resources, the technology plan describes the network's goals for meeting the increased demand for library services and outlines specific related objectives and activities to provide an evaluative framework with measurable outcomes.

This plan is created for the Boston Public Library (BPL) and the Metro Boston Library Network (MBLN). BPL incorporates a central library, 25 branch libraries, and remote storage facilities. MBLN consists of the Boston Public Library, 21 Boston Public School libraries, Chelsea Public Library, Malden Public Library, Newman School Library, Fisher College, Roxbury Community College, and the Massachusetts State Transportation Library. It is anticipated that the Boston Public Schools may have additional school libraries participate in MBLN over the life of this plan, which will be adjusted operationally as needed. All of these network members facilitate the sharing of automation and technology resources, which in turn facilitate the sharing of collections. MBLN is a service of the Boston Public Library. The Boston Public Library is not just the "owner" and operator of MBLN, but the chief consumer of services as well. As the chart below indicates, BPL has the greatest number of workstations operating on the system and supports the greatest number of records and circulation transactions.

Member Library	Sites	Staff PCs	Public PCs	Total PCs	Items Owned FY12	Circulation FY12
Boston Public Library	28	600	800	1400	16,352,018	3,796,679
Chelsea Public Library	1	7	18	25	72,067	67,426
Malden Public Library	1	29	22	51	219,839	338,766
Boston Public Schools	24	29	0	29	400,393	50,295
State Transportation	1	1	0	1	23,555	0
Roxbury Community College	1	7	0	7	69,424	17,904
Fisher College	1	4	0	4	41,816	8,760
Newman School Library	1	1	0	1	3,758	459
TOTAL	58	678	840	1518	17,141,058	4,280,289

The Boston Public Library has a crucial interest in the vitality and technological capability of the Metro Boston Library Network. Therefore, this plan details much that is applicable to the entire network, and some that is specific to the Boston Public Library.

This technology plan supports each member library's goal of meeting the needs of its users and of the community as a whole. These needs encompass library operational efficiency, information on and access to library collections and physical resources, and the storage, retrieval and distribution to library users.

This technology plan is derived from recent and ongoing strategic planning processes and needs assessment surveys undertaken by the members. Other parts encompass the vision of network members as expressed through the Network's Policy Advisory Group.

II. TECHNOLOGY STRATEGY

The network will maintain and upgrade existing technology following industry standards. The network will continuously survey the evolving technology landscape for appropriate applications and will prudently pilot promising new technology. Library users expect and demand a wider array of electronic resources and equipment. The library must work towards meeting this demand. Ease of use is a primary concern for both staff and patrons. Overall, the library aspires to be at the forefront of library technology practices.

While libraries of the future may be configured in dramatically different ways, the traditional roles that libraries and librarians have played will continue to be necessary, and will likely be more complex. Technology has allowed us to look at the key aspects of libraries and librarianship: information access, retrieval, storage, preservation and organization in new ways using constantly evolving, new tools. In order to leverage the tools that become available, our plan reflects the willingness to embrace and try new and emerging technologies. Some key points that this plan addresses are:

- Use technology to promote efficiency and effectiveness in the delivery of Library services to the public, and increase Library use.
- Recognize that electronic access to information has become increasingly important and support the primary means of locating information as it has shifted from print to electronic means.
- Recognize that access to technology and the Internet is itself now a critical service provided by libraries.
- Use technology to provide the most appropriate information delivery systems.
- Use technology to control cost and improve the efficiency of library operations.
- Use new technology initiatives to build on and enhance existing services and objectives.
- Maintain flexibility to adapt new and changing technology to meet users' needs.

- Evaluate emerging technology for effective responsiveness to users' needs.
- Use technology to connect to relevant sources outside the library.
- Use technology to assist in the preservation of and access to at-risk, rare or fragile materials.
- Make information literacy a priority for both staff and public training initiatives.
- Provide access to technology and promote the development of technology skills of staff and patrons.
- Ensure that deployed technology and services are maintained consistent with availability, resilience and stability standards.

III. Goals and Objectives

GOAL I: Library users will access public computing resources easily and efficiently

Public access computing and associated services including printing and wireless Internet access are in high demand throughout the system. To provide these services without interruption or delay, the Library must constantly evaluate the use and placement of computers for internet access, access points and the electrical and network infrastructure to support them. As computers and printers reach the end of their useful life, replacement hardware and software must be added systematically to keep pace with user demand.

The print and PC reservation system must be regularly maintained. User needs for new devices, hardware and software must be evaluated and implemented to enhance or improve existing services. Online documentation for library users will be maintained and updated on a regular basis. Users and Staff will be surveyed on a regular basis to ensure objectives are being met.

Objective 1: Improve Internet access & wireless network access

- Activity 1: Deploy and utilize monitoring and maintenance tools to manage the wireless network infrastructure and overall bandwidth demand.
- Activity 2: Ensure the Wireless network remains optimized for demand volume and diversity of devices.
- Activity 3: Ensure planned overall Bandwidth expansion and availability keeps pace with demand

Objective 2: Upgrade or increase the number of public access computers as appropriate.

- Activity 1: Assess the use and placement of public access computers.
- Activity 2: Add and upgrade computers to meet user demand.
- Activity 3: Evaluate electrical and network infrastructure to accommodate user demand.
- Activity 4: Upgrade routers, switches and security infrastructure as needed.

Objective 3: Make printing and reserving public access computers easy and intuitive.

- Activity 1: Evaluate current pay-for-print system, and plan to modify accordingly.
- Activity 2: Evaluate the current PC reservation system and plan to upgrade accordingly.
- Activity 3: Review, update and supplement relevant instructional documentation as needed.

Objective 4: Add hardware, software and services to meet user demand

- Activity 1: Create and begin implementation of a printer replacement plan.
- Activity 2: Evaluate wireless printing options, and plan to proceed accordingly
- Activity 3: Investigate the demand for new in-library technologies.

Objective 5: Improve end user support for MBLN hardware and software

- Activity 1: Using analysis and improvements of the existing Help Desk support workflow, reduce response and resolution time for help desk requests to industry standard levels.
- Activity 2: Monitor staffing levels and vendor contracts needed to provide excellent Help Desk support to internal users.
- Activity 3: Continue staff training for computer applications and digital resources to enable provision of excellent support to Library users.
- Activity 4: Implement automatic updates of necessary software upgrades.

GOAL II: Library users will access library materials, resources and services easily and efficiently.

Consumers of library services, whether in-person or online, should be able to easily locate and use information and materials relevant to their needs. The critical technology components supporting access are the Integrated Library System and Catalog, Digital Production & Repository Services, and Online services encompassing Web and Mobile Services

The web site, digital collections and online public access catalog allow users to find information and materials like databases, downloadable audio, video and e-books, digitized images and original digital content, and to access online reference services. To provide better service, the Library must explore the maximum integration potential for *all* of these online services. The Library must provide consistent continuing education so that staff skills will remain up-to-date,

thus ensuring a service delivery architecture which will reflect the best current knowledge in the information science profession.

The Collection Development Strategy responds to the increased demand for online services by continuing to provide access to electronic databases to remote users; expanding the collection of downloadable books, audio and video for consumption using diverse platforms and devices.

Information literacy services and training will be expanded. The Library seeks to provide opportunities for training covering simple “information literacy” skills like e-mail to more complex ‘information fluency” training, like helping users understand, navigate and effectively use the digital information landscape and digital resources. Hardware and software purchases will be made to support this effort, and may include utilization of technology from the distance and digital learning arena. Users and Staff will be surveyed on a regular basis to ensure objectives are being met.

Objective 1: Improve the Library’s web site and online service delivery

- Activity 1: Update Web & Mobile Services strategy to determine the next phase of services
- Activity 2: Implement a content management system.
- Activity 3: Explore opportunities to incorporate electronic payment applications.

Objective 2: Increase digital content production

- Activity 1: Monitor developments in imaging hardware and software
- Activity 2: Monitor developments in compression technologies
- Activity 3: Install new/upgraded lighting, processing stations and lab equipment as necessary.

Objective 3: Increase access to Library collections and other digital content

- Activity 1: Produce and acquire digital content
- Activity 2: Design, Build and deploy a digital repository, with the requisite storage infrastructure.
- Activity 3: Develop data models for content types and organize digital content
- Activity 4: Provide adequate data storage to support digitization initiatives/preservation
- Activity 5: Develop comprehensive planning for a repository, digital storage and long-term preservation.

Objective 4: Improve users’ ability to search for and locate resources using the online public access catalog

- Activity 1: Complete replacement of the Integrated Library System (ILS)
- Activity 2: Enhance the ILS capacity to support additional user and staff functions.

Activity 3: Explore the maximum integration potential for online services including the public catalog, databases, and other digital resources.

Objective 5: Improve the efficiency of circulation transactions

Activity 1: Continue implementation of automated checkout machines at varied locations.

Activity 2: Investigate electronic online payment solutions for customer transactions like payment of fines, fees, pay-for-print, etc.

Objective 6: Improve services to users with disabilities

Activity 1: Improve computer access including adaptive hardware and software.

Activity 2: Ensure that web services and resources approach industry recommended standards for design and accessibility.

Objective 7: Investigate and pilot new library technology

Activity 1: Monitor developments in delivery of e-books, digital audio and video, and other digital formats.

Activity 2: Monitor developments in delivery of digital content to handheld devices.

Activity 3: Evaluate and assess opportunities to include tablet, mobile and touch screen technology in the services delivery arena and work flow automation.

Objective 8: Provide support for public and staff information literacy and information fluency

Activity 1: Create information literacy training for staff and users.

Activity 2: Provide equipment for trainings to branches including laptops, wireless mice, and other peripherals.

Activity 3: Build upon the pilot training programs for the public.

GOAL III: The technology infrastructure will be sustainable, redundant, energy-efficient and up-to-date.

The technology infrastructure must be evaluated on an ongoing basis and, as required, updated.

The security infrastructure requires a review. Network and server hardware, software and configurations will be reviewed.

The housing of telecommunications equipment in some branches requires review. The purchase and installation of racks and cabinets will be required at those locations to provide proper security and housing for various telecommunication devices. New racks, cabinets, wiring, switches and routers are also required in some locations

An updated review and remediation plan for the central data center will be developed and implemented. New UPS units and generator connections may be added or upgraded to facilitate uninterrupted electricity to the telecom equipment and servers in the event of power outages. Server hardware, software and configurations will be reviewed.

System-wide security measures and systems will be assessed and updated to be consistent with current industry best-practices, as resources allow

A quarterly review mechanism will be developed to ensure progress towards the goals and objectives in this section.

Objective 1: The Library's data center & infrastructure will be evaluated and updated

- Activity 1: Perform full assessment of the capacity of telecommunication closets.
- Activity 2: Install new racks, cabinets, switches and routers where appropriate.
- Activity 3: Review existing electrical service and power conditioning units.
- Activity 4: Add new UPS units and generator connections where necessary.

Objective 2: The security infrastructure will be comprehensively reviewed

- Activity 1: Review and upgrade Firewall systems.
- Activity 2: Evaluate Intrusion Detection and Intrusion Prevention Systems as well as Access Control systems.
- Activity 3: Investigate and apply proper Disaster Recovery practices and standards.
- Activity 4: Integrate servers with Building Management and both BPL and City of Boston facilities security requirements.
- Activity 5: Evaluate existing physical inventory control systems, policies, and practices.

Objective 3: Consolidate physical systems in the data center.

- Activity 1: Continue adoption of server virtualization and storage standards.
- Activity 2: Investigate and implement support for desktop virtualization infrastructure.

Objective 4: Evaluate existing computer software and server operating systems

- Activity 1: Continue migration to the latest desktop Operating Systems standard as appropriate.

- Activity 2: Continue migration to the optimal Virtualized Windows Server system as the server standard.
- Activity 3: Implement an enterprise level Email Archiving Solution.
- Activity 4: Upgrade word processing and productivity package to a standard Office suite .
- Activity 5: Investigate and implement the use of Visio/CAD software to support capital projects, planning and facilities management.
- Activity 6: Explore and implement energy efficiency controls for all computer equipment.

GOAL IV: The Library positions itself to keep its digital and analog assets safe and secure and accessible.

As part of the Boston Public Library's disaster recovery plan, data must be stored in an off-site location. Planning for the identification and procurement of technology to support such a center must take place. With the Consolidated Archival Storage projects in process, the Library must work closely with the City of Boston and Capital Projects to design proper space and environmental controls to house equipment and tapes necessary for backing up critical data.

A quarterly review mechanism will be developed to ensure progress towards the goals and objectives in this section.

Objective 1: Prepare scope for off-site storage and collocated facility to house electronic and tape storage and offer public service.

- Activity 1: Work with Capital Projects and the City to determine space within the facility.
- Activity 2: Ensure the use of appropriate environmental control, electrical and security systems in the facility.
- Activity 3: Define a Service plan and initial requirements for automated co- located Server Services Disaster Recovery and Business Continuity.

Objective 2: Design a method of transporting electronic files and physical tapes to the facility

- Activity 1: Work with shipping department on transporting physical media.
- Activity 2: Investigate ways of transferring electronic data across the WAN.
- Activity 3: Procure the necessary hardware to store the data in the facility.

Objective 3: Investigate enhancements to network security procedures

- Activity 1: Investigate and implement technologies to further secure the network from intentional or unintentional misuse.

IV. Needs Assessment of Telecommunications Services, Hardware, Software and Other Services

A) Internal Connections

There are currently 22 telecommunication closets at the central library which are in need of battery backup and surge protection. Each of the 28 BPL remote sites has one closet and some need to be secured. This involves the installation of a cabinet, additional patch panels and cable cleanup.

B) Hardware

There are 1,450 public and staff computers and 193 printers in the Boston Public Library. We aim to replace up to 40% of computers in this fiscal year in keeping with the 4-5 year technology renewal goals.

C) Software

Presently, we run a variety of operating systems that still include a substantial mixture of Windows 2000 server and desktop versions and Windows XP operating systems on computers. Standardization is critical to provide consistent and better performance and support. The current goal is to standardize where and when possible on Windows Server 2008, VMware Infrastructure, EMC storage; Windows 7 desktop and Office 2010. A standard suite of desktop applications is to be defined.

D) Network

The network is a mixture of several different circuit types, including, PRI, T1, Frame Relay, ATM, TLS and MPLS. Substantial network improvements have taken place recently. We will continue to consolidate and eliminate obsolete lines and costs as well as ensure performance, speed, and bandwidth availability keeps pace with today's demands and application requirements.

E) Digital Content Production

Boston Public Library's imaging lab has two digital cameras, one flatbed scanner, and through a partnership with the Internet Archive access to eight in-house book scanning stations. As industry standards for imaging production evolve, hardware and software for digital content production will be evaluated. The current repository pilot needs to be evaluated for production readiness and requires the application of technical and staffing resources to support future production digital repository needs.

F) Data Storage

The library must address the amount of storage necessary to house our collections. A new Storage Area Network has been implemented with capacity for immediate growth needs and expandability for future needs. A Cloud Pilot is underway and can also be leveraged going forward. The Emerging strategy will determine when to use local data center storage, City of Boston storage and cloud storage.

V. Professional Development Strategy/ Staff Training needs and Plans

1. The MBLN and BPL maintain high-level technology training budgets to keep IT staff skills current and to develop new skills needed to support IT infrastructure and technologies defined in the plan.
2. The MBLN Policy Advisory Group, BPL Training Committee and BPL Management staff will collaborate to strategize methods and procedures to ensure that staff can capitalize on new technology resources. Strategies include determining what trainings are mandatory and which will be optional. Allocation of ongoing budget resources for training and development is also addressed.
3. Staff are encouraged and required as appropriate to participate in professional development opportunities through in-house and external organizations (conferences, workshops, classes, etc.). Here are some examples of professional development opportunities:
 - American Library Association and its Divisions and Chapters
 - City of Boston Training
 - ILS User Group Conference
 - Internet Librarian Conference
 - Library and Information Technology Association (LITA) National Forum
 - Massachusetts Library Association
 - Massachusetts Library System
 - Public Library Association Symposium and National Conference
 - USAC E-Rate Training
 - Various online interactive training, including in-house made videos
 - Workshops from various training service providers
4. The MBLN and BPL provide training on electronic services, such as digital collections, reference services and document delivery.
5. The MBLN and BPL will enhance technology.
6. The MBLN and BPL continue to provide regular training on the ILS systems and services for staff and continues to update customized ILS documentation manuals.
7. The MBLN and BPL provide training to staff so they may assist persons with adaptive technology service needs.
8. BPL will update the training room and system wide educational capacity with new training and instructional tools.

VI. Evaluation Process

The technology plan will be formally evaluated at six-month intervals to determine progress with each of the broad goals and individual objectives and activities.

BPL/MBLN will capture and evaluate usage statistics from various computer activities. Data collected will be compared to previous year's statistics. Comments will be solicited from library users via evaluations. Tickets requesting help submitted through the Helpdesk reporting system will be reviewed to identify any service adjustment requirements. Alternative technologies that could enhance services or be more cost effective will continue to be investigated and applied.

Various data sources will be collected and measured for each of the plan's broad goals. To evaluate our goal and objectives for improvements to public access computing, some of the measurements we will utilize are user surveys, reporting from staff in Hub and at branches, PC reservation and pay-for-print statistics, network monitoring and helpdesk reports. To monitor use of online content and resources, and analog content & resources, some of the metrics we will use are Google Analytics, Open Content Alliance download statistics, Overdrive statistics, vendor reports for databases and circulation statistics.

Progress towards meeting the goals and objectives for the technology infrastructure, communications services and infrastructure, and planning for asset security will be measured by staff who regularly monitor storage and network performance, and who record purchases and implementations of services, hardware and software.

Approved by BPL Board of Trustees on: Date: November 13, 2012

Authorized Signature:

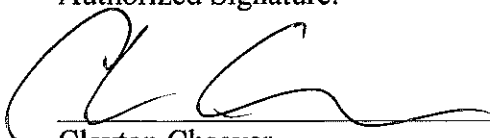


Amy Ryan
Library President

Date: 11-14-12

Approved by MBLN Policy Advisory Group on: Date: 11-30-12

Recorded by
Authorized Signature:



Clayton Cheever
MBLN Program Administrator

Date: 11-30-12