

# Northbridge Public School District



## Three Year Technology Plan 2013 – 2016

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## **Benchmark 1: Commitment to a Clear Vision and Implementation Strategies**

***A. The district's technology plan contains a clearly stated and reasonable set of goals and implementation strategies that align with the district-wide school improvement plan. The district is committed to achieving its vision by the end of the school year 2014-2015.***

### **District Mission Statement**

The mission of the Northbridge Public Schools is to prepare our students to become responsible, contributing members of society by providing a challenging, rigorous educational program which will maximize academic achievement, enable intellectual, physical, social, and emotional development in an atmosphere which promotes creativity and critical thinking.

### **Technology Mission Statement**

The Northbridge Public Schools' Technology Program is dedicated to enhancing teaching, learning and administration through the effective use of information technology while providing students with the skills required in an increasingly technology-based society.

***B. The district has a technology team with representatives from a variety of stakeholder groups, including school committee members, administrators, parents and teachers. The technology team has the full support of the school superintendent to implement the plan.***

A technology team was formed in the Spring of 2013 to review and revise our technology plan. The group consisted of:

Alicia Boudreau -Library Media Specialist, Northbridge High School  
Stephen DiMare -Network Manager  
Deborah Doiron -Parent  
Steven Falconer -Systems Administrator  
Lisa Gogolinski -Technology Teacher, Northbridge Middle School  
Jill Healy -Principal, Northbridge Elementary School  
Lori Hippert -Instructional Technology Specialist  
Steven McKinstry -Technology Support Specialist  
Kadion Phillips -Director of Educational Technology/ Information Systems Manager  
Peter Ritter -Instructional Technology Specialist  
Karlene Ross -Principal, W. Edward Balmer Elementary School

### **C. Needs Assessment**

- a. The district assesses the technology products and services that will be needed to improve teaching and learning.**
- b. The technology plan includes an assessment of the services and products that are currently being used and that the district plans to acquire.**

The best way to assess the technology needs in the Northbridge Public Schools is to examine the Technology Program's strengths, weaknesses, opportunities, threats, and strategies:

#### **1. Strengths**

- Knowledgeable, experienced and dedicated technology staff
- Solid technology infrastructure (servers, switches, cabling, routers, etc.)
- Operating budget that has allowed the District to keep at a minimum, critical technologies (e.g., file servers, antivirus software, network operating systems) up-to-date
- Intra-departmental communication for procurement with the aim of reducing costs and improving response times for technical support
- Judicious use of open-source software to reduce costs and increase functionality (e.g., Moodle)
- Centralized Student Information System (iPass) and implementation of the Schools Interoperability Framework (SIF).
- Centralization of network, server, and storage resources by leveraging of our Wide Area Network (WAN) and virtualization.
- Strategic installations of SmartBoards across the district

#### **2. Weaknesses**

- Aging equipment with less reliability for students and staff, greater need for technical support, and increasing incompatibility with new software
- Increased dependencies on external systems beyond our control (e.g., Verizon, Charter, Google, Merrimack Education Center, Town Hall, Department of Education)
- Need for funding to continue initiatives that support the implementation of the curriculum via technology such as interactive boards and their maintenance as well as many other instructional technology tools
- Limited community-based Internet access for students while not in school
- Limited access to using devices to connect to the internet especially in the younger grades
- Insufficient rooms in older buildings to support additional lab spaces
- Limited wireless coverage at the elementary buildings
- Insufficient opportunities for teacher training

- Inability to meet standards for the [PARCC](#) assessment

#### 4. Threats

- Rogue wireless devices
- Online threats (spam, viruses, spyware, etc.)
- Changes beyond our control (vendors going out of business, regulatory changes, etc.)
- Possible budget reductions

#### 5. Strategies

- Stress technology integration in all classrooms by working to identify appropriate activities that can be written into all curricula. We will continue to analyze our vertically aligned technology curricula throughout all grade levels.
- Work with principals and other key administrators to ensure that every educator receives the technology-related professional development they need on an ongoing and sustained basis and, where appropriate, to ensure that technology goals are included in teachers' and schools' professional development plans.
- Continue to invest in our administrative systems (e.g., student information system, SPED system, etc.). Priority will be given to those systems that integrate or share student information or are compliant with the SIF standards.
- Continue to improve communications internally using technologies like integrated email and externally by utilizing parent and staff communication systems like Connect-Ed, iParent and by making enhancements to the District website.
- Increase ease-of-use and security by leveraging LDAP authentication where possible to reduce the number of passwords users need to maintain.
- Expand the use of Google Apps with a calendaring function, collaboration through Google Drive and easy web posting.
- Expand Local Area Network (LAN)/WAN/Internet connectivity and bandwidth to facilitate communications while providing greater access to systems and resources across the District.
- Maintain and upgrade hardware, software, and networks to ensure systems function as needed. The highest priority will be given to those systems that impact the most users: file servers will have priority over printers; labs will have priority over classroom computers.
- Professionally managing District systems to provide backups, security, anti-virus and disaster recovery services.
- Leverage our investment in technology to streamline technical support activities (e.g., remote management, and online help desk), thereby improving turnaround times on support requests while minimizing time lost traveling between buildings.

- Continue to promote the talents of the technology staff while ensuring their skills stay current through ongoing technical training.
- Augment staffing and expertise through the use of consultants in highly specialized fields (e.g., assistive technology, WAN design).
- Work with the Superintendent, Leadership Team and School Committee to ensure appropriate staffing, policies, and budgets are recognized and implemented to the greatest extent possible.
- Provide staffing for after-school technology lab access.
- Develop a BYOD implementation plan and start piloting Spring 2014.
- Expand wireless coverage throughout the district.
- Investigate the possibilities of grants and donations.
- Develop a plan to support the PARCC assessment for Spring 2014.

#### **D. Budget**

- a. The district recognizes that technology plays a critical role in achieving its goals. The district has a budget that will ensure the implementation of its long-range technology plan.**
- b. The budget includes staffing, infrastructure, hardware, software applications, professional development, support, and contracted services.**

One of the District's goals is "To seamlessly integrate technology across all classrooms in order to effectively prepare students for the 21st Century" to meet state and federal mandates. Technology goals in support of this goal include the following:

1. Monitor our curricula to ensure that it promotes the use of technology tools to enhance skills and performance as applied to individual and collaborative projects across all disciplines.
2. Provide on-going training and support for staff and students encouraging the use of technology.
3. Provide instructional strategies that assist student learners in the practice of responsible use of software and hardware.
4. Promote ethical and legal behaviors for student when using technology.
5. Establish a systematic and yearly commitment to the purchase of technology.
6. Upgrade our infrastructure to support Bring your own device initiative ([BYOD](#)) and the [PARCC assessment](#)

To accomplish these goals the District will:

- Identify specific integration activities at the appropriate developmental level at each school. The approval of an additional PK-12 Instructional Technology Specialist has aided in this effort.

- Work with teams and individual teachers to introduce and support new uses for technology that improve learning.
- As budgets permits, strive to purchase additional equipment for technological implementation of the curriculum and replace or refurbish out-of-date hardware and software in classrooms, labs, and media centers.
- Implement school-based technology so that staff can conduct analysis of test data.
- Provide professional development on the mechanics and effective use of any new technology being introduced to the system.
- As necessary, run workshops before and after-school and provide professional development support throughout the school day.
- Support teachers and paraprofessionals participating in online PD.
- Continue to develop and improve the online Technology Help Center to assist staff in using the various systems.
- Provide instruction on Internet safety.
- Employ sound, efficient business and financial practices that use resources effectively to attain the District's improvement initiatives.
- Implement proven technologies for network account management, inventory controls, support request tracking, blocking of viruses, spam, pop-ups, etc.
- Continue to refine technology-related disaster and recovery planning strategies.
- Implement changes required to meet any new DESE reporting requirements.
- Participate in the E-Rate program to reduce costs of Internet access and telecommunications.

The technology budget includes staffing for 6 positions: Network Manager, Systems Administrator, Information Systems Manager, Technology Support Specialist, and two Instructional Technology Specialists (ITS). There is a stipend for the Director of Technology and this position is currently held by the Information Systems Manager. In addition to staffing, the technology budget includes lines for software, hardware, services, supplies, travel, and conferences.

**Proposed FY2014 Technology Budget:** (assuming E-Rate reimbursement of eligible expenses)

Salaries	\$407,281
Conferences	\$2,200
Travel	\$444
Supplies	\$6,500
Services	\$68,751
Hardware	\$48,250
Software	\$49,868
21st Century Learning	\$35,700
<b>Total Non-Salary</b>	<b>\$211,713</b>
<b>TOTAL</b>	<b>\$618,994</b>

**The district seeks funding for technology programs from federal, state, and private resources, as well as from academic departments that are supported by technology. The district explores ways that technology can reduce costs and create efficiencies in other areas of the district budget.**

We routinely search for Technology grants, but have a very difficult time finding grants for which we qualify because of the demographics of our student population and our location.

**For districts that plan to apply for E-rate reimbursement, the technology plan specifies how the district will pay for the non-discounted portion of their costs for the services procured through E-rate.**

Northbridge's technology budget is funded from local and state sources and the non-discounted portion of our cost is included in the overall operational budget of the district. Each year, the District participates in the E-Rate program to help reduce costs for eligible entities and expenses. During the years covered by this plan, we expect to apply for discounts on the following expenses:

- High-speed Internet access
- Leased data communications between buildings (WAN)
- Phone service E-Rate funds are utilized to receive discounted invoices or reimbursements from Internet Service Providers (ISPs) and telecommunication carriers.

**Evaluation**

- a. **The district routinely consults with technology staff before purchasing technologies items, to ensure that the items are appropriate, cost-effective, and sustainable.**

- b. The district's technology plan includes an evaluation process that enables it to monitor its progress towards achieving its goals and to make mid-course corrections in response to new developments and opportunities as they arise.**
- c. The technology plan will be reviewed at the end of each year to determine if the original goals and benchmarks may need to be revised.**

We have consolidated most technology related purchases into the technology budget. Departments purchasing items from other funds are asked to consult with the technology team to make sure the items requested will work with our current infrastructure and are not products already owned by the district.

Each year, the District will develop plans for the upcoming school year and accompanying annual budget requests. Multiple inputs will be considered, including:

- Progress made and lessons learned in the prior and current school years
- Shifts in district-wide focus and priorities
- Changes in budget allocations
- Grant awards, donations or other new opportunities that have presented
- Advances in technology
- Changes in technology staffing
- Changes in other district staffing (e.g., new computer teachers, new school secretaries)
- Feedback and new requests from the Administration, teachers and students.
- Analyze our compliance with state and federal mandates

## **Benchmark 2: Technology Integration and Literacy**

### ***A. Technology Integration<sup>1</sup>***

- a. Outside Teaching Time - At least 90% of teachers use technology every day, including some of the following areas: research, lesson planning, organization, administrative tasks, communications, and collaboration. Teachers explore evolving technologies and share information about technology uses with their colleagues.***

We feel that at least 90% of teachers or more are using technology every day outside teaching time. All teachers are using email communication with parents, staff and administrative needs. By utilizing new communications tools such as, but not limited to, web sites, Google Apps and Edmodo, teachers are sharing information and resources with necessary audiences. It is required for many of the teachers to utilize a student information system for grading, reporting assignments, attendance and scheduling students. We will continue to use these same technologies and look forward to adapting and adding new tools as they become available.

**Cost:** No additional cost to continue this progress.

- b. For Teaching and Learning - At least 90% of teachers use technology appropriately with students every day to improve student learning of the curriculum. Activities include some of the following: research, multimedia, simulations, data analysis, communications, and collaboration. Teachers integrate evolving technologies that enhance student interest, inquiry, analysis, collaboration, and creativity.***

We currently need to develop surveys to get a better gauge on this benchmark and to assess whether this is a necessary item to achieve the best out of students. Our guesstimate is that 80% of teachers are using technology on a day-to-day basis. At different times during the year this can vary.

The problem is access to technology can be limiting to achieve this benchmark. Increased access to labs, laptop carts, multimedia carts, and other instructional technology can help to achieve this goal but funding and physical (building) limitations makes this difficult. The plan to implement a BYOD policy will help with this benchmark.

**Cost:** We are currently assessing the necessary steps and cost associated with a BYOD program and updates that may need to be made to our infrastructure.

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<sup>1</sup> The Massachusetts Department of Elementary and Secondary Education defines technology integration as the daily use of technology in classrooms, libraries, and labs to improve student learning.

## **B. Technology Literacy**

- a. At least 90% of eighth grade students show proficiency in all the Massachusetts Technology Literacy Standards and Expectations for grade eight<sup>2</sup>.**

We currently don't have any assessments that give us this information. The Middle School Technology teacher is in the process of creating an on-line assessment for the Massachusetts Technology Literacy Standards and Expectations that will be administered at the end of the eighth grade for all students.

**Cost:** No cost associated with creating the assessment. The test will be administered through Moodle at no additional cost to the district.

- b. 100% of teachers are working to meet the proficiency level in technology, and by the school year 2014-2015, 90% of teachers will have mastered 90% of the skills in the Massachusetts Technology Self-Assessment Tool (TSAT)<sup>3</sup>.**

We have had surveys sent to all staff in the past to assess this measure. As an option, some teachers evaluated themselves in the TSAT skills. This is still not enough information to confirm this benchmark has been met. We do feel that almost 100% are *working* toward meeting the proficiency level in technology and will achieve this goal by the school year 2014-2015. Part of the new evaluation process includes items related to technology integration and will provide feedback on this benchmark.

**Cost:** There is no cost associated with the creation of a survey and analysis of the data.

## **C. Staffing**

- a. The district has a district-level technology director/coordinator.**

We do not currently have a position that is fully dedicated to the District Technology Director. The Information Systems Manager is currently receiving a stipend to fulfill the roles of the director, but the fear is this stipend can be cut in future years. The recommendation is to make a dedicated full-time position to District-level Technology Director/Coordinator.

**Cost:** A possible reorganization of the technology team as recommended by the Technology audit may lower the cost of adding a director. We have recently revised the job description of the Technology Associate role to include additional data roles and we hope this will allow more time for the Information Systems Manager/Director of Educational Technology to be allocated to the director role.

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<sup>2</sup> The *Massachusetts Technology Literacy Standards and Expectations* are available on the Department's website (<http://www.doe.mass.edu/edtech/standards.html>).

<sup>3</sup> The *Technology Self-Assessment Tool* is available on the Department's website ([http://www.doe.mass.edu/edtech/standards/sa\\_tool.html](http://www.doe.mass.edu/edtech/standards/sa_tool.html) )

**b. *The district provides one FTE instructional technology specialist per 60-120 instructional staff to coach and model.***

We recently hired a second Instructional Technology Specialist to help coach and model the use of Technology in the classroom. We do not feel the number of Instructional Technology Specialists should be based on staff numbers alone, but should depend on the tools being implemented and initiatives of the district. We strongly believe we cannot provide the technology training required without at least two Instructional Technology Specialists.

**Cost:** The salary for the two Instructional Technology Specialist who are paid per the NTA contract.

**c. *The district has staff specifically dedicated to data management and assessment.***

We currently have an Information Systems Manager position who is also working in the Technology Director role. There is a need for more dedicated staff to data management and assessment. Working with teachers and new data assessment tools is becoming more and more important and the need for additional staff is becoming more critical. The revision of the job description of the Technology Associate to include additional data integrity roles will help with this goal.

## **Benchmark 3: Technology Professional Development**

**A. At the end of five years, at least 90% of district staff will have participated in high-quality, ongoing professional development that includes emerging technology issues, technology skills, universal design, and research-based models of technology integration.**

Various technology professional development opportunities will be offered annually to support new technology and continued integration:

- Orientation and training for new faculty and staff at the start of each school year
- Technology workshops that promote teacher technology competencies will be offered on a quarterly basis before and/or after school hours as well as during professional development and/or PLC meetings. (Coordinate with building leaders in advance)
- Provide training to faculty and administrators for specific software and productivity tools, including student information systems, grading tools and parent/student portals, website development, and researching on the web
- Instructional Technology Specialists will attend outside quality professional development which they disseminate to staff.

**B. Technology professional development is sustained and ongoing and includes coaching, modeling best practices, district-based mentoring, study groups and online professional development.**

Instructional technology staff will provide opportunities, resources, and support for faculty to develop technology based integrated curriculum projects for students that will meet the Massachusetts standards on an ongoing basis. Teachers will be provided a means to share electronic curriculum activities within and across grade levels. Instructional Technology Specialist will spend a majority of their time working within classrooms coaching, modeling, mentoring, and working with study groups and, researching, developing and/or providing professional development offerings. We will utilize pilot groups as appropriate to the technology.

**C. Professional development planning includes an assessment of district and teachers' needs. The assessment is based on the competencies listed in the Massachusetts Technology Self-Assessment Tool<sup>4</sup>. Administrators and teachers consider their own needs for technology professional development<sup>5</sup>.**

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<sup>4</sup> The *Technology Self-Assessment Tool* is available on the Department's website ([http://www.doe.mass.edu/edtech/standards/sa\\_tool.html](http://www.doe.mass.edu/edtech/standards/sa_tool.html)).

<sup>5</sup> A sample administrator technology self assessment tool is available on the Department's web site ([http://www.doe.mass.edu/edtech/standards/tsat\\_sampadmin.html](http://www.doe.mass.edu/edtech/standards/tsat_sampadmin.html)). Administrators may also want to refer to the *National Educational Technology Standards (NETS•A) and Performance Indicators for Administrators* published by the International Society for Technology in Education ([http://www.iste.org/Content/NavigationMenu/NETS/ForAdministrators/2009Standards/NETS-A\\_2009.pdf](http://www.iste.org/Content/NavigationMenu/NETS/ForAdministrators/2009Standards/NETS-A_2009.pdf)).

This data is used for planning district, school, grade or department level and individualized professional development. Professional development offerings are based on annual staff assessments tailoring sessions to both needed skills and proficiency levels.

As part of a their own reflective, self-evaluation process, Administrators and teachers will be given the opportunity to express through evaluation goals what they feel are the most pressing needs and priorities for technology professional development in their daily work.

## **Benchmark 4: Accessibility of Technology**

### **A. Hardware Access**

- a. ***By 2019-20, the district has an average ratio of one high-capacity, Internet-connected device for each student. (The Department will work with stakeholders on a regular basis to review and define high-capacity computers.)***

With the current layout of the Elementary buildings, this may only be achievable via wireless, portable devices and not necessarily a computer. Our plan is to expand wireless connectivity to encourage staff and secondary students to bring their own devices. We will aim for this goal at the Middle and High School but we do not think it is an appropriate benchmark for the younger grades.

- b. ***The district provides students with emerging technologies appropriate to their grade level.***

This will always be a work in progress, as technology is always changing. We have two instructional specialists who work with teachers to ensure they are aware of emerging technologies and help teachers to integrate these new tools in their curriculum.

- c. ***The district maximizes access to the general education curriculum for all students, including students with disabilities, using universal design principles and assistive technology devices.***

The district has a contract with an assistive technology support specialist who works with the Special Education department to give advice on appropriate assistive technology devices. This service is paid through the Special Education department.

- d. ***The district has procurement policies for information and instructional technologies that ensure usability, equivalent access, interoperability and SIF compliance<sup>6</sup>.***

Grade teams at the elementary schools and department teams at the secondary level propose budgets that support their needs. Technology purchases are discussed and reviewed with the technology staff to ensure it is compatible with our current systems and that we do not already have a solution that may provide the same service. We will choose software titles that are [SIF](#) compliant.

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<sup>6</sup> For more information, see the website for the SIF Association (<http://www.sifinfo.org/us/index.asp>).

- e. ***The district provides technology-rich classrooms, with access to devices such as digital projectors, electronic whiteboards, and student response systems.***

This growth and development is limited each year by budget constraints. Ideally we would match technology to student and teacher based on their needs. We have been installing SmartBoards with LCD projectors across the district for the past couple years. We are in the process of installing a document camera on each projector setup for a cost of \$100 each. As we move towards a BYOD initiative, we are using more online formative assessment websites and apps that achieve the same functionality (if not better) than a set of student response system.

**Current cost:** We currently have a line with approximately \$30K a year, which has primarily gone to SmartBoards. We will complete installations at Balmer in FY14 so hopefully these funds can be redirected to other devices. We will also need to set aside funds for SmartBoard maintenance as the older units are starting to fail.

- f. ***The district has established a computer replacement cycle of five years or less.***

This is possibly true for the High School, however, we are replacing PCs with refurbished PCs that are already a few years old. The refurbished machines we are getting have a 6 year warranty and are meeting the needs of the staff and students. The Technology Support Staff is also capable of maintaining the computers we have on site. These PCs then cycle down to the Middle and Elementary level years after the High School originally had them installed. We are also in the process of changing out failing CRT monitors with LCDs.

**Cost:** We have been using \$40K annually to upgrade the machines in the district. This gets us a little over 100 machines replaced each year. We currently have 750 machines in the district.

## **B. Internet Access**

- a. ***The district provides connectivity to the Internet for all computers in all classrooms in all schools, including wireless connectivity.***

This goal has been achieved with wired connections, but wireless is not 100% at all buildings yet, but we are progressing. We are in year 4 of the former 7 year wireless plan. We can estimate annual costs based on total access points (APs) purchased and their annual maintenance. The previous quote should be good another year as we will be adding Aruba APs at the Elementary level. The estimated cost to complete coverage in existing buildings is \$25k.

Our wireless coverage is currently at 95% at the High School, 85% at the Middle School, 30% at W. Edward Balmer and 15% at the Elementary school. We plan to install an additional 5 APs at Balmer this year. We have 5K budgeted for next year for additional APs at Balmer and NES.

**Cost:** We are currently paying for 2 internet lines that \$2,469 each monthly for a total \$59,256. This is after receiving 50% matching funds from the [eRate program](#). To get to our goal, we may have to double this cost unless the cost of broadband internet decreases.

**b. The district provides an external Internet connection to the Internet Service Provider (ISP) of 100 Mbps per 1,000 students/staff<sup>7</sup>.**

Our current network is at 20MB upload and 20MB download speed. We have an uplink to the web because we host our own web server (Drupal), a Learning Management Server (Moodle) and student information system (iPass). As we move to a BYOD plan, we will need to increase our internet speeds to support the additional devices.

**Cost:** We have quotes to increase speeds to 50Mbps and 100Mbps. As more services become cloud based and we add devices to our network, we will continue to evaluate the need for additional bandwidth.

**c. The district provides bandwidth of at least 10/100/1 Gb to each classroom. At peak, the bandwidth at each computer is at least 100 kbps. The network card for each computer is at least 10/100/1 Gb.**

A 1Gb connection to the desktop is not realistic with our current building infrastructures. All computers currently have 1Gb network cards installed. A connection of 100Mb to the desktop is more common than 1Gb in our current environment.

### **C. Networking (LAN/WAN)**

**a. The district provides internal wide area network (WAN) connections from the district to each school between schools of at least 1 Gbps per 1,000 students/staff.**

We currently have fiber connections between all building segments at 1Gbps. This is paid through MEC for a lease from charter.

**Cost:** We currently pay \$2,856 monthly or \$34,272 annually. This is after a 50% discount from the [eRate program](#).

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<sup>7</sup> For more information, see the 2008 report *High-Speed Broadband Access for All Kids: Breaking through the Barriers* published by the State Educational Technology Directors Association (SETDA), available on SETDA's website (<http://www.setda.org/web/guest/2020/broadband> )

- b. The district provides access to servers for secure file sharing, backups, scheduling, email, and web publishing, either internally or through contracted services.**

This goal has been achieved. We currently have file sharing via instructional drives on our network that can also be accessed via the web through netstorage & Google Docs. Scheduling, email, and web publishing is accessible via Google Apps. Web publishing is also available via Drupal. We will continue to evaluate other solutions as they become available.

#### ***D. Access to the Internet Outside the School Day***

- a. The district provides access to its computer labs before and after school to ensure that students and staff have adequate access to the Internet outside of the school day.**

After school access is available in most buildings on certain days. Buildings are accessible before and after school for staff to access the internet. Students have accessibility before and after school by appointment but it would be ideal if there were stipend positions to provide this access on a regular basis.

**Cost:** Possible stipend position for teachers to monitor students when they are in the building before and after school.

- b. The district disseminates an up-to-date list of places where students and staff can access the Internet after school hours.**

Access is available in the Media Centers at the HS and MS on certain days. Balmer and NES offer after school programs which include computer activities. Beyond school hours, there are other resources for students to access the internet. These sites include the Whitin Public Library and the Rockdale Youth Center. These sites are posted on the web.

#### **E. Staffing**

- a. The district provides staff or contracted services to ensure that its network is functioning at all times.**

We have a contract with [Merrimack Education Center](#) (MEC) to provide our internet service. We receive internet through the Charter lines and MEC supports any outages that may occur. MEC is also responsible for our firewall that filters traffic to the internet. MEC is very responsive if there is an issue with our connection. Our largest non-salary expense is the cost of our internet connection. In the past year, we have quadrupled the bandwidth of our network from 5Mbps to 20Mbps, and we think it may be necessary to increase this bandwidth in the near future as we add more devices in preparation for the [PARCC](#) assessment. We receive funding for 50% of our internet cost through the [eRate program](#).

We have a full-time network manager who is responsible for maintaining internal connections and configuring our [switches](#). We aim to have a spare switch in place with all the necessary configurations. In case of a failure, we are able to quickly swap out the broken switch for a new one, with minimal downtime. We are reaching the end of cycle for many of the switches in our network so these are no longer covered under warranty. As switches begin to fail, we will have to buy new replacement units.

**Cost:** We pay a contracted service for internet connection and we are anticipating additional costs for replacement switches.

- b. The district resolves technical problems within 24 hours, so that they do not cause major disruptions to curriculum delivery. The district provides clear information about how to access technical support, which can be provided in person or remotely.**

24 Hour problem resolutions are generally achievable except with projects that are more than simple hardware / software fixes. We host a helpdesk system that is operational, and widely used. Our network software has a module called Zenworks Configuration Management (ZCM) that allows remote management for timely fixes that don't interrupt classroom activities. We will evaluate the support we are able to provide as we move to a BYOD plan although we will not be responsible to repair user owned devices. We currently have a server onsite that we use to host our helpdesk system and we are evaluating if we should move to a helpdesk system that can be integrated into our network software.

**Cost:** Our current helpdesk system is free, and ZCM and the new helpdesk system we are evaluating are bundled with the cost of our network software so no additional cost is expected.

- c. The district provides at least one FTE person to support 400 Internet connected devices. Technical support can be provided by dedicated staff or contracted services.**

We currently have 3 Technology Support Staff who are responsible for 1,000 district owned devices. While the three members share many of the same roles for day to day operations, major issues are elevated first to the Systems Administrator and then to the Network Manager. We continue to document and cross-train to allow for more timely fixes for issues as they arise.

**Cost:** The salary for the 3 Technology Support Staff

## **Benchmark 5: Virtual Learning and Communications**

Northbridge Public Schools offer several opportunities for virtual learning and communications.

### **A. The district encourages the development and use of innovative strategies for delivering high-quality courses through the use of technology.**

Northbridge High School provides opportunities for students to engage in distance learning through Virtual High School (VHS) and Class.com. The district also utilizes Moodle and Google apps by supplying each student and teacher with an account and encouraging their use for class work and collaboration. Professional development is also offered to assist and educate teachers with how to use new technologies, such as the Google apps, Edmodo, and SMART technologies.

### **B. The district deploys IP-based connections for access to web-based and/or interactive video learning on the local, state, regional, national, and international level.**

Northbridge High School (NHS) has been a member of VHS since 1999 which offers virtual courses where students work with classmates and teachers from around the world. This allows students to expand their academic portfolio and enroll in classes not offered at the school. There is also currently one high school teacher teaching a VHS course. NHS has also made online classes available through Class.com for credit recovery since 2006.

### **C. Classroom applications of virtual learning include courses, collaborative projects, field trips, and discussions.**

Many textbooks now include access to virtual interactive activities which the teachers frequently utilize. Some teachers also conduct virtual tours of museums and virtual world travel simulations. Students are encouraged to collaborate with classmates and teachers via Google Apps.

### **D. The district maintains an up-to-date website that includes information for parents and community members.**

There is one designated district webmaster as well as at least one staff member at each school with the ability to update the website. The website is used for communicating to families, staff, and students district and school information, upcoming events, and important school community announcements. Many teachers throughout the district also maintain faculty websites for their individual and/or team classrooms. As additional communication tools become available, the technology team evaluates, informs and trains teachers on tools that are most appropriate for their needs.

**Cost:** We host our own website so there is not an outside cost. This site is maintained by the Information Systems Manager and there is a stipend position for a district webmaster through the NTA contract.

## **Benchmark 6: Safety, Security, and Data Retention**

**A. The district has a CIPA-compliant Acceptable Use Policy (AUP) regarding Internet and network use. The policy is updated as needed to help ensure safe and ethical use of resources by teachers and students.**

Our current Acceptable use policy is included in Appendix I. This is signed by all students when they enroll and by staff when they are employed by our district. The AUP may need to be revised as we move to a BYOD environment.

**Cost:** No associated cost.

**B. The district educates teachers and students about appropriate online behavior. Topics include cyber bullying, potential risks related to social networking sites and chat rooms, and strategies for dealing with these issues.<sup>8</sup>**

Each year we have an internet safety night facilitated by the Director of Technology. Appropriate online behavior is also included in handbooks for students and staff. We are considering adding the internet safety presentation to another night when a more popular parent event is occurring in the hopes of increasing attendance. We support the MA state standards for internet safety in our Technology curriculum.

**Cost:** No associated cost.

**C. The district has a plan to protect the security and confidentiality of personal information of its students and staff<sup>9</sup>.**

We work closely with the student information systems, financial and staff systems to ensure the security of student and staff personal information by requiring passwords and training students and staff to not share passwords. We have policies outlined in each handbook and our policy manual explaining the requirement to keep the personal information of students and staff confidential. Our systems have automatic time-outs and passwords have to be reset after a few weeks.

**Cost:** No additional cost planned.

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<sup>8</sup> To learn more about teaching students about safety and the Internet, see Net Cetera: Chatting with Kids About Being Online, a free guidebook produced through a partnership of federal agencies and the technology industry (<http://www.edgovblogs.org/duncan/2009/12/online-safety-guidebook-for-parents/>).

<sup>9</sup> To find out how state agencies in the Executive Branch must protect personal information, as well as to find training tools related to this effort, see the Commonwealth's website (<http://www.mass.gov/?pageID=afsubtopic&L=6&L0=Home&L1=Research+%26+Technology&L2=IT+Policies%2c+Standards+%26+Guidance&L3=Legal+Guidance&L4=Privacy+%26+Security&L5=Executive+Order+504&sid=Eoaf>).

**D. The district complies with federal and state law [3]<sup>10</sup>, and local policies for archiving electronic communications produced by its staff and students. The district informs staff and students that any information distributed over the district or school network may be a public record.**

We recently switched from FirstClass to Google apps for email. We are currently paying for Google Vault to archive all emails and this gives up the option to search email records if requested. Google offers this service for \$10 per staff member but this service is free for all student accounts. We started offering student email addresses for the first time in the fall of 2012 and will also plan to archive student emails for the next three years.

**Cost:** We currently pay \$3750 annually to Google for Archiving email. This is included in the current budget.

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<sup>10</sup> Information about state regulations is available from the state's Record Management Unit (<http://www.sec.state.ma.us/arc/arcrmu/rmuidx.htm>).

## GLOSSARY

**Bandwidth** - A measurement of bit-rate of available or consumed data communication resources expressed in bits per second or multiples of it (bit/s, kbit/s, Mbit/s, Gbit/s, etc.).

**Bring your own device (BYOD)** (also called **bring your own technology (BYOT)**, **bring your own phone (BYOP)**, and **bring your own PC (BYOPC)**) means the policy of permitting employees to bring personally owned mobile devices (laptops, tablets, and smart phones) to their workplace, and use those devices to access privileged company information and applications. The term is also used to describe the same practice applied to students using personally owned devices in education settings.

**e-Rate Program** is the commonly used name for the Schools and Libraries Program of the [Universal Service Fund](#), which is administered by the [Universal Service Administrative Company](#) (USAC) under the direction of the [Federal Communications Commission](#) (FCC).

**Local Area Network (LAN)** - supplies networking capability to a group of computers in close proximity to each other such as in an office building, a school, or a home. A LAN is useful for sharing resources like files, printers, games or other applications.

**MEC (Merrimack Education Center)** - This is our internet service provider who we pay to provide services to connect to the internet.

**Netstorage** - A module of our networking software (Novell) that lets users securely access files from an internet enabled device.

**Partnership for Assessment of Readiness for College and Careers (PARCC)** creates a standard set of K-12 assessments in math and English. Within PARCC, a group of states (see list below) bases the content of these assessments on what it takes to be successful in college and careers in the future. These examinations will also coincide with the full range of the Common Core State Standards Initiative to make certain that standards are present in classrooms. PARCC assessments are currently being developed and are on track to begin being administered during the 2014-2015 school year.

**Schools Interoperability Framework (SIF)** - an industry initiative that enables diverse applications to interact and share data for academic institutions from kindergarten through twelfth grade.

**Network Switch** - A network switch is a small hardware device that joins multiple computers together within one local area network (LAN).

**Wide Area Network (WAN)** - spans a large geographic area, such as a state, province or country. WANs often connect multiple smaller networks, such as local area networks (LAN).

**Virtualization** - The process of enabling several operating systems and applications to run on one physical server or "host." Each self-contained "virtual machine" is isolated from the others, and uses as much of the host's computing resources as it requires.

**Wireless Access Point (AP)** - A device that allows wireless devices to connect to a wired network using Wi-Fi, or related standards. The AP usually connects to a router (via a wired network) if it's a standalone device, or is part of a router itself.

## APPENDIX I

### NORTHBRIDGE PUBLIC SCHOOL DISTRICT

#### COMPUTER RESOURCES ACCEPTABLE USE POLICY

The Northbridge Public School District provides computer resources and Internet access to support educational excellence by promoting resource sharing, facilitating communication, enhancing learning, improving administrative efficiencies, and preparing students to live and work in the 21st century. Anyone who uses the District's computer resources must follow the guidelines described in this policy. The use of computers and the Internet in the Northbridge Public School District is a privilege, not a right, and failure to follow these guidelines will result in loss of privileges, disciplinary action, and/or legal prosecution.

#### Definitions

As used in this policy, the term computer resources includes, but is not limited to: computers; printers, scanners, digital cameras, handheld devices, networking equipment, and telecommunication lines; software, files; multimedia, video, cable, TV, telephone, and fax equipment; Language Lab, Tech Engineering, or other specialized facilities; Internet, email, or other online accounts; and computer supplies such as blank disks.

#### Computer Use

Students in Grades 2 and below shall be taught how to use a computer safely before being allowed to use any computer. Adults and students in Grade 3 and above must sign and return the Acceptable Computer Use Agreement. (An exception may be made for occasional guests that are granted temporary access for training classes, vendor demonstrations and the like.) For minors, this form must also be signed by a parent or guardian indicating their understanding of this policy, and their acceptance of liability for damages resulting from the intentional disregard of these guidelines by their child. This agreement will be signed when students are enrolled, or reach 3rd grade, or when employees are hired, and will stay in effect as long as the student is enrolled, or staff member is employed, in the Northbridge Public School District. A summary of these guidelines will be reviewed in every class using computers and placed in student handbooks with a reference to the full policy on the District's website.

#### Acceptable Computer Use Guidelines

Adherence to the following guidelines will insure a positive and productive learning environment for all. Respect the school's property

All computer resources at the schools are the property of the Northbridge Public School District. No unauthorized technology may be used at school. No one may intentionally damage, tamper with, or use for any illegal or unethical activity any school or District property. In addition, computer resources must be used for educational purposes only and may not be used to sell anything, or to create anything that is sold, unless it is done so for the purposes of fundraising with the prior knowledge and consent of the building administrator.

#### Respect and adhere to copyright laws

All software has specific licensing agreements, which must be strictly upheld. Unauthorized copying is not permitted. To insure compliance with copyright laws, only software that is purchased by the District may be installed on any school computer or network. Software with little or no educational value shall not be installed on school computers. Software obtained by the District or one of its schools may not be copied or installed onto any computer, school-owned or not, without prior permission of the Technology Director.

#### Respect others' individual property rights and privacy

Existing rules against plagiarism apply to information gathered through the use of CD-ROM encyclopedias and other software, as well as through the use of the Internet. Everyone must respect each others' privacy and may not tamper with each anyone else's data files, network account, etc. The District does, however, reserve the right to examine and remove the content of files to insure compliance with these guidelines, when there is

reasonable cause or suspicion. The District reserves the right to delete files in individuals' accounts after the end of a school year or when a student or employee leaves the District.

#### Respect others' right to freedom from harassment and intimidation

No one may create or send abusive, threatening, repetitive, or clearly unwanted messages or use inappropriate language. No one may create or copy files containing any profanity, obscenity, or other inappropriate materials. No one may intentionally or otherwise interfere with others' work.

#### Use and share computer resources courteously and efficiently

Everyone must understand and accept that there are restrictions on computer resources including storage space and time limits. Disk space must be conserved by deleting messages once they have been read and removing unused files. When asked by a faculty or staff member, a student must immediately "log off" from the system.

#### Help protect computer resources

Everyone must safeguard the District's computer resources by taking reasonable precautions. Surge protectors shall be used with all electrical equipment; anti-virus software shall be used whenever a file is copied between disks; the use of floppy disks shall be minimized. Equipment will be powered off and covered when left unused for more than 24 hours. Data files saved to the network shall be backed up regularly and automatically. Everyone is responsible for making backup copies of his or her data files that are not stored on the network.

Each user may be assigned a unique username and secret password. No account, username or password may be shared with anyone else. Each user is responsible for all the activity conducted under that account or username. No one may attempt to access anyone else's account or files. Passwords must be safeguarded at all times and changed in accordance with the current procedures at each school.

Faculty and staff may prohibit the use of non-school-issued disks in school computers and may scan any student disk at any time for viruses. Each school will establish a safe and ethical file handling procedure for all.

No one shall:

- open up any computer resource that appears broken or jammed,
- access any network operating software or system configuration files,
- install or delete software, without the prior consent of the technology staff,
- download executable files which can corrupt computers and networks,
- knowingly introduce a virus, spy-ware, ad-ware or similar threat,
- disconnect or move any technology, without the prior consent of the technology staff,
- use a modem or telephone line, without appropriate permissions,
- print without appropriate permissions, or
- change system settings including the desktop, icons, and colors.

#### Report any misuse or abuse

Anyone with knowledge of abuse, inappropriately use, or failure to follow any of these guidelines shall report this to a teacher or administrator as soon as possible. Any violation of school policy and rules may result in loss of school-provided access to computers. Additional disciplinary action may be determined in keeping with existing procedures and practices regarding inappropriate language or behavior. When and where applicable, law enforcement agencies may be involved.

The Northbridge Public School District is committed to providing secure and error-free computing and cannot be held responsible for any loss or damages resulting from technical or other difficulties. The Northbridge Public School District reserves the right to change these guidelines.

Northbridge Public School District  
Acceptable Computer Use Agreement – For Minors

I, \_\_\_\_\_, and \_\_\_\_\_,  
(print minor's name) (print parent or guardian's name)

the parent/guardian of this minor, have read and understood the Computer Resources Acceptable Use Policy and agree to adhere to all the guidelines listed. We realize that inappropriate behavior may lead to penalties including loss of computer privileges, disciplinary action, and/or legal action. We release the Northbridge Public School District from any liability or damages that may result from the use of its computers, software, and networks. As a computer user, I accept full responsibility and liability for the results of my personal actions.

Student's Signature \_\_\_\_\_ Grade \_\_\_\_\_ Date \_\_\_\_\_  
\_\_\_\_\_

Parent or Guardian's Signature \_\_\_\_\_ Date \_\_\_\_\_

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Northbridge Public School District  
Acceptable Computer Use Agreement

I, \_\_\_\_\_  
(print name)

have read and understood the Computer Resources Acceptable Use Policy and agree to adhere to all the guidelines listed. I realize that inappropriate behavior may lead to penalties including loss of computer privileges, disciplinary action, and/or legal action. I release the Northbridge Public School District from any liability or damages that may result from the use of its computers, software, and networks. As a computer user, I accept full responsibility and liability for the results of my personal actions.

Signature \_\_\_\_\_ Date \_\_\_\_\_

**APPENDIX II**  
**Summary of Technology Plan by year**

<b>GOAL</b>	<b>2013-2014</b>	<b>2014-2015</b>	<b>2015-2016</b>
<b>1. UPDATE THE TECHNOLOGY INFRASTRUCTURE:</b>			
A. Move to implement at BYOD program at the middle and high school.	Create a BYOD implementation plan that examines any revisions to policy and handbooks that may be necessary and communicate changes to all constituents. Create a pilot group to begin testing students and staff using their own devices in classes.	Move to a complete BYOD program that includes training staff and evaluate infrastructure to make updates where necessary.	Continue to train staff in implementing student devices in classes and continue to evaluate infrastructure and make updates where necessary.
B. Increase the number of devices in each building to be PARCC compliant.	Upgrade the computers at Balmer to be PARCC compliant. Review the final PARCC recommendation to decide on the number of devices that will need to be purchased for each building.	Purchase additional devices that are needed for PARCC in each building and upgrade any additional infrastructure that may be necessary.	Purchase additional devices or replace broken devices that are needed for PARCC in each building and upgrade any additional infrastructure that may be necessary.
C. Improve the wireless coverage across the district	Install a radius server to allow authentication of students and staff to receive specific policies. Increase the wireless coverage at Balmer and the Middle School.	Increase the wireless coverage at Balmer, NES and the Middle School.	Evaluate sections of each building that may still need coverage at Balmer, NES and the Middle School and purchase additional access points to improve connectivity.

<b>GOAL</b>	<b>2013-2014</b>	<b>2014-2015</b>	<b>2015-2016</b>
D. Increase the bandwidth and upgrade the network equipment	Evaluate the bandwidth usage across the network and recommend upgrades if necessary. Replace failing switches that are no longer covered by warranty.	Evaluate the bandwidth usage across the network and recommend upgrades if necessary. Replace failing switches that are no longer covered by warranty.	Evaluate the bandwidth usage across the network and recommend upgrades if necessary. Replace failing switches that are no longer covered by warranty.
E. Replace aging machines across the network	Replace all computers at the Middle School with updated machines. Cycle the machines from the middle school to the elementary school for better performance.	Replace all computers at the Elementary Schools with updated machines. Evaluate the need to start replacing the older machines at the Middle and High school.	Replace older machines at the Middle and High school and cycle these down to the lower grades.
F. Transfer all data from our student information system to the Department of Elementary and Secondary Education.	Transmit and certify all SIMS via SIF with the DESE. We will attempt to become a part of the SCS and EPIMS certification group.	Transmit SIMS. SCS and EPIMS reports from the DESE via SIF.	Transmit SIMS. SCS, EPIMS or any additional reports from the DESE via SIF.
G. Provides Technology-rich classrooms, with access to interactive tools	Complete the installation of SmartBoards in the last five classrooms at Balmer. Work with administrators, departments and teachers to recommend appropriate tools based on needs.	Work with administrators, departments and teachers to recommend and purchase appropriate tools based on needs.	Work with administrators, departments and teachers to recommend and purchase appropriate tools based on needs.

GOAL	2013-2014	2014-2015	2015-2016
<b>2. PROFESSIONAL DEVELOPMENT TO SUPPORT INTEGRATION OF TECHNOLOGY INTO THE CURRICULUM</b>			
A. Provide professional development on technology integration to improve student engagement	Continue to survey and analyze staff's level of technology use and expertise. Provide professional development during and after school both individually and in groups on specific tools teachers can use to improve student engagement through the use of technology.	Continue to provide professional development during and after school both individually and in groups on specific tools teachers can use to improve student engagement. Enlist administrators to champion curriculum enhancement by identifying staff member's specific needs through the use of the new teacher evaluation tool.	Continue to provide professional development during and after school both individually and in groups on specific tools teachers can use to improve student engagement. Enlist administrators to champion curriculum enhancement by identifying staff member's specific needs through the use of the new teacher evaluation tool.
B. Provide students with the 21st century Technology skills	Review the current K-12 Technology frameworks to ensure complete vertical alignment and ensure the skills required for PARCC testing is covered in earlier years. Develop assessments to ensure students are leaving each grade with the required skills.	Evaluate the skills being taught at each grade level and review and revise assessments to make sure they are appropriate for what each student should know by the end of each year.	Evaluate the skills being taught at each grade level and review and revise assessments to make sure they are appropriate for what each student should know by the end of each year.

<b>GOAL</b>	<b>2013-2014</b>	<b>2014-2015</b>	<b>2015-2016</b>
<b>3. TECHNOLOGY STAFFING</b>	Evaluate the needs of the district and make recommendations if necessary to hire additional staff or re-organize the current staff.	Evaluate the needs of the district and make recommendations if necessary to hire additional staff or re-organize the current staff.	Evaluate the needs of the district and make recommendations if necessary to hire additional staff or re-organize the current staff.