

Local Technology Plan

Draft

for

Nashoba Valley

Technical School District

LEA Code 08520605

100 Littleton Road
Westford, MA 01886

July 1, 2015 - June 30, 2018

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Nashoba Valley Technical High School

Technology Plan

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 2018.*

The school's current use of computer and telecommunication technologies has been reviewed to support the school in updating the technology goals that it wants to achieve by having all faculty and staff complete an annual Technology Plan Update Request Form. The goals and the steps required to achieve the goals are outlined in this Technology Plan, which includes a three-year timeline and a related budget for phased implementation.

The Plan was developed under the guidance of the Department of Education Local Technology Guidelines, No Child Left Behind, District Goals, District Improvement Plan, Massachusetts Curriculum Frameworks, Massachusetts Technology Literacy Standards and Expectations, District Long-Range Plan, Perkins Local Plan, the Massachusetts Career and Technical Frameworks, the Massachusetts Elementary and Secondary Technology Literacy Standards and Expectations and the 2016 Future Ready Learning from the U.S. Department of Education.

Nashoba Valley Technical High School Vision for Technology Integration and Implementation

The vision for Nashoba Valley Technical High School is to provide an educational environment that integrates digital tools throughout the academic and technical programs. We are committed to building student competence in 21st century skills to prepare students for college and career success. We believe that all students have the right to access technological tools to engage students with relevant and personalized instruction. Our primary objective is to facilitate a learning environment that fosters critical thinking, communicating, collaborating, and creativity.

We foresee the Nashoba Tech school community as one where both students and teachers have access to the most current technological resources. We foresee a faculty proficient in their role as facilitators in the educational process. We foresee a technology infrastructure efficiently managed with all the necessary personnel. We foresee a connection to the world in a collaborative effort to educate Nashoba Tech youth. To make this vision a reality, we must have support from all stakeholders in the school community.

In support of this vision, we will strive to:

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- Update our technology plan annually with input from all stakeholders to achieve the most efficient use of technology resources to optimally support our instructional and administrative goals
- Refine our Professional Development Plan annually to focus on staff training to support our technology vision
- Maintain industry partnerships to incorporate relevant digital competencies into all academic and technical curricula that are relevant to current career pathways
- Use current data to analyze strengths and weaknesses to adjust technology planning, financial resources, curriculum and administrative resources to optimize the use of digital tools
- Seek alternative funding sources whenever possible to support this technology vision

Goals:

The district is committed to achieving the following goals by June 30, 2018:

1. Implement 1:1 Chromebooks for grades 9 and 10 during 2015-2016. Continue to implement 1:1 Chromebooks for grade 9 in 2016-2017 and in 2017-2018 to cover all grade levels by 2017-2018.
2. Implement X2 Student Portal software for students to access course, grade, attendance and course request information.
3. Implement online course requests using X2 Aspen for students, parents, instructors, guidance staff, and administrators.
4. Convert Exchange email system to Gmail.
5. Implement Google Apps including Gmail for students and staff to support digital learning transition and migration from Exchange 2007 email.
6. Create Chromebook Policy for 1:1 implementation for digital learning transition to effectively implement building-wide Wi-Fi infrastructure for teaching and learning
7. Pilot PARCC testing on Chromebooks
8. Upgrade vocational technical competency tracking system for improved analysis features and usability, using X2 Aspen or a third-party alternative
9. Upgrade all copier/printers/scanners to more efficient systems with greater functionality at lower costs.
10. Secure student and adult volunteers to support technology infrastructure.
11. Introduce additional 3-D printer with greater functionality to mirror industry standards in Engineering Technology.
12. Upgrade network infrastructure with new switches for upgrading analog phone system to Voice over IP
13. Upgrade copiers/printers for Google Docs access and printing from Chromebooks for instructors
14. Upgrade online helpdesk system
15. Convert older classroom PC's to the Chrome operating system to prolong use and increase available technology.
16. Upgrade LCD projectors with HDMI capability for Apple TV use when

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- replacements are necessary
17. Fully implement Lanschool monitoring software for teacher access to all student computers in labs and Chromebooks for instructional support and to ensure student compliance with Acceptable Use Policy, Google Apps/Gmail Policy, Chromebook Policy, and CIPA requirements.
 18. Adhere to policy for computer replacement to meet recommended Department of Education timeline of five years or less. Continually upgrade computer inventory to meet Department of Education standards for computers and goal of lowering the ratio to one student per computer.
 19. Plan future access to the financial management system via the school-wide network for all staff to input purchase orders for electronic signature to expedite purchase orders and reduce paper forms.
 20. Upgrade remaining coax security cameras to IP-based HD equipment and add cameras whenever necessary for increased school safety and security.
 21. Upgrade two-way communication service to ensure that the technology is fully utilized by all administrators and staff for improved safety.
 22. Create a wireless interface between the existing data systems to use with digital devices. The resulting communication system will allow staff instant access to student information. Results will be increased productivity, decreased paperwork, and reduced overhead. The use of telecommunication devices facilitates communication between staff members, provides the ability to make support and repair calls from any location, and facilitates contact with key district personnel and vendors. This feature creates increased efficiency in supporting technology for teaching and learning.
 23. Continue to upgrade Web site design and hosting to allow for more effective communication with students, parents, staff, School Committee members and the community. Continue to promote the school website as a school-wide communication tool. Ensure that proper individuals are able to easily update Web pages pertaining to their areas of responsibility to keep all information current.
 24. Conduct an annual review of the methodology and staffing for managing and servicing the computer hardware/software, network components, data management, and overall District technology requirements, roles and responsibilities. Ensure that downtime is reduced and the timelines of all Department of Elementary and Secondary Education (DESE) data reporting requirements are complied with.
 25. Evaluate backup procedures annually, including the secure remote/offsite backup for efficiency and effectiveness. Recommend necessary changes. Update disaster recovery plan annually.
 26. Complete annual rubric evaluation report on the status of Technology Plan goals.
 27. Recommend the Director of Technology acquire METAA (Massachusetts Educational Technology Administrators Association) Chief Technology Officer Certificate. This certificate focuses on K-12 technology in the areas of Leadership and Vision, Strategic Planning, Ethics and Policies, Instructional Focus and Professional Development, Team Building and Staffing, Stakeholder Focus, Information Technology Management, Communications Systems Management, Business Management, and Data Management.

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Professional Development Benchmark 3:

To meet Benchmark 3 for Technology Professional Development, the goal is to provide additional organized professional development for all staff. This professional development will consist of at least 45 hours of high-quality technology professional development, including technology skills and integration of technology into instruction. On-line professional development will be pursued by the District to offer flexible technology training for staff.

The District will continue to review staff technology competencies on an annual basis to provide administrators and teachers with useful data for setting personal goals for technology professional development.

One goal of professional development activities will be to continue to provide staff training on how to best incorporate Google Apps/Gmail into learning and use applications of e-learning to include courses, cultural projects, virtual field trips, etc.

Staffing Goals:

One District level Technology Director/Coordinator is recommended in Benchmark 2 for Technological Integration and Literacy Staffing and this position is in effect. The technological requirements of the district will be reviewed annually to ensure that the requirements are adequately addressed at all times.

One Instructional Technology teacher is recommended for every 60-100 staff members in Benchmark 2, Technology Integration and Literacy. This goal is addressed with the instructional technology integration provided by the Library Media Technology Specialist, Computer Technology Specialist, staff technology mentors, Director of Technology and other administrators depending on their areas of expertise.

Dedicated staff to support data management and assessment is recommended in Benchmark 2, Technology Integration and Literacy. The primary responsibilities are carried out by the administrator serving as the Academic/Testing coordinator and the Director of Technology. Benchmark 2, Technology Integration and Literacy Staffing, is monitored continuously to ensure this benchmark is adequately addressed whenever changes in data requirements are made.

To meet the staffing recommendation of providing at least one FTE and/or contracted services to support every 200 computers in Benchmark 4 Accessibility of Technology, the Director of Technology, Computer Technology Specialist, contracted services and students provide support.

Implementation Strategies:

Funding from outside agencies will be sought to support the improvements recommended in this plan. E-rate funding has been beneficial to the District in the past and will

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continue to be sought. Grant and private funding sources will be continually investigated to support this plan.

The staffing component is complex with many differing roles and responsibilities. In striving for the greatest staffing benefits, staffing for other districts of similar size with comparable technology requirements will be examined to develop improvement strategies when needed. Vendors conducting contract work will be continually evaluated to ensure that the support provided is both cost effective and efficient.

B. The district has a technology team with representatives from a variety of stakeholder groups, including school committee members, administrators, and teachers. The technology team has the support of the school Superintendent to implement the plan. The Superintendent, Faculty, Administration, School Committee, School Council and Advisory Committees of the school contribute to the technology planning for the district.

C. Needs Assessment

- 1. The district assesses the technology products and services that will be needed to improve teaching and learning.*

All stakeholders participate in the assessment of products and services relevant to their teaching and learning programs along with the administrative technology in conjunction with the Director of Technology and Computer Technology Specialist. The methodology utilized includes recommendations from the Technology Director's List Serv comprised of school districts from across the state. Assessment of products and services is further strengthened due to the procurement requirements in the State of Massachusetts. Three quotes are required for all purchases over \$10,000 and sealed bids are required for items over \$25,000. Whenever possible, the District purchases through the Massachusetts CommBuys program which holds vendors to rigorous standards and helps to ensure reliability with a high level support mechanism for products and services. The annual zero-based budgeting process allows for all stakeholders to request technology equipment, software and services for review and approval.

- 2. The technology plan includes an assessment of the services and products that are currently being used and that the district plans to acquire.*

The Technology Plan Update Form has been devised to allow staff members to submit technology requests on a continual basis. The annual budget development process allows all staff to recommend technology purchases to be approved by their supervisors, the Director of Technology and the Superintendent. All staff members complete the Technology Plan Update Request form annually for assessing the current technology and planning for the future.

The current technology services and products utilized by the District have grown considerably. At the time of this writing there are over 20 servers and instructional

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software packages used by district students and staff for productivity purposes:

1. Altiris Computer Imaging server
2. Avid Unity Server for Television Video Production
3. Banking/Marketing Point of Sale
4. Cafeteria Lunchbox Point of Sale
5. Cosmetology Point of Sale
6. Culinary/Restaurant Point of Sale
7. Design and Visual Communications server for data storage and user account security. Konica-Minolta digital color and black and white copiers for Copycenter.
8. Dukane PA system controlling bells, clocks and public address system announcements
9. Digital outdoor sign for school communications
10. Firewall
11. Follett Destiny electronic database server for Library Media Center and textbooks
12. HVAC Server – Facilities
13. Lighting System - Facilities
14. CIPA Compliant internet filtering
15. Administrative server for payroll
16. Xerox Docushare document archiving server
17. Security System Servers
18. Student file server
19. Administrative file server
20. Teacher file server
21. Telephone System – Iwatsu
22. Voicemail system
23. Webcasting ftp server for video archiving/posting on Web
24. V-Brick Video Distribution Server for instructional video broadcasting

Additional Web-based services and educational software supported through the Technology Department include:

1. Adobe Creative Suite
2. Adobe Premiere Video Editing software and After Effects
3. AllData Web-based automotive diagnostic software system
4. Arcmail email archiving appliance
5. Autobody Virtual Painting and Auto Estimating software
6. Blackboard Connect Web-based electronic communication system
7. Boston College Educational Seismology Project with seismograph in Engineering Academy
8. CareerScope Software for Web-based student career planning and assessment
9. Carpentry SimBuild™ Carpentry interactive simulation that teaches fundamental skills used in residential construction. SimBuild Carpentry provides a hands-on training experience that allows users to interact in a dynamic learning environment.

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10. Cosmetology Hair Cyber Imaging
11. Dental Assisting online textbook and assessments through Dale Foundation, Radiology training with Digital Technology software
12. EBSCO Web-based research databases to support the Library Media program
13. Edgenuity – Learning with comprehensive library of rigorous, interactive content and assessment for Title 1 English language arts and mathematics
14. Health Assisting – Health Care 21 online instruction
15. Lobbyguard (2) visitor security systems
16. Machine Tool Technology CNC Master Cam
17. Engineering Academy - Project Lead The Way (PLTW) Science, Technology, Engineering and Mathematics (STEM) education, including AutoCAD and Inventor
18. Schoolcenter Website hosting
19. Weatherbug – Web-based weather curriculum resources and Weatherbug Schools Network with weather tracking station
20. West Point Bridge Designer
21. WiFi available building-wide
22. X2 Aspen Student Management system for student attendance, grading, scheduling, IEP’s, Department of Elementary and Secondary Education reporting on Student Information Management System (SIMS), Education Personnel Information Management System (EPIMS), Student Course Schedule (SCS) data reporting

D. Budget

1. *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.*

The budget shown below demonstrates the line items in the operational budget for implementing this technology plan.

2. *The budget includes staffing, infrastructure, hardware, software, professional development, support, and contracted services (including telephone services).*

The budget below estimates all the recommended categories for the technology plan; including staffing, infrastructure, hardware, software, professional development, support and contracted services:

<i>Budget Estimates</i>	<i>2015-2016</i>	<i>2016-2017</i>	<i>2017-2018</i>
Technology Staffing	\$135,825	\$136,063	\$137,313
Instructional Technology Equipment	\$212,198	\$80,000	\$80,000

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Technology Supplies	\$7,825	\$7,825	\$7,815
Software & licenses	\$61,500	\$40,000	\$40,000
Maintenance	\$15,150	\$15,000	\$15,000
Network & Internet	\$43,120	\$43,120	\$44,000
Total	\$475,618	\$322,008	\$324,128

3. *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.*

Funding from outside agencies will be sought to support the improvements recommended in this plan. E-rate funding has been beneficial to the District in the past years and will continue to be sought. Grant and private funding sources will be investigated continually to support this plan.

4. *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.*

The District will pay for the non-discounted portion of costs for services procured through E-rate within the line item budget called Technology Utilities. The full portion of the expense is always budgeted in the local budget on an annual basis as is required as E-rate funding is not guaranteed.

E. Evaluation

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

This plan will be updated on a regular basis as it becomes evident during implementation that changes are needed. To this end, a monitoring process is in place to evaluate and revise the plan as necessary. The monitoring and evaluation includes:

- Which objectives have been attained / Actions taken during the past year?
- Has attaining these objectives / taking these Actions enabled students to meet or exceed curriculum standards in all areas and if not why not?
- Which of the past year's objectives that have not been met / Actions that have not been taken need attention?
- What needs to happen in order for these objectives to be met / these Actions to be taken?

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- Based on the evaluation of the past year, what changes in objectives, priorities, and implementation strategies are required?

The evaluation will include input from the Superintendent, Principal, Director of Technology, the academic, technical and administrative staff, and technical advisory boards along with data provided by curriculum assessments and annual school-wide technology surveys of staff. The Director of Technology will meet with representatives of each department to collect and compile this information. The results will serve as a basis for action planning for the coming year.

The Technology will be evaluated on a regular basis to assess progress, make recommendations, and continually support the integration of technology into academic, technical and administrative functions. The plan will be revised to reflect new information and changing conditions.

The Director of Technology will furnish periodic progress reports to the Superintendent, the Principal, School Committee and the staff with the results of the evaluation, the action plan and related budget for the coming year. The school community will be informed of the progress of implementation through Web posting of this information, open houses and programs which feature and display projects which have incorporated technology.

- Nashoba Valley Technical High School will measure the results that have been accomplished during the previous year against its technology plan utilizing the Department of Education Technology Plan survey on an annual basis.
 - Nashoba Valley Technical High School will revise its technology plan for the coming year based on the results of annual monitoring and evaluation and the recommended Technology Benchmarks from the Massachusetts Department of Elementary and Secondary Education.
2. *The district's technology plan includes an evaluation process that enables it to monitor its progress in achieving its goals and to make mid-course corrections in response to new developments and opportunities as they arise.*

In addition to the above-mentioned evaluation procedures for the Technology Plan, in conjunction with the data provided on the annual Technology Plan Update survey forms to the Department of Education, a rubric of the goals for the three-year technology plan will be updated. The rubric contains the benchmarks, goals, responsible person(s) and status update.

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Benchmark 2 Technology Integration and Literacy

A. *Technology Integration*¹

1. *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.*

The staff evaluation process includes technology use. To comply with the necessity of integrating technology into the academic and technical curriculum, high quality professional development is provided to support teacher lesson plan development and collaboration with peers. 100% of instructors have individual teacher computers and Chromebooks. Technology is used daily for E-mail communications, lesson plan submittal, access to the electronic library database of printed materials and X2 Aspen student management for daily attendance, grading, mid-term and trimester grading reports and Individualized Education Plans. These procedures require all staff members to utilize technology daily.

2. *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.*

All academic and technical programs have access to the 26 Library Media Center computers and four computer labs: B123 – 30 computers, A132 – 15 computers, G216 – 25 computers, B113 – 20 computers and B101– 21 computers. Four iPad II carts with a total of 100 tablets, complete with external keyboards and headphones. Portable laptops are available for student use in the library whenever necessary. Wi-Fi access is available throughout the building. With the Chromebook implementation, all 9th and 10th grade students will have 1:1 access to devices throughout the school day and at home.

Recent Upgrades to District technology include:

1. Implemented Edgenuity Web-based software with data-driven personalized learning for high stakes exam preparation with professional development for staff

¹ 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.

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2. Design and Visual Communications Walcom wireless tablets for drawing
3. Installed VBrick Video Distribution Server for all DVD's and Videos in the Library to be accessed electronically by all classrooms throughout the school which includes closed captioning as assistive technology
4. Provided professional development for all staff on X2 Aspen Student Management System
5. Provided professional development for all staff on Google Apps/Gmail and Chromebooks
6. Reintroduced Virtual High School online courses to offer students Web-based instruction and a wider variety of course electives
7. Implemented offsite backup to meet auditor's requirements for redundancy of data for disaster recovery
8. Upgraded security camera system with additional IP cameras and replacement of coax cameras
9. Installed solar panels to supplement electrical power as part of the green initiative
10. Upgraded 20-station Programming and Web development computer lab for technical program
11. Upgraded IMac computers in Design and Visual with upgraded site license for Adobe Creative Suite to meet increased student enrollment and industry standards
12. Assistive Technology: Reading Pens purchased for two classrooms (20 total units)
13. Upgraded all computer labs in 2013-2014 to meet the requirements of PARCC testing.
14. Upgrades in the Engineering Academy include Makerbot Replicator 5th Gen 3-D Printing, FANUC Robot Cart, Intelitek Robot Trainer, Universal Laser Systems Engraver, and Levil Technologies CNC.

B. Technology Literacy

100% of teachers are working to meet the proficiency level in technology, and by the school year 2017-2018, 90% of teachers will have mastered 90% of the skills in the Massachusetts Technology Self-Assessment Tool (TSAT)².

The TSAT (Technology Self-Assessment Tool) is utilized to assess staff technology skills. The results of the data are used to provide teachers with technology-related courses and practices to enable them to acquire the necessary technological skills to facilitate student mastery of technology competencies within the classroom. Teachers will be provided with training in areas of technology that will enable them to use technology as a tool for individualizing instruction based on individual learning styles, developing assessment tools, and managing assessment results for each student. The focus will be to

² The Technology Self-Assessment Tool is available on the DESE website, we have converted this assessment into a Google Form for our staff to complete again during the 2015-2016 school year. The document is available as a Microsoft Excel checklist:
http://www.doe.mass.edu/odl/standards/sa_tool.html

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enable all staff to use technology to facilitate the systemic evaluation of curriculum, instruction, and assessment. Staff members are provided with adequate training to use technology tools to enhance record-keeping functions and to share current and timely decision-making information.

Weekly technology professional development is offered after school and individualized instruction is available with the Library Media Technology Specialist. The TSAT has been converted to a Google Form to be administered to staff annually. At the current time it is estimated from feedback and observations that 75% of teachers have met or surpassed the proficiency level as defined by the TSAT. Professional development activities will be offered to consistently focus on areas of weakness to adequately meet Benchmark 2 Technology Integration and Literacy with 100% of teachers working to meet the proficiency level in technology by 2018.

The goal is to achieve a level of 100% of teachers having reached proficiency in technology use through professional development and Professional Learning Communities (PLC's). In the PLC's, teachers will be helping teachers build their technology skills. Students as Technology Leaders will be introduced for students to support staff in building their technology skills.

C. Staffing

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

The District currently has a District-level technology director/coordinator. The Director of Technology is assigned to provide overall leadership for District/school technology functions. The roles and responsibilities include instructional technology, professional development, data management, Website, network management, technical software/hardware troubleshooting/support, and coordination for all building technology. This includes supervision of the Computer Technology Specialist, Library Media Technology Specialist and instructors in Chapter 74 Career and Technical Programs with a concentration in technology: Banking/Marketing/Retail, Design and Visual Communications, Electronics/Robotics, Engineering Technology, Programming and Web Development and TV Media/Theater Arts.

Due to the diverse nature of the roles and responsibilities of the Director of Technology, the technological requirements of the district are continuously reviewed to ensure that all areas are adequately supported.

2. The district provides one FTE instructional technology teacher per 60-120 instructional staff.

The instructional technology teacher responsibilities are shared among the Library Media Technology Specialist, Computer Technology Specialist, and the Director of Technology.

3. The district has staff dedicated to data management and assessment.

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District staff are dedicated to data management and assessment.

Benchmark 3 Technology Professional Development

- A. *At the end of three years, at least 90% of district staff will have participated in high-quality, ongoing professional development³ that includes emerging technology issues, technology skills, universal design, and research-based models of technology integration.*

Continual revision of the ongoing Professional Development is accomplished for integrating technology into administrative, academic, and technical areas. The staff is offered more than 10 hours per year of technology professional development in after school sessions based on requests on staff surveys. This professional development is presented by the Director of Technology during after school and summer sessions. To meet Benchmark 3 for Technology Professional Development, the goal is to provide additional organized professional development for all staff. This professional development will consist of at least 45 hours of high-quality technology professional development, including technology skills and integration of technology into instruction. Individualized instruction is provided on a continual basis to increase staff proficiency in technology skills.

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

Technology professional development has been consistently offered by the Director of Technology. There are coaching sessions and District-based mentoring practices held daily by the Director of Technology, Computer Technology Specialist, Library Media Technology Specialist, students from Programming and Web Development and Design and Visual Communications. This will continue to be an ongoing practice. Instructors with a proficient level of technology skill will model best practices to their peers on a daily basis.

The technical instructors provide support to their peers on the Career and Technical Competency Tracking System (VTCTS) for tracking student competencies. This ensures that all technical instructors are properly trained in the use of the Department Elementary

³ High quality professional development is described in the Massachusetts Department of Elementary and Secondary Education website: <http://www.doe.mass.edu/pd/PlanAssess/HQPD-planning.pdf#search=%22high%22>

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and Secondary Education Web-based competency tracking system. On-line professional development is pursued by the District to offer flexible technology training for staff.

- 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.⁴*

The teachers self-assess their technology skills using the Technology Self-Assessment Tool (TSAT). The data is used to provide all staff with ongoing education, training and support in order to effectively incorporate technology into the curriculum and the teaching and learning process.

- D. Administrators and teachers consider their own needs for technology professional development.⁵*

All administrators and teachers participated in the Massachusetts TSAT in the past and the data was utilized for setting personal goals for technology professional development.

The goal is to continue to participate in the Massachusetts TSAT regularly to provide administrators and teachers with useful data for setting personal goals for technology professional development. Teachers and administrators are provided with technology-related courses and practices to enable them to acquire the necessary technological skills to facilitate student mastery of technology competencies within the classroom. Teachers receive training in areas of technology that will enable them to use technology as a tool for individualizing instruction based on individual learning styles, to develop assessment tools, and to manage assessment results for each student.

Benchmark 4 Accessibility of Technology

A. Hardware Access

- 1. By 2014-2015, the district has an average ratio of one high-capacity, Internet-connected computer for each student. (The Department will work with stakeholders on a regular basis to review and define high-capacity*

⁴ Details are available on the Department's website:

http://www.doe.mass.edu/odl/standards/sa_tool.html

⁵ A sample administrator technology self-assessment tool is available on the Department's web site: http://www.doe.mass.edu/odl/standards/tsat_sampadmin.html . The Technology Self-Assessment Tool (TSAT) for teachers is also available as a Google Form survey for our staff and printable document on the DESE website:

http://www.doe.mass.edu/odl/standards/sa_tool.html

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computers.)

The current student to computer ratio has been consistently reported as 1.2 students per high-capacity computer. To meet the eventual goal of a one-to-one, high-capacity, Internet-connected computer ratio, additional student classroom high-quality computers are continually added. The Chromebook 1:1 implementation will support this goal.

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

At this time there are 400 Chromebooks, 100 iPad II tablets and several portable and/or handheld electronic devices utilized the technical areas of Automotive Technology, Carpentry, Electrical Technology, Electronics/Robotics and TV Media Production.

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

All staff, including Special Education instructors, ensure that access to the general education curriculum is available for all students when using technology. Universal design principles and assistive technology devices are included when student educational plans are developed and for the general population in strengthening student success in academic and technical programs. Universal design principles are adhered to when technology tools are assessed for all students.

- 4. The district has procurement policies for information and instructional technologies that ensure usability, equivalent access, interoperability and SIF compliance⁶.*

The detailed three-year budgeting process currently in place allows for all staff to participate in budget creation and make recommendations for purchase contingent on funding availability. SIF compliance is met for data with the X2 Aspen student management system.

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

There are currently Smartboards (interactive electronic whiteboards) and LCD projectors available in all labs, academic and technical programs. There are student response

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

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systems available. Web resources that allow student communication devices to be used as responders are also used.

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

The computer assessment guidelines used in the District are as follows:

Computer Assessment Guidelines

As recommended by the Massachusetts Department of Elementary and Secondary Education Local Technology Plan Guidelines (School Year 2010-2011 through 2014-2015)⁷, Nashoba Valley Technical School District assesses computer technology annually during the budget preparation process. Staff and administration assess the technology requirements for the District. During that time, computers are recommended for replacement when the functionality does not meet the minimum requirements for software programs required for curriculum, instruction, facilities, financial, and SIF⁸ data compliance. All technology in computer labs, technical programs, classrooms and administrative offices is assessed for adequate student instructional requirements and staff productivity requirements during the annual budget process to ensure the computer replacement cycle is adequately addressed. An alternative to replacement is virtualization. When the outdated computer systems will function adequately as virtual systems, the systems will be converted to virtualized desktops dependent on a centralized server for computing and storage. The recommended replacement cycle of five years or less will be used as a benchmark for technology planning and budgeting.

B. Internet Access

1. *The district provides connectivity to the Internet in all classrooms in all schools including wireless connectivity.*

Currently Internet access is available in all classrooms and Wi-Fi connectivity is also available throughout the building.

⁷ For more information, see the website for the Local Technology Plan Guidelines (<http://www.doe.mass.edu/odl/news/2010/10-15guidelines.pdf>).

⁸ For more information, see the website for the SIF Association (<http://www.sifinfo.org/us/index.asp>).

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2. *The district provides an external Internet connection to the Internet Service Provider (ISP) of 100 Mbps per 1,000 students/staff.⁹*

The District provides an external Internet connection to the Internet Service Provider (ISP) of 150 Mbps per 1,000 students/staff. The connection will be upgraded to 500/500 Mbps during the 2016-2017 school year.

3. *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.*

The District provides 10/100/1 Gb to each classroom. Most computer systems meet the recommended rate at each computer of at least 100 kbps. The computer assessment guidelines are used to replace equipment that does not meet these requirements. The network card for each computer is at least 10/100/1 Gb.

C. *Networking (LAN/WAN)*

1. *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.*

The District is comprised of one school building with separate building on the school grounds that serve as an Early Childhood Center and Dance and Art Studio. The school building, Early Childhood Center and Dance and Art Studio are connected through wireless technology to students/staff resources in the main school building.

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

The District currently provides access to servers with secure file sharing, backups, scheduling, e-mail and Web publishing. Secure remote/offsite backup is established.

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

1. *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.*

⁹ 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>).

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The District allows students' access to the Library Media Center before school every day and after school on Tuesdays and Thursdays. Staff have access to individual teacher computers in their classrooms and the Library Media Center all day, including before and after school.

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

The Nashoba Valley Technical District is represented by the towns of Ayer, Chelmsford, Groton, Littleton, Pepperell, Shirley, Townsend and Westford. The public libraries of the District towns all provide Internet access outside of the school day. The Library Media Technology Specialist maintains a list of all the local libraries and their hours of operation for all students. The school Web site¹⁰ contains an accurate listing of all the public libraries in the District towns with Internet access where students and staff can access the Internet after school hours.

E. Staffing

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

The district network administration responsibilities are addressed by the full-time Computer Technology Support Specialist and the Director of Technology. Additional support is provided by specialized vendors when needed. The roles and responsibilities of the technology department personnel are reviewed annually to ensure the growing needs of the district are adequately addressed.

- 2. 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.*

A methodology has been established for managing and servicing the growing base of computer hardware, software and network infrastructure for administrative, academic, and technical environments. The students support the technology throughout the school along with the Director of Technology and Computer Technology Specialist. There is an electronic helpdesk available for all staff for automatically generating helpdesk tickets.

To adequately address Benchmark 4, Accessibility of Technology and timely in-classroom technical support, continual review of the methodology for managing and servicing the computer hardware/software and network components provides improved

¹⁰ For more information, see the website for Nashoba Valley Technical High School (<http://www.nashobatech.net>).

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measures to reduce the downtime that is experienced due to the large volume of services provided.

3. *The district provides at least one FTE person to support 400 computers. Technical support can be provided by dedicated staff or contracted services.*

The district provides at least one FTE person and/or contracted services dedicated to supporting the 775 computers and devices. The support is performed by one FTE Computer Technology Specialist, the Director of Technology, and students. This experience provides students with valuable learning opportunities.

To meet the staffing recommendation of providing at least one FTE and/or contracted services to support every 400 computers, the roles and responsibilities of the Director of Technology and Computer Technology Specialist are reviewed annually to ensure that adequate support levels are consistently provided throughout the school.

Benchmark 5 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.*

The students have the option of enrolling in Virtual High School online courses as electives. The District continues to provide a manageable, well-defined offering of technology-focused workshops, courses, and seminars aligned with curriculum goals. There is an extensive summer professional development session designed to address current technology for teaching and learning.

- 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.*

The District deploys IP-based connections for access to web-based interactive learning at this time. Benchmark 5 E-Learning and Communications is adequately met with the existing bandwidth and accommodates interactive video on the local, state, regional, national, and international level.

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

There are various classroom applications of virtual learning taking place at this time including courses, collaborative projects, field trips and discussions. The professional development activities incorporate applications of virtual learning and include courses, collaborative projects, field trips, and discussions.

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

The District maintains an up-to-date Web site that includes information for parents and community members. The current design of the site was recently updated for improved ease of locating information and streamlining of the update process for staff.

The Web site design is continually updated to allow for more effective communication with students, parents, staff, School Committee members and the community. The Web site is promoted as a school-wide communication tool everyone utilizes to ensure that proper individuals are able to quickly and easily update Web pages pertaining to their areas of responsibility. The conversion to the X2 Aspen student management system allows parents to access their children's' course grades and attendance information to continually monitor progress.

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.*

The District Acceptable Use Policy¹¹ (AUP) approved by the School Committee demonstrates the approved computer, network and Internet uses in the District. The policy is reviewed annually and updated as necessary. A parental permission form for Gmail and Google Apps¹² was recently added as an addendum to the AUP.

- 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.¹³*

¹¹ The Nashoba Valley Technical High School Acceptable Use Policy is available on the school's website (<http://www.nashobatech.net/education/components/scrapbook/default.php?sectiondetailid=3702>).

¹² The permission form for Google Apps/Gmail is available on the school's website: http://p1cdn4static.sharpschool.com/UserFiles/Servers/Server_20337583/File/Technology/student%20access%20Googleapps2015-2016.pdf

¹³ To learn more about teaching students about safety and the Internet, see NetSmartz website: <http://www.netsmartz.org/Educators>

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The District educates students about cyber safety and how to deal with issues if they arise. The Director of Technology conducts classes to inform students about online safety and ethical behavior using the NetSmartz¹⁴ curriculum made available through the Massachusetts Department of Elementary and Secondary Education. Staff members are educated about online safety through professional development provided during staff meetings, on staff development days and during weekly Monday afternoon Technology Professional Development sessions.

C. The district has a plan to protect the security and confidentiality of personal information of its students and staff.¹⁵

The District follows best practices to ensure the security of data to protect the confidentiality of personal information of students and staff.

D. The district complies with federal and state law,¹⁵ 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.

The district implemented Microsoft Exchange 2007 e-mail server is scheduled to be replaced by Google Apps for Education Gmail in 2015-2016. To comply with the e-mail archiving required by law, all email is archived for a period of seven years. All staff and students are informed through the Acceptable Use Policy signed for network and Internet access that any information distributed over the district or school network may become a public record. This information is presented in section IV. Privacy of the Nashoba Valley Technical High School Acceptable Use Policy for students and staff as follows: “Users should not have an expectation of privacy or confidentiality in the content of electronic communications or other computer files sent and received on the school computer network or stored on the user’s directory or on a disk drive. The District reserves the right to examine all data stored on diskettes involved in the user’s use of the District’s Network.

Internet messages are public communication and are not private. All communications including text and images may be disclosed to law enforcement or other third parties without prior consent of the sender or the receiver. Network administrators may review communications to maintain integrity system-wide and ensure that users are using the

¹⁴ To learn more about NetSmartz resources access the website:

<http://www.netsmartz.org/Educators>

¹⁵ 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/courts/case-legal-res/law-lib/laws-by-subj/about/privacy.html>

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system responsibly and in accordance with this policy.”

To further comply with Benchmark 6-D. Safety, Security, and Data Retention, the following statement about the potential for any e-mail communications becoming a part of public record during legal action is attached to all e-mail messages, “When writing or responding, please remember that the Secretary of State's Office has determined that email is public record.”

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