



Dedham Public Schools

Home of America's first tax supported, free public school

Dedham Public Schools Technology Plan

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Dedham Public Schools Vision Statement

Each graduate of the Dedham Public Schools will confidently pursue personal excellence through continued independent inquiry and learning and exhibit socially responsible decision-making within a dynamic and diverse global community.

Dedham Public Schools Mission Statement

The mission of the Dedham Public Schools, in partnership with the community, is to promote excellence in learning, self-discipline, and motivation.

Dedham Public Schools Core Values

Academic Excellence

The educators, parents and citizens of Dedham are partners in a commitment to academic excellence to prepare students to succeed in a global society.

Positive Learning Environment

Our schools provide a safe environment that fosters curiosity, creativity and positive attitudes.

Students develop best when they are encouraged and feel supported in an open, collaborative environment.

Respect

By enriching learning and developing responsible citizens, we respect the dignity and diversity of all individuals and all cultures.

Support and Open Communication

The schools create opportunities to share ideas, resources, and responsibility among students, parents, school personnel, town officials and residents.

Dedham Public Schools Strategic Plan

Goals:

- Academic Excellence: Expand standards-based learning.

Continue to improve student performance through the integration of existing technology and explore new applications to strengthen math skills.

Continue to improve student performance through the integration of existing technology and explore new applications to enhance mastery.

- Positive Learning Environment: Ensure that students have the social and emotional competencies that enable them to form positive relationships, make responsible decisions, manage themselves appropriately, demonstrate empathy for others, and feel supported by caring adults.
- Respect: Develop the social and emotional skills of all students.
- Support and Open Communication: To increase public awareness of school needs and accomplishments.
- Enhance the Dedham Public Schools website.

Community Demographics

Dedham is a historic suburban town of 23,464 (2000 U.S. census) with approximately 30% of the 8,654 households having children under the age of 18. Dedham is located in eastern Massachusetts south of metropolitan Boston and also borders the towns of Needham, Canton and Westwood. The town is 10 miles south of Boston proper, 33 miles northeast of Providence, R.I. and 211 miles from New York City.

Dedham is a 10.64 sq. mile community. Principal highways affording access to Dedham are US route 1, State routes 109, 128 and Interstate Route 95. Commuter rail service is available to Boston. Amtrak passenger service to New York City is available in neighboring Westwood.

Historic Dedham



The Massachusetts General Court issued orders for the establishment of two inland towns in 1635, which could relieve the population pressures within the existing settlements along the Bay, as well as serve as a buffer zone between the Indians and the main colony. The first of these towns was Concord; the second was Dedham. Dedham received its grant as a town in 1636 from the Massachusetts Bay Colony making it one of the oldest communities in the state. The original Dedham Grant included all towns from Bellingham and Plainville in the south, to Natick and Wellesley on the northwest.

Dedham, the home of the first free, taxpayer-funded public school in the United States (not through private or church donations or rental property), opened in 1636 and was fully tax funded by 1644. Horace Mann, a champion of public schools and the state's first secretary of education, once served on the Dedham school committee.

Dedham is home to historic Mother Brook, the first man-made canal dug through from the Charles River to East Brook in 1637, providing a connection with the Neponset River and a source of waterpower for the town's mills. It is the site of the earliest surviving wood-framed house in New England, the 1640 Fairbanks House. Dedham served as county seat (shire town) of Norfolk County since 1793.

For a more comprehensive history of Dedham visit the Dedham Historical Society website (<http://www.dedhamhistorical.org/history.php>)

Current Schools

There are 7 public schools serving an approximate student population of 3,000:

- Dr. Thomas Curran Early Childhood Education Center (Grades PK - K)
- Avery Elementary School (Grades 1-5)
- Greenlodge Elementary School (Grades 1-5)
- Oakdale Elementary School (Grades 1-5)
- Riverdale Elementary School (Grades 1-5)
- Dedham Middle School (Grades 6-8)
- Dedham High School (Grades 9-12)

In addition to the comprehensive high school program, selected students also attend the Blue Hills Vocational School in Canton. Dedham is an active member of The Education Cooperative (TEC) collaborative and has membership with the Norfolk County Agricultural School in Walpole.

Dedham Public Schools Program Offerings

The Dedham Public Schools endeavor to serve the variety of needs present in the student body. The following are the programs and support offerings:

- Advanced Placement courses in Biology, Calculus, Chemistry, Computer Science, English, French, Spanish, Mathematics, Physics, Psychology, Social Studies, and U. S. History
- Adjustment counselors PK - 12
- After-school elementary programs at each school
- Art program K – 12; Music program PK-12;
- Athletic offerings 6 –12
- Career Center 9-12
- Computer instruction PK - 12
- Developmental reading programs
- ELL K -12
- Guidance Department 6 - 12
- TV/Video Production 6 -12
- Physical Education and Health programs K-12
- Science Center 1-5
- Special Education PK - 12
- Foreign Exchange Programs
- Industrial Technology 9-12
- Computer Aided Design 9-12
- Yearbook 6-12
- Extended School Year; Summer Programs

School Buildings

The Town of Dedham has established a School Building Rehabilitation Committee (SBRC) to study the physical condition of school buildings and make recommendations on these buildings. The New England School Development Council (NESDEC) has worked in partnership with the SBRC and the School Committee to develop the Long-Range School Facilities Master Plan for the Dedham Public Schools. Through the work of the SBRC and support of the people of Dedham, the new Dedham Middle School opened in September 2006, supporting grades 6-8. Most recently a new Avery Elementary School has been proposed and approved by voters.

Guided by Dedham's Master Educational Plan developed by the School Building Rehabilitation Committee, it had been determined that functional school settings for today and tomorrow should be capable of supporting the following learning environment:

A strong technological learning environment, current state and federal academic standards, active learning including laboratories, hands-on activities, community connections (real world applications), inquiry based (investigation, research), interdisciplinary, sustained projects and teacher-directed and student-directed instruction.

Technology Plan History

The Dedham Public Schools recognize the importance of rapidly changing technology and the impact on students as life-long learners. The first Dedham Public School Technology Plan was completed and approved by the first Technology Committee in the fall of 1996 and approved by the School Committee and the Massachusetts Department of Education in early 1997. The Technology committee was comprised of educators, administrators and representatives from the community who worked in the technology and communications arena. The focus of this original technology plan and subsequent plans has been how technology can improve student achievement. Working collaboratively with the school administration, the technology stakeholders will continue to reinforce the primary mission of technology to enhance the learning environment.

The town has financed the procurement, implementation and support for technology since the original technology plan was approved. This support has allowed classroom teachers to develop and continue to improve strategies, which create a dynamic learning environment. The ultimate goal is to seamlessly integrate technology to improve student performance and achievement in a global environment.

The town began financing the equipment and infrastructure in 1997 with the data wiring in the secondary schools and completed this project in 1998 at the elementary schools. In 1999 the town bonded \$2.3 million for the upgrade of electrical, revamping of the high school media center and purchase of computers for all classrooms. This investment transformed our schools with state-of-the-art technology for the year 2000.

Budget

The School Department budget has technology line items in its operational budget. These line items include staffing, hardware, software, professional development, support and contractual services. The district will continue to leverage the use of federal, state and private resources. Additionally the Town of Dedham has supported the regular update of technology through its Capital Expenditure funds. Additional funds are sought and received through community volunteer efforts including parent teacher organizations fundraising, Dedham Educational Foundation, and private grants and donations.

E-Rate

The Dedham Public Schools continues to take full advantage of the E-rate funds available. These funds are provided through the Federal Communications Commission and are tied to the Free and Reduced Lunch program. We will continue to seek discounted service for telecommunication, Internet access and other categories as allowed by the Universal Service Administration Company, which administrates the program. Received funds are specifically designated to go directly to the classroom. The non-discounted portion of the costs are paid through school department operational funds.

Technology Planning

The technology committee consists of over 30 parents, administrators, teachers and other system staff members. As part of the planning process, staff and student input was sought through building and departmental meetings which are being held to assess District technology requirements and through email. The following topics were discussed:

- Current software and hardware usage and future needs including assessment of current products and services that support teaching and learning.
- Technology and integration support required to ensure successful implementation of initiatives and maximize learning potential.
- Assistive and adaptive technologies necessary to meet students' special needs and conform to universal design for learning (UDL) strategies.

The technology plan is available online at <http://www.dedham.k12.ma.us/technology>. The availability of this information is being communicated via multiple media methods including email, telephone messaging, and use of media outlets. Suggestions for improvement from the entire community were encouraged.

An independent review analyzing server use for instruction and administration was conducted. Regular analyses of current and new technologies are conducted by the technology team and multiple vendors.

Internet Safety

The Dedham Public Schools views our legal and moral responsibility to provide a safe and secure environment to our students as one of our highest priorities. The District will continue to expand and update the Internet safety curriculum in all classes and the use of the *i-Safe* curriculum based on changing Web 2.0 technologies and 21st century learning. In compliance with The Protecting Children in the 21st Century Act, we developed a formal articulation of our Internet Safety Instructional Plan, which is posted on our website: <http://www.dedham.k12.ma.us/technology/> > *Internet Safety > Instructional Plan*.

Student instruction is implemented through our elementary libraries and technology classes and reinforced by all classroom teachers. Age appropriate lessons cover Internet safety and security, online manners, cyberbullying, ethics, and research/information literacy. The *i-Safe* curriculum and *CyberSmart* activities as well as many other resources are used K-12. The elementary library media specialists present teaching units and activities during dedicated library sessions. At the middle school, grades 6-8 computer classes include formal Internet safety lessons as part of the curriculum. The high school has a computer graduation requirement as well as an advisory program for all students in which current Internet safety issues are discussed using interactive activities and resources posted on the high school webpage.

At the beginning of each school year, all students and parents/guardians are required to review the District's Acceptable Use Policy (AUP) which is posted on the District's website (<http://www.dedham.k12.ma.us/technology/> > *Internet Safety > Policy*) and sign a contract of understanding. During the first week of school, all students review the policy in their student handbook with their teachers, take an AUP quiz and discuss the correct answers. While using computers in school, teachers will continue to actively monitor students and emphasize the adherence to the Dedham Public Schools Instructional Network AUP. We will provide remediation when students do not follow the policy. The technology staff will continue to monitor, record and filter users' access to the Internet on a daily basis.

We will continue to work with local law enforcement agencies and parent groups to provide education to the community to offer a safe learning environment at school and at home. School newsletters continue to reinforce the benefits and perils of online safety.

Professional development will include the Massachusetts Technology Standard 2: *Demonstrate the responsible use of technology and an understanding of ethics and safety issues in using electronic media at home, in school, and in society*, as part of all technology integration workshops. New Web 2.0 communication tools will be piloted in the learning environment to identify strengths and cautions. Professional development will be offered to assist teachers to safely incorporate 21st century tools in their teaching strategies. As part of media and information literacy, teachers and students need to understand the benefits and pitfalls of new tools and social networking sites. Providing students and teachers with opportunities to become informed, productive citizens of the cyber community who may participate in the online world safely will continue to be the District's goal.

Technology Policies

The following is a list of current policies closely associated with technological resources. These policies will be reviewed regularly and updates proposed to the Policy Sub-Committee of the School Committee with formal approval by the Dedham School Committee. Student policies can also be found in each school's handbook. The following policies can be viewed online at <http://www.dedham.k12.ma.us/technology/>: Student Acceptable Use, Staff Acceptable Use, Staff Email, Internet Safety, Computing Facilities, Electronic Devices, and Copyright. These policies are a subset of the complete School Committee policies available online at: http://www.dedham.k12.ma.us/administration/school_committee/.

Regular Technology Review

A regular review of this plan will be conducted which includes input from various community sources. Annual goals are established toward attainment of long-term goals. Reviews of progress towards these goals are completed annually. This information is submitted to the Massachusetts Department of Elementary and Secondary Education. There will be continued adjustments to the plan to reach our educational mission.

Data Management

Continually escalating reporting requirements demanded by local, state and federal authorities make it imperative that the District collect, maintain and process all data efficiently and accurately. An example of an improved efficiency is the automation of reporting of SIMS data for Out-Of-District students using the student information system which eliminated the need for several manual spreadsheets and greatly improved the efficiency of data extraction.

We have met all the state reporting requirements including the reporting of EPIMS staff data. There will be continued efforts to meet increasing student and staff reporting requirements dictated by the state

including meeting the requirement of reporting student class information with SIMS submission starting with 2010-11 school year.

School administrators have been trained on the use of the DESE Data Warehouse. The growing importance of data-driven decision making to improve instruction necessitates additional emphasis on administrative and teacher training for access and analysis to assessment data including state data.

The use of data is vital to all staff members and particularly important to school administration. A personnel database has been developed and implemented which includes a module to track and report staff licensure. A district focus is on proper management of vital databases. In an effort to improve data management and facilitate the linking of all District information, our goal is to study the possibility of a data warehouse model, which would include a zone-integration server with all SIF compliant vendors. This type of system would minimize redundant data entry and streamline reporting processes. Our current databases include student information system, special education report software, health management, library management, automated phone communication, lunch point-of-sale system, student career planning software, professional development course tracking and a personnel database.

The communication and sharing of information among our various databases will facilitate an informed decision-making process across the District.

Web access to data has been and will continue to be enhanced. A web-based grade book for the secondary schools has been implemented as has access to grade and attendance information for students and parents. Recent custom web pages and reports include potential student failures, term grade distribution by department, teacher, and class, class size report, room availability report, teacher availability report, student attendance frequency, student attendance detail and student demographic page. An automated discipline referral process integrated with the student information system which supports direct teacher input and administrative accountability of follow-up actions was developed and implemented at the high school. Continued enhancement of student information data access by developing custom reports and web pages and implementing a web interface for parents to update their children's demographic data are planned.

Additional areas of improvement include studying effective methods to allow administrators to access DPS network files while outside the system, increased use of mobile technologies, continued integration of financial and payroll systems with the Town of Dedham, and extended implementation of single, sign-on technologies for various databases.

Network Infrastructure

The Dedham Public Schools' network consists of a fiber backbone provided by a local cable company. The network hub is located in Town Hall. All schools are connected through this fiber. Each school has a local area network. Through regular updates to switching technology, the infrastructure has been made more efficient and effective. All switches are from the HP ProCurve line. The network topography has improved from a flat network to a network utilizing virtual local area networks (vlans) to segment and control network traffic. An example of the benefits of vlan technology is the expansion of our video streaming server that can now be used in all school buildings to access live and recorded programming.

Multiple firewall devices have been implemented to maximize throughput and reduce single point of failure in accessing the Internet. With the ever-increasing demands of bandwidth in the classroom, we will be looking to increase our current bandwidth capabilities. Currently we have one central 50 mbps Verizon FIOS connection to the Internet. Plans include expansion of this access via an alternative technology to create a sufficient and robust pipeline to the Internet to meet the needs of students and staff. Plans also include continued research and implementation of better bandwidth monitoring including additional equipment and services to make best use of our current resources.

Internet access is available in 100% of our classrooms. In accordance with the Children's Internet Protection Act (CIPA) requirements, all Internet traffic is filtered for pornography and inappropriate material using leased firewalls provided by the district's current Internet service provider. This subscription-based filter is updated regularly. Sites are added or removed from the filter as needed. No filtering system is perfect; therefore, our policy is that active staff monitoring is our first line of defense to keep our students safe.

All Internet traffic goes through our firewalls. Internet traffic is monitored and access is tracked by user logins. Plans include increasing our capabilities to monitor and control user access to the web including different access defined by groups. Web monitoring and access tracking is increasingly important as we continue to expand on how students and teachers access and use the Internet.

Data gathering on application use is important to maximize use of scarce resources. Continued research and improvement on tracking access to desktop, server and Internet-based applications will provide useful data on which resources students and staff are using effectively and identify those resources not being used to capacity.

Secured wireless has been achieved in all our buildings with the exception of the Avery school. Plans for a new Avery school include wireless capabilities. We will continue to be proactive in terms of our wireless capabilities. This includes increasing our wireless coverage as well as capacity, while maintaining strict standards in terms of security, capacity, and coverage to these wireless resources. This is particularly important as the district increases the number of wireless computers and other wireless devices.

A centralized backup system was implemented. All servers are backed up during off hours to a centralized disk-based system. These backups are recorded onto tapes during the normal operating hours and stored in an off-site location. As capacity is reached on this backup system, expansion and exploration of various backup strategies including tiering backup of older data and data de-duplication systems will be explored and implemented.

As a wider variety of technological devices become useful in the classroom, we will continue to explore safe and effective methods to include these devices. This includes researching the implementation of network access control (NAC) devices to accommodate access of these varied devices while maintaining network security. An important value of NAC solutions is the ability to prevent end-stations that lack antivirus, updated software patches, or host intrusion prevention software from accessing the network and placing other computers at risk of contamination. In addition, these devices allow for creation of better control of groups of devices and users as we strive to provide priority access to limited resources to improve student achievement.

We have successfully virtualized over two-thirds of our network servers. This allows these servers to dynamically share storage and processing power maximizing use of resources and reducing the cost of hardware, data centers and power consumption. Additionally with fewer servers repetitive, time-consuming tasks such as configuration, upgrades, monitoring and system scheduling have been reduced. High accessibility of servers is maximized including reduction of disruptions of services and time delays in a secure environment.

Emerging technologies will continue to be reviewed and implemented as needed. For example, the possibility of virtual desktops will be studied. This technology could increase the lifecycle of desktop units and ease maintenance and repair issues. Desktop virtualization also offers a potential benefit of only needing an Internet connection to have access to school desktops at home. New products will allow for refinement of the current infrastructure for increase capabilities and efficiencies.

Technology Staffing

Staffing includes a full-time Technology Director, appropriate number of instructional technology teachers, a dedicated person for data management, full-time Network Administrator and appropriate combination of technical support staff and support from contractual services.

While we meet the minimum State benchmarks outlined, the benchmark is insufficient to seamlessly integrate technology use at the classroom level. We currently have one technology integrator for the secondary level. We are in need of an additional technology integrator to better support the elementary level and our assistive technology needs.

Hardware

The District goal is to continue to meet and exceed all Massachusetts Department of Education local technology benchmark standards for student-computer ratios with high-speed Internet connectivity. Working collaboratively with town committees including the Capital Expenditure and Finance Committees, the schools have an established computer replacement cycle of five years.

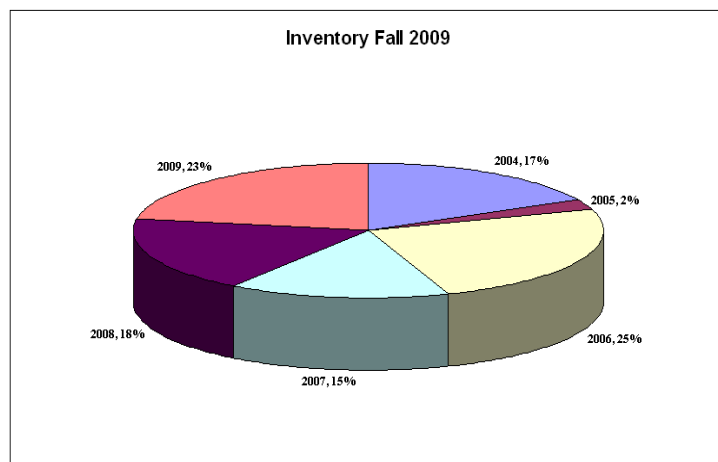
Five-Year Computer Replacement Plan

The town has committed to keeping our technology up-to-date with a regular capital outlay to replace outdated equipment. The current plan is a five-year replacement cycle for computers. While most businesses would advocate a three-year replacement cycle, we believe we can effectively use and maintain our computers for five-years, which meets the state recommended guidelines. After five years the out-of-warranty machines are often too expensive to repair and are not capable of running the instructional software and Internet subscriptions.

Technology must be reliable for teachers and students to have confidence in using it regularly and to carry out dynamic lessons. The schools maintain a five-year warranty on all machines to minimize technical staff dealing with repair of hardware. Regular updates are required to run an efficient and effective network as well as minimizing the wide variety of operating systems that need support. As we move forward, regular updates to network equipment, servers, printers, and projectors need to be considered. The replacement cycle maintains our goal of supporting no more than two Windows-based operating systems and one Mac operating system (on a limited number of computers for video and music needs).

The following chart shows the percentage of machines that were purchased each year.

The following is the actual and projected computer inventory with the regular replacement of approximately 275 instructional computers per year based on our five-year replacement cycle:



School Year Beginning September, Actual and Projected Inventory

2007	
2003	388
2004	300
2005	34
2006	336
2007	211

Funded FY08

2010	
2006	336
2007	211
2008	250
2009	306
2010	275*

2008	
2003	138
2004	300
2005	34
2006	336
2007	211
2008	250

Funded FY09

2011	
2006	61
2007	211
2008	250
2009	306
2010	275
2011	275

2009	
2004	241
2005	34
2006	336
2007	211
2008	250
2009	306

Funded FY10

2012	
2008	250
2009	306
2010	275
2011	275
2012	272

*Requesting Replacement of 275 machines for FY11

Instructional Hardware

Future plans to increase or update instructional hardware include:

Digital projectors help facilitate visual representation of information including video, interactive lessons, teacher/student modeling of concepts, strategies, and problem solving. Goals include:

- Installing projectors in the few remaining classrooms as needed. Projectors were installed in most classrooms across the District over the last five years. Ninety percent of all classrooms have installed projectors.
- Developing a replacement plan for older projectors as part of yearly funding which is similar to the computer replacement plan.
- Researching how high-definition will affect projection.

Interactive whiteboards technologies help promote student engagement, support interactive lessons, motivate learners, address different learning styles, and encourage differentiated instruction by developing learning center units. Goals include:

- Installing additional interactive whiteboard technologies in targeted classrooms across the District which will include required teacher training.
- Exploring how a One-to-One (1:1) initiative would affect the use of interactive whiteboards and other technology.
- Exploring touch-screen technology and how it will affect teaching and learning.

Mobile, Personal Devices enhance and extend learning, motivate students, and develop real-world, 21st century skills. Devices include the ability to provide real-time assessment to inform instruction and encourage full student participation. Goals include:

- Add additional low-cost response systems.
- Survey students and parents to assess the level of student access to mobile, portable devices (i.e. smart phones, laptops, etc.) and assess the ability to integrate these devices into instruction.
- Survey students and parents to determine home access including level of Internet service (broadband).
- Pilot a 1:1 Initiative with one grade level. Explore options and work with all stakeholders including Town and School Committees on the piloting process.

Infrastructure updates, including servers and switches have been maintained through regular school department budgeting. As we increase our digital projection and interactive whiteboard capacities, regular replacement plans for these devices still need to be developed and funding explored. This also applies to funding additional mobile, personal devices. As technology advances, the cost of many of these devices decreases. We believe this fact will allow for expansion of these learning technologies without increasing current costs.

Technology Integration

Technology literacy (the ability to use, manage, assess, and understand technology) for both teachers and students is necessary to improve teaching and learning. Technology integrated into the classroom helps students discover “how to learn, think critically, solve problems, use information, communicate, innovate and collaborate.” (<http://www.21stcenturyskills.org/>) Students must become self-initiated, life-long learners who are able to adapt to their ever-changing environment. DPS teachers using technology seamlessly in the learning process will help students navigate this journey.

Technology is a tool that can create opportunities to enhance instruction and learning by motivating and engaging all students in meaningful educational scenarios. Armed with the right skills, students can access vast amounts of information, critically evaluate and analyze resources, organize data, identify patterns and trends, synthesize ideas and concepts and develop conclusions.

When developing our technology integration goals, we consider the following essential question:

How does our technology professional development support the District Professional Development Plan to target teachers' needs and impact learning in the classroom?

- How do we continue to seamlessly embed changing technologies into the PK-12 curriculum?
- How can we empower our students with a technology toolkit to develop 21st century learning skills and become life-long learners?
- What kind of professional development is needed to impact classroom strategies as we explore and pilot a 1:1 initiative and mobile technologies?
- How do we provide online learning opportunities to enhance curriculum offerings?
- How do we structure professional development to make it effective and target teachers' needs?

Guiding documents used to develop technology integration and professional development strategies:

Massachusetts K-12 Instructional Technology Standards
ISTE Technology Standards for Students
ISTE Technology Standards for Teachers
ISTE Technology Standards for School Administrators
Massachusetts School Technology and Readiness Chart (STaR)
Technology Scope and Sequence (Elementary, Middle School, High School)
The Elementary and Secondary Scope and Sequence mapped to the DPS curriculum

By developing authentic, project-oriented teaching strategies, teachers address individual learning styles, provide differentiated instruction, include collaborative and group work, incorporate assistive technologies, and make global connections. In short, provide more opportunities for student success.

Dedham teachers continue to experiment with new ways to integrate technology into their teaching strategies. Students are integrating technology into their learning. Technology literacy is not a separate skill but is incorporated as a learning and communication strategy. Teachers consider technology another tool which must be dynamic and constantly updated. In addition, we will explore updating the technology component of the Elementary and Secondary Scope and Sequence Curriculum Map.

At the elementary level, we created individual student logons and network folders. Students and teachers may share classroom work by accessing their network folders. The unique logon system also improves student accountability and monitoring of the network. We will examine the use of elementary network folders for student electronic portfolios as a way to assess student technology skills by grade span.

Students participate in a variety of technology-infused learning experiences which include:

- Interactive web sites and virtual manipulatives,
- Interactive software in all curriculum areas,
- Diagnostic and prescriptive math and reading web-based tools,

- Teacher-created lessons modeling technology use for problem solving,
- Research using library web resources and teacher-identified resources,
- Information and media literacy activities including Internet search strategies,
- Multimedia projects including video production,
- Mobile wireless access in the classroom including laptop carts,
- Mini-laptops in the elementary to enhance mobile access at the class level,
- Peer collaboration during structured group work and on the DPS Intranet,
- Experiential, knowledge discovery, and theory development activities (i.e., math and science interactive web sites and experiments, use of data collection using probes and graphing calculators),
- Interdisciplinary, project-based learning and authentic assessment that develops depth of understanding such as historical, societal, literary, and cultural themes and connections across centuries,
- Language lab (grades 6-12) for authentic practice, self-critique and improvement, and assessment.
- CAD, 3D Modeling and Desktop Publishing.

In addition, teachers use our Learning Management System to provide interactive, online tools to foster collaboration, to encourage peer input and to allow student authors to publish their work. As we explore more robust Virtual Learning Environment tools, the ability to collaborate in real-time as well as asynchronously and publish student work for a larger audience will be key in the selection of a system.

Technology resources, strategies and opportunities for learning are embedded in all of the District curriculum development. The District has been aligning the curriculum to state standards including the recommended technology standards. We have developed curriculum maps and scope and sequence charts that include a technology component based on the state recommended technology standards. All lesson development is framed around the appropriate grade level standards. Technology is used as a tool to support the attainment of our learning standards and help students become life-long learners.

As the Department of Elementary and Secondary Education revamps the recommended technology standards, we will continue to update and communicate the vertical alignment of these standards to our curriculum. We plan to explore the revision of the technology scope and sequence by grade span (PreK-2, 3-5, 6-8, and 9-12). Also we will examine the need for implementing curriculum mapping software in all content areas with the Assistant Superintendent of Curriculum and Instruction to articulate the role of technology across the curriculum.

Professional Development

All technology professional development focuses on developing standards-based curriculum and exemplar integration strategies. To continue to improve student achievement, the professional development activities will focus on identifying and communicating the contents of the Dedham Public Schools technology toolkit, as well as emerging technologies and how these tools support a rigorous curriculum, enhance differentiated instruction, address a variety of learning styles, and provide authentic learning and assessment opportunities. Technology must serve pedagogy.

“Our schools must be inquiry-driven, thoughtful and empowering for all members. Our schools must be about co-creating, together with our students, the 21st Century Citizen.” (EduCon <http://educon22.wikispaces.com/>) The influence of technology on the learning process and student outcomes is dependent on the teachers’ technology integration skills. Therefore, professional development initiatives and implementation strategies are the keys to successful teaching and learning with technology. As new technologies are implemented, professional development support must be provided to help teachers develop new instructional strategies that fully utilize the potential of the technology to impact learning.

The District continues to provide professional development support to teachers in the area of data-driven instruction to focus on student strengths and weaknesses to inform classroom instruction. The District has invested in web-based programs and teacher training to provide diagnostic and predictive data in the areas of math and reading. In addition, we plan to provide teacher training using the DESE Data Warehouse tool. Administrators were trained last spring.

The administrative and technology teams plan the District technology initiatives and technological professional development opportunities with input from staff. The District’s administrative team meets on a bi-weekly basis to discuss needs and set goals. In addition at the secondary level, department chairs, directors and principals meet regularly to ensure building needs are addressed. Elementary principals also meet as a team. Staff needs are evaluated at the building, grade and district level via survey input to principals and department chairs/directors. Programs are planned for in-service, staff development meetings, and after-school workshops based on the input gathered. In addition, technology integration college credit courses are offered either free (PDPs only) or at a reduced fee (college credit). The District’s technology professional development goals are integrated into the District’s professional development goals.

In addition to teacher professional development, administrative professional development is vital to classroom integration success. Administrators continue to participate in workshops that address evaluating the learning environment of the 21st Century classroom. Also, Dedham is hosting a Doctorate program in which many of our administrators are participating. We will continue to explore how school leadership can expand on modeling, promoting and advocating for seamless integration of technology in classroom instruction.

Technology staff development is on-going and includes coaching, modeling best practices, district-based mentoring and in-service workshops. Some examples of professional development educational opportunities are:

- System-wide technology day of training for new staff
- 18-hour courses presented during the in-service day workshops
- 45-hour graduate credit courses offered online, conventional class meetings, and blended format
- Formal training for new program initiatives to ensure successful data-driven instruction
- After-school workshops offered by staff
- Communication of educational opportunities outside of the district

- Attendance of conferences and seminars
- Participation in The Educational Cooperative (TEC)
- Tuition reimbursement
- Vouchers for tuition
- Visits to exemplary schools by staff members

Professional Development Model

The DPS technology professional development model is based on the “train-the-trainer” model. It emphasizes modeling and sharing best practices as well as peer coaching. By identifying peer experts in each building and/or curriculum area, teachers have a knowledge base to provide support. In addition, outside experts are brought in for new program initiatives when appropriate.

Our technology professional development may be summarized into three general areas:

1. Instructional strategies – How technology can support differentiated instruction and dynamic teaching strategies in a fluid learning environment.
2. Classroom management – How technology can support classroom management and impact instruction including grades, progress benchmark reports, homework and resources posted to the Intranet and/or to a Virtual Learning Environment.
3. Assessment – How technology can support authentic, formative, and summative assessment to influence teaching and student learning outcomes. A key component is to understand how to collect and analyze diagnostic and predictive data to inform instruction.

We plan to continue to focus on visual and interactive teaching strategies and tools as target areas for professional development. Multi-media project development, interactive whiteboards, interactive websites, and real-world connections will be emphasized during professional development to engage and motivate students. Teachers participate in technology workshops before acquiring new hardware and tools for their classrooms.

Every instructional strategy addressed in professional development will have a technology component. The changing landscape of the classroom will require dynamic teaching strategies. We will see project-based learning morph into “challenge-based” learning. Questions that will affect future professional development:

- How will the 1:1 initiative change instruction?

We will explore successful teaching strategies in the development and delivery of online courses, hybrid and blended courses. In addition, we will investigate technology, dynamic applications and teaching strategies for the implementation of a 1:1 pilot program. We anticipate a greater shift to the teacher as facilitator and coach especially with the expanded use of desktop management software which will allow teachers to view, share, and take control of the students’ monitors. In addition, student collaboration, demonstration, and questioning will play an even greater role in the classroom.

- How will Web 2.0 tools and the increased use of personal electronic devices affect teaching and learning?

Future professional development will explore various Web 2.0 tools to determine best practices and validity of appropriate tools. We will stress digital citizenship and responsibility of members of the digital society and appropriate interaction with the global classroom. Again, innovative and dynamic teaching strategies will need to be explored as well as how to structure, assess, and manage this type of classroom environment.

The result of this investigation will be the development of professional development for 21st Century teaching and learning. In addition technology professional development will:

- Continue to support special education staff and students to implement identified assistive technologies into daily classroom practice.
- Continue to offer the technology orientation process and develop a technology-mentoring program for new staff, which will include the Dedham Public Schools teacher's toolkit of software resources.
- Provide training as necessary for upgrades to operating systems and office productivity software.
- Continue to organize and update technology tutorials and documentation and make them available through the Intranet.
- Continue to refine the use of the train-the-trainer model utilizing principals, department chairs and targeted teachers within each building.
- Reinforce information literacy and research skills for staff and students including academic integrity principles and copyright laws.

Assistive Technology and Universal Design for Learning (UDL)

Equal access to curriculum is an underpinning of lesson development. We continue to support students with adaptive technology tools based on individual needs (i.e. visually and hearing impaired issues). We are exploring ways to service more students in our school system rather than seeking outside placement.

By collaborating with the Special Education staff, we will explore the development of a formal process to provide the necessary technology support. Once students are identified, the Technology Integrator provides support for the special education teachers and regular classroom teachers who work with the identified students.

Some of the technology related skills and tools that are currently supported include alternative assessment, phonics and phonemic awareness skills, electronic readers (text-to-speech software), reading fluency and comprehension, study skills (e.g. online dictionary, thesaurus, highlighting, sticky notes, bookmarks, vocabulary lists, outlining ideas), writing tools (word prediction, "read as you type" feature, read out loud of student written work for editing), alternatives to written communication (i.e. Web 2.0 tools to provide students with an opportunity to express themselves via visual and audio input),

online testing with reading, writing, and study skills tools, math manipulatives, large monitors, screen enlargement programs and graphic organizers.

As members of Bookshare.org, we will identify qualifying students, develop a process for downloading electronic books, and provide training for students and parents including how to create a personal, home account for students to use beyond high school.

Software

The use of research-proven strategies that are supported by software applications is an essential component of meeting the needs of all learners. The Dedham schools use a blend of instructional tools, content-rich software programs, web-based subscriptions and the Internet to bring a diverse array of educational resources to our staff and students. Research-based applications support and assist all learners. Data collected from software applications are consistently being collected, analyzed and decision made to improve instruction. Also, assistive technology solutions that support Universal Design for Learning are available for all learning environments to promote access to the curriculum by all students. The professional development and integration portions of the Technology Plan describe in more detail efforts across the District to fully utilize current web-based subscriptions and network-based applications to support instruction.

Online Courses

Online instruction has grown exponentially in the last five years. Over one million K-12 students took online courses in the school year 2007-08. Over twenty percent of all U.S. higher education students were taking at least one online course in the fall of 2007.

There is an expectation that we can learn online today. The Partnership for 21st Century Skills, espoused learning skills that include information and communication skills, thinking and problem-solving skills and interpersonal and self-directional skills. These are all skills that are needed and developed in online courses. It is becoming more important in our flat-world that our students take the initiative and continue to adapt to a dynamic work environment.

Today's online instruction allows for real-time collaboration with newly available tools. With these tools additional instructional strategies can be employed along with more common asynchronous online strategies. Online teachers must effectively utilize online tools to incorporate peer-to-peer, group and teacher-student collaboration in order to support the skills needed today and in the future.

Online learning has a number of benefits. Learning can occur anytime and anywhere a student or teacher can be connected to the Internet. Course material is available 24 hours a day, 7 days a week. Students can receive support through email or discussion boards from peers and the instructor in a

timely fashion. Interactions can be equalized allowing shy students and students who require more time to process conversations to more fully participate in discussions. Students tend to think longer about contributions to these discussions because they are typically in writing. A degree of anonymity increases the students comfort level when asking for explanations. Peer collaboration is increased when groups are used regularly. Statistics help hold students accountable. Contributions and time on task replace mere attendance considerations. Online learning allows the students flexibility to learn when it is best for the student. Feedback between participants tends to be positive and supportive with the removal of negative, non-verbal cues such as frowning and eye rolling.

There are challenges to online learning as well. Students must be self motivated and be capable of structuring their time. Some view the online environment as less personable since they are not physically in the presence of others. For some there is a challenging learning curve to use the online tools.

Our collaborative, The Education Collaborative (TEC) is preparing to offer a number of online courses for the 2010-11 school year. Each participating school system has at least one teacher teaching an online course and enrollment is open to any student in the participating districts. Clear meaningful assessment of these initiatives is important. What is learned can have positive implications for all modes of educational delivery including blended, hybrid and traditional face-to-face instruction.

Virtual Learning Environment

DPS continues its efforts to develop a robust virtual learning environment for students, teachers and parents allowing 24/7 access to school resources and information. The Dedham Public Schools website is the main portal to access library resources, online grading, web-based program subscriptions, web-based classrooms, the learning management system, building-based information, and updated, school community information.

Learning Management Systems

DPS currently uses Blackboard as a learning management system (LMS) to provide an online component for every classroom and to provide online resources for the staff. Teachers post materials and resources, provide practice tests, quizzes, and post discussion questions for student response and collaboration. Also, some teachers set up work groups within Blackboard for student collaboration on projects. Use of the discussion board feature is being explored to foster discussion about books read as part of the summer reading program. However, there is no way to hold real-time discussion, have multiple users working on a document simultaneously, or to provide live teacher interaction with the class.

As we pilot online, hybrid and blended course offerings as well as collaboration needs of the regular classroom, we will explore other LMS options including our newly installed Moodle system. We need to:

- Identify classroom specifications for collaboration and delivery of resources
- Explore LMS options including the possibility of using multiple LMS
- Assess each system based on our needs
- Identify which of the available tools is most cost effective
- Research best instructional practices and identify what tools are needed to support instruction in a virtual learning environment.

One-to-One Initiative

One-to-one means one computer for each person. Technology is a vital tool in the development of modern skills such as problem solving, critical thinking, applying knowledge to new situations, collaborating, communicating, innovating, adapting and self-initiating. Mobile technology helps to motivate students to control their own learning in an engaging and meaningful way. Imbedded in this is the need for students to learn, apply, modify, and create new methodologies so that knowledge can be applied to new contexts. In order for this to happen, students must have the technology readily available at all times. How will we extend learning beyond current classroom limitations to increase performance for all students?

When we consider ubiquitous computer access for students, we must also consider the potential for a dramatic shift in how teachers teach and how students learn. More and more software is web-based and available to our students not only in school but at home. With the introduction and drop in prices of netbook/mini-laptop computers and other dedicated mobile technologies, soon the introduction of a true one-to-one initiative will be possible. Today's students are technology-empowered. Communication is through text, email, voice, or through interactive gaming. This is how they shop, talk to friends, and access information, work and play. Simply stated they communicate with technology. This trend is not just with our students. These are also business trends. Learning and technology cannot be separated.

The objectives of a one-to-one initiative would likely be reducing inequities in access to technology resources, extending the classroom beyond the time and space of the existing structure, increasing student engagement by shifting the focus more toward a student centered approach, improving classroom culture supported by administrators who encourage experimentation with new approaches and raise student achievement. It is clear that regular, meaningful assessment of this initiative is important as is ongoing financial support, and support for teachers and administrators to sustain this change.

A possible scenario is to pilot implementation with a freshman class at the high school. Prior to piloting, staff would need to have mobile technology available. If the pilot is successful, expansion can occur on an annual basis with each freshman class. A one-to-one initiative will require "buy-in" from the entire community. Communal investment of time and resources into this change process is required for success for an entire school and larger community.

Dedham High School

Currently there is a minimum of one computer in every classroom. There are eight computers labs (including a foreign language, CAD and video lab) and three mobile computer labs (one of each floor and one in the library). The vast majority of the classrooms have installed projectors. Installation of projectors in all classrooms is a priority as is the addition of interactive whiteboards in identified classrooms where their use would be maximized to engage and motivate students. As with the initiatives of online courses and one-to-one computing described above, the high school is a likely candidate to pilot the use of personal mobile devices as they become proven instructional tools.

In addition to the instructional technology, integrated public address, telephone (including VOIP) and voicemail systems throughout the building have improved communication and safety for students, teachers and parents. The video surveillance system and secure keyless entry system also provides a safe, secure environment for students and staff. Further integration of electronic text, audio, visual and mobile technologies will continue to be explored.

Dedham Middle School

The new Middle School opened in September 2006 and provided an upgrade to our technological capacities. Many of these capabilities have been expanded to other buildings including a secure wireless network and digital projection systems that enhanced instructional strategies which seamlessly incorporate technology into the curriculum. Additionally, the video distribution system used to access live and recorded broadcasts and distribute information and student video projects to classrooms is in place at the middle school and has been made available to all district buildings. A portable encoder allows for live feed of school activities throughout buildings.

The school has seven computer labs (including foreign language lab, video lab, and music lab) and four mobile laptop labs to provide flexible learning opportunities. The Distance Learning Lab, a 60-seat, amphitheater setting, accommodates a variety of activities. It allows multiple classes or group of students to participate in global learning opportunities including virtual field trips, two-way audio and video communication with experts, collaboration with other classrooms around the world, broadcasts to remote classrooms, and webinars. In addition, the DLL may be used for teacher training and large computer lab activities with the use of the wireless, mobile laptop cart. The facility is regularly used for community activities.

The music classroom is equipped with computers and M-Audio keyboards used with Sibelius, GarageBand, and iLife software. Students learn piano keyboarding, music notation, and recording skills. The technology encourages students to work on individual strengths, areas of improvement and refine their technique and music composition skills.

Foreign Language Labs

The middle school and high school both have language labs to offer students additional independent and interdependent learning opportunities. The labs provide the teacher with flexibility to guide students and share their expertise and knowledge. The labs are an example of the type of technologies that are being extended to all learning situations.

Teachers are able to individualize and differentiate instruction, foster collaboration and monitor student progress in real-time for a variety of learning styles by:

- Viewing each student's desktop when doing written work and listening to their audio responses from the teacher console.
- Communicating with individual or multiple students to provide feedback and instruction.
- Generating problem solutions on the teacher console and sharing them with selected or all students.
- Interacting with each student and individualize instruction in a non-threatening, private environment.
- Restricting student access to desktop features and websites to help students stay on task.
- Giving students access to digital media allowing them to progress at their own pace.
- Collecting and sharing student work, including audio files, to develop electronic portfolios.
- Taking advantage of peer-to-peer learning by sharing a student's screen and audio with the class to model a lesson response or share resources, such as a website.
- Pairing students and placing them into a teamwork mode. Students' share files from their computer and speak to each other in conference mode.

The language lab's media server stores all video, audio, and text files digitally. Resources that are available include a wide variety of owned audio and video files with supporting resources from publishers. Additionally audio and video files are available through broadcast media including radio, television and the Internet. These resources provide increased opportunities for students to listen to authentic, native speakers, use the dialog as a model, and compare and improve their own responses based on the model dialog. Teachers collect and save student recordings on the server and access these recordings for formative and summative assessment. Electronic student portfolios may be maintained for teachers to diagnosis strengths and weaknesses from year to year. The resources made available through the foreign language lab give our students a competitive advantage in this area.

Video Production Labs

The middle school and high school both have video production labs. The labs host video production classes where students produce videos through an authentic project-oriented approach. Collaboration, peer editing, publishing and broadcasting for a larger audience are key components of the curriculum.

Dedham Elementary Schools

Each elementary school has four computers in every classroom with the majority of classrooms having an installed projector. Each of the elementary schools has a mobile wireless lab. Increasing access to interactive whiteboards and mobile technologies remains a priority.

Library Media Centers

Library Media Specialists at each building encourage students and teachers to develop creative ways to use the available technological resources as well as traditional library resources. At the elementary schools, the Library Media Specialists use interactive whiteboards and other technology tools to present technology-infused lessons to classes. Each of the elementary schools has a library media center computer lab. Additionally each library media specialist maintains web-based electronic resource lists for their school.

All library media centers have digital cameras, headphones, and student response systems available for teachers to check out and use in their classrooms. Other available equipment includes: scanners, flash drives and color printers. Our vision is for our library media centers to continue to be the “hub” of informational and electronic resources.

Home Internet Access for All

The Dedham Public Library hours are posted on the DPS website to promote access to the Internet for all students. Additionally, the library media centers at the high school and middle school are open extended hours to support students. We plan to continue these offerings and look to expand availability as funding permits.

The importance of students extending their learning beyond the classroom is vital. For some students, there is an educational disconnect. Our curriculum is becoming more web-based, student assessment is more project-based, and research and communication is difficult without access to the Internet.

Dedham Public Schools has a segment of its population that does not have home access. There is an economic gap, which translates to digital inequity in the community. We strive to bridge this gap. Creative options to bridge this gap will be explored such as developing town-wide wireless access starting with the high-need area of town that has the largest population of low-income students without Internet access, and developing partnerships with mobile broadband vendors to provide access to those that cannot afford access. These endeavors will support the efforts of community groups to bring computers into homes of students that could not otherwise afford them.

Communication

Use of technology will facilitate effective communication among students, staff, and the community. All staff members have email accounts and use email as a regular part of daily communication. Staff is aware that all email is recorded and may be a public record. The Dedham Public Schools utilize an automated telephone contact system. This system is a telephone system that contacts parents, students and/or staff delivering thousands of personalized messages in minutes. In addition to the ability to contact the school community for emergencies, it is also used to contact parents, students and staff members of important upcoming events.

In addition to other uses as described in the Intranet section above, teachers communicate homework to students and parents using the DPS Intranet. Additionally the Intranet is used for staff-to-staff communication for topics such as attendance, distribution of forms and other appropriate information that should have a limited distribution network.

We have improved our relationship with local cable television to expand communication of announcements, promote events and communicate other important educational information.

Additionally we have expanded voice communication to all classrooms. We plan to explore options to integrate email and voice mail to minimize the number of messaging systems.

Convergence of various communication options have lead to dramatic changes in the way people communicate. We will continue to be dynamic in our use of technology for communications. We are currently exploring transition to a more robust email system improving reliability and performance. Goals of a new system include larger and easier organization of messages, better interface, additional communication tools including chat, the ability to work collaboratively on documents in an integrated environment and other Web 2.0 technologies. Another major goal is to improve the archiving process to make message retrieval faster and easier.

Web Site

The Dedham Public Schools' web page, www.dedham.k12.ma.us, continues to expand and has become an important source for communicating with students, parents, teachers and the community. The website is currently designed and administered by the Web Design Team at Dedham High School; students are enrolled in Advanced Web Design under the direction of the Technology Director.

The website currently serves as a portal to various web applications including our Intranet, Calendars, Email, Student Information System, Grade Portal for students and parents, Library System, along with web subscription programs.

Additionally each school site has valuable information that serves the unique nature of each school community. Each school maintains a library area that links to valuable, standards-based resources as

identified by the librarian media specialist. The guidance section directs students to timely resources with a focus on college and career support. The food services site provides nutrition information as well as the current lunch menus.

Important links to community groups such as the Dedham Alumni Association, Dedham Education Partnership, Dedham Education Foundation, and Parent Teacher Organization are maintained. Access to the Internet who do not have adequate access at home is posted on the website.

Critical public announcements such as school committee meetings, sub-committee meetings and job postings are posted on the administrative portion of the website. A technology section of the website includes support information, policies, resources and District technology plan information. This document is available on the Tech Plan page of our website: <http://www.dedham.k12.ma.us/technology> > Tech Plan.

Appendix A

Cross Match of the Massachusetts' DOE Benchmarks and STaR Chart Columns
with the DPS Technology Plan Section Titles.

DPS Technology Plan Section Titles	DOE Benchmarks	STaR Report
DPS Vision, Mission, Core Values and Strategic Plan	Benchmark 1 Section A	L
Budget, E-rate	Benchmark 1 Section E	L, O, P
Technology Planning	Benchmark 1 Section B, C	L, Q
Internet Safety	Benchmark 1 Section D	
Technology Policies	Benchmark 1 Section D	
Regular Technology Review	Benchmark 1 Section C, F	L
Data Management, Network Infrastructure	Benchmark 4 Section B, C	C, S, T, U, V, W
Technology Staffing	Benchmark 2 Section C Benchmark 4 Section E	O, M, N
Hardware, Five-Year Computer Replacement Plan	Benchmark 1 Section E Benchmark 4 Section A1, A2, A4, A6, B2,	C, O, P, R, S
Instructional Hardware	Benchmark 4 Section A2, A5	C, V

Technology Integration	Benchmark 2, Benchmark 3, Benchmark 5 Section A, B, C	A, B, D, E, G, H, J, K, L, T
Professional Development, Professional Development Model	Benchmark 1 Section C, Benchmark 3 Benchmark 5 Section A, B, C	A, B, D, F, H, I, K, L, O, T
Assistive Technology and UDL	Benchmark 4 Section A3	A, F, K, Q
Software	Benchmark 1 Section C, F	Q
Online Courses	Benchmark 5 Section B, C	T
Virtual Learning Environment, Learning Management Systems	Benchmark 5 Sections A, C	T
One-to-one Initiative	Benchmark 4 Section A1, A2	T
Dedham High School, Dedham Middle School, Dedham Elementary Schools	Benchmark 4 Section A. B	V
Foreign Language Labs, Video Production Labs, Library Media Centers	Benchmark 5 Section A, B, C	T
Home Internet Access for All	Benchmark 4 Section D	T
Communication	Benchmark 5 Section E	T
Web Site	Benchmark 1 Section D Benchmark 4 Section D Benchmark 5 Section D	T, Q

Appendix B

Cross Match of Massachusetts' DOE Benchmarks and DPS Technology Plan Section Titles

STaR Chart Column	DPS Technology Plan Section Titles
A	Technology Integration, Professional Development, Professional Development Model, Assistive Technology and UDL
B	Technology Integration, Professional Development, Professional Development Model
C	Data Management, Network Infrastructure, Hardware, Five-Year Computer Replacement Plan, Instructional Hardware
D	Technology Integration, Professional Development, Professional Development Model
E	Technology Integration
F	Professional Development, Professional Development Model, Assistive Technology and UDL
G	Technology Integration
H	Technology Integration, Professional Development, Professional Development Model
I	Professional Development, Professional Development Model
J	Technology Integration
K	Technology Integration, Professional Development, Professional Development Model, Assistive Technology and UDL
L	DPS Vision, Mission, Core Values and Strategic Plan, Budget, E-rate, Technology Planning, Regular Technology Review, Technology Integration, Professional Development, Professional Development Model
M	Technology Staffing
N	Technology Staffing
O	Budget, E-rate, Technology Staffing, Hardware, Five-Year Computer Replacement Plan, Professional Development, Professional Development Model
P	Budget, E-rate, Hardware, Five-Year Computer Replacement Plan
Q	Technology Planning, Assistive Technology and UDL, Software, Web Site
R	Hardware, Five-Year Computer Replacement Plan
S	Data Management, Network Infrastructure, Hardware, Five-Year Computer Replacement Plan
T	Data Management, Network Infrastructure, Technology Integration, Professional Development, Professional Development Model, Online Courses, Virtual Learning Environment, Learning Management Systems, One-to-one Initiative, Foreign Language Labs, Video Production Labs, Library Media Centers, Home Internet Access for All, Communication, Web Site
U	Data Management, Network Infrastructure
V	Data Management, Network Infrastructure, Instructional Hardware, Dedham High School, Dedham Middle School, Dedham Elementary Schools
W	Data Management, Network Infrastructure

Appendix C

Cross Match of Massachusetts' STaR Chart Columns with DPS Technology Plan Section Titles

DESE Benchmark	DPS Technology Plan Section Titles
Benchmark 1:	
A	DPS Vision, Mission, Core Values and Strategic Plan
B	Technology Planning
C	Technology Planning, Regular Technology Review, Professional Development, Professional Development Model, Software
D	Internet Safety, Technology Policies, Web Site
E	Budget, E-rate, Hardware, Five-Year Computer Replacement Plan
F	Regular Technology Review, Software
Benchmark 2:	
A	Technology Integration
B	Technology Integration
C	Technology Staffing, Technology Integration
Benchmark 3:	
	Technology Integration, Professional Development, Professional Development Model
Benchmark 4:	
A	Hardware, Five-Year Computer Replacement Plan, Instructional Hardware, Assistive Technology and UDL, One-to-one Initiative, Dedham High School, Dedham Middle School, Dedham Elementary Schools
B	Data Management, Network Infrastructure, Dedham High School, Dedham Middle School, Dedham Elementary Schools
C	Data Management, Network Infrastructure
D	Home Internet Access for All, Web Site
E	Technology Staffing
Benchmark 5:	
A	Technology Integration, Professional Development, Professional Development Model, Virtual Learning Environment, Learning Management Systems, Foreign Language Labs, Video Production Labs, Library Media Centers
B	Technology Integration, Professional Development, Professional Development Model, Online Courses, Foreign Language Labs, Video Production Labs, Library Media Centers
C	Technology Integration, Professional Development, Professional Development Model, Online Courses, Virtual Learning Environment, Learning Management Systems, Foreign Language Labs, Video Production Labs, Library Media Centers
D	Web Site
E	Communication