# Needham

*Linking School and Community Resources*

**Technology Plan
Report, 2005-2008**

**Needham Public Schools**
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# Standard 1: Vision and Mission

## I. Overview

This report represents the major initiatives of the Instructional and Administrative Technology program from 2005 -2008. It continues to reflect  the Massachusetts Department of Education Benchmark *Standards for Local Technology Planning.*  These standards closely align to the program goals of earlier plans. Every fall, the DOE electronically collects data to measure the district's progress towards meeting the technology benchmark standards. Needham continues to meet these standards.

## II. Vision

The implementation of instructional and administrative technology supports and enhances the vision of the Needham Public Schools:

"A school and community partnership that creates excited learners, inspires excellence and fosters integrity."

It is the shared belief of Needham educators that our students need to be technologically prepared for lifelong learning in academic and work environments. The development of technology skills impacts student learning, enhances academic achievement and ultimately affects success in the workplace. Students are expected to use technology resources responsibly for curriculum learning - information gathering and organizing tools, writing and publishing tools, graphics tools, data analysis tools, communications tools and general productivity tools. With training and support, teachers are expected to plan curriculum experiences that integrate appropriate technology resources for teaching and learning.

Technology planning occurs at many levels to support this vision. The Technology Advisory Committee (town wide) plans and recommends technology initiatives for all town departments. The Admintech Advisory Group directs and supports the administrative technology initiative. The Permanent Public Building Committee collaborates with school technology staff on all aspects of construction and renovation that  involve networks, connectivity, computer and audio-visual resources. School based technology committees provide input for technology integration with the curriculum, inform decisions about hardware selection and distribution within the building, apply for grants and plan special events around technology. Over the last three years, the school based committees have been very helpful in planning for facilities improvements (infrastructure, hardware and software) that involve renovation and improvements to school buildings.

The budget assumptions support this vision. The district budget for technology  includes administrative, instructional and network line items for maintenance contracts, software, educational and consumable supplies. New and replacement computers are not funded through the operational budget at this time. The town's capital improvement plan supports hardware replacements for desktops, laptops, network servers and printers. The district utilizes the e-rate program for discounted Internet service. The district complies with the guidelines outlined in the Children's Internet Protection Act.

### *III. Mission*

In order to implement this vision, the Needham Public Schools is committed to:
- Technology Planning at many levels of the organization
- Funding to support  and maintain the upgrades of infrastructure, hardware and software on a seven year replacement cycle(DOE recommends 5/6 year cycle)
- An infrastructure that supports dynamic uses of communication, instructional and management  tools
- Personnel to support student and adult technology learners
- Quality professional development for teachers, administrators and support staff
- Evaluation of the instructional technology program and plan through a formal curriculum review cycle


### *IV. Goals*

### Standard 2: Technology Integration


### 1. Improved school facilities will enhance technology learning for all students.

*Technology Infrastructure*
Infrastructure and facilities have been reconstructed at the Broadmeadow and Eliot elementary schools and Needham High School (Phase I of IV completed). Infrastructure upgrades are being planned for the Pollard and High Rock middle schools. Technology and electrical assessments are being considered for the Hillside and Mitchell elementary schools.

*Classrooms and Technology Centers:*
The standard hardware allocation for *elementary classrooms* is four computers and one printer, where connectivity and electrical access allow. The teacher computer is connected to a TV monitor or LCD projector, where connectivity and electrical access allow. Smartboards are being integrated in some Hillside and Newman classrooms.

The standard for *middle school classrooms* will be determined by the impending infrastructure upgrades for wired and wireless access. Technology Centers and/or laptop carts with access for twenty-five students are required for curriculum project development.

The standard that evolved from the renovation project for *high school classrooms* is one presentation computer in each classroom, an LCD projector, a SMART Board, and video connectivity. There are ten technology centers that are department based for technology integration learning. Science classrooms are equipped with twelve computers located at student lab stations. Wireless access will be available throughout the school.

### 2. Teachers will use online resources and/or specific software to provide access to information, communication and productivity tools to enhance students' curricular learning.

There are 4.2 FTE Technology Integration Specialists for the district, or 1:75 teachers, (The DOE recommends 1:40-80.) These specialists provide school-based professional development for all teachers. They co-plan and co-teach with teachers and students in all curriculum areas. They provide direct instruction to students to support the technology learning of students in classrooms and technology centers.

There are 2.4 FTE Computer Teachers at the middle school who provide direct technology instruction to students as a part of the school wide electives program. Each year students take one course for half of a trimester, or 30 class meetings.

School library media specialists (6.2 district) provide direct and collaborative instruction to students in the responsible use of online resources, including subscription database resources that support curriculum learning.

Fine and Performing Arts  teachers at Pollard and Needham High School use technology centers to teach entire courses in graphic arts, music and photography.

## 3. Students will demonstrate proficiency and responsibility in the use of technology resources as defined in Needham's local student learning expectations and the Massachusetts Recommended Instructional Technology Standards.

2005-2006 Needham's Media and Technology teachers revised the local student technology learning expectations, as well as the information literacy and literature standards for K-2, 3-5, 6-8 and 9-12.

The technology integration specialists provide direct teaching and integrated learning experiences with classroom curriculum, K-12, to assist students in meeting local and state technology learning standards. View the local standards and examples of student work at http://fcw.needham.k12.ma.us/~linda_conneely

2006 - 2007, the Massachusetts Department of Education Revised Instructional Technology Standards were revised and are under review in the district.

Students learn about responsible use and online safety as a part of the K-12 Instructional Technology program. In addition, they  sign an Acceptable Use Policy with a parent/guardian, in compliance with CIPA, in grades 3, 6 and 9.

## 4. The district will maintain technical staffing to support the infrastructure, hardware and peripherals in nine school buildings.

The current ratio of instructional and administrative computers to technicians is 1 FTE  to 500 computers. (The DOE recommends 1:200.)

An additional technician position was created in April 2006 to support the infrastructure and inventory at Needham High School.

One Network Engineer manages more than ten systems and data servers throughout the district, including First Class - e-mail, conferencing and web publishing,  Sonic Wall - web filtering and firewall, Radmind - software distribution system over the network, the district web server and others.

# Standard 3: Technology Professional Development

## 1. Teachers will use technology to accomplish professional productivity tasks such as attendance, grades, routine communications, and instructional planning.

100% of teachers use technology for professional activities such as lesson preparation, grading, attendance, e-mail and conferencing. This is an expectation set by building principals.

100% of teachers use technology for instructional activities with students for research, multimedia(viewing, listening or creating) data collection and interpretation, and homework.

100% of middle and high school teachers use PowerSchool to record student grades.
High School and Eliot teachers record student attendance daily in PowerSchool. (Other schools are being added.)

Approximately 60% of all teachers maintain an instructional web site for homework, project planning or other instructional tasks.

## 2. Teachers will learn and implement new instructional technology strategies by participating in staff development workshops and courses, working with department colleagues or taking online instruction.

Teachers participate in school based technology workshops on a regular basis to learn the features of PowerSchool/PowerGrade and the web site management features of First Class.

Teachers working with Instructional Technology Specialists receive 'just in time' training with their students as they are creating curriculum projects.

Approximately 15% of teachers participate each summer in Needham's TECH Camp program, which provides 36 hours of graduate level technology instruction and project development.

Online components for professional development courses, such as EMI and Children's Literature, are being incorporated. Some technology courses are being offered completely online.

In the summer of 2005, fifteen administrators attended an Administrative TECH Camp in Needham, designed to meet their specific needs.

In preparation for the new technology resources at Needham High School, forty teachers attended workshops in August, 2006 to learn how to use the Smartboard and integrate discipline specific resources with this instructional tool.

Hillside teachers are participating in Smartboard training and developing lessons for their classrooms.

## 3. The district will assess teacher competencies and plan professional development to expand these competencies, with the goal of bringing all staff to a proficient level of use with technology tools for communication, management and instructional tasks.

Teachers self-assess with a local tool, then match their professional development to their needs. An online assessment will be available in '07-'08.

Teachers are surveyed by the district Staff Development Committee for needs and interests in technology staff development.

Instructional Technology Specialists determine needs and interests based on classroom curriculum project development and new technology developments.

Informal observations of teacher and student use of technology resources provide direction for further staff development.

## Standard 4: Technology Accessibility

1. **The district will provide and maintain instructional computers for students in all learning environments - classrooms, technology centers, media centers and specialized instructional areas at a ratio of one high-capacity computer per five students, or fewer. Licensed software and online access to learning tools, appropriate to the environment, will be installed, upgraded and accessible.**

|  | 07 Inventory | Computer/Student ratio (all computers) |
|---|---|---|
| Broadmeadow | 188 | 1:3.1 |
| Eliot | 161 | 1:2.3 |
| Hillside | 117 | 1:3.4 |
| Mitchell | 100 | 1:4.3 |
| Newman | 194 | 1:3.4 |
| Pollard | 363 | 1:3 |
| High School | 727 | 1:2 |
| District Total | 1850 | 1:2.7 |

The '06-'07 ratio of high capacity computers to students is 1:3.7.

School renovations at Broadmeadow, Eliot and Needham High School have provided a generous computer ratio supported by reliable infrastructures. With the exception of Newman, other schools are limited by their access to data and electrical outlets to adequately support technology.

Computers are replaced on a six/seven year cycle. The DOE recommends a five/six year cycle. Operating systems are upgraded in the fourth year. Printers are replaced as needed. Network servers are replaced on a three/four year cycle. Computers are recycled to match the intended task. Computers are upgraded to meet software demands. Maintaining a single operating system, Macintosh, is efficient.

Software is purchased and installed over the network. Licenses are maintained by the Educational Technology Center. Software is recommended by administrators, teachers and instructional technology specialists to match the instructional needs of the school wide programs. The school library media centers subscribe to online database services to provide current, reliable, and appropriate resources to support the curriculum.

Some E-Learning tools have been used in the district for online tutorials, IP videoconferencing and online course enhancements.

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**Standard 5: Infrastructure and Connectivity**

## 1. The district will maintain the performance of the wide area network to provide reliable high speed Internet access, greater network security and to support wireless technology.

### Internet Access

A  5 meg connection is shared among all school buildings(9) and the Needham Public Library Children's Room. (The school district shares its filtering system with the NPL Children's Room.) This runs over the fiber network provided by RCN.

All classrooms, instructional spaces and administrative offices have Internet access.

### Wiring/Speeds

The Wide Area Network(WAN)  is switched/routed gigabit fiber connecting all buildings (central switch at town hall).

High School - Cat 6 copper, switched gigabit to the desktop - gigabit fiber between network closets.

Middle School - Mostly Cat 5 copper, switched 100MB, with a major upgrade plan in progress.

2 Elementary schools (Broadmeadow, Eliot)  - Cat 5e copper, switched 100MB to desktop - Gigabit fiber between network closets.

4 Elementary schools and Emery Grover (Hillside, Mitchell, Newman, High Rock) - Cat 5 copper, switched 100MB.

### Wireless

High School - being set up with building wide 802.11b/g wireless access.

Middle School and Elementary schools - a small number of wireless laptop carts with a mix of 802.11b and g (proposed for Pollard and High Rock).

## 2. The district will maintain technical staff positions for network administration (1.0), support for administrative technology applications (2.0) and technical troubleshooting (4.0).

One Network Engineer manages more than ten systems and/or servers throughout the district.

Two Administrative Technology Support Specialists support the Student Information System, PowerSchool (including all levels of users) and the subsequent DOE data and reporting requirements. They support the Health Information System, the Food Service and SPED systems and Transportation, Community Ed. and budget databases to support administrative functions. They support and train all school and district administrators in the use of all administrative applications.

The current ratio of instructional and administrative computers to technicians is 1 FTE to 500 computers. (The recommended DOE standard is 1:200.)

## Standard 5A: Administrative Applications of Technology

**1. Provide administrative technology applications and tools to improve communication, to upgrade management practices, to inform instructional decisions and to enhance professional productivity.**

**Improvements in communications practices include:**
Rebuild the district web site with input from all user groups.
Provide a voicemail system districtwide.
Support calendar integration for First Class and Palm technology.
Implement district and school based listservs for parents and the community.

**Improvements in data management include:**
Upgrade of Student Information System(SIS) to PowerSchool.
Train SIS users - administrators, support staff, teachers, students and parents.
Provide parent web access to attendance and grades.
Provide a portable student database for administrators, for Palm technology.
Train administrators to use TestWiz to analyze MCAS data.
Maintain Health Office application with nurses for local and DPH reporting.
Create a distributed Filemaker budgeting tool.
Provide online application process for employment candidates.
Upgrade Nutrition and Food Services application and implement in all schools -  Meal Magic
Upgrade library circulation and catalog systems to a district single server.

**Improvements to inform instructional decisions:**
Update and maintain the CDB, curriculum database, as required.
Use survey tools to gather data for the curriculum review process.
Provide online courses and training.

**Improvements in professional practice and productivity:**
Develop an administrative technology advisory group.
Develop an administrative technology budget.
Provide TECH Camp training for administrators.
Provide summer training for support staff.
Provide consistent operating systems and applications for document sharing.


## Standard 6: Access to the Internet Outside of the School Day

The school library media centers remain open for student access beyond the school day. The high school is open and staffed for one hour before and one hour after school. The middle school is open and staffed for one hour three afternoons per week.

The Multimedia Lab at Needham High School is open for one hour beyond the school day.

The newly renovated Needham Public Library provides several workstations in the children and adult areas that are accessible to students beyond the school day.

The district and schools maintain up-to-date web sites that provide school information, calendars and homework.

Summer enrichment and after school programs provide students with additional access to the school district's technology resources.