



## TECHNOLOGY AND HIGH LEVEL LEARNING IMPLEMENTATION PLAN



Lowell Public Schools  
155 Merrimack Street  
Lowell, MA 01852

## **BENCHMARK 1 Commitment to Clear Vision and implementation Strategies**

The **Vision** of technology in the Lowell Public Schools is twofold: Firstly, to provide equal access to data and information technology in order to generate informed, responsible citizens and lifelong learners. Secondly, the Lowell Public Schools seeks to promote student achievement by supporting faculty, staff, and students in the effective and successful use of technology to support the curriculum.

The Lowell Public Schools' vision for technology integration is that all classrooms across the district will have technology rich environments for teaching, learning and assessment. The Lowell Public Schools will devote substantial resources to support instructional technology and will develop a new plan for replacement of technology. The Lowell Public Schools also commits to a professional development program that will support teachers in using technology as a tool to increase student achievement. All students and staff will be able to use our updated equipment in every classroom in the district because of the ongoing implementation of our new wireless access points to support instruction and student achievement.

### **MISSION:**

Lowell Public Schools supports the **responsible use of technology** to improve teaching, student learning, and professional practice for each teacher. Technology tools will be used in classrooms, labs, offices, and mobile learning environments to support and improve communication, collaboration, and best practices for all. Adequate facilities and resources will be addressed annually with a replacement plan that is publicly documented to meet this goal.

A professional development program will be implemented that addresses student, teacher, and administrator technology usage to enhance learning. The ELA and Math initiatives at each school will be supported by workshops, ongoing trainings, and school based modeling by Instructional Technology Lead Teachers and others. Teachers will continue to use assessment collected electronically via online testing to plan instruction.

All K-8 students will meet the mandated technology standards suggested by NCLB, Title IID over the next three years. Teachers are continuing to use the student information system X2 and will continue to receive ongoing training when appropriate and necessary.

## **BELIEFS:**

- Teachers must continue to develop understanding of technologies that might lead to improvements in teaching and learning and incorporate these technologies into the curriculum when practical;
- There should be equal access to information technology for all. With the use of wireless access points, access becomes more readily available to all learners.
- Technology should be used to teach, learn, and practice critical thinking skills.
- Student achievement in all curricular areas must be the focal point for adoption of technology resources.

**BENCHMARK 1A:** The district's technology plan contains a clearly stated and reasonable set of goals and implementation strategies that align with the five key goals adopted in 2000.

**“ A challenging educational environment in each school that supports ALL students to learn high level skills, concepts and habits needed for successful lifelong learning in a democratic multicultural world.”**

The district is committed to achieving its vision by the end of the school year 2010-2011.

The goals and implementation strategies set forth in this technology plan are designed to support and assist the district's five key areas for high level student learning:

- Safe and respectful environment
- Excellence in teaching
- Adequate resources and equitable facilities
- Strong community and family partnerships
- Collaborative goal setting, planning and problem solving

More specifically implementing this plan's goals will allow us to forge ahead in the two key areas of *adequate resources and equitable facilities* and *excellence in teaching*.

**First**, we seek to promote student achievement by supporting faculty, staff, and students in the effective and successful use of technology to support curriculum, instruction and assessment.

- Staff will be provided with professional development designed to implement the goals and strategies in this plan and in the five key goals for the district.
- Professional development includes instruction around online teaching and assessment tools and content-rich professional development that supports initiatives at the building and district level and the key goal of excellence in teaching.
- Collaborative goal setting, planning and problem solving around the area of technology professional development will assist the district in determining specific focus areas; such as through the use of the online teacher usage assessment tool given to all teachers each year.

**BENCHMARK 1B: 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 district leadership team.**

- *Jean Franco: Deputy Superintendent for Curriculum, Instruction and Assessment*
- *Jay Lang: assistant Supt. For Finance and Operations*
- *Paul Schlichtman: Coordinator of Research, Testing, and Assessment*
- *Joyce Tapper-Benham: Professional Development Coordinator*
- *Anne Sheehy: Lead Instructional Technology Specialist for Elementary Schools; Moody and Varnum Elementary Schools*
- *Barbara Fauvel: Lead Instructional Technology Specialist for Middle Schools; Daley Middle School*
- *Shelly McGrade: Student Database Administrator*
- *Sandy Dunning: Principal of Abraham Lincoln Elementary School*
- *Eilish Connaughton: Principal of Butler Middle School*
- *Joan Dunlavey : Instructional Technology Specialist High School*
- *Jack Pinard: Coordinator of Educational Television*

- *Library Media Specialist*
- *Sharon Clark: Instructional Specialist Butler Middle School*
- *Kenneth Nelson, Network Manager, LHS*
- *Wayne Marsh, Network Manager*
- *Nancy Byrne, Library Media Specialist*
- *Eileen Kane, LHS Department Chair*

### **BENCHMARK 1C: Needs Assessment.**

- Collaborative goal setting, planning and problem solving is key in determining our needs assessment.

Teachers self assess their technology usage annually through our online teacher assessment tool. Through the data we collect, teachers are able to provide information that will help us to inform our best practices around the area of technology.

### **BENCHMARK 1D: Acceptable Use Policy**

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.

### **BENCHMARK 1E: Budget**

The district has a budget for its local technology plan with line items for hardware, software, repair and maintenance for both instructional and administrative workstations, infrastructure contracted services and support. For all other technology funding including professional development and contracted services the district uses federal, state and local resources.

### **BENCHMARK 1F: Evaluation**

1. Collaborative goal setting, planning and problem solving informs our evaluation of software and hardware. The Offices of Curriculum, Instruction and Assessment, Special Education, Professional Development and Student Support Services, among others, collaborate in order to evaluate and discuss issues around technology,

The Lowell Public Schools recognizes the need for evaluation of the district and school technology plans. We gather data through reports, surveys, interviews, observations and anecdotal records to inform our progress toward positive and effective implementation of technology to support student achievement. Teachers notice through on-line formative assessment that students are progressing toward higher levels of achievement. Our data

tells us that technology integration has assisted in student assessment, student achievement and the formulation of best teaching practices.

The district evaluates all technology resources before adoption. Some of the criteria necessary for approval include the possibility of helping to raise student achievement or to promote best teaching practices in one or more curriculum areas. Evaluation of emerging technologies is a joint effort. Many people are necessary to ensure success. Instructional Technology Leaders at Elementary and Middle School levels, Office of Curriculum, Instruction and Assessment, ELL and Special Education Offices all collaborate to ensure that new technologies that are adopted will promote learning and achievement among a high number of students and meet the needs of all students. All technology resources that are adopted may be in alignment with district, state and federal standards. They also must be supported by the technology infrastructure in the individual buildings. They also must be supported by the Operating Systems available at each school.

All technology goals are aligned with local, state, and federal state standards and requirements. Instead of creating separate school technology plans the district hopes that the goals can be incorporated into the local improvement plan. Since funding for replacing technologies is still a central, district effort the district plan will address replacement of technologies and these school technology rich improvement plans address curriculum, instruction and assessment.

It is the goal of Lowell Public Schools to make sure that all children K-8 are computer literate before they enter Lowell High School. These goals meet the mandate of Title IID NCLB and the state Recommended Prek-12 Instructional Technology Standards. It is hoped that by the end of 4th grade all elementary children in Lowell will be proficient at keyboarding and composing an open-ended question using a word processing program. Understanding and evaluating both print and web based information and appreciating the value and scope of information resources located in our school library is another goal that all Prek-4 children will master.

A portfolio of each elementary child's project involving these skills will be stored on each school - based server. Middle school students will continue to practice the recommended technology standards 5-8 suggested in the state guidelines.

## **BENCHMARK 2: TECHNOLOGY INTEGRATION AND LITERACY**

### **BENCHMARK 2A: Technology Integration<sup>2</sup>**

1. Outside Teaching Time – At least 85% of teachers use technology every day, including some of the following areas: lesson planning, administrative tasks,

- communications, and collaboration. Teachers share information about technology uses with their colleagues.
2. For Teaching and Learning – At least 85% 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 interpretation, communications, and collaboration (See the Massachusetts Recommended K-12 Instructional Technology Standards<sup>3</sup>).

### **BENCHMARK 2B: Technology Literacy**

1. At least 85% of eighth grade students show proficiency in all the Massachusetts Recommended PreK-12 Instructional Technology Standards for grade 8.
  2. 100% of teachers are working to meet the proficiency level in technology, and by the school year 2010-2011, 60% of teachers will have reached the proficiency level as defined by the Massachusetts Technology Self-assessment Tool (TSAT)
1. The district has staff dedicated to data management and assessment.

### **Teacher and Student Use of Technology**

Most of our teachers use technology for productivity work at all levels to do such work as lesson planning and email. E-mail has become institutionalized as a communication tool in our system. Elementary, Middle and High School teachers use our student information system to take attendance, enter report card data and create daily notices.

Many teachers at all levels use multimedia software to enhance project-based learning.

Library Media Specialists at the elementary and middle school level focus on multimedia in social studies and the Big 6 information literacy skills aligned with research standards in ELA.

Direct support of core curricula using such tools as Pearson Success Net, CMP, Galileo Online, Brainpop, Study Island, Power Up, and Reading Street Scott Foresman technology resources, among others, are the primary initiatives taking place in computer labs at both the elementary and middle school level.

The district has a CIPA compliant Acceptable Use Policy (AUP) regarding Internet Use.

67% of Lowell Teachers are still at the entry level with technology. It is the hope of the Lowell Public Schools that by 2011 most of our teachers will be proficient in technology usage.

**BENCHMARK 2C: Staffing**

1. The district provides one FTE instructional technology teacher per 60-120 instructional staff.
2. The district has one Lead Instructional Technology Specialist for Elementary Schools, and one for Middle Schools.
3. The district provides one FTE instructional technology teacher per 60-120 instructional staff. Most schools have an Instructional Technology Specialist or Library Media Specialist, and Library Aide.
4. The district has staff dedicated to technology support and has additional staff dedicated to technology support through a service contract.
5. The district has 32 FTE library aide positions The High School has 4 FTE Instructional Technology Specialists and 2 FTE library media specialists as well as 2 FTE library aides.
6. The district also funds a department chair at Lowell High School in the area of Technology.

**BENCHMARK 3: TECHNOLOGY PROFESSIONAL DEVELOPMENT**

**BENCHMARK 3A: At the end of three years, at least 85% of district staff will have participated in 45 hours of high-quality professional development that includes technology skills and the integration of technology into instruction.**

**BENCHMARK 3B: Technology professional development is sustained and ongoing and includes coaching, modeling best practices, district-based mentoring, study groups, and online professional development. The professional development includes trainings in the appropriate and innovative uses of technology to support high quality instruction and training in the use of new technologies.**

**BENCHMARK 3C: 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. Lead Instructional Technology Specialists and technology team will examine emerging technologies that might lead to improvements in teaching and learning and incorporate these technologies when appropriate.**

**BENCHMARK 3D: Administrators and teachers evaluate their own technology usage, using the Massachusetts TSAT and a district developed survey.**

Ongoing and consistent professional development for all users must be available. Emerging technologies must be examined constantly. Technologies change quickly and for teachers to truly use these as best practices in the classroom, they must be consistently trained and supported in the use of these new technologies. When using technology to support all areas of the curriculum, teachers must be true lifelong learners. Technologies that may lead to higher level student achievement must be adopted, and supported by the Lowell Public Schools through trainings at the building level, through study groups and must be discussed and examined during Common Planning Time at each school. It is the hope of the Lowell Public Schools that web based courses will be offered to teachers as a means of providing professional development that is ongoing and consistent.

The Lowell Public Schools utilizes all possible opportunities and funding sources, including grants and through the school department budget, to attain the state goal of 45 hours of high quality technology professional development over three years.

All teachers in the system consistently are administered the TSAT each year. This year teachers will take part in an online survey to assess their own technology usage. Data will be collected and considered when developing professional development initiatives.

Principals need consistent and ongoing support in making data informed decisions for their implementation of NCLB goals. This year middle school principals will receive a great deal of training in Galileo Online which will contribute to their competencies in recommended administrator technology standards proposed by MA DOE and ISTE.

#### **BENCHMARK 4: Accessibility of Technology**

##### **BENCHMARK 4A: Hardware Access**

1. The district has an average ratio of fewer than nine students per high-capacity, Internet-connected computer. The Department will work with stakeholders to review the capacity of the computer on an annual basis. (The goal is to have a one-to-four, high-capacity, Internet-connected computer ratio.)
2. The district maximizes access to the general education curriculum for all students, including students with disabilities, using technology in classrooms with universal design principles and assistive technology devices. The district also insures equal access to the Internet for all students, using assistive technologies when appropriate.
3. The district provides classroom access to devices such as digital projectors, electronic whiteboards.
4. The district has established a computer replacement goal of five years or less when finances allow.

**BENCHMARK 4B: Internet Access**

1. The district provides connectivity to the Internet in all classrooms in all schools.
2. The Lowell Public Schools has increased access to all users by installing wireless access points in many schools.
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.

**BENCHMARK 4C: Networking (LAN/WAN)**

1. The district provides a minimum 100 Mb Cat 5 switched network and/or 802.11b/g/n wireless network.
2. The district provides access to servers for secure file sharing, backups, scheduling, email, and web publishing, either internally or through contracted services.

**BENCHMARK 4D: Access to the Internet Outside the School Day**

1. The district works with community groups to ensure that students and staff have access to the Internet outside of the school day.
2. The district web site includes an up-to-date list of places where students and staff can access the Internet after school hours.
3. Access to the Internet is provided at many after school programs throughout the district.

**BENCHMARK 4E: Staffing**

1. The district provides a network administrator.

The district provides support by dedicated staff or contracted services.

*A. Students per Instructional Computer*

Many schools have received wireless laptops in order to better support teachers in using emerging technologies in the classroom during instruction. Teachers are using these to model appropriate and innovative use of technologies for students and to support the curriculum. Lowell Public Schools has calculated and submitted to the state in 2005 an

average ratio district -wide of student to computer at 9:1. The ultimate goal is to have a one-to-one high capacity, internet connected computer ratio. The Lowell Public Schools goal is to increase the number of computers to students and be better equipped to promote the use of technology in the classrooms.

*B. Replacement Policy*

The district needs to replace computers that are more than five years old. Unfortunately, due to budget cuts, the replacement policy that was in place was unable to be fully implemented. The Lowell Public Schools conducted a comprehensive inventory in all schools so that a new replacement policy may be developed and replacement will be equitable for all students.

*C. Staff*

There has never been a district based initiative or funding to support computers for teacher's desks except through new construction monies. Lowell Public Schools needs to address the teacher's need to have tools to do attendance, data analysis, grade reporting, and presentations for whole class instruction at their fingertips.

*D. SPED and ELL*

With the use of assistive and portable technologies such as laptops students may have more readily available technology usage. Using SPED and ELL funds to build capacity for these tools along with district technology monies can insure equal access for all students.

Currently teachers are using various forms of software in these areas. A few schools are using software specifically for use with our ELL population. English in a Flash, Rosetta Stone English and our ELL population is also using LEXIA.

*E. Technical Support*

The high school has 1,167 computers and two technicians. The high school has its own network administrator. The district has one Network administrator that manages the WAN and our firewalls as well as our district network mail server. The District has not met the recommended standards and is making every attempt to increase the numbers of support personnel.

*F. Technology Support Personnel*

The district has one lead instructional technology specialist for elementary schools and one lead instructional technology specialist for middle schools to support teachers in their use of technology to support high quality instruction.

## **INFRASTRUCTURE FOR CONNECTIVITY**

### *Internet Access*

The district provided connectivity to the Internet in 97% of classrooms in all schools. Wireless access has been installed and networks have been updated in many schools.

The district standard is to provide 10/100MB switched connectivity to each classroom. This standard is met in some of the buildings and we are attempting to fund this goal through applications for e-rate. We will continue to update networks and provide wireless access points in schools as e-rate funding becomes available.

### *Networking*

The district has established as its standards 10/100 MB Cat 5 switched network and utilizes mobile labs to provide 802.11 b/g wireless networking.

The district provides services for secure file sharing and backups for data at each school as well as providing email for all staff members. In the Spring of 2008 the district will begin updating web pages for each department in conjunction with the city's municipal web publishing efforts.

The Office of Curriculum, Instruction and Assessment has posted many curriculum guides to the website. Teachers can go to this website to gain access to information about technology usage, such as user guides for the student information system, X2. Teachers can also look at technology rich lesson plans for use in the classroom.

### *E-Learning Environments*

The Lowell Public Schools actively promotes the use of innovative strategies for delivering courses, seminars, and information electronically to all staff. In the past, we have utilized outside vendors to deliver these services, such as Classroom Connect and Connected University. In the future we hope to be able to provide some of these services again.

Lowell also has been a member of Virtual High School since its inception. This initiative helps Lowell expand its set of course offerings without adding new instructors. Students enjoy the electronic discussions and the collaboration with different instructors and students from around the country. Several teachers from Lowell High School have been trained to be instructors in this program.

In the fall of 2008, Middlesex Community College will present an online course offering for high school students.

### **Access to the Internet Outside of the School Day**

The district is beginning to plan for web pages for each department, in conjunction with municipal efforts, to communicate public information to families. This effort is being spearheaded by the Parent Information Center.

Many schools provide after school Internet access to students from all schools during their after school programs. In the past, federal library grants were obtained that allowed school libraries to extend their operating hours in order to provide access to information beyond the school day.

Library hours in both the high school and in many K-8 schools are extended during our summer school programs.

### **BENCHMARK 5: E-LEARNING AND COMMUNICATIONS**

**BENCHMARK 5A: The district encourages the development and use of innovative strategies for delivering specialized courses through the use of technology.**

**BENCHMARK 5B: 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.**

**BENCHMARK 5C: Classroom applications of e learning include courses, cultural projects, virtual field trips, etc.**

**BENCHMARK 5D: The district maintains an up-to-date web site that includes information for parents and community members. The district is currently updating all department websites with the help of the Parent Information Center. Many schools, such as the Moody and Sullivan Schools, already publish up to date websites for their parents.**

**BENCHMARK 5E: The district complies with federal and state law, 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.**

### **INSTRUCTIONAL GOALS: 2008-2009 School Year**

- Students will use technology as a tool to locate, investigate and evaluate information in order to increase student achievement at all levels.
- Increase the number of students who can meet the computer literacy goals of NCLB
- Incorporate technologies into Math and ELA in order to support student achievement for all.

## Technology Plan Lowell Public Schools 2008-2011

- Continue to support Scholastic Reading Inventory, Pearson Successnet and Scott Foresman Reading Street technology initiatives at all elementary schools and continue to support Galileo Online for math assessment at the middle school level.

### **NETWORK and HARDWARE GOALS: 2008-2009**

- Update the local infrastructure in the schools that are 90% E-Rate funded
- Provide wireless access points for schools that are 90% E-Rate funded.
- It is our goal to update 20 % of the Type “C” computers in the system.
- Create a new policy to be adopted by the School Committee that 20 % of workstations will be updated in subsequent years.
- We will continue to increase our bandwidth, computer hardware and Operating Systems to make sure that it is meeting our increased multimedia and online assessment needs.
- Continue to centralize services including: student information software, inventory, server upgrades and monitoring, desktop software applications, and database administration.

### **STRATEGIES**

The Lowell Public Schools has recognized and adopted the combination of the Massachusetts StaR Chart (School Technology and Readiness Chart), along with the Massachusetts Local Technology Plan Guidelines, as describing a strategic plan to improve student learning with the use of technology.

The goals in this plan align with the district and NCLB consolidated Strategic Plan. New to our strategies is making sure that each school site plans and commits to advancing their technology profile to one of proficient.

The district’s goal to raise student achievement can be assisted and supported with the use of technology by both students and teachers. Online assessments that can drive instruction are important to the district’s goals. High achievement for all students in all areas of the curriculum is the critical issue to be addressed with these strategies.

On the following pages we have the results of our teacher technology usage survey. Using this data we will develop professional development in the area of technology for users at all levels of technology usage proficiency.

We will also use this data to update policies for addressing teaching challenges related to the usage of technology to support instruction and student achievement.

Please see Appendix for :

TSAT results

## Technology Plan Lowell Public Schools 2008-2011

AUP Policy

Donation Policy

Software Policy

Grant Awards and Initiatives Involving Technologies

PD pilot assessment tool

PD pilot planning tool