Combined District Technology Plan

for the

Mohawk Trail Regional School District

Hawlemont Regional School District

and

Rowe Elementary School

LEA Codes: 717, 685, & 253

October, 2007

(FY 2008 - FY 2011)

Submitted by: Michael Buoniconti
Superintendent of Schools

Contact: Edward Skutnik
Director of Technology
Mohawk Trail Regional School District
24 Ashfield Road
Shelburne Falls, MA 01370
(413) 625-9811

Acknowledgements

The original technology plan, upon which the current plan is based, was written in large part by Douglas Wilkins, now on the faculty of Greenfield Community College. Former Director of Technology, David Greenberg, M.Ed. should also be credited for his approach to facilitating systemic change with regard to the integration of technology into the curriculum of the District.

Table of Contents

Mohawk Trail Regional School District

District Technology Plan Update

Executive Summary

This fourth revision to the original technology plan of June 1997 by the Office of Technology Services (OTS), correlates District goals with the Local Technology Plan Guidelines (2007 FY2008 – 2010 FY 2011) adopted by the Department of Education as well as the five criteria required by the federal technology plan standards. It is an ambitious plan that, if successful, will effectively use technology to improve student achievement and will provide staff with the skills needed to integrate technology successfully into the classroom and office. In addition, distance-learning opportunities will be provided to every school in the District. As was stated in the original plan, the difficult part continues to be the funding for ongoing maintenance, upgrade and administration of eight LAN's, one WAN, and approximately 700 workstations.

The District's goal is to educate students in such a way that they become successful participants in a high-tech, 21st century democracy, with the critical, inventive and ethical skills necessary to make a positive contribution to society. Not only does the District need students and staff to have ready access to computers and the Internet, but the District also strives to offer a stimulating curriculum that, through adapting the concepts of Understanding by Design, allows each student to have her own IEP. All students will be encouraged to 'think outside the box', notwithstanding that the boxes are different shapes and sizes.

The District will continue to:

- integrate technology into the curriculum;
- develop a technology budget that truly reflects the total cost of ownership (TCO) of technology components;
- provide professional development opportunities for teachers; and,
- expand the delivery of instruction utilizing a variety of computer technologies.

Realizing that having a large number of computers in each classroom is neither logistically nor financially viable, the District has, over the past several years, begun to invest in wireless laptop technology, giving teachers the ability to provide a computer to each student when necessary.

Introduction -- The Role of Technology in Education Reform

At the dawn of the 21st century, computers have become ubiquitous. A job that does not require some use of a computer is rare. Most colleges expect computer literacy upon admission and many require students to bring computers to college. To address this reality, Education Reform, as defined by the Massachusetts Legislature, requires an infusion of technology into all segments of the curriculum with the goal of attaining a high degree of computer literacy among all learners.

This document is the blueprint for the infusion of technology into the curriculum of the Mohawk Trail Regional School District, Hawlemont Regional School District and the Rowe Elementary School. It reflects the goals recommended by Goals 2000, the Education Reform Act of 1994, the Curriculum Frameworks, as defined by the Massachusetts Department of Education in 1995, the DOE Benchmark Standards of 2003, the DOE Local Technology Plan Guidelines for the Years 2007 FY 2008 – 2010 FY 2011, and locally developed student technology competency standards developed prior to the DOE standards.

1 – Historical Perspective

1.1 -- School District and Community Demographics

The Mohawk Trail Regional School District, Hawlemont Regional School District and Town of Rowe, united in 1968 under one superintendency, comprise what is geographically the largest school district in the Commonwealth, encompassing roughly 250 square miles. The nine rural towns of Ashfield, Buckland, Charlemont, Colrain, Hawley, Heath, Plainfield, Rowe and Shelburne are located in the northwestern area of Massachusetts, contiguous with the Vermont border.

This western portion of Franklin County has very little industry. The two major employers, Yankee Atomic Electric Plant in Rowe and American Fiber and Finishing in Colrain have closed. All 9 towns are below the average state per-capita income, with Heath, Colrain and Charlemont in the bottom 10%. The local economy is driven by tourism, agriculture, small businesses and home cottage industries representing a significant number of highly talented and successful artisans and high-tech entrepreneurs. This area of western Massachusetts has the highest per capita number of heads of household employed in arts and crafts in the entire country! Expert glassblowers, weavers, artists, sculptors, writers and potters thrive in this idyllic country setting.

Budget constraints, due to weak national, state and local economies, have taken their toll on the District. Beginning in FY 03, severe cutbacks in Chapter 70 and 71 aids from the Commonwealth, coupled with a significant increase in the gap between Foundation Budget impacted what is actually necessary to operate competitive school districts. School enrollment has decreased 24% since 2004. The high school is a skeleton of its former self,

reflected by the loss of practically all of our related arts courses, (metal and wood shops), and the appearance of very large class sizes that used to be just a rare anomaly. FY08 will be one of the worst years for the Mohawk District financially.

There are seven schools in the District with a total population of a little less than 1,300 students. The six elementary schools serve students grades Kindergarten through six. Five elementary schools, Buckland-Shelburne, Heath, Hawlemont, Rowe and Colrain, include preschool. Mohawk Trail Regional High School serves grades seven through twelve. A model Conceptual Middle School embraces grades five through eight in terms of curriculum and transition to Mohawk from the six elementary schools. Approximately 250 employees are involved in the education of area children; many full-time and part-time shared teachers and administrators travel to the various schools, thus sharing local education costs.

District schools are as follows:

SCHOOL	GRADES	K-12** POPULATION	TOWNS SERVED
Sanderson Academy	K-6 *	138	Ashfield, Plainfield
Hawlemont Regional	Preschool-6	104	Hawley, Charlemont
Heath Elementary	Preschool-6	63	Heath
Rowe Elementary	Preschool-6	48	Rowe
Buckland-Shelburne	Preschool-6 *	182	Buckland, Shelburne
Colrain Central	Preschool-6	117	Colrain
Mohawk Trail Regional	7-12	637	ALL

* Private preschools exist in the towns of Ashfield and Shelburne, serving Buckland and Plainfield. Data from October, 2003.

* Population data as of October 1, 2007.

This technology plan is for all schools served by the district: Mohawk Trail Regional School District, LEA Code 717, Hawlemont Regional School District, LEA Code 685, and Rowe Elementary School, LEA Code 253. This combined technology plan acknowledges a unique administrative structure that provides cost-effective, high-quality education to the nine rural towns. It also outlines a technology curriculum that will provide uniform instruction and accessibility to all students in the district.

1.2 -- Overview of the Planning Process

This plan represents the fourth update to the original five-year plan developed in 1995. Input for this update comes from members of the District-wide Technology Committee, which continues to meet monthly. This plan is aligned to District goals as outlined by the school committee with regard to technology and professional development as well as to the five benchmarks of the DOE Local Technology Plan Guidelines of 2007 – 2010.

This document, written primarily by the Director of Technology has been submitted for review to the District Technology Committee.

2 – Vision and Mission Statement

2.1 -- Technology Vision and Mission Statement

In accordance with DOE 2007 Benchmark Standard 1-A, the MTRSD has continued to fine-tune its mission and vision statements with the intent of implementing the majority of the goals established herein by the year 2010.

The Mohawk Trail Regional School District is committed to preparing its students to enter our technologically complex society with the technological and critical skills, knowledge, and ethical attitude necessary to become well-rounded, creative and contributing members of the local and global community.

The MTRSD will strive to:

- incorporate all manners of technology into its classrooms on a daily basis;
- integrate the latest technologies, e.g., distance learning, multimedia, and school-based interactive web portals, into the daily instructional curriculum in conjunction with the Common Core of Learning and The Curriculum Frameworks;
- provide ubiquitous Internet access inside and outside of school, both during and after of school hours;
- develop individualized learning goals for each student using technology resources, as appropriate, while adhering to the concepts of Understanding by Design;
- nurture the creativity, inventiveness and curiosity of its students by cultivating real-world problem solving skills using technology resources where applicable;
- introduce and model the latest advances in technology to maximize efficiency and minimize costs in the administration of District business;
- introduce its students, via the Internet and distance learning technologies, to a variety of domains of knowledge and world cultures;
- provide both economic parity and gender parity with respect to student computer access and use; and,
- provide high quality professional development opportunities to its teachers and staff so that they are able to use the technology resources available to their fullest potential.

The MTRSD will employ technology to help equalize the learning opportunities for its students. While the majority of students have computers at home, some do not. With computers in all of the classrooms and with the addition of several portable wireless computer labs at several elementary schools and the high school, all students have increased access to technology resources. In addition, technology resources are also available in District libraries. The High School library remains open after hours to provide additional computer access.

Technology has the ability to allow students with learning differences to accomplish tasks that were previously impossible. As a result, when technology is thoroughly integrated

into the curriculum, fewer students need to be taken out of classrooms. There is an identified Special Education (SPED) population consisting of 23% of the students in the three districts. The Mohawk Assistive Technology Team (MATT), a core group of SPED staff trained specifically in the use of assistive technology, will continue to work with students. New computers will be required to provide tools for universal access. Whenever possible, schools will order new textbooks in both hard copy and electronic format.

Technology and the access it provides to worldwide resources levels the playing field in a way that was previously impossible. Fast, reliable Internet access enables students and staff to utilize the same resources as large, urban and suburban schools and communities around the state, the country and the world.

2.2 – District Technology Committee

The District Technology Committee is composed of school staff, district administrators, instructional technology specialists and technology-oriented community volunteers.. Each school has at least one representative on the Committee. Administrative staff includes several principals as well as the Superintendent of Schools. The Director of Technology chairs the Committee. (A full membership list may be found in Appendix A.)

The Technology Committee discusses relevant issues that affect the utilization of technology resources in the District. The staff of OTS implements committee decisions. The District Technology Committee is aligned with Benchmark Standard 1-B of the DOE 2007 Guidelines.

2.3 – Assessment and Evaluation

Assessment is based on data provided by a variety of data instruments. With regard to professional development for staff, the Special Projects Liaison uses the results of the DOE's TSAT, administered annually during the evaluation of technology-oriented professional development activities submitted by staff. Activities that clearly address needs identified by TSAT results are given a higher priority by the Special Projects Liaison.

Action plans are developed at the beginning of each year with the assistance of the District's Technology Committee. Action plans reflect the goals of the School Improvement Plan, goals of the principal, and individual professional development plans of teachers. The action plan serves as a roadmap for accomplishing the most important priorities of each school and has an evaluative component. Meetings throughout the year are used for evaluation and mid-course corrections.

Student achievement is measured quantitatively through the annual 6th grade technology assessment. This self-assessment instrument measures the mastery of the skills for sixth graders as noted in the DOE's Student Technology Competencies. The sixth grade survey may be found in Appendix C. Qualitative data is gathered at the annual technology fair,

where student work is displayed for the benefit of the community. Data on the opinions of parents are also collected here.

The district-wide Technology Committee closely monitors the implementation of the five-year Technology Plan. As chairperson of the Technology Committee, the Director of Technology coordinates and supervises the overall implementation process. This group provides support and assists the Director of Technology by making recommendations for modifications to the plan as needed.

The Director of Technology will present updates on the progress made towards implementing the plan to the district Administrative Council, chaired by the Superintendent of Schools.

All purchases of hardware and software must advance teacher proficiency and/or lead to improved learning and understanding on the part of teachers. OTS supports approved software and the support for its implementation, the professional development opportunity associated with it and the quality of the end result.

2.4 – Acceptable Use Policy

The District has a comprehensive Acceptable Use Policy (AUP) in place. During the next few years, District personnel will strive to ensure that it is being administered consistently across the District. This policy addresses the issues of ethical standards when accessing the Internet, how students' pictures and work may be depicted on local school web sites and web design guidelines. The Policy is posted on the District web site.

2.5 – Budget

The annual operating budget reflects the total cost of ownership (TCO) of technology resources. It contains line items for the following technology components:

- infrastructure
- hardware;
- software;
- professional development
- support;
- contracted services; and,
- staffing.

Unfortunately, some of these lines have not been funded consistently due to budget constraints. In order to guarantee an adequate budget, this plan sets the following goals:

> **Goal 2.5.A:** To work with the Superintendent, the School Committee and community stakeholders to ensure that adequate funding for technology is included in the annual budget

As a result of a difficult financial situation, technology funding has taken a back seat, as it should, to classroom staffing. Class sizes are larger than they have ever been and this has a noticeable effect upon student learning. However, in these conditions, the availability of working computers is even more critical and so the District must make it a priority to fund technology at a level that allows the computer infrastructure to remain viable.

> **Goal 2.5.B:** To maintain a rotating three year lease plan and target the oldest computers for replacement first as part of a five year replacement cycle and augment classroom teaching with smart boards and curriculum respective software.

Newly received Chapter 70 Foundation Reserve money allowed us to begin a five year hardware replacement cycle. The Foundation Reserve money also allowed us to upgrade the middle and high schools to a 1 gigabit network infrastructure.

> **Goal 2.5.C:** To provide opportunities for school district staff to attend grant-writing workshops and to explore other avenues for obtaining funding for technology

District personnel have consistently and successfully competed for DOE technology grants and have brought more than $500,000 into the District over the past several years. Grants are often written by teams and reviewed by peers prior to submission. The District has also applied for and received E-rate funding for the past ten years. E-rate funding covers a significant proportion of the following services: telephone, videoconferencing and Internet access.

The budget is funded from three sources: Operating budget, town budgets, and grants and programs. The plan calls for the gradual increase of the operating budget over five years to roughly $160 per student for technology-related expenditures. This includes the cost of additional technical support personnel, professional development, Internet access, and the maintenance, upgrading and eventual replacement of equipment. The latter is based on a five to six-year replacement schedule, two to three times that found in industry. It should really be the other way around; it is schools that really squeeze the most out of the computers. Not only are there many people using the same machines, but also, on average, they use four to five times more applications than the normal business user.

This plan is based on budget projections that were made based on the recommendations of both CoSN, (http://www.cosn.org), an organization which specializes in helping schools determine the total cost of ownership (TCO) and the DOE's *Local Technology Benchmark Standards for the Year* The challenge will be to educate district stakeholders to the importance of taking TCO figures into account when developing a technology budget.

3 – Technology Integration and Literacy

Technology in Education Partnership (TEP)

TEP is a consortium hosted by Greenfield Community College that serves school districts in Franklin and Hampshire Counties. The Mohawk School District was a founding partner of TEP. The purpose of TEP is to "plan, implement and sustain the development of integrated multimedia technologies and electronic information resources in order to promote successful teaching and learning in greater Franklin County's pre-elementary, elementary, secondary and post-secondary education institutions" (http://www.tep-wm.org). TEP, in turn, has been a founding partner for the data warehousing project that now is supported and funded by the DOE. It will facilitate data-driven decision-making. This has been recognized by the District as an important tool for improving student achievement.

3.1 – Technology Integration

> **Goal 3.1.A:** At least 85% of teachers will be using technology inside and outside the classroom on a weekly basis by 2010.

During the past year, the district upgraded its student information system to PowerSchool Premiere. It is hosted at the district site and is web based. Teachers can access their grade books, lesson plans and notes on line both at school and from home. The Student Services offices as well as the school nurses have access to these records as one integrated information package.

> **Goal 3.1.B:** To provide parents access to their child's grading and daily records through a "parent portal" from any web browser.

Parents may instantly see if their child was tardy to class in real time as well as their grades, the class work turned in and future assignments. Currently teachers at the high school level have been using this software while the elementary schools and middle school have been using it for attendance.

> **Goal 3.1.C:** To provide web-based file access to all students, staff and administrators from off-campus locations and to provide a web-based content management system for staff.

MASS ONE ACCOUNTS AND MOODLE

Access to school resources is limited outside of school at this time. There are two possible solutions that are being considered. The District will provide students with MASS ONE accounts that will enable them to have access to their files from school and home. Moodle, a course management system (CMS) is also being considered.

These goals will be realized with the assistance of the Director of Technology and District Technology Committee. Achievement of these goals will result in more efficient access to information and better communication among teachers, administrators, students, parents and residents of the community.

Instructional and Curricular Goals and Initiatives:

> **Goal 3.1.D**: To continue the process of integrating technology into the classroom by establishing a formal procedure by which staff develops, teaches and evaluates technology-rich lessons with the help of the Curriculum Coordinator.
>
> **Goal 3.1.E**: To insure that all teachers are familiar with and able to apply the principles of UbD, and differentiated instruction in the development of their lessons.

The District will strive to meet this goal by insuring that there is adequate PD around this subject and that there is support in place to guarantee the success of this initiative.

Since the late nineties, many more computers, fully-networked schools, T-1 access to the Internet, the formation and staffing of the Office of Technology Services and participation in a variety of PD programs, such as Project MEET and TCI in the past, have changed the equation significantly. The most significant problem is maintaining and upgrading hardware and finding the time to teach staff how to better integrate technology in the classroom for the benefit of all learners.

The current progress of technology initiatives is the result of the implementation of a multifaceted, high leverage approach to institutionalize the use of computer technology in the Districts' schools. Most of these interventions were implemented simultaneously, beginning in September 1999. They include:

- large infusion of hardware to dramatically increase staff/student access
- summer institutes in technology integration
- training of SPED staff (Assistive Technology Challenge Grant)
- Evaluating principals and teachers based on their progress in developing technology skills

The District has switched to an application service provider (ASP) to host SPED data (E-SPED). Access is via the web and the responsibility for data backup has been moved to these providers. The financial system, BudgetSense, is WAN-based and accessible from all schools in the District.

Teacher and Student Use of Technology

> **Goal 3.1.F:** At least 85% of teachers will be using technology inside and outside the classroom on a weekly basis by 2010.

The District maintains a web site and all educators have an email account and access to a local file server. Backup to tape or hard drive is performed nightly at all schools and the District Office. Staff is encouraged to use email on a regular basis and District schools have begun to move away from paper-based memos toward more frequent use of electronic communication. For example, all high school memos are distributed in electronic format only.

Students can collaborate on video projects, make use of audio / video content from the districts audio/video streaming server, use wireless laptops from practically all locations, participate in video classrooms with other schools around the world, produce projects using a wealth of resources and importing its content and information to be further analyzed and interpreted by the students.

3.2 – Technology Literacy

> **Goal 3.2.A:** At least 85% of 8th graders will show proficiency in the District Student Technology Competencies by 2010.

Computer Competency Standards for students in grades K - 12 (Appendix B) have been adopted. This document specifies the computer skills for which students should demonstrate proficiency at each grade level and are aligned with the DOE PreK-12 Instructional Technology Standards. These skills will be acquired within the context of curriculum content by teaching technology-rich units of study. Goals will be set and rubrics will be used such so students will have a vested interest in accomplishing curriculum tasks successfully.

The above goals will introduce technology into the curriculum at all grade levels, at all ability levels and in each school building. It is anticipated that teaching computer skills will be an ongoing, continuing process that will take place in the classrooms and libraries in each building. One anticipated result would be that all students entering Mohawk Trail Regional School as seventh graders would possess at least a minimum standard of similar technological skills and abilities.

> **Goal 3.2.B:** 100% of teachers will be working to attain a mastery of the TSAT competencies at the proficiency level by 2010 and 60% will reach the proficiency level by 2010.

With an increase in staff competency has come a more noticeable use of computers by students. When many teachers were uncomfortable with the use of computer technologies in the classroom, students were seldom encouraged to use the computers to demonstrate their knowledge. Over the past several years, however, an increasing number of students are preparing their projects and papers with computers. There is frequent use of Kid Pix and PowerPoint from the elementary grades up through high school by both teachers and students. During the past year, there has also been an increase in the number of students preparing multimedia presentations, using such applications as PowerPoint and video editing.

As additional administrative tasks become computerized, teachers are adapting to these changes. All progress reports, grade books and SPED documentation are done on-line. With the increased use of wireless laptops, it is now feasible in many schools for teachers to do a class activity utilizing either a 1:1 or 1:2 computer-to-student ratio.

3.3 – Staffing

The district has a full time technology director. One instructional technology teacher provides full time support for the middle and high school staff. A dedicated database administrator was hired last year to be in charge of the student information system and also input all relevant student and staff reports and data to the DOE and the Data Warehouse Project.

4 – Technology Professional Development

4.1 – Staff Competency Goals

> **Goal 4.1.A**: By the end of the 2007-2010 school year, at least 85% of district staff will have participated in 45 hours of high-quality technology professional development covering technology skills and the integration of technology into instruction.

Through a protocol to be determined by the Special Projects Liaison, all staff will be involved in high quality PD. Through a combination of during school, after school and summer workshops, the target of 45 hours of contact time will be achieved.

4.2 – Models of Professional Development

Technology professional development is sustained and ongoing and includes coaching, modeling best practices, district-based mentoring, and study groups and online professional development. This has become institutionalized in the District. Understanding by Design and scientifically based research models are at the core of each PD activity.

4.3 – Assessment and Evaluation of teachers and administrators

> **Goal 4.3.A:** Annual self-assessments that evaluate the skills described in the TSAT will be administered to all staff. The Administrator Technology Self-Assessment Tool will be utilized by the administrators.

Attainment of these goals will be accomplished through in-house professional development opportunities such as District-wide professional development days, school-based in-service workshops, the utilization of outside courses such as the Summer Academy programs and local courses at Greenfield Community College. In addition, the District continues to apply for corporate and state grants that, if received, will facilitate the Districts' ability to meet these goals.

The attainment of these goals will not only provide a foundation for the procurement of equipment, software and training to implement the school Districts' technology plan, but it will open new avenues of resources that may be available to public education. The ongoing efforts of the Technology Committee, the Superintendent and the Director of Technology ensure that these goals will be met.

5. – Accessibility of Technology

5.1 – Hardware Access

> **Goal 5.1.A:** A 1.5:1 student-computer ratio utilizing a combination of desktop and laptop computers in grades 7 – 12 will be achieved by 2010.

The necessity of continually purchasing, replacing and maintaining workstations and peripherals is one of the most difficult concepts to communicate to District stakeholders and the School Committee. Buying a computer is like buying a car, only more complicated. It doesn't wear out so fast, but it becomes obsolete very quickly due to the rapidly changing landscape of software and the technology sector of the economy.

At the time of this writing, late 2007, each new desktop computer will have a minimum of 1 GB of RAM, an Intel Pentium IV or Core Two Duo, 17" high resolution flat screen monitor, DVD, USB, 100/1Gb Ethernet, a higher end graphics card and CD-quality stereo sound capabilities.

The trend in the District is to move toward a 1:1 ratio utilizing wireless laptop computers and desktop computers. Five of the seven schools have a minimum of one laptop cart that may be signed out and used by any teacher. Although these laptops are not going home with students at this point, that is the ultimate goal.

> **Goal 5.1.B:** Gradually integrate handheld devices into the curriculum as appropriate and develop a policy for their use during the school day.

The newest handheld devices exhibit a new level of versatility. Cell phone/camera/PIM devices that include a geographical positioning system (GPS) and Internet accessibility are not uncommon. The potential for the use of these devices in K-12 education cannot be overstated. Students in the District already use handhelds for current science projects. Staff uses handhelds for time management. As price continues to decrease and capabilities increase, the District will increase its investment in these devices.

The Mohawk Assistive Technology Team (MATT) has aided staff in the areas of Universal Design for Learning (UDL), assistive technology (AT) and differentiated instruction. The MATT was initially trained through a grant with the Collaborative Center for Assistive Technology and Training (CCATT) and a grant sponsored by the National Assistive Technology Research Institute (NATRI) from the University of Kentucky.

Among the various operating systems, programs, and types of input and output hardware, the district works in concert with the Technology in Education Partnership (TEP) and other resources to discuss and share knowledge of the latest appropriate software and hardware and respective resources to be introduced into the district schools.

The district has been increasing its numbers of electronic whiteboards and digital projectors among its school. In the situation of a particular classroom not having a dedicated whiteboard or projector, portable units can be accessed.

Goal 5.1.C: Computers will be replaced every five years.

Although the industry replacement cycle is two to three years and industry tends to have one person using the same computer with a limited number of applications, -- quite contrary to how computers are used in schools -- the District will try to turn over its inventory every five years. Even at that rate, the District will need to appropriate roughly $100,000 per year for new computers. It is hoped that the state will recognize this requirement as part of a school's infrastructure and provide a funding mechanism to sustain computer use in schools. However, the District has a plan to either purchase or lease new computers on a regular basis.

5.2 – Internet Access

The district provides access to the Internet for all classrooms in all schools. Wireless connectivity is also used where laptops are available.

The district provides at least 100 Mb bandwidth to all schools in the district. Because of the infrastructure upgrade in the middle and high schools during this past year, a 1 Gb bandwidth is available to all middle and high school classrooms. All seven schools in the district are served by its own T-1 line and two of the schools have a cable backup.

Goal 5.2.A: By the year 2010, the high school and middle schools will be served by a second T-1 line for additional bandwidth.

There has been a dramatic increase in internet use by classes for research and collaboration with other classes in a virtual environment.

5.3 – Networking

Each school in the District has a switched, 100 Mb local area network (LAN) that connects all of the machines in the school. All classrooms have, on average, four RJ-45 Ethernet jacks on the walls. Wireless access points supporting a combination of IEEE 802.11b/g/n wireless networks can be found in many District schools. Furthermore, all of the LANs are connected via a T-1 wide area network (WAN) and the Internet. The middle and high schools have a 1 Gb local area network.

All schools have a local file server. File servers are running Windows 2000 Server, Windows 2003 Server or Macintosh OS X Server. At this point, access is only available from within the WAN. Backup to tape or hard drive of critical data is done daily at each school.

The school web site offers a calendar for District events. Each school principal is able to log on to the calendar and enter events. Each school, in a manner that is appropriate for each school's needs, performs their own scheduling functions.

A district-based mail server provides e-mail to all district staff. Users can check their mail from anywhere on the Internet using a web-based client called SquirrelMail. SquirrelMail plug-ins comprise of a rich feature set including personal calendar software, district and personal address books, and so on. Spam filters are implemented.

The District web server is hosted locally and, in addition to providing web content to the community, also serves as a full-featured content management system (CMS). Using email account information, all teachers can log on to the site to create, edit and update web pages.

5.4 – Access to the Internet outside the School Day

Access to the Internet is available at area libraries whose hours are posted on the District web site. In addition, the High School library extends its hours each afternoon and has an ample supply of desktop and wireless laptops available for student use.

5.5 – Staffing

The technology staff consists of a full-time technology director, a full time High School teacher /LAN Network Administrator, a full time database administrator and 1 full-time on-site support staff in the elementary schools. This is woefully inadequate.

Goal 5.2.A: Hire 1 FTE WAN Network Administrator by the FY10.

This grant-funded position was lost in FY05. With the added complexity of managing a WAN from a security and services standpoint, it is essential that the District hire a full-time Network Administrator. There are a number of network tasks that must be performed on a regular basis to ensure the health and integrity of the WAN. These include security patches, firewall updates and account management to name just a few. In addition, the District maintains its own web server, mail server, DNS servers, firewall, and CIPA servers.

Goal 5.2.C: Hire 3 FTE computer technician by FY10.

The District currently has 1.12 FTE technicians to service roughly 700 machines. Support staff also relies upon part-time technical support personnel. The goal is to have a .5 FTE technical support person at each elementary school and a 1FTE technician at the high school.

6 – E-Learning and Communications

The District will expand the use of video conferencing by video on IP systems. The District will also experiment with low-cost video conferencing solutions including the use of iSight cameras and laptop computers.

Distance learning has so far been used to teach classes in computer programming and AP history. Cultural, geographic, political "interactive field trips" have been taken by classes and vigorous exchanges of ideas and shared interests have been explored with other classes in the United States, Uzbekistan, Vietnam, Uganda and England. Classes have traveled on virtual field trips to NASA headquarters in Virginia and to Alaska to meet with some mushers. The District is committed to expanding this program to all district schools and to locating and utilizing meaningful distance learning experiences that will enhance instruction and raise student achievement.

> **Goal 6.1:** The District will continue to introduce staff and students to the opportunities available through distance learning utilizing both low and high end technology solutions.

This will be achieved through introducing staff to the possibilities of distance learning at staff meetings and department head meetings at the High School. The District is also exploring the use of *moodle*, an open-source class management system.

> Moodle *is a course management system (CMS) - a software package designed to help educators create quality online courses. Such e-learning systems are sometimes also called Learning Management Systems (LMS) or Virtual Learning Environments (VLE). One of the main advantages of* Moodle *over other systems is a strong grounding in social constructionist pedagogy.*

The District web site contains course syllabi at the high school level and current homework assignments for students at all levels. This is easily accessible to both students and parents through the use of any reasonably modern browser.

The district is developing a policy and working with TEP and its legal counsel for handling its district archiving needs concerning staff and student. Staff and students are made aware that any information distributed over its networks may be a public record.

7 – Conclusion

The development and implementation of a plan that revolves around a moving target such as technology is a challenging proposition. The District School Committee, Superintendent and staff are committed to utilizing technology to its fullest to improve student achievement and insure that each and every student in the District is able to realize their fullest potential.

To that end, this plan is regarded as a work in progress and its components will be reviewed periodically and modifications and mid-course corrections will be made. The most recent version of this plan will be accessible on the District web site at: http://www.mohawkschools.org/district/ots/pdfs/techplan2007.pdf.

Appendices

Mohawk Trail Regional School District
District Technology Plan

Appendix A – Technology Committee Membership: 2007 - 2008

Mohawk Trail Regional School District, Hawlemont Regional School District, and the Town of Rowe

School	Position
Mohawk Trail Regional High School	
John Wheeler	Business Teacher
Terri Jepson	7th Grade Teacher
Peter Otten	Network Administrator / Computer Instructor
Sanderson Academy:	
Budge Litchfield	Principal
Missy Rustemeyer	Instructional Assistant
Hawlemont Regional School:	
Eloy Shepard	Computer Technician
Buckland-Shelburne Regional School:	
Jane Boron	Kindergarten Teacher
Colrain Central School:	
Sandy White	Secretary
Rowe Elementary School:	
Bob Clancy	Principal
Heath elementary School:	
Tom Dean	Severe Needs - Special Education Liaison
Kathy Sprague	Secretary
District Office:	
Ed Skutnik	Technology Director
Michael Buoniconti	Superintendent
Jeff LeBoeuf	District Tech Support

Appendix B – MTRSD Student Technology Standards, K-12

KEY

Exposure Progress Proficient

Grade	K	1	2	3	4	5	6	7	8	9	10	11	12
GOAL I: All students will use technology in a respectful manner.													
Handle technology equipment, disks and related materials properly													
Works with their own documents and accesses only appropriate information with permission													
Respects others' work													
Uses appropriate language and adheres to the User Policy													

KEY

Exposure Progress Proficient

Grade	K	1	2	3	4	5	6	7	8	9	10	11	12
GOAL II: All students will demonstrate skill in using technology and its components.													
Identify the parts of a computer (e.g., CPU, monitor, keyboard, disk drive, mouse, printer)													
Follow the correct hardware and software procedures for turning the computer on and off													
Understand the basics of operating a computer													
• Identify and use dropdown menus (e.g., 'File', 'Edit')													
• Learn to save files to floppy disk, hard drive, network, etc.													
• Learn basic file management (organizing folders by applications, documents, etc.)													
• Move between multiple windows and applications													
• Use cut, copy and paste features to edit text and graphics													
• Learn basic manipulation of a mouse (click, double-click, click, hold and drag)													
• Learn correct procedures for inserting and ejecting CD ROM's and floppy disks													
Print a document using 'Page Setup' and 'Print'													
Recognize the layout of the letters and number keys on the keyboard													
Use special function keys (arrow keys, escape, control, caps lock, delete, etc.)													
Use basic mouse actions (left click, right click, CNTL-click)													
Know how to use basic keyboard shortcuts (e.g., CTL-C, CTL-V)													
Solve routine hardware and software problems that occur during everyday use													

KEY

Exposure Progress Proficient

Grade	K	1	2	3	4	5	6	7	8	9	10	11	12
GOAL III: All students will use appropriate software to create electronic documents.													
Touch typing at 20 - 35 wpm													
Uses word processing software for writing													
• Delete, insert and change text including inserting a graphic													
• Format text (e.g., font style and size, justification, etc.)													
• Save and retrieve a document													
• Use a spellchecker													
• Set and revise layout, including margins, tabs, and columns													
Uses graphical software for drawing and image processing (e.g., KidPix)													
Applies word processing skills to literary newsletters, journals and other writing formats													
GOAL IV: All students will participate in research projects that use tools such as a database, a spreadsheet and Internet resources in meaningful ways across the curriculum.													
Accesses an existing database such as encyclopedia software (e.g., Encarta)													
Uses appropriate searching strategies to access information on the Internet													
Uses a database to locate and extract relevant information													
Uses a database to add, delete and edit records													
Uses a spreadsheet to display information													
Uses a spreadsheet for 'what if' scenarios, calculations and problem solving													
Uses an electronic library catalog													
Selects and evaluates Internet sites that provide valid and reliable information													

KEY

Exposure ▒ Progress ▓ Proficient ■

Grade	K	1	2	3	4	5	6	7	8	9	10	11	12
GOAL V: Students will have the opportunity to participate in projects that use a variety of technologies including telecommunications.													
Uses multimedia technologies to enhance learning (e.g., laser disc, LCD projectors, digital camera, scanner, video camera, VCR, etc.)	▒	▒	▒	▒	▒	▒	▒	▓	▓	■	■	■	■
Uses integrated multimedia tools to develop and produce individual/team projects such as a documentary or a news broadcast (e.g., PowerPoint, iMovie, etc.)				▒	▒	▒	▒	▒	▓	▒	▒	■	■
Uses e-mail and other messaging tools to collaborate with students, experts, and other individuals from distant locations to investigate and study curricular-based concepts, issues and information			▒	▓	▓	▓	▓	■	■	■	■	■	■
Identifies technology resources, (hardware, software), to solve problems and accomplish tasks						▒	▒	▓	■	■	■	■	■
Uses presentation software (e.g., KidPix, PowerPoint), to develop multimedia presentations				▒	▒	▓	▓	▓	■	■	■	■	■

GOAL VI: All students will use technological resources that support, reinforce, or enhance existing curriculum objectives.													
Uses instructional software as a supplement to classroom instruction (e.g., Houghton Mifflin CD ROM and laser disc, Math Blaster, Math Keys, etc.)		▒	▒	▒	▓	▓	▓	■	■	■	■	■	■
Uses simulation programs (e.g., Oregon Trail, simCity, etc.)				▒	▒	▓	▓	▓	■	■	■	■	■
Uses grade-appropriate software that promotes problem solving (e.g., the Factory, Thinkin' Things, How the West Was One, etc.)	▒	▓	▓	▓	▓	▓	▓	▓	■	■	■	■	■

Explanation of Key

Exposure - Basic introduction, and an invitation to explore and experiment
Progress - Student shows gradual mastery while working towards the goal
Proficiency - Student demonstrates mastery of the goal

Appendix C – Sixth Grade Technology Survey

1. **I handle technology equipment, disks and related materials properly**

- ☐ **I can do this myself**
- ☐ **I can do this with some help**
- ☐ **I don't know how to do this**

2. I work with my own documents and accesse only appropriate information with permission

- ☐ **I can do this myself**
- ☐ **I can do this with some help**
- ☐ **I don’t know how to do this**

3. I respect others' work

- ☐ **Always**
- ☐ **Sometimes**
- ☐ **Never**

4. I use appropriate language and follow the District's Acceptable Use Policy

- ☐ **Always**
- ☐ **Sometimes**
- ☐ **Never**

5. I can identify the parts of a computer (for example: CPU, monitor, keyboard, disk drive, mouse, printer)

- ☐ **I can do this myself**
- ☐ **I can do this with some help**
- ☐ **I don't know how to do this**

6. I follow the correct hardware and software procedures for turning the computer on and off

- ☐ **I can do this myself**
- ☐ **I can do this with some help**
- ☐ **I don't know how to do this**

7. I can identify and use dropdown menus (for example: 'File', 'Edit')

- ☐ **I can do this myself**
- ☐ **I can do this with some help**
- ☐ **I don't know how to do this**

8. I can save files to floppy disk, hard drive, network, etc.

- **I can do this myself**
- **I can do this with some help**
- **I don't know how to do this**

9. I can manage files (organize folders by applications, documents, etc.)

- **I can do this myself**
- **I can do this with some help**
- **I don't know how to do this**

10. I can move between multiple windows and applications

- **I can do this myself**
- **I can do this with some help**
- **I don't know how to do this**

11. I can use the cut, copy and paste features to edit text and graphics/pictures

- **I can do this myself**
- **I can do this with some help**
- **I don't know how to do this**

12. I can use a mouse properly (click, double-click, click, hold and drag)

- **I can do this myself**
- **I can do this with some help**
- **I don't know how to do this**

13. I can insert and eject CD's and floppy disks

- **I can do this myself**
- **I can do this with some help**
- **I don't know how to do this**

14. I can print a document using 'Page Setup' and 'Print'

- **I can do this myself**
- **I can do this with some help**
- **I don't know how to do this**

15. I can use special function keys (arrow keys, escape, control, caps lock, delete, etc.)

- **I can do this myself**

- **I can do this with some help**
- **I don't know how to do this**

16. I can use basic mouse actions (left click, right click, Ctrl-click)

- **I can do this myself**
- **I can do this with some help**
- **I don't know how to do this**

17. I can use basic keyboard shortcuts (for example: Ctrl-C, Ctrl-V)

- **I can do this myself**
- **I can do this with some help**
- **I don't know how to do this**

18. I can touch type at 20 - 35 wpm

- **I can do this myself**
- **I can do this with some help**
- **I don't know how to do this**

19. I can use word processing software for writing

- **I can do this myself**
- **I can do this with some help**
- **I don't know how to do this**

20. I can delete, insert and change text

- **I can do this myself**
- **I can do this with some help**
- **I don't know how to do this**

21. I can insert a graphic or picture into a word processing document

- **I can do this myself**
- **I can do this with some help**
- **I don't know how to do this**

22. I can format text (for example: font style and size, justification, etc.)

- **I can do this myself**
- **I can do this with some help**
- **I don't know how to do this**

23. I can save and retrieve a document

- **I can do this myself**
- **I can do this with some help**
- **I don't know how to do this**

24. I can use a spellchecker

- **I can do this myself**
- **I can do this with some help**
- **I don't know how to do this**

25. I can set and revise layout, including margins, tabs, and columns

- **I can do this myself**
- **I can do this with some help**
- **I don't know how to do this**

26. I can use graphical software for drawing (for example: KidPix)

- **I can do this myself**
- **I can do this with some help**
- **I don't know how to do this**

27. I can apply word processing skills to newsletters, journals and other documents

- **I can do this myself**
- **I can do this with some help**
- **I don't know how to do this**

28. I can use an existing database such as encyclopedia software (for example: Encarta)

- **I can do this myself**
- **I can do this with some help**
- **I don't know how to do this**

29. I can use searching strategies to find information on the Internet

- **I can do this myself**
- **I can do this with some help**
- **I don't know how to do this**

30. I can use a database to locate and extract relevant information

- **I can do this myself**
- **I can do this with some help**

- [ ] **I don't know how to do this**

31. I can use a database to add, delete and edit records

- [ ] **I can do this myself**
- [ ] **I can do this with some help**
- [ ] **I don't know how to do this**

32. I can use a spreadsheet to display information

- [ ] **I can do this myself**
- [ ] **I can do this with some help**
- [ ] **I don't know how to do this**

33. I can use an electronic library catalog

- [ ] **I can do this myself**
- [ ] **I can do this with some help**
- [ ] **I don't know how to do this**

34. I can select and evaluate Internet sites for reliability and accuracy

- [ ] **I can do this myself**
- [ ] **I can do this with some help**
- [ ] **I don't know how to do this**

35. I can use multimedia technologies to enhance learning (for example: LCD projector, digital camera, scanner, video camera, VCR)

- [ ] **I can do this myself**
- [ ] **I can do this with some help**
- [ ] **I don't know how to do this**

36. I can use multimedia presentation software to develop and produce projects (for example: with PowerPoint, iMovie, etc.)

- [ ] **I can do this myself**
- [ ] **I can do this with some help**
- [ ] **I don't know how to do this**

37. I can use e-mail to communicate with others, as well as gain information from others

- [ ] **I can do this myself**
- [ ] **I can do this with some help**
- [ ] **I don't know how to do this**

38. I can choose the correct technology resources, (hardware, software), to solve problems and accomplish tasks

- **I can do this myself**
- **I can do this with some help**
- **I don't know how to do this**

39. I can use instructional software (for example: Houghton Mifflin CD ROM and laser disc, Math Blaster, Math Keys, etc.)

- **I can do this myself**
- **I can do this with some help**
- **I don't know how to do this**

40. I can use simulation programs (for example: Oregon Trail, simCity, etc.)

- **I can do this myself**
- **I can do this with some help**
- **I don't know how to do this**

41. I can use grade-appropriate software that promotes problem solving (for example: the Factory, Thinkin' Things, How the West Was One, the Oregon Trail, etc.)

- **I can do this myself**
- **I can do this with some help**
- **I don't know how to do this**