

Minnetonka Public Schools Technology Plan



2008 - 2011

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Overview of Critical categories on Technology Plan

The Minnetonka School District has undertaken the following process to meet the requirements for the state of Minnesota Technology Plan.

Needs Assessment

The following activities were undertaken before creating the technology plan:

- School staffs and provided input on the effectiveness of technology that it is currently being used in their school and provided input to the district technology committee on what types of technology they would like to see in the future
- The district hired the BLEgroup a nationally known education technology consulting firm to conduct a district wide set of interviews on technology and instructional integration. MPS also asked the BLEgroup to conduct and audit/plan to assess the effectiveness of current technology use and to create a plan that included infrastructure, staff development, instructional applications, budgets, an implementation plan and IT organization with annual goals and budgets over the next four years.
- The district management team and board incorporated the BLEgroup audit findings and recommendations into the MPS technology Plan

Vision, Goals and Strategies for Technology

The goals and objectives of the technology plan are:

- To create a network and technology infrastructure that will grow sufficient to support all of the needs of instructional delivery and accountability. It will include a network operations center, a disaster recovery plan and Voice over IP.
- To provide students with 21st century skills for the work place and higher education.
- To integrate technology into all facets of instruction.
- To digitize and customize curriculum.
- To provide staff with all necessary technology support and professional development.
- To develop a technology support organization that provides technical and instructional support and oversight to all staff and students.
- To move towards 1:1 computing for all students with a variety of computing devices to enable computer access any time it is needed.

Budget

MPS has a budget to implement its goals. The budget includes the costs for infrastructure, professional development and software.

Evidence of an Evaluation Plan

MPS will undertake the following evaluation activity:

- Conducting assessments to determine whether the annual stated goals for instruction, infrastructure, technology support organization and systems for accountability and management have been reached for the first three years of the plan. Effectiveness cannot be measured if technology has not been implemented.
- Having each school determine how technology has been used to support its goals.
- Determining the outcomes of achievement related to technology-based instruction in years 3 and 4.

- Conducting surveys of teachers and parents on satisfaction with technology.
- Have an external evaluator conduct an assessment of technology in years 2 and 4; based on the technology plans objectives and the activities in the implementation plan.

Ongoing plans for providing staff development

- Increasing instructional technology support for teachers.
- Creating and implementing teacher proficiencies/competencies for technology.
- Continued summer workshops and technology training for new and returning staff.
- Expanding staff development to encompass on demand video trainings.

Evidence of compliance with CIPA

- District internet filtering for all staff and students (8e6).
- Filtering release form process and procedure in place.
- Student and staff acceptable use policy for electronic technologies.
- We site and internet policy.

EXECUTIVE SUMMARY

Overview and Context

The Minnetonka Public schools technology committee(s)

- has gathered information from teachers and parents in each building
- has surveyed parent interest and opinion of technology through survey mechanisms and parent meeting in each schools
- has met to assess the progress made on the previous technology plan and planned for coming needs over the next five year
- has hired a nationally known technology consulting firm the BLEGroup to evaluate the effectiveness of the district's 2003 plan and work with MPS in identifying the district's needs, designing a state of the art technology plan for the coming five years and establishing a process of ongoing formative evaluation linked to objectives to the 2007-2011 plan.
- The district has made plans to assure that all students have access to technology and that assistive and adaptive technology is provided to those who need it.

The strategic technology plan recommends technology use to support instruction and management in the Minnetonka Schools from 2007-2011. The plan addresses the interrelated areas of instruction, management systems, support organizations and infrastructure.

MPS has made exceptional progress in embracing the use of technology during its 2003 plan. However, the world of education is changing rapidly:

- Education materials are increasingly moving from print to the Web.
- Students need a set of 21st century skills for higher education and the workplace that are technology based.
- Back-office management and accountability systems need to be integrated.
- MPS needs an ongoing plan to maintain and upgrade the technology that is the platform on which education is delivered.
- There is a need to provide professional development for its staff.
- There is a need to grow its infrastructure to support the increasing usage of internal networks and the internet for teaching and learning.

Specific technology-related issues facing the district between 2008-2011 include the following:

- To establish an ongoing technology funding mechanism to replace and maintain its technology infrastructure.
- To develop a four -year implementation program to continue integrating technology into instruction.
- To provide students with 21st century technology skills for higher education and the workplace.
- To implement a cost-effective technology organization that supports the instructional program and the management of technology infrastructure.

- To procure and implement integrated and efficient data management and accountability systems.
- To develop an educational portal that will supply educational resources to students, teachers, and the community on a 24/7 basis.
- To maintain the progress that has made MPS a national leader in the use of technology for instructional improvement.

Following the recommendations of this plan, MPS will achieve the following by the close of the 2011 school year:

- Continued evolution and growth of a high-speed, integrated voice, data, and video network to deliver management systems and instructional materials.
- Sufficient technology devices providing daily, ongoing technology access for all students and teachers when they need them.
- Development of outstanding digital resources linked to Minnetonka curriculum standards, delivered over the intranet. By 2011 all educational resources should be in digital format.
- A strong teacher professional development program to incorporate technology into instruction and enable differentiated and individualized student instruction.
- Implementation of technology competencies for teachers and students.
- Implementation of Web-based home-to-school connections so parents can access student and school information.
- Evolution of the technology organization that integrates instructional technology, infrastructure management and management systems.
- The provision of adaptive and assistive technology to address the needs of special education students.

The Technology Plan is divided into the following chapters: **instruction, infrastructure, management systems, technology support organizations, and implementation.**

Instruction

Current State of Technology in the Minnetonka Public Schools 2007

The strategic technology audit plan of 2002 assessed Minnetonka as ready to initiate technology as a major part of its instructional program and made recommendations that suggested technology should become central to the processes of teaching and learning. At the time, MPS was a very high quality, print-oriented school system whose graduates were well prepared for admission to high-quality colleges. However, MPS was making limited use of technology to support teaching and engage students in learning and was behind the curve in recognizing that education was moving from a book-based to a technology-based world.

The recommendations in the 2002 audit plan were targeted at making Minnetonka a national leader in the use of integrating technology into the teaching and learning process. Although many of these recommendations involved establishing a first-rate infrastructure to support technology use, the main thrust of the recommendations was to change the culture of MPS to adopt technology as the main means of delivering teaching and learning.

The implementation of the 2002 plan has been a great success. The recognition of the effectiveness of the Minnetonka plan can be seen in its recent selection by the National School Boards Association as a national visitation site for technology and the recognition of the MPS superintendent by both The American Association of School Administrators and E-school news as one of the country's leading technology superintendents.

In conducting the technology audit plan in 2007, the main difference that can be seen is that the entire culture of the schools is impacted by technology. Although there is more work to be done, given the rapid movement from print to Web-based education, MPS has made greater improvement in the use of technology than other comparable school systems in the country.

The progress that MPS has made in technology since 2002 is truly impressive. The district is now a national player in the integration of technology into teaching and learning. The following are the main accomplishments that MPS has made since the 2002 technology plan in the area of instruction:

- **Communicating the importance of technology.** The superintendent, board, and administration have communicated the importance of technology to all facets of learning and management in the district.
- **Establishment of an ongoing funding mechanism.** The district has effectively used the tax levy funds to build an infrastructure and to create an ongoing purchase and replacement program for technology.
- **Development of a five-year technology integration program.** Over the last five years the district has systematically increased the use of technology in schools on an annual basis without creating resistance. This has been accomplished by a systematic and slow implementation of technology as teachers were ready to accept it.
- **Initiation of a professional development program to incorporate technology into teaching.** The district has put considerable effort into the ongoing professional development program for teachers to use interactive whiteboards, audio enhancement

- devices, and general technology in their summer institutes. The efforts have been teacher-centric.
- **Integration of technology into teaching and learning.** Technology (mainly through the use of interactive boards) has been incorporated throughout the school systems. Though the technology is mainly teacher-centric rather than student-centric, it has laid the basis for an ongoing implementation of technology use.
 - **Use of technology to address the annual test requirements.** Through the use of NWEA and other formative, individualized assessments, MPS has effectively prepared its students to take the Minnesota annual assessment.
 - **Web-based home-to-school connections so parents can access student information.** Although not yet perfectly effective, MPS has implemented a program that provides parents with information on their children's assignments and allows regular connection between teachers and parents.
 - **Integrated management systems for greater efficiency through improved data access for analysis and decision making.** There has been greater implementation and efficiency in the use of financial and student information systems at all levels of the school system despite the fact that the systems are old and in need of better integration.
 - **1:5 computer ratio.** MPS has increased the number of its computers so that the ratio of computers system wide is now 1 computer to 5 students. However, the majority of computers are in labs rather than classrooms. Moving forward, there is a need to improve the ratio and to secure a variety of devices such as thin clients, laptop carts, and hand-held devices that will allow students to have access to technology at any time.
 - **The interactive boards which MPS placed in its 2003 tech pan have had more impact on classrooms than any other aspect of the plan.** The Interactive boards are to teaching what spreadsheets are to business people. They are the applications that allow teachers to replicate their lesson planning and teaching using technology in a way that makes their teaching more effective and efficient. Interactive boards are a system that combines teacher-written lesson plans on their computers, an LCD that projects the lesson on the screen, student devices that allow wireless remote responses to the lesson, and the ability for students to write responses on the board. Both teacher and student content can be stored on a server and used for collaboration.
 - **Distributed audio systems** allow the teacher's voice to be heard as clearly in the back of the room as in the front of the room.

The combination of interactive boards and distributed audio systems have had a major impact on teaching and learning in the Minnetonka schools:

- They have supported direct engagement between students and teachers.
- They have increased time on task by students.
- They have enabled teachers to determine the level of student understanding immediately.

Although the majority of the 2002 technology plan has been implemented with an impressive impact, some aspects of the plan remain to be completed. These areas include the following:

- Technology curriculum and skills. MPS has done some experimentation with the teaching of technology skills, but there is a need for a formal technology curriculum for all students.
- Instructional technology organization. The establishment of an instructional technology organization is off to a good start, but it needs to be grown and expanded as instructional software becomes increasingly important.
- Instructional management systems. MPS is using formative assessments; however, it needs a more robust student management system that includes and connects standards, formative assessment, and data management.
- Four computers in each classroom. The number of computers in each classroom is uneven. Though the ratio of computers to students is 1:5, there is a need for a greater variety of technology devices in the classroom so that students can have access when they need them.
- Web databases in curricular areas. MPS has not yet established databases of instructional resources with assessments in each of the curricular areas.
- Minimum technology-competency standards for students, teachers, and administrators. MPS had set a goal of establishing technology competency standards for students, teachers, and administrators by 2003. There is still a need for these competencies.

Target Environment for 2011

The rapid change from print to Web-based materials has created a target environment that needs to be accomplished in 2011. The main vision of technology in Minnetonka for 2011 is that it will be student-centric. The role of technology will be to enable all students to have the 21st century skills that they will need for higher education and the workplace. The main components of the target environment for 2011 are the following:

- Integrated system of curriculum management, including curriculum mapping, lesson and unit planning, assessment building, and resources aligned to curriculum. These systems will enable teachers to individualize instruction for each student and to have an ongoing process of instructional improvement that will include standards-based assessments.
- A variety of technology devices such as personal computers, thin client computers, and hand-held computers that will allow students to have access to technology any time as needed for learning.
- Technology fully integrated into a teaching and learning environment that is built on student engagement.
- Integrated professional development systems and teams that support curriculum, assessment, instructional design, data management, and technology integration so that improvement of learning outcomes can be an ongoing process for both teachers and students.
- The increasing use of Web-based individual applications in the areas of math, English, language arts, and science that will enable students to work directly with programs that will enrich and accelerate their learning.
- The creation of an educational portal that allows for 24/7 access for teachers and students. The portal will include all educational resources necessary for teaching and learning.

- The use of a variety of technologies and applications, from Web-based research libraries to video materials to analysis tools that will enable students to have the skills they will need for higher education and work in the 21st century.
- The development of specialized programs in such areas as graphic arts, theater, robotics, special education, and computer technology that will provide Minnetonka graduates with an advantage for college admission and the workplace.
- Differentiated instruction for students. The combination of the instructional management systems and the new Web-based instructional systems will enable individualized learning plans for all students.

Infrastructure

Current Environment ----*progress since 2002*

Infrastructure is the platform on which all instruction and management is delivered. It includes networks, workstations, local and wide area networks, and all computing devices such as interactive boards, laptops and carts. To ensure sound management and effective delivery of instruction, infrastructure has to be maintained and regularly updated every five years.

The main features of the current infrastructure are the following:

- MPS has developed a central Help Desk, purchasing system, Network Operations Center (NOC), repair center, and IT staff structure. A central mission and vision is being established that will integrate IT functions with instructional technology needs.
- MPS has developed and implemented a hardware rotation plan that provides for replacement of all servers, PCs, printers, and ancillary equipment.
- MPS instructional technology remains “teacher centric” and “lab centric.”
- IT supports one primary management system, Skyward, and one primary learning management system, Blackboard.
- MPS has 100 percent of its schools fully cabled. The LAN architecture includes 11 buildings connected by six strands of single-mode fiber owned by the district, with the core at the high school. The WAN service provider is Comcast.
- Network monitoring tools have been put into place, and security has been upgraded.
- Software monitoring tools are being put into place, along with policies and procedures for updating Internet content filtering and security protection.
- MPS has developed exemplary classroom audio systems to support balanced audio hearing throughout the room.

Target Environment

The proposed target environment will enable Minnetonka to move toward becoming a national leader among school districts in the use of technology, as technology moves from a focus on the support of teachers to an increased focus on students in the teaching and learning process. The proposed target environment will enable the increased use of digitized materials in place of print materials in the coming year.

By 2011, Minnetonka will have a robust infrastructure providing Internet access and the network capability needed for district wide technology use. Key infrastructure features will be the following:

- One integrated 100-megabit Metropolitan Area Network (MAN) that will provide secure 24/7 voice, video, and data to all district stakeholders, with secure access based on district roles and missions. The MAN extends the district WAN concept to include other community support facilities, such as libraries, museums, and postsecondary institutions, as well as community partners such as hospitals, factories, and research centers.
- The same network will provide for monitoring facility energy usage and security.
- All district learning environments will provide full wireless high-speed voice, video, and data.

- All district learners will have access to instructional technology in every learning environment, including both school and community. The objective is for each student and teacher to have access to their central files via a network appliance at school or from a common Internet-based PC at home. A network appliance can include any device that can gain access to the school network and associated user-based files. Such appliances may include traditional PCs as well as other emerging technologies such as tablet PCs, PDAs, thin clients, education-dedicated laptop-like devices, calculators, and even some cell phones.
- MPS will have a fully integrated SIS, HR, and curriculum management system that will also be integrated with other district areas such as transportation, food services, and library, with security via biometric devices.
- Transportation will have every vehicle equipped with GPS/GIS and real-time communication devices.

Management and Accountability Systems

Current Environment-*progress since 2002*

MPS currently maintains an integrated student information and financial system and a series of stand-alone systems to support food services, transportation, libraries, and special education.

- **The integrated student information/financial system adequately address the district's financial processes but is clumsy and hard to use for addressing student information.** It provides insufficient data to support instructional decisions.
- **The stand-alone administrative systems for special education and transportation are inefficient and redundant.** Each system has its own database, reporting structure, and management. The separate systems do not share data and are not easily combined for information reporting, making it necessary to enter the same student data in each system.
- **The current special education system needs to be evaluated** and potentially replaced with a system that will support teachers in completing the IEP process and will provide better reporting data for the state.
- **Turnleaf, the current academic data management system has been adequate for addressing aggregation and disaggregation of test data.** However, the system should be augmented or replaced by technologies that are more advanced analytically and the district is in need of sophisticated tools to assist teachers in instructional analysis and planning.

Target Environment

In 2011, the district will have Web-based modular information systems including a student information system, a finance system, a human resources system, a transportation system, and a special education system. These applications will share common data elements and easily provide data to support district decision making through a data warehouse or data reporting.

Technology Support Organizations

The organization of the technology groups have changed significantly since 2002:

- The Executive Director of Technology and the Executive Director of Teaching and Learning both report to the superintendent.
- The establishment of a small technology professional development group has been central to the use of interactive boards and technology integration into the classroom.
- The school level technology teams operate more collaboratively with the district than they used to though they are still decentralized.
- The IT group, despite some problematic periods, is now providing quality service to the schools and is beginning to function more systematically internally. The IT group also did a very good job of improving the use of the Skyward system.

The task in the next five years will be to support an instructional organization of technology.

Target Environment

In 2011, the primary function of the MPS technology group will be to raise student performance and the secondary function will be to provide a world-class IT environment for all stakeholders, including students, teachers, administrators, and the parents.

- The Executive Director of Technology will be versed in all aspects of district administration, student services, IT management, community relations, and instruction. The Executive Director will have the overall responsibility for technology planning, providing services to all central office functions, supporting the schools, and overseeing the instructional technology organization.

The Executive Director of Technology will work jointly with the Executive Director of Teaching and Learning to fully integrate all aspects of technology into the instructional endeavors. For technology to become more central to instruction and to provide high-quality services to schools and administrative functions, the following must occur:

- An infrastructure management group should be developed, led by a network director reporting to the Executive Director of Technology who will be responsible for all procurement, strategic planning, network management, and repair.
- The instructional technology group will be led by the Director of Instructional Technology. The Director of Instructional Technology will report to the Executive Director of Teaching and Learning and have a dotted-line relationship to the Executive Director of Technology. He/she will be responsible for technology curriculum for students, professional development for teachers, an instructional management system to address standards and accountability, and the development and maintenance of the Web-based portal.
- A steering committee of principals and staff will be established to set and monitor the annual technology agenda. They will advise the Executive Director of Technology. The steering committee will jointly review and select the most effective and appropriate hardware, software, and infrastructure services that will ultimately provide measurable increases in student achievement.
- Four instructional integrators and trainers will report to the Instructional Technology Coordinator. Their role will be to work with principals and teachers in

using Web-based applications to support school improvement plans, individualize instruction, and address academic performance.

- The district Web site will have professional development system and Web-based instructional resources for staff in each school.
- There will be a uniform integrated technology curriculum implemented in all schools for students. This curriculum will be overseen by the integration specialist and delivered by the media specialist and classroom teacher.
- The school-level personnel will be responsible for training students on technology devices and helping them use Web-based resources for research.
- Each building has a full time high potential teacher for the coming school year that will take care of the high potential students in this case.
- An efficient and competent technical staff will support the infrastructure and maintain equipment at high service levels.

Implementation Plan

Implementation will take place over a four year period.

Year 1

Year 1 is the year of increasing the management capacity for the integration of technology into instruction and for establishing a more robust and dependable infrastructure. The activities for the first year will focus on pilot programs in technology training, curriculum planning, and staff development.

Year 2

Year 2 begins the multiyear implementation efforts. The implementation efforts will begin with those groups most ready to initiate these efforts. This will be the year that there will be long-term efforts in instructional integration, 1:1 computing, instructional process portal, infrastructure and formal implementation of the instructional technology organization.

Year 3

Year 3 will be the major year of implementation efforts. The data ware house will be fully implemented along with continued effort towards VoIP and technology curriculum for students.

Year 4

This will be the completion year for instructional integration and 1:1 computing devices and the year that the management system implementation including SIS, Finance, HR and special education management is completed.

1.0 Instruction

1.1 Introduction and Overview

To summarize the current status of technology in MPS In 2006

- From an instructional viewpoint Technology is teacher-centric. The planning and delivery of instruction and communication with the community has been changed throughout the district through the use of SMART boards and Blackboard.
- From a student-centric view point, students are engaged in the new classroom devices, but considerable work remains to be done in the areas of increased access, individualizing instruction, expansion of technology courses, linkage of curriculum to standards, and technology competencies.

The work done in the last five years has given Minnetonka national recognition and positioned it to be one of the first school systems in the country to fully integrate technology into instruction to improve achievement and provide students with 21st century skills in the next few years.

1.2 Target Environment 2011

By 2011, MPS will position itself to be a true leader in technology integration. Technology will be both student-centric and teacher-centric. Students and teachers will be using technology on a daily basis throughout the school system, creating an engaging learning environment as students strive to reach their full potential. Each student will have an individual learning plan and will be able to use the full complement of 21st century skills before graduating from high school.

Curriculum will be fully digitized and geared toward individualized learning. Teachers will use curriculum materials that can help individualize and enrich student skills in key areas. In addition, there will be a series of specialized programs in such areas as computer graphics. Use of technology will be seamless for teachers as well as students. Professional development will be ubiquitous and based on providing teachers with the skills and standards needed by students. Teacher will use technology to differentiate instruction and engage all learners.

Specific elements that will be included in the target environment to support and enhance teaching and learning are the following:

- An integrated system of curriculum management which includes curriculum mapping and the ability to align and upload curriculum resources such as units, lessons, and assessments.
- Creation of common assessments.
- Professional development management system software that will target the professional development program based on the needs of the professional staff to improve instruction.
- Organization of a school improvement team that focuses on supporting professional learning communities, instructional technology, data management, use of educational resources, and professional development.

- An educational portal that allows for 24/7 access for both teachers and students to files and software.
- The use of a variety of technology access devices such as thin clients, PDAs, and PCs that will enable students to have access to computing devices whenever they need them.

Individualized technology-based instructional software in such areas as enrichment, special education, math, English, and foreign language. Data-based software targeted to the needs of individual students is increasingly available. This software can greatly enhance instruction.

2.0 Infrastructure

2.1 Introduction and Overview

Infrastructure is the platform on which all instruction and management is delivered. It includes networks, workstations, local and wide area networks, and all computing devices such as interactive boards, laptops, and carts. To ensure effective delivery of management and instruction, infrastructure has to be regularly maintained and updated every five years.

Current Infrastructure Needs

- The MPS IT staff will develop a Voice over Internet Protocol (VoIP) strategy to complement the current data and video strategies.
- The current video strategy will be upgraded to include a more robust broadband video system housed at the NOC. The video system will include IP security cameras, digital recorders, and a central on-demand video curriculum server with all curriculums meta-tagged for ease of use.
- The MPS IT staff is currently using 2 VM ware servers. This practice will continue in order to reduce the number of overall servers.
- The MPS IT staff will implement a full-scale disaster recovery/business continuity plan in 2008 in case of hardware failure, power outages, or natural disasters. An off-site NOC that mirrors the district NOC and/or development of a robust SAN should be a consideration.
- The MPS will develop a technology assessment guide. This instrument will provide a mechanism whereby the end users (including administrators, teachers, and students) could voice their wants, needs, and desires from the technology department.
- The MPS staff will work with the instructional team to use a master planning guide such as the Texas Star Chart Rubric, to facilitate the comparison of technology needs with the district's instructional needs (www.tea.state.tx.us/starchart).
- The MPS IT staff will perform a complete network traffic audit in 2008 to establish a baseline from which to plan for further network modifications and expansion. This would include auditing traffic at both the WAN and LAN and projecting future capacity needs. Local school concerns about network speed can be addressed by such a study. Even though the WAN seems to be robust, the LANs may need new routers and switches. The traffic audit will be conducted annually.
- The MPS IT staff will audit the number of drops in each classroom and assure that there are six drops minimal in order to handle the move to digital video, printers, voice over IP, and wireless connectivity. In the end, MPS will need to conduct a cost-benefit analysis that looks at pulling more drops versus moving to a robust wireless system. The same can be said for labs that may need to support as many as 20 to 30 learning devices.
- The current ratio of students to computers is not adequate.
- The MPS IT staff could move to a "thin-client" alternative. With the development of a robust Network Operation Center. The district's "student access" needs could be more

effectively met at a lower cost by the use of a thin-client device connected to high-production servers located in the NOC.

- The MPS IT staff will develop a long-range administration and student media storage solution. With the advent of student e-portfolios, it is not uncommon for a district to implement terabit SAN systems.
- MPS will establish a digital identification management program as it relates to district security, point of purchase, and building security.
- MPS will integrate back-office software with the student information management system. Currently MPS is dependent upon its SIS system to develop a fully integrated curriculum management, student management, and district business management system in order to achieve a fully data-driven decision-making process.
- Standards will be established in the following areas: special ed software, laptop home-use policy, software evaluation, and integration (or a committee could be formed to establish policies and processes for the selection of truly integrated software packages).
- MPS will develop enforcement strategies/policies for filtering, reporting (SMS), file system filtering on student servers, student use of outside laptops, and student e-mail.
- The MPS IT group will develop a full backup and security plan in conjunction with a full disaster recovery/business continuity plan.
- The MPS staff will conduct a cost-benefit analysis on the use of biometrics and smart cards for improved security as well as for student information and point-of-sale transactions.
- MPS IT staff will analyze and recommend a robust and central Web portal with single sign-on for parents, teachers, students, and administrators, with security access based on roles and responsibilities. This system will enable use of web-based applications for instructional delivery and improvement in a secure environment.

2.2 Target Environment

The target environment depicted below shows the relationships between schools and classrooms, the applications systems, the district Wide Area Network, and the Internet. The proposed target environment for 2011 will enable Minnetonka to move toward becoming a national leader among school districts in the use of technology, as technology moves from focus on teacher to an increased focus on students in the teaching and learning process during the next four years. The proposed target environment will enable the increased use of digitized materials in place of print materials in the coming year.

The target infrastructure environment for 2011 will include the following:

- District High-Bandwidth Ethernet Network similar to a Metropolitan Ethernet Wide Area Network, or MAN. Such a MAN will allow 100-megabit connectivity between the Network Operations Center, the district's Disaster Recovery Site, the central office, and all district schools and support buildings.
- Local Area Networks (LANs) at each school will feature 100-megabit fiber-connect routers and switches with broadband service to each wiring closet. Connectivity from the wiring closets to the classrooms, labs, and media centers will be 100-megabit

- Ethernet in order to carry the voice, video, and data needs of the district and to enable the use of ASP and Web-based applications in all locations.
- Classrooms will have a minimum of six drops per room in order to support a redundancy for network switches, teacher PCs, up to 12 learning devices, a voice over IP phone, wireless connectivity (802.11n), and digital video.
 - MPS will move towards a 1-to-1 “student access” model. This model features various 1-to-1 appliances, including laptops, PDAs, thin-net clients, PCs, and other emerging technologies such as specialized learning devices. This may include taking 4-to-6-year-old PCs that are due to be rotated and repurposing them as thin-net clients rather than purchasing new thin-net clients or PCs.
 - MPS will have a complete Network Operations Center with SAN backup and recovery, and a mirrored off-site emergency NOC as part of a district disaster-recovery plan.
 - MPS network will support a voice over IP phone system as well as a central video-streaming server and IP security cameras. VoIP design can include the ability to use existing handsets rather than purchasing new VoIP handsets. The overall benefit of VoIP is lower cost with increased capability and district security.
 - MPS will have a central “video on demand” IP server that contains meta-tagged video excerpts that can be easily pulled into the teacher’s curriculum and displayed to the desktop or web browser.
 - MPS will have developed a district portal with single sign-on for parents, students, teachers, and administrators, with role-related secure access to district data as well as file sharing by appropriate level of access.
 - MPS will have a fully integrated SIS, HR, and curriculum management system that will support data driven decision making and individualization of instruction
 - MPS students will have access via the school network to classroom curriculum, including classroom notes, practice tests, podcasting, video casting, and online assessments.
 - The MPS curriculum team will be fully interfaced with the IT team.
 - IT support staff will be able to monitor, troubleshoot, and repair all network devices from the NOC unless physical intervention is necessary. The ratio of technical staff to learning devices will be an average of 1 staff person per 350 or fewer devices.

2.2.1 Target WAN/MAN

The WAN (Wide Area Network) provides high-speed connection between schools, central office, and the Internet. The MAN (Metropolitan Area Network) extends the district WAN concept to include other community support facilities such as libraries, museums, and postsecondary institutions, as well as community partners such as hospitals, factories, and research centers.

Currently the WAN has sufficient capacity and is capable of expansion for future needs. The district monitors the WAN to determine the amount of traffic. Given the eventual need for expansion of Internet bandwidth, the traffic monitoring will provide data to determine the rate and size of expansion.

The target MAN will evolve from the current WAN. The present WAN meets the needs of the district: it appears to be operating well with the exception of adequate Internet

bandwidth. The district needs to increase Internet bandwidth, provide redundancy for the Internet, and ensure that network-monitoring tools are used effectively.

2.2.2 Target LAN/Gigabit Ethernet

The LAN that transports information through schools is the access point to the WAN/MAN. The LAN provides internal connectivity, volume, and speed that complement the WAN. The target LAN will be driven in each building by a dedicated router in the main wiring facility that provides a minimum of 100 Mbps to the terminals and network devices in each classroom.

Currently the classroom connection to the LAN in each school is the weak link in the MPS infrastructure. Budgets should be established that will allow for a complete upgrade of all switches and routers system wide.

For the **target LAN environment**, each building must have the following:

- Connectivity for 6 to 12 networked devices in each standard classroom.
- Capability of providing a minimum of 100 Mbps to the desktop.

For overall network health — of the current LAN and of the target environment — the LANs need to be continuously monitored. Specifically, LAN devices and links should be monitored for errors and capacity utilization. The network administrator must use the network monitor correctly for it to be effective. This means defining the parameters that are important to the network's overall health and usability.

Wireless capability should be expanded to all schools. A cost-benefit analysis will compare the benefits of pulling more classroom/lab drops versus expanding wireless into each learning environment.

With a move to voice over IP, the district can consider the use of IP for security cameras as well. The target MAN/WAN/LAN will provide for full voice, video, and data at broadband speeds.

2.2.3 Target Learning Devices

The objective is for each student and teacher to have access to their central files via a network appliance at school or from a common Internet-based PC at home. A network appliance can include any device that can gain access to the school network and associated user-based files. Such appliances may include traditional PCs as well as other emerging technologies, such as tablet PCs, PDAs, thin clients, education-dedicated laptop-like devices, calculators, and even some cell phones.

Connectivity can be wired or wireless. With the advent of wireless built into the processor chip, the 802.11n standard has become ubiquitous. The phrase “anytime, anywhere, anyplace learning” has become a reality with the development of WiFi hotspots within schools and communities.

The classroom will likely be the primary location of learning devices in the elementary schools; the middle school may place learning devices at a location convenient for each team; and the high school may choose to have electronic classrooms for some departments and labs for others. The general principle is to have enough learning devices to enable easy access for all students. Teachers and certain administrators

should have a dedicated computer, preferably a laptop, so they can have support at home and on trips.

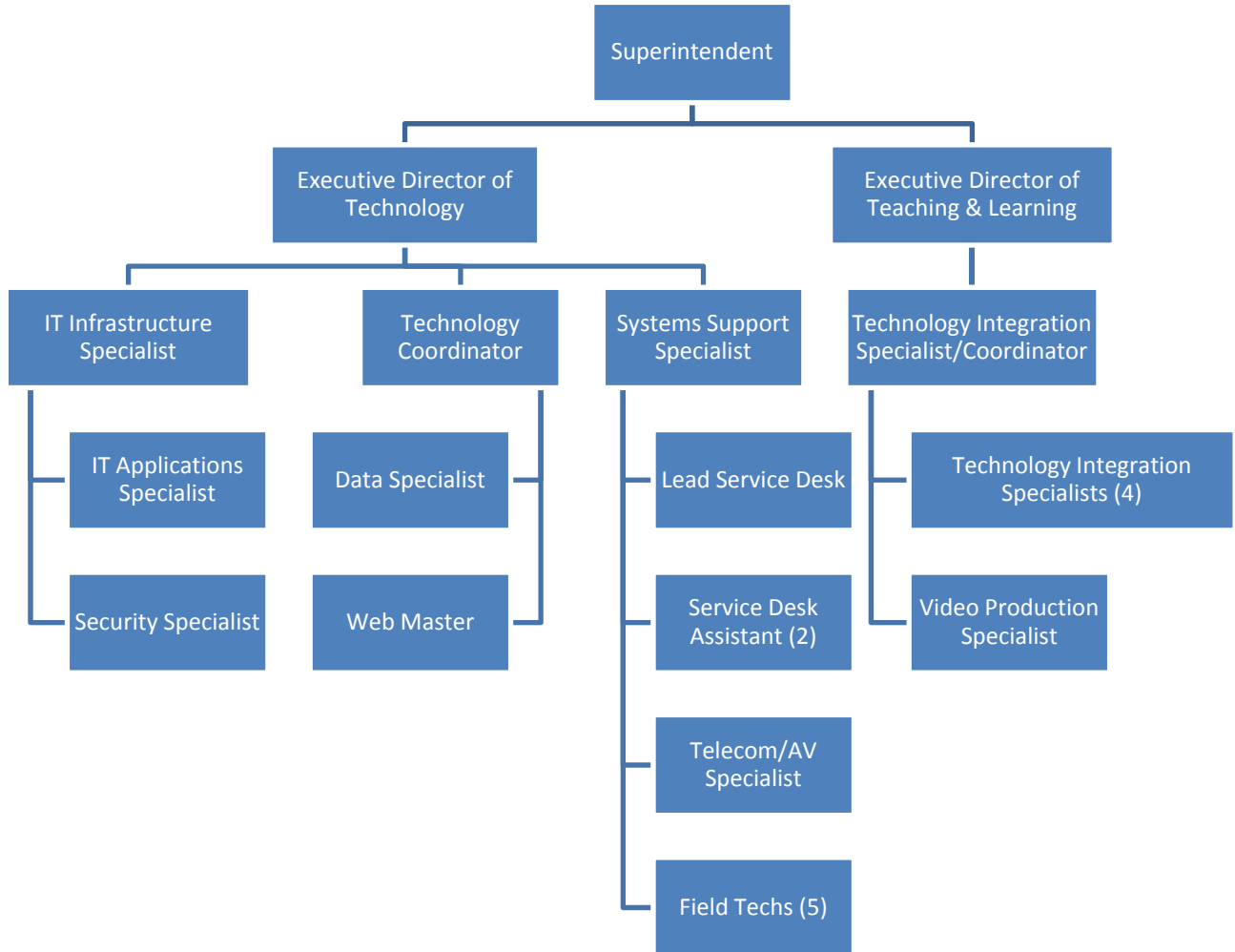
Given budget constraints, MPS can consider different ways to ensure computer availability in the classroom. Traditionally, the approach in elementary classrooms has been to place five to six workstations around a room. Today, schools are putting in place multiple “small form factor” learning appliances to improve the student-to-appliance ratio. One popular approach is the use of thin clients in order to reduce cost and increase access.

2.3 Projected Cost

Projected infrastructure costs for the next five years center around the following:

- Disaster recovery implementation (Year 1 for planning, completion by Year 2)
 - MPS is advised to perform a full business continuity/disaster recovery study and implementation. Most districts seek outside support from vendors and consultants that specialize in offering such services.
 - MPS should consider how to maintain critical data and curriculum needs or district business continuity should a disaster occur that would interrupt the normal operations of the NOC.
- Network upgrade (Years 1 through 3)
 - Network upgrade system wide, including servers, routers, switches, and cabling/fiber to the wiring closet and/or wireless pods that will ultimately bring voice, video, and data to every environment.
- Voice over IP (Year 1 for planning, Years 2 and 3 for implementation)
 - MPS can save telecommunications costs with the implementation of VoIP.
- Video on demand (Year 2)
 - Central meta-tagged video on demand would support district curriculum and performance standards.
 - A Phase 2 of the implementation would be the addition of IP video surveillance and security cameras (Years 2 and 3).
- Curriculum management integration (Years 2 through 4)
 - MPS can use technology to implement a fully integrated SIS/curriculum management software system that will allow each teacher to diagnose, prescribe, test, and report on individual student performance. Year 1 should be a time of design review and testing. Full implementation (full acceptance and use by teachers) will take a number of years.
 - Hardware rotation is well underway. All desktops, printers, and laptops have now cycled through a rotation period so we are just maintaining the rotation—no back log exists.
 - MPS should continue to budget to rotate all hardware over a three-to-five-year cycle.
- Additional learning devices (Years 2 through 4)
 - MPS can lower the current student-to-learning-device ratio by adding at least 600 to 1,000 learning devices per year.
 - Rotation of learning devices should begin in Year 5.
- Thin net clients (Years 1 through 4)
 - MPS can extend the life and rotation cycle of PCs by replacing them with thin net clients or using older PCs as thin net clients.

2.4 Target Staff



2.5 Planned Infrastructure Improvements

Improving Classroom Network Connectivity

As MPS increases the use of learning devices in the classroom, media centers, and labs, they will install additional network drops.

Planned action

The district will conduct a district wide audit of network drops. A general diagram of each building and each room should be completed, showing each drop location with the associated number of ports, location of wire run to termination point, wire spec (copper size versus fiber), and current connectivity speed.

Audit should also include current wireless location and capability as well as projected wireless needs. Projected needs should include both traditional laptops as well as wireless learning devices.

Increasing Learning Devices

MPS has made significant progress in the installation of interactive whiteboards in most classrooms. What is not apparent is the student-to-computer ratio of 4 to 1 in the elementary schools and 3 to 1 at the secondary level. The installed base of learning devices is not sufficient for classroom instructional use. The only instructional time most students have using Internet or software tools is in the computer labs, which are currently overbooked.

Planned action

Purchase, lease, or build those devices that support the curriculum and the raising of achievement standards. Those devices may include traditional PCs, laptops, thin net clients, PDAs, calculators, and/or emerging educational learning devices such as the "One to One Mate" or Fourier's Nova 5000.

Consider learning devices that have long battery life and offer wireless connectivity. Laptops now offer the opportunity to place a second battery in the CD/DVD slot. With two 9-cell batteries on board, laptops can run up to 8 hours under normal use and can be recharged overnight. This eliminates the need for swapping batteries and the use of external battery chargers.

The new emerging technologies are designed as education-oriented devices rather than business machines. The new devices have much longer battery life because they replace moving parts such as CD drives and hard drives with solid-state memory chips. With wireless connectivity, such devices can access local servers or the Internet in order to run IP-based applications.

A thin client is simply a basic small form factor terminal that connects to a server via standard Ethernet connections. Thin clients run most Web-based applications and server-based applications with little difficulty. The upside of thin clients is their very low maintenance compared to PCs as well as long life. Because they have no moving parts

and applications run on the server, the average life span of thin clients is two to four times that of a PC.

PCs and laptops can be purchased for those instances when a teacher or student needs to run a local application.

Implementing a business continuity/disaster recovery plan

The technology team in consultation with the district leadership will determine the essential applications for business continuity in case of a major disaster — whether to the data center or to another district area. Next, these applications should be given the highest priority in establishment backup, and in recovery and redundancy. At least two technology team members should attend training on disaster recovery and backup/recovery of applications and data. Backup and recovery procedures need to be well documented so that when staff turns over, new employees will understand the procedures.

Implementation of single sign-on (SSO) for teacher, parent, student, and administrator access to the district network

The business of school systems is student information, so it is extremely important that there be established procedures for network, server password, and data security. The use of a single sign-on Web-based application with associated security clearance will increase the availability of educational and data information.

Planned action

Protection of student data is extremely important. Many educators have home computers on which they keep student demographic data and grades. With the proliferation of DSL and cable Internet access from home, it is necessary to establish district policies for the protection of student data stored on computers outside of the district.

IP protocols and Web software now exist to allow for SSO for most district business and data-reporting needs.

3.0 Management Systems

3.1 Introduction & Overview

The smooth day-to-day operations of a school district rely on an effective suite of management systems. The suite of systems includes applications for accounting, payroll, HR, purchasing, student data, transportation, maintenance, special education, child nutrition, library, student information, and instruction/curriculum management.

Over the last five years, Minnetonka has maintained its current management systems, including the Skyward integrated finance and student information system and stand-alone systems in special education, transportation, and library management. The district has done a praiseworthy job of operating and supporting the systems. Users express considerably more satisfaction with the functioning of these systems than in the past. However, most of the systems are old, not well integrated, and overdue for replacement. The implementation of new integrated systems will increase efficiency of management and staff operations, improve business processes, and enable much more effective management of the district and enable the improvement of data driven decision making to improve instruction.

3.2 Target Environment

By 2011, MPS will have a central Web-based education management system that will address the following components.

- **One integrated system**
 - District business functions will be combined or integrated with student information services and curriculum management services to enable data driven decision making, accountability and individualization of instruction.
 - The system will be maintained by the district or an external service provider and be accessed by schools. All data will be entered only once, and information will be shared among applications, eliminating multiple data entry.
- **One student information system (SIS)**
 - The fully integrated SIS will link with all relevant district applications such as library, food services, transportation, security, student store, athletics, discipline tracking, sports, and classroom activities.
 - The system will track student master schedules, teachers, grade book, seating chart, medical records, emergency contacts, transportation, attendance, class roster, and formative and summative assessments.
 - A unique student identifier will be issued that can be used for NCLB reporting of cohorts without identifying an individual student.
 - Student counts will be provided for state reporting based on current state guidelines. Daily student attendance and attendance records can be reviewed for any window the administration chooses.
- **Data access**

- Web-based, anytime, anywhere, anyplace data access will be available for parents, students, teachers, administrators, and community leaders based on user security allowance.
- Users will be able to pull data from existing databases through either SIF compliance or resident middleware capability for easy ETL (extract, transfer, and load data).
- Summative test scores will be available to teachers almost instantly. Formative test results will be made available to students in real time in conjunction with integrated test generation and reporting.
- The MPS system will feature a “dashboard” interface to a central database that will allow real-time reports, comparisons, linear regression, data analysis, and compliance monitoring.
- **One district portal with single sign-on**
 - All users, including students, teachers, administrators, parents, and community leaders, will have one single district educational portal.
 - The MPS portal will have a single sign-on capability. One secure sign-on will give access to all appropriate applications. Teachers will no longer need to sign on to multiple applications.
 - Users will have 24-hour access with one look and feel and only one basic system to learn.
 - Teachers will each have their own Web site with assignments, lesson notes and podcasts, suggested Web sites and tutorials, upcoming events and announcements.
 - Teachers and administrators will be able to conduct surveys and post the latest research.
 - Students will be able to post their e-portfolios or share within their learning groups built around project-based learning.
 - Teachers will be able to access the district curriculum/instructional management system, including all integrated student assessment and accountability functions, test generation, and student performance reporting.
- **Security**
 - Security allowance will be role-based, enabling individuals such as students to access only their allowed files and data. The MPS data system will log all access and data changes.
 - Students and staff will have security badges. MPS can print ID badges that include bar code/picture ID to be used for lunch program, building security, and activity passes.
 - A security specialist position will be created and added to the technology department to be proactive in preventing security related issues.
- **Reduced IT support**

- Because all applications will be Web-based, software upgrades will be handled at the central server rather than the individual desktop. IT support will need only to keep PCs and learning devices IP-compliant.
- Both PCs and Macs will be able to access through a standard Web browser.
- Service desk support will enable requests to be accepted via e-mail, will recognize the user and the request by examining key words, and then will parcel and direct the work to the appropriate responder.
- **HR**
 - The system will conduct daily routine business such as online time sheets, payroll information, and medical enrollment.
 - The system will monitor professional development, certifications, teacher performance, and pay scale upgrades.
- **Student services**
 - Electronic student information transfers will be conducted from other districts or intra-district.
 - The system will help students file college applications and follow student success in postsecondary endeavors.
- **Special education**
 - Special education teachers will have a Web-based application that will allow them to meet federal and state compliance standards by supplying uniform forms and evaluation processes, including IEP annual yearly progress, early childhood, IEP meetings, extended school year, special considerations and modifications, accommodations, census data, case notes, student events, and exception checking.
 - Special education teachers will be able to complete their IEP documentation, including progress reporting and IEP building, auto-build benchmarks, and automatically create federal and state reports.
 - A complete special education application will also allow the SPED teacher to work online to finalize IEP services such as transportation, placement considerations, supplementary aids/services, and student frequency progress reporting.
 - There will be an increased amount of assistive and adaptive technology to support special education students in the least restrictive environment.
- **Curriculum management system**
 - Web-based access will be supported through the district Web portal.
 - 21st century skills will be supported.
 - Curriculum mapping will be supported and streamlined.
 - Teachers will be able to create standards-based lesson plans, assessments, and reports, and make midcourse corrections to improve student performance.

- Teachers will be able to diagnose and prescribe the best paths to learning for the individual student.
- Teachers will be able to follow student progress throughout the school year.

3.3 Recommendations for Management for Accountability and Management system

3.3.1 MPS needs an integrated management system for district business applications.

MPS should conduct a business process review of management and data driven decision making functions before purchasing new systems to maximize efficiency. Streamlining business processes ensures that the new systems will not need to follow older business procedures. Many systems now integrate such applications as HR, accounting, purchasing, payroll, food services, library, and transportation.

MPS should strive for the greatest efficiency possible in every aspect of district business and instruction. Avoiding multiple applications and seeking one integrated system will ease the district burden on personnel, professional development, infrastructure, and business continuity.

If Skyward is the district choice, then MPS should push for a Web-based application that offers as many integrated applications as possible from the list of applications listed in the section “Target Environment.”

Transportation applications currently require redundant data entry due to a lack of integration of databases.

3.3.2 MPS needs an instructional/curriculum management system (CIS) that is integrated or data-transfer-compliant with the district student information systems (SIS).

MPS should acquire an instructional/curriculum management system to manage student achievement and accountability information. This system must be fully integrated with the student information system or be SIF-compliant to allow for easy data transfer between systems.

MPS should either replace Skyward with an integrated system such as that described in the section on “Target Environment” or upgrade Skyward to fulfill as many of the “Target Environment” components as possible.

3.3.3 MPS business applications need to be SIF-compliant (allowing easy exchange of data) with the MPS student information system and computer information systems to enable data driven decision making

MPS would be wise to test the data-transfer compatibility of all current applications before committing to one vendor or system. If the applications are not SIF-compliant (meaning that the systems are interoperable), then vendors must prove that their

“middleware” (the applications that interoperate with each other) will allow data to be easily and cleanly moved from one application to another.

3.3.4 All MPS applications should be Web-based.

All systems should be Web-based to reduce IT costs as well as provide for greater efficiency and ease of developing a district educational portal with single sign-on capability. Web-based administrative systems share data between applications and use common data elements. Having common integrated systems will make it more efficient to manage the systems and create a greater likelihood that student achievement can be affected and measured.

Web-based applications eliminate the need for running applications on local servers. IT costs are reduced when the IT department only needs to support IP connectivity.

3.3.5 MPS will consider outsourcing systems, allowing another vendor to operate them, or to purchase the systems and operate them itself.

MPS should consider outsourcing some management systems to more easily operate administrative systems. Assuming the costs are not greater, outsourcing could allow the district to provide systems without needing costly local technical personnel to maintain servers.

MPS will need to do a cost-benefit analysis to help determine whether to outsource the system to ASPs (application service providers) or to manage the systems itself. The arguments for outsourcing are the following:

3.3.6 MPS will purchase a new special education application.

MPS should purchase a new special education management program that will save considerable time in the IEP process at schools, eliminate multiple data entry, and ensure effective management of special education and compliance with the law.

As is the case with other applications, special attention should be placed on acquiring a special education system that is or can be integrated with the other business, CIS, and SIS systems chosen by MPS.

3.3.7 MPS will provide new systems for providing instructional data to teachers.

Students today must compete in a worldwide market. Employers are looking for graduates who can quickly learn and relearn new skills. Team work, communications skills, soft skills, foreign language proficiency, and higher math skills are now considered the new door openers. MPS should review the 21st century skills developed by a national team of educators and CEOs.

To be an auto mechanic now requires the ability to diagnose and prescribe based on vast databases of technical knowledge and experience. Doctors now regularly consult relevant databases when performing diagnoses and prescribing treatments for their patients.

Teachers today need the best tools that can be brought to their classroom so they can combine the “art of teaching” with the best scientific evidence backed by databases of sound assessments in order to diagnose and prescribe the best learning opportunities for their individual students. Increasingly, in subject areas such as reading and math, there are data-based systems that work individually with students and allow teachers to facilitate and monitor the work.

3.3.8 MPS will provide extensive professional development for office, technical, and instructional personnel.

Interviews during the technology audit found an overwhelming response for the need for ongoing professional development. The most productive employees are those who are confident in their assigned tasks.

4.0 Organization to Support IT and Instructional Use of Technology

4.1 Overview

In 2007 technology has become central to all functions and processes of education, including teaching and learning, business processes, and communication within the district and to the community. There is a need for a centrally planned and locally executed technology function that will address the technology support needs of the entire enterprise in an integrated and efficient manner.

Technology encompasses a broad range of instructional and management processes that impact the district's core management and instructional missions. These processes include the following:

- Integration of technology into the teaching and learning process.
- Design and management of the infrastructure.
- Selection and management of all administrative systems.
- Technical training and professional development for teachers and staff.
- Integration of technology into the curriculum.
- Delivery of instructional resources and standards-based accountability.

The primary MPS vision for technology is to raise student performance. The secondary vision is to provide a world-class IT environment for all stakeholders, including administration and the community.

The Executive Director of Technology and the Executive Director of Teaching and Learning need to fully integrate all aspects of technology into the instructional endeavors. For technology to meet the demands of MPS in 2011, the following must occur:

- An infrastructure management group, led by the network manager, will be responsible for all procurement, strategic planning, network management, and repair.
- An instructional technology group, led by an instructional technology coordinator, will be responsible for technology curriculum for students, professional development for teachers, an instructional process management system to address standards and accountability, and the development and management of Web-based resources.
- All infrastructure, management, and instructional technology functions will report to the Executive Director of Technology, who will have overall accountability for IT operations.
- The Executive Directors of Technology and Teaching and Learning must work as peers to seek full integration of technology within instruction.
- The Executive Directors of Technology and Teaching and Learning along with their staff will jointly review and select the most effective and appropriate hardware, software, and infrastructure services that will ultimately provide measurable increases in student achievement.
- Common professional development and Web-based instructional resources will be available to teachers.

- Technology competencies will be required of all staff.
- Uniform integrated technology curriculum will be implemented in all schools.
- Standardized access to technology will be available in all schools.
- There will be a common curriculum process including standards, assessment, data management, and content. This system will be used as the platform for instructional delivery and assessment.
- An ongoing strategic technology planning process will address long-term planning and systems integration.
- An efficient and competent technical staff will support the infrastructure and maintain equipment at high service levels.
- Technology integration specialists will work with school cadres to ensure that technology is used to support the school improvement plan.

4.2 Target Environment

The target environment will focus on the integration of technology into instruction. The strategic importance of technology to education makes it necessary to have a department that combines authority and accountability for instructional technology, infrastructure, management systems, and instruction.

The Technology Department will be headed by the Executive Director of Technology who will collaborate on all technology matters with the Executive Director of Teaching and Learning.

The Executive Director of Teaching and Learning , with input from the Executive Director of Technology, will be responsible for the following:

- Instructional Technology Coordinator will be responsible for
 - Oversight of the school improvement support specialists
 - Liaison with the Executive Directors of Technology and Technology and Learning
 - Oversight of all web based resources
 - Procurement of all instructional software
- Technology Integration Specialists(4) will be responsible for
 - Instructional software
 - Facilitate professional learning communities
 - Oversee data usage in schools
 - Support Web-based resources
 - Support instructional management systems
 - Blackboard
 - Support teachers in integrations of Web-based resources
 - Teach technology curriculum for students
 - Train on instructional technology

4.2.1 The Infrastructure Group

This group will be responsible for the management of the network, the repair of equipment, and support of administrative applications.

The IT department (infrastructure group) will have the following responsibilities:

- Co chair software integration team with Director of Teaching and Learning
- Supervise support techs working exclusively in the schools.
- Maintain a four-year rolling strategic technology plan.
- Complete an annual budget and implementation plan for technology review.
- Review and approve all technology expenditures in schools and departments.
- Design and implement all network design and maintenance.
- Support all administrative systems.
- Maintain technology standards.
- Plan and deliver IT-related professional development.
- Design and maintain an integrated student information system.
- Co-chair the development and management of a technology competency program for teachers and students.
- Deploy strategic instructional systems, i.e., curriculum planning, integrated management systems, and Web databases for curriculum and home-school connections.
- Develop and implement a district disaster recovery plan.
- Maintain and support the MAN/WAN and the monitoring software tools to ensure operation.
- Maintain and support local area networks (LANS), including file servers, network functions, and network operating systems.
- Analyze new hardware and technical environments under consideration.
- Establish, review, and maintain all outsourcing agreements, contracts, and materials needed for the acquisition and maintenance of technology throughout the district.
- Approve all purchase orders for technology-related acquisitions to ensure that they meet the standards established by the district.
- Establish and maintain the communications network throughout the district.
- Oversee equipment repair.
- Manage the deployment of workstations throughout the district.
- Provide daily Help Desk support to users.
- Maintain an automated system to analyze service issues.

4.2.2 Specific Roles

- Executive Director of Technology
- Technology Coordinator
- Network Engineer
 - Security Specialist
 - Application Specialist
 - Data Specialist
 - Telecommunications/AV Specialist

- Accounts Specialists
- Systems Support Specialist
- Service Desk Director
 - (2) Service Desk Assistants
- (4) Field Technicians

4.2.3 The Executive Director of Technology and the Executive Director of Teaching and Learning

The Executive Director of Technology and the Executive Director of Teaching and Learning will be responsible for all aspects of technology related to teaching and learning.

The instructional technology group will consist of five people with the following roles:

- **The Instructional Technology Coordinator** who will be responsible for overseeing all instructional technology activities both in the central office and schools. The main activities will be procuring web based applications and maintaining the portal, overseeing the instructional integration specialists and being a liaison to other technology groups.
- **The Instructional Integration Specialists** (four) will be responsible for overseeing and delivering all basic and advanced professional development courses, working with the pilot teachers to provide assistance with technology integration and supporting the instruction department and schools in using the curriculum planning and assessment tool.

4.2.4 School Authority and Responsibilities

School principals will have the authority and responsibility to do the following:

- Establish a technology component within their annual school improvement plan that will link technology use to instructional improvement.
- Teach the district's technology skills curriculum to students and integrate technology into the core curriculum.
- Encourage the school's teachers to achieve technology competency and to support their efforts to integrate technology into the curriculum.

4.2.5 Policy Group

The District Technology Steering Committee (STSC) will be made up of representatives of all schools and district office personnel who are stakeholders in the use of technology. The members of the District Technology Committee will be responsible for communicating technology issues to their constituent groups and will serve as contact points in their schools and departments. The overriding goal of the group is to provide feedback and consensus to the technology decision-making process. The committee will do the following:

- Provide a forum for feedback to the Executive Director of Technology and the Instructional Technology Coordinator on the quality of services being provided.

- Act as a group to give input on the service levels desired at the schools for both the infrastructure and instructional computing support.
- Provide an open forum for the debate and adoption of programs in instructional technology.

5.0 Implementation

5.1 Introduction

The purpose of this chapter is to clearly and succinctly organize the discussion of implementation of all areas of the technology plan on a year-by-year basis. The critical events and themes of the year are discussed. A description of the main activities of each year is followed by a list of the activities that will take place that year.

Year 1

Year 1 2007-2008 is the year of increasing the management capacity for the integration of technology into instruction and for establishing a more robust and dependable infrastructure.

The activities for the first year will focus on pilot programs in technology training, curriculum planning, and staff development.

Instruction	Infrastructure	Management Systems	Organization
Procurement of curriculum planning and assessment systems.	Conduct a study of disaster recovery system for all business processes.	Initiate planning for a data warehouse and analysis system.	Establish formal instructional technology group under the Executive Director of Teaching and Learning
Establish online files/resources for staff 24/7 access.	Pilot multiple devices for next year implementation – thin clients, laptops, responders, etc.	Pilot of curriculum planning and assessment system.	
Begin establishment of staff and student technology competencies.	Continue network upgrades including servers, routers and switches.		Ongoing training for IT Staff on technical skills
	Voice over IP planning and discussions.		

Year 2

Year 2 begins the multiyear implementation efforts. The implementation efforts will begin with those groups most ready to initiate these efforts. This will be the year that there will be long-term efforts in instructional integration, a move towards 1:1 computing, instructional portals, and the formal implementation of the instructional technology organization.

Instruction	Infrastructure	Management	Organization
Continue establishing staff and student competencies.	Increase remote management of the network.		Increase the number of instructional technology integration staff.
Establish permanent web based instructional resources linked to standards.	Continue infrastructure upgrades and completion of disaster recovery plan.		Addition of security specialist and telecom/AV specialist in the technology department.
	Implementation of multiple devices including handhelds and laptops		Restructure the media center role to support teachers in the technology curriculum for students.
	Voice Over IP beginning implementation.		

Year 3

Year 3 will be the major year of implementation efforts.

Instruction	Infrastructure	Management	Organization
A repository of teacher-developed Web-based resources aligned to the Minnetonka standards.	Continue implementation of Voice over IP.	Implement the initial integrated system for food, transportation and special education.	Addition of Technology Coordinator in the tech department.
Implementation of technology curriculum for students grades k-12.	Continue and complete the network upgrade and the NOC	Install new Data warehousing tool.	
All staff will have received basic and resource technology training.	Continue implementation of the 1:1 multiple devices for students	Evaluation and RFP for student information and financial system.	

Year 4

This will be the completion year for instructional integration and 1:1 computing devices and the year that the management system implementation including SIS, Finance, HR and Special Education management is completed.

Instruction	Infrastructure	Management	Organization
Fifty to 90% of the staff has integration skills.	Complete Voice over IP upgrade.	Complete the implementation of integrated management systems.	Evaluation of Instructional Technology Organization.
Additional in-service training to continue growth should occur.	Complete the wiring upgrades.	Complete the implementation of the data warehouse.	