June 2001

Long-Range Technology Plan

(2001 Through 2003 and beyond)

ANOKA-HENNEPIN INDEPENDENT SCHOOL DISTRICT #11

CFL Technology Plan Checklist

Organization name: Anoka-Hennepin School District #11
Contact: Patrick Plant, Director of Technology,
763-506-1020, patrick.plant@anoka.k12.mn.us

Section	***CFL Requirement***	***Covered in which section(s)?***
1. Executive Leadership, Organization and Partnerships	Executive Leadership has been identified	1
	Scope, target populations, stakeholders, size of organization described	1
	Demographics on the area and population encompassed by the organization described	1
	Descriptions of how decisions regarding technology procurement, organization, and management are made	1, 2, 9, 10
	Partnerships between organizations are identified and roles of partners are clearly delineated	1
2. Technology Planning Steering Committee	TSC membership and areas of representation described	2
	Timelines/plans established for the TSC to formulate the new plan and periodically review progress	2
	Description of processes, discussion items, ongoing/future activities of the TSC	2
3. Overall Organizational Mission and Technology Vision Statement	Mission statement included	3
	Technology vision statement included	3
4. Needs Assessment to Meet the Technology Vision Statement	Summary of the needs identified/assessed	4
	Description of processes/participants used in needs assessment	4
	Comparison of the previous plan needs assessment to the current needs assessment	4
5. Objectives for the Use of Technology to Address Needs	Evidence of relationship between the defined objectives for technology, needs assessment, mission, and tech vision statement	3, 4
	Descriptions of how technology will improve stakeholder access to services	3, 4, 6
	How technology will improve quality of services	3, 4, 6
	How data is used for decision-making	3, 4, 14
	How technology will be integrated with classroom instruction to promote enhanced learning experiences and increase learning opportunities	3, 4
	How technology will improve management and operational practices	3, 4
	How technology will be deployed to improve communication with stakeholders	3, 4
	Objectives for increasing technology skill level of staff/end users defined	3, 4, 6, 11
	Answer list of 16 questions on electronic service/information delivery	5

Section	*CFL Requirement*	*Covered in which section(s)?*
6. Measurable Benefits to Stakeholders	Description of progress from previous tech plan including what benchmarks were reached	14
	Identify measurable benefits for deployment of technology within the organization	3, 6
	Identify current/future target benchmarks for the benefits	6
	Evaluation strategies for measurable benefits	14
7. Policy and Procedure Development and Revision	Documentation of equitable access, data privacy, data security, acceptable use, and disaster recovery	7
	Documentation of other technology-related policies	7
	Plans and procedures for developing technology policy	2
	Plans for periodic review/updates of policies	2
	District complies with Minnesota Statutes for data security, data privacy, and acceptable use requirements	7
8. Technology Inventory	Detailed inventory of technology infrastructure	8
	Telecommunications capacity of the school district	8
9. Technology Operations Management Requirements	Operations management needs identified	9, 10
	Systems development life cycle addressed	8
	How the school provides maintenance, operations, and technical support	9, 10
	Plans for infrastructure replacement in an organized, cycled fashion	9, 12, 13
	Policies and procedures for security, disaster recovery, procurement, and upgrades exist	7, 9
10. Technology Support Staff and Skills	Description of support staff needs and how staff are used in district	10
	Info on types/levels of positions dedicated to tech support	10, App. A
	Strategies for training these staff to maintain appropriate skill levels	10, 11
11. Educational Development and Training	Strategies for providing educational development for staff and stakeholders – these need to be developed based on measurable benefits and relate to the technologies identified in the plan	11
	Professional development plans for teachers, emphasizing integration of technology as a tool for instruction	11
12. Budget Development and Planning for Funding	Summary budget for technology expenditures – 3 years	12
	Budget for educational development	12
	Budget provides resources that cover costs for items in the plan	12
	Strategies for monitoring technology expenditures	12
	Relates to the Action Plan (section 13)	12, 13
13. Action Plan	Action plan addressing tasks, staff assignments, timelines, budget commitments for 3 years	4, 13
	Strategies for monitoring progress on the plan	11, 14
14. Evaluation and Benefit Analysis	Evaluation of the previous technology plan	14
	Evaluation scheme for this plan addressing strategies for ongoing formative evaluation and a final, summative evaluation	11, 14
	Identification of measurable benefits/outcomes and benchmarks for progress	6, 13, 14
	Who is ultimately responsible for the evaluation	14

Foreword

"The Anoka-Hennepin School District has a definite plan for how they maximize technology. They get maximum benefit out of limited resources."

— *Joan Wallin, Director of State Initiatives, Apple Computer Inc.*

Background

Anoka-Hennepin School District #11 has always prided itself on providing students with a sound, comprehensive education that enriches their lives and prepares them for their future — whether it be a job, family, the military, or a 2- or 4-year college or university.

This Technology Plan supports that vision. But implementation of this plan requires resources — both human and financial — in order to positively affect student achievement.

The last time computers were purchased districtwide was with $8.8 million in 1994. Many current computer uses (i.e., Internet, computer networking) were in their infancy in 1994. New computers run programs in seconds, compared to 6-year-old computers that run the same programs in minutes.

In business, the standard life expectancy of a new computer is 3 years, but many school districts do not have capital to buy new computers that frequently. Anoka-Hennepin is no exception, and many of its computers are elderly at just 6 and 7 years old.

Educational Context

Today's students must be competent using a wide range of technology in a variety of settings. Students must be as comfortable using a computer or other technology as they would using a pencil and paper. Students must have access to technology on a regular basis so that they can become proficient using it in many ways. They must learn to use technology as a tool to access information and to efficiently develop dynamic, effective projects.

Teachers are the key to developing technology literacy in students. Therefore, they must have access to up-to-date technology and the appropriate training and technical support to take advantage of it. Technology is a tool to assist teachers in many ways – from presenting lessons in new, dynamic ways, to assessing individual student needs and monitoring student progress. And, teachers must be able to prepare students by teaching the concepts and skills needed for them to understand and use technology effectively.

Technology is equally important to administrators and support staff in the school district. In these times of increasing demands on limited financial resources, it is essential that all staff have access to technology and the skills to operate more efficiently and productively.

In the 1980s and 1990s, technology in schools was considered an add-on or even a luxury. In 2000 and beyond, technology is a necessity. The challenge it presents is that technology is ever-changing, expensive to maintain, and most effective with proper training and planning supporting its use.

History

These days, it is difficult to imagine schools without computers. Certainly, our current students are accustomed to computers in their everyday lives.

The first personal computers were introduced in the high schools in 1980. These Apple II computers laid the foundation for personal computing in the Anoka-Hennepin Schools.

Since then, computers have slowly crept into the way we do business — from teaching students, to learning new research techniques, to staff training, to managing district information. Following are a few highlights of technology use in Anoka-Hennepin.

- 1982-83: With funding assistance from the Minnesota Department of Education, the district hired a full-time instructional technology consultant to plan for the future of microcomputing in the district. The result was a 5-year plan for instructional technology.
- 1983: Each school office begins to receive an IBM PC to facilitate word processing tasks and provide access to a simple database of student information.
- 1984: Thanks to a Model Schools Grant from IBM, the district put computer labs in two elementary buildings, one junior high, one high school, and a professional development center (for staff training). In addition, each junior high school received a computer lab of 36 machines to support a 20-day computer literacy curriculum through the math department.
- 1986: Schools that provided a technology training plan received staff development funds to support staff development and technical support.
- 1987: Due to increased technology use, two “special assignment” positions were created to provide technology assistance to staff at the schools.
- 1987: Oxbow Creek Elementary School opened as a “state of the art” technology school. Each classroom contained a computer/printer/phone system, plus a 27-inch color monitor to project the computer signal. The school included two computer labs, a teacher project area, a video studio, editing suite, and building-wide video and computer network. Oxbow was used as the “unofficial” model for other buildings, as the district set a goal of upgrading technology districtwide.
- 1988: Keyboarding was implemented districtwide in the elementary curriculum. All elementary schools had at least 30 computers; most were put into “labs.”
- 1992: The district began a comprehensive study of technology use, in order to develop a plan for both instructional and administrative use of technology.
- 1993: “Educating for the Future: Report of the Technology Study Committee”, a comprehensive, long-range technology plan was presented to the School Board.
- 1993: Design and implementation of a wide area network (WAN) took place to connect all sites and improve district communication.
- 1994: District residents approved an $8.8 million bond issue to support technology use. Coupled with an operating levy passed in 1995, the district was able to begin implementing some of the recommendations in the 1993 technology study committee

report. The main objective of the 1994 bond issue revenue was to bring all classrooms up to the best-equipped school at the time (Champlin Park High School).

- 1994-95: More than 1500 staff were trained through a variety of workshops and classes in technology use. A new process for allocating staff development funds was instituted, where dollars were allocated based on a competitive "exemplary grant" process. In the first few years, half the grants awarded were related to technology.
- 1996: A new districtwide phone system was installed, which provided for a phone in every classroom and voice mail access for all staff. The transportation department was equipped with additional technology to help with improved route planning and communication.
- 1997: Student administrative software was piloted to find a package that would manage student information, including census, test, and attendance data.
- 1997-98: In response to a statewide competitive grant process, Anoka-Hennepin schools benefited from an infusion of $3 million for technology upgrades to improve student access and teacher training. The funding consisted of a three-way match between the state, the district, and the community. It was a wonderful example of school and district staff working together to meet each school's needs while leveraging funds from other sources.
- 1998-99: The district underwent a "lab standardization" project to overcome inequities in how school labs were equipped. By filling in gaps between schools, labs at all grade levels were upgraded to equalize student access.
- 1999-00: A large portion of our school, district, and special education administrative technology was upgraded and standardized, in order to maximize performance from a new student accounting system (SASI) and new e-mail system. Approximately 5,000 staff users were given remote access to their e-mail and other district technology.
- 2000: Anoka-Hennepin led efforts to create a partnership of statewide district technology leaders to encourage networking, training and advocacy. The district also was the first in the nation to use Schools Interoperability Framework (SIF), a K-12 initiative that streamlines information sharing via technology within a district, in production.

> "In terms of data management, the Anoka-Hennepin School District has demonstrated a level of leadership I have not seen before. They are helping to define a very strategic technology framework standard."
>
> *— Chuck VanDeWeghe, Education Account Executive, Microsoft Corporation*

Innovation and leadership

Three examples illustrate how Anoka-Hennepin has worked hard to stay ahead of the curve in technology planning, technology access, and technology training.

1. Anoka-Hennepin staff were instrumental in developing a statewide technology organization to aid school districts in effective management and funding of technology. Known as the MEMO Information Technology Special Interest Division (SID), it provides technology staff from around the state with a forum for sharing ideas, researching issues, and learning best practices.

2. Ramsey Elementary School is a pilot site for the Schools Interoperability Framework, a newly developed set of standards that will enable school districts to enter data once and then share it for a variety of uses, from the main office to the cafeteria to the library. District staff have been instrumental in the development of SIF, and have been recognized for their leadership. One example of this is the eSchool Impact 30 list, which recognizes the high-impact players who have had a powerful effect on technology in the nation's schools. Patrick Plant, technology coordinator for Anoka-Hennepin, was one of two educators nationwide to lead a pilot program for SIF. The goal of SIF is to make all K-12 instructional and administrative software programs work together seamlessly, so schools can maintain the most up-to-date records and avoid duplicating data entry as well as provide more individualized and detailed information for decision making.

3. The objective of the district's Evergreen Laptop project is to measure the impact of student use of laptop computers, aimed at increased student achievement. In its first year (2000-01) staff were given laptops to ensure they were proficient in their use. Next year, students will receive the laptops and be able to take them home. Assessments of use and impact on learning goals will be measured along the way. According to research done on a South Carolina pilot, benefits of student laptop ownership included:

   - Laptops enhance learning in core academic subjects and increase students' passion for learning.
   - Laptops lead to higher quality work, especially writing.
   - Laptops allow teachers to spend more one-on-one time with students.

Summary

The bottom line is that technology is good for learning. Students should be able to access, analyze, create, and communicate information in pursuit of their academic goals. Technology can and does play a key role in every step of this process.

Table of Contents

Table of Contents (Continued)

Table of Contents (Continued)

List of Illustrations

List of Tables

Section 1 Executive Leadership, Organization, and Partnerships

> Technology can improve teaching and learning, but just having technology doesn't automatically translate to better instructional outcomes. Whether a given school experiences the potential benefits of technology depends on the software it chooses, what students actually do with the software and computer hardware, how educators structure and support technology-based learning, and whether there is sufficient access to the technology.
>
> — *"2000 Research Report on the Effectiveness of Technology in Schools"*
> *Software Information Industry Association*

Leadership

Superintendent Dr. Roger Giroux and the School Board provide overall leadership for technology in the Anoka-Hennepin School District. Patrick Plant, Director of Technology, coordinates all activities related to planning and implementing technology use. He reports to Dr. Lelia Redin, Associate Superintendent for Instruction and Curriculum. (Refer to Figure 1-1 for a technology-related organization chart.)

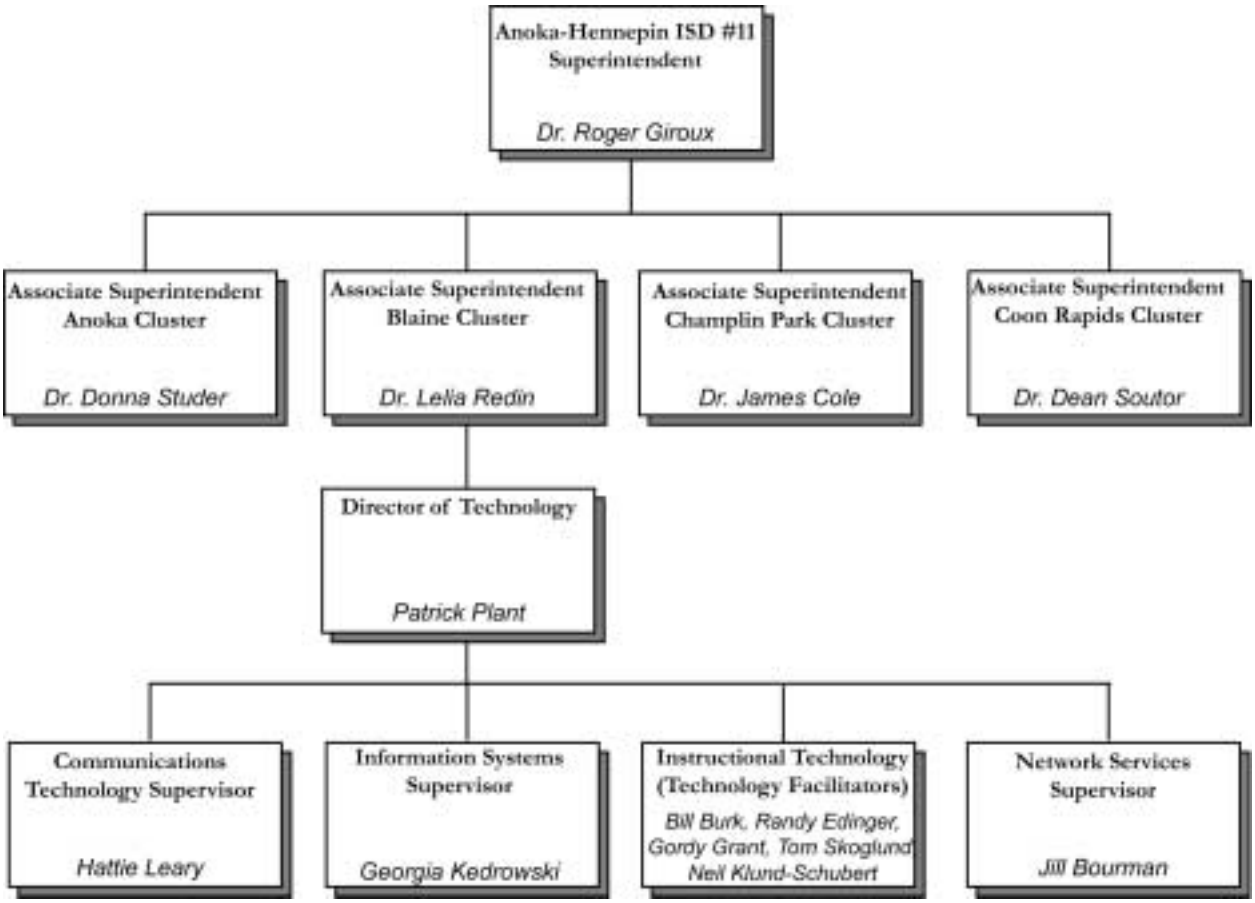

Figure 1-1. District Technology Leadership

Organization

The Anoka-Hennepin School District serves a population of approximately 200,000 living in all or parts of 13 municipalities in Anoka and Hennepin counties in the state of Minnesota. Cities include:

- Andover
- Anoka
- Blaine
- Brooklyn Center
- Brooklyn Park
- Burns Township
- Champlin
- Coon Rapids
- Dayton
- Fridley
- Ham Lake
- Oak Grove Township
- Ramsey

Anoka-Hennepin is the third largest school district in Minnesota in terms of student enrollment. More than half the households in the district have children, which is high compared to most other Minnesota school districts. A summary profile of district demographics (fall 1998 data) and buildings:

- Total school district population: 191,849
- Total number of households: 60,696
- Households with children: 31,964

- Total preK-12 enrollment: 41,088
- General fund revenue per student: $5,863 (metro average: $6,475)
- Students on free/reduced lunch: 5,926 (15%)
- Students of color: 3,166 (8%)
- Special education students: 5,426 (14%)

- Two kindergarten centers
- 27 elementary schools (grades K through 5) with another one to be completed for the 2001/2002 school year
- Seven middle schools (grades 6 through 8) – two are being enlarged by the 2002/2003 school year
- Four comprehensive high schools (grades 9 through 12) and one to be completed for the 2002/2003 year
- Three alternative high school programs
- Three alternative middle school programs
- Three centers for students (grades K through 12) with special needs

The district is divided into four geographic clusters, each consisting of one high school and the middle and elementary schools that feed into it. Each cluster is served by a team consisting of an associate superintendent, two instructional facilitators, one technology facilitator, one community education representative, and one special education consultant.

Using Technology to Support Student Learning

The overall goal of technology use in the district is to enhance and support student learning. Every technology decision must address the question, "How will this help our students?"

Research from many sources, including the International Center for Leadership in Education, shows that technology has many positive effects on the teaching/learning process. For example:

- Technology in the classroom improves student motivation and attitudes about self and about learning.
- Technology helps a school district move from a teacher-centered to a student-centered classroom. And students who are engaged in their learning are more likely to stay in school.
- Technology's flexibility helps address the fact that students learn at different rates and in different ways.
- Technology can help simplify the recordkeeping needed to implement the state graduation standards.

Definition of Technology

Technology encompasses the generation and distribution of information via voice, data, or video communications, including but not limited to:

- Interactive telecommunications equipment
- Computers and related materials
- Copying machines and other noninstructional equipment
- Assistive technology or equipment for instructional programs

Partnerships and Collaborations

Partnerships with Parents

The district considers parents as important partners in many areas, including technology. Everyday throughout the district, parents assist students in classrooms and labs, helping students use computers to improve their technological skills and basic skills of reading, math, history, and writing. As members of technology or leadership teams, parents provide valuable input into district- and building-level technology needs. Local parent groups have also been indispensable partners in acquiring hardware and software for schools.

Some schools have made special efforts to open their labs to parents during and after school to encourage computer skills development, and also to demonstrate how computers are useful learning tools for students. Several schools also provide links on web sites to provide parents with valuable information about the Minnesota Graduation Rule and homework resources.

Partnerships with Community

Adult Community Education provides a variety of MS Windows and Macintosh computer classes to the citizens, parents, and staff of the Anoka-Hennepin School District. More than 80 classes are offered each year, with a total enrollment of approximately 1,000 students. Along with basic computer skills classes, the Community Education department also offers computer classes for the deaf and hard-of-hearing, computer classes for seniors, parent/child classes, classes for adult basic education students, and staff development classes.

A few ways that various schools in our district use technology in partnership with our communities include:

- Ramsey Elementary teachers, with the help of 5th graders acting as mentors, host computer instruction sessions for the senior citizens in Ramsey.
- Schools have designed web pages for local cities, such as Blaine and Ham Lake.
- Fred Moore Middle School students created a year 2000 calendar for the city of Anoka, as well as produced electronic versions of the Anoka County Historical Society and Anoka Union Newspapers.
- Third grade students at Champlin Elementary used technology to connect with senior citizens — and got new tutors as a result! The students interviewed local senior citizens, wrote research papers (complete with digital pictures) and then presented the information to the seniors at the Champlin Senior's Center. Four seniors were so taken with the students and how technology enhanced their learning, that they now regularly volunteer to tutor Champlin students in reading.

Partnerships with Other School Districts and Counties

The district collaborates with Anoka County and other school districts in the county to share data between the county, schools, and health care providers for families who need medical intervention, including immunization or referrals to a permanent health care provider. While only in its initial state, it is anticipated that there will be further sharing of applications and data to facilitate the service to children with needs from both county and school services. GIS technology is now an affordable planning option for the district because we share Anoka and Hennepin counties' GIS data.

Anoka-Hennepin spearheaded efforts to create a partnership of statewide district technology leaders. Meetings were started in March 2000 and the group has evolved as a special interest division of MEMO – the Minnesota Educational Media Organization (www.memoweb.org). The group meets quarterly and provides a forum for networking and inservice education to promote use of video, telecommunications, computers, multimedia, and emerging technologies. The group also acts as an advocate for appropriate funding for technology hardware and software costs, operational costs, maintenance, replacement, disposal, support, and staff development.

Partnerships with Other Agencies

A number of Anoka-Hennepin schools have developed partnerships with agencies and businesses. Coon Rapids High School, for example, worked with the Minnesota Department of Natural Resources (DNR) on several projects. One project included students designing a website for the department. Ongoing projects can be found on any one of our school web sites.

In addition, Ramsey Elementary is the first school in the nation to pilot the Schools Interoperability Framework (SIF), a K-12 initiative that creates a means for participating software programs to share data (www.sifinfo.org). These shared standards enable the secure transfer of data among programs (student administration, food service, media center, transportation, etc.) seamlessly without the need to reenter data, as is currently the case. The result will be more reliable, easily accessible, and useful information for needs throughout the school district.

Section 2 Technology Planning Steering Committee

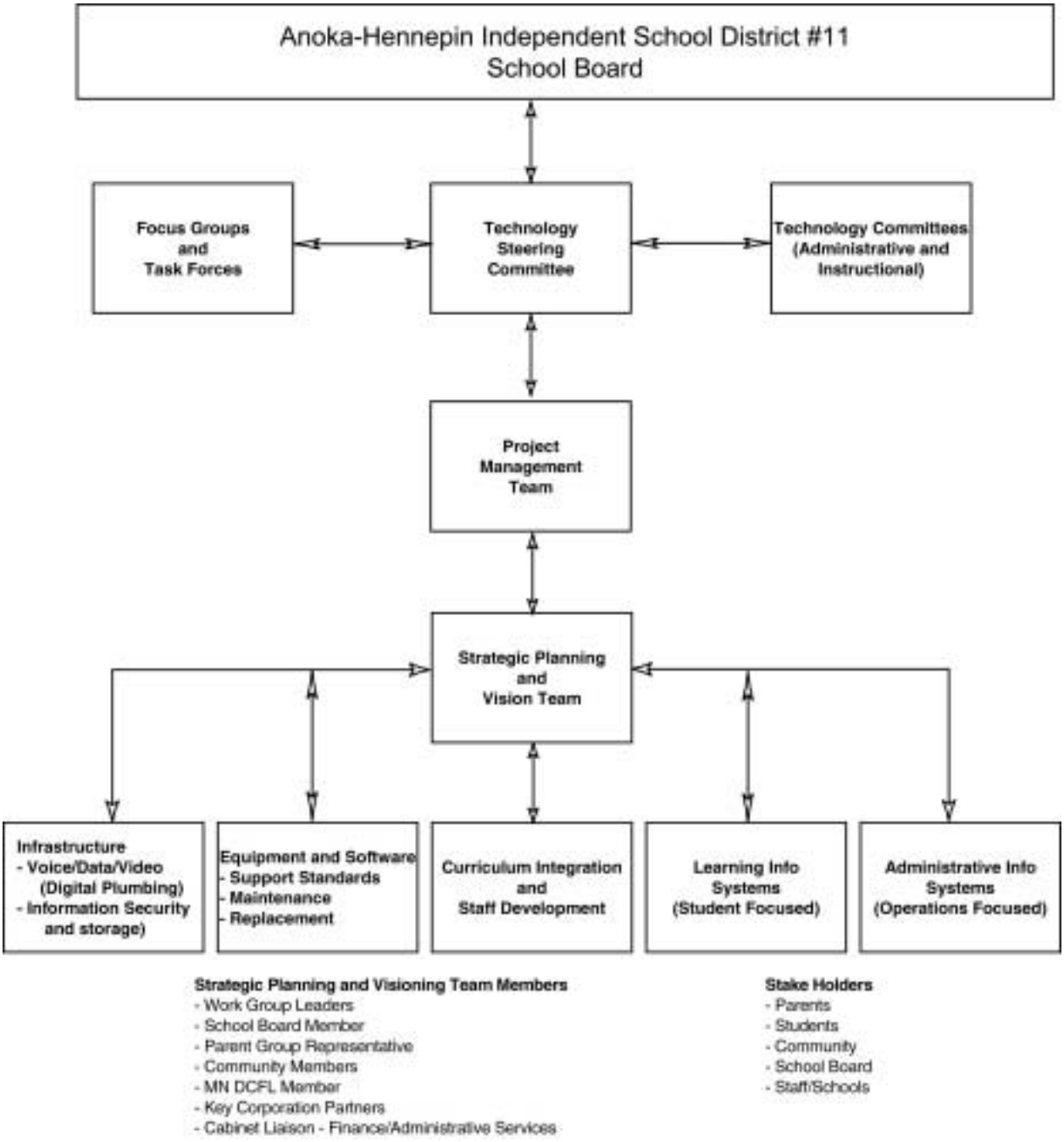

Figure 2-1. Technology Leadership Structure

The Anoka-Hennepin Technology Steering Committee (TSC) is charged with:

- creating a vision for technology based on the district's overall vision
- establishing goals
- defining a strategic plan that will result in a blueprint for implementation

The TSC meets monthly and gives progress reports to the School Board periodically throughout the year. A formal evaluation of the existing technology plan will be conducted with the School Board in the spring and an updated set of objectives established for the upcoming year.

Technology Steering Committee Members

- Patrick Plant, Director of Technology, Chairperson
- Jill Bourman, Network Services Supervisor
- David Buck, Director of Business Services
- Bill Burk, Technology Facilitator, Anoka Cluster
- Dennis Carlson, Director of Community Education
- Tom Durand, Director of Administrative Services
- Randy Edinger, Technology Facilitator, Champlin Park Cluster
- Jim Fennick, Principal, Sand Creek Elementary
- Linda Fenwick, Human Resources Manager
- Gordy Grant, Technology Facilitator, Coon Rapids Cluster
- Chuck Holden, Director of Transportation
- Joe Karulak, Assistant Principal, Coon Rapids High School
- Georgia Kedrowski, Information Systems Supervisor
- Hattie Leary, Communications Technology Supervisor
- Cherie Peterson, Special Education Technology Consultant
- Lelia Redin, Associate Superintendent of Instructional Support
- Anne Schroeder, Media Facilitator
- Tom Skoglund, Technology Facilitator, Noncluster Program Support
- Neil Klund-Schubert, Technology Facilitator, Blaine Cluster
- Lee Whitcraft, Assistant Executive Director, TIES, and Anoka-Hennepin parent

Committees Supporting District TSC

A variety of committees are involved in developing, advising, and implementing the district's Technology Plan. They have diverse representation, often including people from all areas of the school district, including building representatives, departments, principals, and parents.

Focus Groups and Task Forces

Focus groups and task forces are created, as needed, to address new issues. These groups are temporary and provide feedback to the other committees that report to the TSC. For example, a task force might develop a proposal to pilot the use of laptop computers by students, and then present that proposal to the TSC.

Building Technology Committees

Each building in the district has its own technology committee that focuses directly on the individual building needs. Administrative staff (those departments primarily supporting the district's business and operational needs) also have their own committee.

Technology Committees (Administrative/Instructional)

Several committees, consisting of broadly representative stakeholders, exist to assist in determining end user training requirements, productivity tool needs, equipment and software standards, and curricular support requirements. The committees also help determine effective technology implementation, support, and integration strategies.

Strategic Planning, Visioning, and Project Management Team

This team is responsible for writing and submitting the Technology Plan to the Technology Steering Committee for final commentary before it is presented to the School Board. The team has broad representation, as indicated in Figure 2-1.

Voice/Data/Video Infrastructure Committee

This committee focuses on network security, reliability, and accessibility. Its vision is for the district's network infrastructure to be easily accessible, secure, versatile, high capacity, and reliable in its delivery of information, services, and instruction.

Equipment and Software Committee

- Coordinates the evaluation and purchase of hardware and software to best support the educational process (administrative and instructional use)
- Makes recommendations on large hardware and software acquisitions taking into account total cost of ownership and total value of ownership
- Reviews and revises District hardware and software standards; makes recommendations for purchases that meet the standards
- Establishes and revises policy on equipment donations
- Explores cutting edge technology (both hardware and software) and evaluates where these new technologies would be most appropriate

Curriculum Integration and Staff Development

- Develops a technology standards checklist for staff self-evaluation
- Works with the Human Resources Department to incorporate technology skills into the Performance Appraisal System for Anoka-Hennepin staff
- Works with the Human Resources Department to design an evaluation tool for technology skills included in the Performance Appraisal System for staff
- Identifies the technology training needs of staff
- Assists in the coordination of technology staff development resources
- Determines the most effective methods of delivery for technology staff development
- Promotes curriculum integration of technology through projects such as Tech TOOLS, CurricuLinks, Create and Share, Curriculum Scope and Sequence, Release Time Teacher Training Sessions, and grant projects

Learning Information Systems

- Develops system to gather, analyze, and report student information (pre-K through post-12)
- Identifies different purposes and audiences for student information
- Develops the district's belief statements regarding the collection, reporting, access, and maintenance of student information
- Helps determine strategies for managing student-related data in the most efficient way possible

- Develops a district implementation plan for student information initiatives including time line and funding
- Reviews/revises the structure for maintaining and transferring cumulative and permanent data

Administrative Information Systems

- Develops systems for managing administrative and operational information management in the school district
- Identifies different purposes and audiences for administrative and operational data
- Helps determine strategies for managing administrative and operational data in the most efficient way possible
- Develops a district implementation plan for administrative and operational information management initiatives, including time lines and funding requirements
- Helps evaluate effectiveness of outsourced information technology services

Section 3 Overall Organizational Mission and Technology Vision Statement

The Mission of the Anoka-Hennepin School District is …

> To provide all learners with equal opportunity for lifelong success by effectively using all District resources in providing a safe, respectful, and challenging environment and by involving the entire community.

Adopted by the Anoka-Hennepin School Board, March 13, 1995.

The Technology Vision Statement is …

> To provide equitable and effective use of existing and emerging technology to engage, challenge, and nurture diverse learners in preparation for global citizenship in an increasingly complex information society.

Adopted by the Anoka-Hennepin School Board, Dec. 1997

Technology Goals

The following six goals guide us toward realizing our vision:

1. **Student Skills**. Students are competent using a variety of technologies to access, analyze, create, and communicate information in the pursuit of their academic goals. Technology is used to individualize learning, compensate for disabilities, foster collaboration, promote higher-order thinking skills, expand learning opportunities, and ensure students are prepared for a technology-rich, global society.

2. **Staff Skills**. A wide range of staff development opportunities and support is available to help staff continually improve their skills and fully integrate these skills with their current work assignments and instructional needs. All staff have convenient access to technology, use it as a personal productivity tool, and apply this knowledge when teaching students and working with the community.

3. **Information Storage and Access**. Curriculum, student assignments, and student data are created and stored digitally. Sufficient technology is available to provide ubiquitous access for all staff, students, and community members to information when they need it, where they need it, and in the appropriate format.

4. **Community Connections.** Technology dynamically links students, staff, and community together to provide greater access to information, better communication, and ongoing partnerships that foster relevant learning experiences.

5. **Infrastructure.** An easily accessible, secure, versatile, high capacity, and reliable technology infrastructure exists to provide access to information, services, and instruction.

6. **Funding.** Required sources of federal, state, local, and private funds are established for maintaining, operating, supporting, and upgrading technology to realize our technology goals.

Technology Objectives by Goal

Every technology goal and its related objectives are grounded in what will best support student learning.

For example, our long-range goal is to be able to provide families information about their students in a variety of ways: via phone, report cards, other written correspondence, e-mail, and Internet. One electronic approach would be to enhance our current voice mail system by adding the capability for parents to call in and access information about their child, such as homework assignments, grades, unpaid fees, or lunch account balance. We already have extensive homework hotlines set up for our middle schools that are very successful — integrating other student information is a logical next step. This would help parents monitor student progress and strengthen the parent-student-school connection.

In addition, we are pilot testing the automation of our attendance reporting by adding automatic calling capabilities to our phone system. The automated dialers would be able to notify parents, where and if they choose to be notified, of absences. The automated system can also remind parents of conferences, open house opportunities, and various other district-wide announcements, ensuring delivery and saving the district money spent on sending paper copies home with children or via mass mailing.

These examples illustrate the inter-related nature of the goals, needs, objectives, and action plans and also indicate how forward-thinking we can be if given the proper tools and funding. The proposals outlined above would address several technology goals: student skills, information storage and access, community connections, and infrastructure. They would also affect what actions are needed under staff skills and funding.

Following are the primary objectives for each of the six goals.

Student Skills

- To ensure students are prepared for a technology-rich, global society
- To enable students to maximize learning opportunities in the Anoka-Hennepin schools
- To enable students to learn at their own pace, in their own way
- To use technology to improve student learning (aptitude) and increase student interest (attitude)

Staff Skills

- To ensure staff are able to fully integrate technology into their work and instructional needs
- To improve staff productivity
- To help staff guide students in making appropriate and helpful choices about using technology to enhance learning
- To improve staff communication with parents, resulting in families and schools working together to monitor and adjust student performance
- To use technology to deliver curriculum, which will improve student achievement and assist students in meeting Minnesota Graduation Standards

Information Storage and Access

- To provide parents with timely information they can use to:
  - engage their children in conversations about achieving academic goals
  - monitor their children's progress on various assessments
- To enable staff to easily and seamlessly:
  - update student progress records
  - monitor student attendance
  - access student data to make educational decisions for each individual student

Community Connections

- To support school and community partnerships that enhance student learning
- To offer the schools resources to the community and provide access to information and technology

Infrastructure

To ensure the internal structure is secure and in place to maximize technology for student learning, staff productivity, and district efficiency

Funding

To provide equitable and consistent access to the equipment, training and support needed to support effective integration of technology throughout the district

Benefits of Technology: Transforming the Learning Environment

Technology has the ability to transform the student learning process by providing new opportunities for how:

- students learn
- teachers teach
- schools are managed
- student progress is measured
- parents are involved

There are a wide range of benefits that come from incorporating technology more fully throughout the district. Wherever possible, we will measure these benefits; however, some are not as easily measured, either for cost or practical purposes.

Student Learning

Technology gives students the ability to do things they may not have been able to do before. It can eliminate barriers caused by disability or deficiency, and create opportunity, equity. and access. For example, a child who does not have good drawing skills but who has a great ability to visualize can bring those visions to life through a computer. Students who don't like traditional writing projects often get excited when able to complete the project using computer programs that enable them to incorporate graphics or word processing formats. Technology can also encourage community connections. Students in a third grade classroom interviewed senior citizens, took digital photos of the seniors, and wrote research papers based on the interviews. The students then presented their research to the seniors at their senior center. This connection resulted in four senior citizens volunteering on a regular basis to help students with reading.

Technology also gives students faster access to more information — greatly enhancing their ability to do research, solve problems, and learn from others' ideas. These broader learning experiences in turn foster higher-order, critical thinking skills. Learning experiences can be much more learner-driven, as students access those areas that interest them via technology. Technology greatly enhances each student's ability to learn in his or her own way, at his or her own pace.

Teaching

Teachers can use technology to help them individualize instruction to meet each student's needs — both because of technology's recordkeeping power and because of its flexibility in delivering information to students. Teachers can access a wide range of teaching materials, thanks to technology. From technology-supported curriculum to pulling video off the web to offering students ideas for work they can do from home on their own computer system — the selection of curriculum tools available is almost endless. Teacher training, which is critical for effective use of technology, can also be delivered in ways and at times more convenient to staff. Through the Internet, Intranet, video, and computer, staff development can take place just about any time and in any format.

School Management

Technology enables administrators to store, organize, and analyze information more quickly, efficiently and effectively. Managing inventory in real time reduces costly warehousing. Online purchases save staff time. Systems that integrate various pieces of district data save on data entry time and inaccuracy, and provide easy access to student records for administrators, teachers, and families. Access to more complete, up-to-date, and accurate information enables staff to make better decisions and provide better service.

Assessment of Student Progress

The ability to manage large amounts of information reduces our reliance on only one or two measures of student performance. Technology gives us the ability to track student progress over time on a variety of measures, i.e., homework completion, attendance, progress toward graduation standards, and various assessments. Once a comprehensive and easily updateable system has been established, it will enable us to maintain a collection of information on each student's work. This would in turn streamline the development of Individualized Learning Plans (ILPs). Rather than do one-time snapshots of student progress, technology enables us to capture lots of information over time, and then analyze it as an ongoing portrait of students' abilities.

Parent Involvement

Research shows that increased parent involvement is directly related to improved student academic performance. By enabling parents to access student and classroom information — like attendance, grades, homework, curriculum support, teacher suggestions — parents can get more actively involved in their child's education. The ability to quickly share time-sensitive information supports more meaningful and productive parent-child conversations. A parent's ability to communicate with a teacher via e-mail and/or voice mail makes connecting quick, easy, and helpful. We are currently conducting focus groups with parents to identify just what types of information they want access to, and in what form they'd like it (paper, phone, e-mail, Internet). This information will help us be directly responsive to our parents' needs, and enable us to develop information systems based on parents preferred methods for receiving important student information.

Section 4 Needs Assessment to Meet the Technology Vision Statement

There isn't one "right" type of software or one "right" way to use technology. Rather, the software and the way it is used instructionally must match the school's learning and teaching goals and must be appropriate for the specific students who will use it

— "2000 Research Report on the Effectiveness of Technology in Schools"
Software Information Industry Association

Needs Assessment Process

Identifying technology needs is an ongoing process. Some needs are on a repeating cycle, as technology equipment ages or technology opportunities improve. Others are one-time issues caused by timing, circumstance, or challenge.

The TSC and related support committees/task forces are continually evaluating technology access, capability, efficiency and effectiveness. Through committee discussions, formal/informal focus groups and other forums, the following questions are constantly being asked: "What do we need? What's working? What's not? How can we better support student achievement through technology?" Thus our needs assessment process is based on the input and involvement of hundreds of people, including teachers, parents, and community members.

Five examples illustrate our approach to effective needs assessment practices:

1. In 1999, we established an inventory of all our hardware. This inventory will be reviewed annually to determine the best use of our existing hardware, any outstanding needs, what to retire, and adequacy of student access. To minimize maintenance costs, the review will also address retiring equipment that no longer meets student and staff needs.
2. We are currently conducting parent focus groups to help the district know what parents really want and need electronically and/or on paper about their students and about the district. This will enable us to more effectively implement NCS Pearson's SASIxp — a full-featured, decentralized student data system — and to share student data (classroom and administrative) with parents in a secure web-based environment, in addition to sharing information via written communication and telephone.
3. Staff are currently cross-referencing and documenting all curriculum needs with the technology available (or needed) to maximize use of curriculum tools. For example, some grades may have access to comprehensive computer-based literacy programs, but their classroom computers are not capable of running the programs. On the other hand, writing labs may operate efficiently with older computers because the writing programs available don't require as much memory or computer speed. This cross-referencing will enable technology staff to move existing equipment to locations where it is needed, and to better identify gaps in technology inventory.
4. The need to upgrade the district web site was identified through focus group discussions with parents and community, a staff survey on most effective means of communication, interviews with department heads, and informal discussion with staff, community, and school board members. Staff and public cited a need for a site that was easier to navigate, more informative, more up-to-date, and more interactive. Departments requested online services such as registration for staff development offerings and community education courses, job

application, and access to essential documents such as board policies, material safety data sheets, and employee right-to-know information. We are now redesigning the web site in response to identified needs.

5. With the expansion and replacement of technology outlined in this plan, we are currently evaluating technology solutions that best fit our educational and administrative needs. Total Cost of Ownership (TCO) and Total Value of Ownership (TVO) analysis tools will be used to make recommendations on purchasing Windows, Macintosh, hand held devices, and/or thin client solutions. When purchasing computers or installing networks, the cost of the hardware is only one small part of the expense expected in subsequent years if the technology resources are to be used effectively. TCO addresses all the cost associated with technology ownership. Costs such as retrofitting, professional development, software, maintenance, replacement, and connectivity need to be considered. As part of this analysis, we'll be able to objectively measure the TVO. Key stakeholders in the education process (teachers, administrators, students, and parents) will be surveyed using instruments designed for objectively and quantitatively assessing the perceived value of using technology to reach individual performance goals.

Connecting Goals with Needs

To reach the district's technology vision, we identified six over-arching goals (refer to Section 3). Through our ongoing and specific needs assessments, as explained above, we then developed a list of needs to help us accomplish these goals. Addressing each of these needs supports certain student-focused objectives, with corresponding benefits for our students, staff, families and community. Table 4-1 cross-references currently identified needs to our six goals.

Table 4-1. How Needs Address Goals

Needs	Goals (see notes below)					
	1	2	3	4	5	6
Upgrade classroom computers	X	X	X	X		X
Upgrade special education hardware	X	X	X	X		X
Media center hardware/software upgrade	X	X	X	X		X
Consistent technology support plans district wide	X	X			X	X
Technology skills for staff	X	X	X			X
Infrastructure upgrade	X	X	X	X	X	X
District web site management/upgrade	X	X	X	X	X	X
Internet filtering initiative	X	X		X	X	X
Lab upgrades	X	X	X			X
K-5 classroom cluster computers	X					X
Upgrade administrative and school office computers		X	X	X		X
Upgrade phone system to accommodate caller ID				X	X	
Expand student information systems		X	X	X	X	X
Replace TV monitors	X	X				X
One-to-one student computer access	X					X
Maintain video networks and school computers past extended warrantee	X	X	X	X		
Web-based administrative applications			X	X	X	X

Goal 1: Student skills
Goal 2: Staff skills
Goal 3: Information storage and access
Goal 4: Community connections
Goal 5: Infrastructure
Goal 6: Funding

Needs, Action Plans, and Objectives

Need	*Action Plan*	Objective
Upgrade Classroom Computers	*Upgrade classroom hardware*	To ensure teachers can continue to use new and more effective learning and support tools

Our high school classroom computers were upgraded during the summer of 2000 to accommodate increased reporting and tracking requirements, including the Minnesota Grad Rule requirements. The remaining classroom computers at the middle and elementary school levels have been in use for more than 5 years. This equipment has served our needs well, but must be replaced to effectively support increasing instructional and administrative needs. The current classroom workstations are not equipped to handle the functions of today's applications. Internet access is extremely slow and greatly reduces teachers' ability to use the Internet as an educational tool. According to a NetDay survey, more than 80 percent of teachers indicate that they are comfortable using the Internet, but most admit that the Net is not well integrated into their everyday classroom practice. They cite lack of time, equipment, and technical support as the culprits.

In addition, the use of SASIxp, a network-delivered student data management system, requires approximately 2.5 minutes just to load the classroom access module (therefore, in most Middle Schools we do not currently use the classroom attendance module). We saved curriculum dollars by obtaining a free electronic version of the Rigby Manual, which we keep on our network. Teachers use the Rigby Manual to search for lesson plans for various reading programs; however, with the current classroom machines, it takes too long (10 minutes or more) to perform searches and the manual isn't being used as effectively as it can be. The Rigby Manual is just one example of low- to no-cost curriculum resources that we could use if we had better classroom machines.

Need	*Action Plan*	Objective
Upgrade Special Education Hardware	*Replace inefficient, outdated hardware*	To enable all special education staff to better process Individual Education Plans (IEPs) and to devote their time to students and their educational experiences

Most of our special education department computers were upgraded to Laptop computers in 2000, which provided our special education teachers more flexibility to complete and manage their workday. The remaining computers need to be upgraded, allowing our staff to efficiently manage student Individual Education Plans (IEPs).

Need	*Action Plan*	Objective
Media Center Hardware/Software Upgrade	*Install new workstations in the media centers*	To enable students to access district online databases and other Internet resources and provide opportunities to meet graduation standard requirements
	Update management hardware/software in the media centers	To permit efficiently functioning operations

School Media Centers matter. Educating our students is a complex business; there is no magic formula. However, research tells us some things very clearly. A strong media program with a media specialist, support staff, and a computer network that connects the center's resources to students and staff, leads to higher student achievement *(The impact of School Library Media Centers on Academic Achievement, Colorado Study)*.

The majority of district media centers are equipped with pre-PowerMac 25-MHz technology. The small hard drives do not offer enough space to install the same applications that are being used in the classrooms and computer labs. This technology does not provide adequate student or staff access to the district Intranet or to the Internet. The students potentially have access to a wide array of district online resources, but the limited speed and capacity of this technology makes it a bottleneck, not a portal for student access to available resources.

As graduation standards demand more research-based assessment, students need to understand how to access and evaluate online resources. They need guidance and practice to become effective researchers. The media center is a primary location for this instruction. It must provide students with the access and opportunities they need.

Teachers scramble to book their classes into the media centers to learn search techniques and do necessary researching. Students who are unable to finish, return to find no computers available because another class is already booked. The demand far exceeds our capacity to meet student research needs. The management hardware and software to handle the collection databases and circulation of materials is also woefully inadequate.

Need	*Action Plan*	Objective
Consistent Technology Support Plans Districtwide	*Secure funding*	To ensure adequate technology support is available districtwide

Technology support is critical for ensuring that technology is used effectively and efficiently. We have created a technology support model representing the minimum support requirements essential for each building (see section 10). However, funding currently isn't in place for the model support structure. To compensate, buildings are using their allocation for full-time employees (FTEs) to meet as much of the basic model as they can, but this causes other programs to suffer.

Need	*Action Plan*	Objective
Technology Skills for Staff	*Provide a variety of staff training opportunities on the skills identified in the Technology Standards Checklist*	To help staff improve their technology skills and knowledge
	Use the Technology Standards Checklist as a measure of job performance and staff accountability	To ensure all staff are competent in the technology skills necessary for their jobs
	Develop Technology TOOLS and corresponding training/awareness opportunities for staff	To support curriculum in four key learning areas (write/speak; scientific applications; mathematical applications; inquiry)
	Develop college credit technology courses	To be offered evenings at the Staff Development Center for easy staff access and professional development
	Expand use of web-based video	To support staff basic skills technology literacy, both by using internally developed programs and programs from external sources (i.e., Atomic Learning).

To use technology effectively, staff members need basic technology skills and knowledge. These basic proficiencies have been identified on a *Technology Standards Checklist* focusing on basic operating system skills, e-mail skills, Novell network skills, and SASI skills. This checklist will be modified each year and posted on the district web site with links to downloadable instructions for learning each skill. The checklist will assist staff in identifying their competency on key technology skills, and can also be compared to benchmark skill levels identified in a baseline study to measure progress. These skills will help staff communicate with parents, colleagues, and students and better deliver technology-based curriculum.

Need	*Action Plan*	Objective
Infrastructure Upgrade	*Implement effective enterprise security*	To prevent unauthorized access to network data and resources while — at the same time — providing secure network access to approved users from many locations
	Consolidate directory service information	So that each user has a unique digital identity that allows access to authorized resources across the entire network
	Consolidate voice/data and video/data services	To provide multiservice video and voice solutions
	Improve the LAN infrastructure by increasing bandwidth	To provide high-speed data access to each desktop. This will effectively manage, increase and improve capacity.
	Improve WAN performance	To increase capacity and eliminate WAN bottlenecks for the end user
	Move toward an Internet Protocol (IP)-based network	To enhance an open network environment
	Improve Internet access	By inventorying heavily hit web sites
	Update existing disaster recovery and backup plans	To better manage service agreements, manage risks and monitor service levels
	Proactively manage network infrastructure	To reduce network downtime and network crashes.

The technology infrastructure drives our system's ability to be easily accessible, secure, versatile, high capacity, and reliable in its delivery of information, services, and instruction.

WAN performance will be improved by:

- Implementing a WAN structure that converts all traffic types
- Prioritizing sites that currently have difficulty accessing resources across the WAN
- Managing connectivity to multiple sites at a variety of connection speeds
- Deploying servers and network resources in a three-tier distribution model to remove the distance barrier between buildings

The network infrastructure will be proactively managed by:

- Benchmarking current LAN/WAN availability
- Auditing performance
- Analyzing trends
- Managing network resources from any location
- Providing network management tool training
- Outsourcing network management if it is cost effective

Need	*Action Plan*	Objective
District Web Site Management/Upgrade	*Redesign the district web site in response to identified needs*	That will give all sections a common Anoka-Hennepin identity, while making the web site easier to navigate, more attractive, more informative, and more interactive.
	Use software with online, browser-based editing capability	To support easy updating by individuals and so it can be current and, therefore, more useful.
	Explore outside service providers	For development of the new web site structure as a cost-effective means of reaching our goals

A comprehensive needs assessment indicated that the district web site needed a major overhaul in order to be more informative, up-to-date, interactive, and easy to use.

Need	*Action Plan*	Objective
Internet Filtering Initiative	*Design an Internet filtering system*	To facilitate access to information which enhances, enriches and supports student learning and understanding without encouraging access to information not suitable for students

As the Internet grows, concerns about what students are able to access grow as well. A filtering system may help ensure our students' safety. Filtering may soon be mandated by law as well, in which case failure to implement filtering might entail loss of funding. However, these concerns must be balanced with students' need for rapid and efficient access to information. Our job as a school district is to supply current, accurate information at a wide variety of learning levels that enhances, enriches, and supports the curriculum.

Need	*Action Plan*	Objective
Lab Upgrades	*Develop a plan to upgrade technology in all schools*	To ensure equal technology access in all schools and to maintain a consistent model of technology districtwide
	Upgrade all middle school IT labs	To ensure all middle schools have comparable lab quality and access to technology

Anoka-Hennepin students deserve to have equal access to high-quality labs, regardless of which school they attend. Thanks to voter support of the 1999 bond referendum, the district is adding three new schools (one high school and two elementary schools) and upgrading two others (middle schools). The challenge this poses is to provide technology to these "new" schools in keeping with the model used in all other schools. We can no longer buy the older technology currently being used by our current schools — nor would we want to, as it no longer meets our every-changing technological needs and abilities. Thus, each of the new buildings will have equipment that is different from our established model. However, we don't have the funding available to upgrade all the schools, and we know that maintaining more than one model will cost the district more in support costs.

Need	*Action Plan*	Objective
K-5 Classroom Cluster Computers	*Place five to six networked computers in each elementary classroom*	To support district curriculum in an innovative, child centered, motivating, and educational way
	Provide teachers with staff development opportunities and appropriate classroom arrangements	To help maximize their curricular and organizational goals

Students need more access to classroom technology that can be used cooperatively. There are many positive results that can be derived from cooperation in learning at the computer. Group work allows students to observe, imitate, and learn from each other. Students keep each other on task and share a sense of accomplishment. The encouragement, support, and approval of peers builds motivation and makes learning an enjoyable experience.

Our elementary schools have adopted the model of using centers in the classroom. With this style of teaching, the class is set up in groups that travel from center to center to attain an instructional goal. This center style teaching allows the teacher to work with small groups of students on items like literacy. Each center is set up in such a way that's interesting to students, curriculum based, and motivating. A technology cluster is ideal for supporting this center-based model. With a technology cluster in the classroom and additional mobile technology, the actual need for computer labs in our elementary schools will decrease. Over time, the lab classrooms can be reallocated as classroom space, resulting in as many as 30 classrooms gained across the district.

Need	*Action Plan*	Objective
Upgrade Administrative Central and School Office Computers and Standardize E-Mail Client	*Move all staff to a common e-mail and calendaring system*	To save the district in maintenance costs and streamline many processes that we currently need to do with paper. This will allow staff to spend more time on teaching and supporting the learning environment.
	Provide current technology for administrative staff using a "model" approach	To increase job efficiency, free staff to focus on student support needs and reduce maintenance costs

We upgraded our e-mail system in 1999, sooner than we would have liked to because of Y2K compatibility issues with our old system. Because our classroom computers are slower than current technology, we chose to use a different e-mail system on classroom machines than the more robust system that we use on administrative machines. This has caused some annoying, but workable, compatibility problems with the e-mail server, and limits the capabilities that classroom computer accounts are able to access. The compatibility problems also increase district maintenance costs. In addition, hardware at the administrative offices is a hodgepodge of equipment, much of which is outdated. Numerous studies show that the hardware life cycle for our business needs is about 3 to 5 years, depending on the level of use. This configuration of old and new equipment requires excessive maintenance and support costs in staffing and hardware upgrades. It also causes delays in response time for work requests.

Need	*Action Plan*	Objective
Upgrade Phone System to Accommodate Outbound/Inbound Caller ID	*Upgrade district phone system to accommodate caller ID*	To facilitate better communication with our community

Due to cost constraints, our phone system currently does not support inbound or outbound caller ID. This causes problems as more families use the caller id feature to block or screen calls without an identification because calls through our premise-based exchange (PBX) system show "unavailable" or "out of area" on a caller id box. Many parents ignore all “unavailable” calls, making it increasingly hard to contact parents in an emergency. To avoid this problem, we need to upgrade our phone system to allow a school's name to show on a caller id system, which will encourage parents/community members to answer our calls.

Need	*Action Plan*	Objective
Expand Student Information Systems	*Replace and expand the capability of current systems with NCS Pearson’s SASIxp, a full-featured, decentralized student data system*	To provide comprehensive student data for all levels of the district

Currently, student recordkeeping is done on a mainframe-based system with Osiris and Mac-School software augmenting this system at the individual sites. Upgrades are required to integrate all the district’s information needs/uses and maintain them in a format that is easily accessible to both staff and parents. These upgrades will result in training needs for staff and parents to realize maximum benefit.

The SASIxp system will put more information in the hands of more district staff than ever before. Teachers can report attendance at their computer with the click of a mouse. This information is updated automatically for the attendance secretary, without waiting for a paper copy to reach their desk. The grade book module will be compatible with any Interactive Voice Response (IVR) system we use. We will also be able to share student data (classroom and administrative) to parents in a secure web-based environment.

Need	*Action Plan*	Objective
Replace TV Monitors	*Replace current TV monitors as appropriate with cost-effective equipment*	To ensure teachers can continue to focus on engaging students in academic content rather than managing outdated and inefficient equipment

In every classroom, 27-inch JVC monitors are used to connect classrooms to in-house video and cable network programming. In addition, the classroom computer is connected to the monitor to allow teachers to project computer-based information. These monitors are in the 5th to 6th year of service and it is projected that they will continue to be used for an additional 3 to 5 years. Through time, it is expected that failure rate will force their replacement.

Need	*Action Plan*	Objective
One-to-One Student Computer Access	*Move toward a system of student portable computer ownership*	To enable students increased access to technology in pursuit of their academic goals

Student access to technology is limited. There simply are not enough computers to provide students and teachers with the access necessary to maximize the available educational strategies. Hardware costs are estimated to decrease by the fall of 2003, which could allow ubiquitous access for all students through the use of portable computers. The district is currently piloting a laptop project at Evergreen Park Elementary School to assess how portable computer use can assist staff, students, and families in achieving academic success.

Need	*Action Plan*	Objective
Maintain Bond-Provided Video Networks and School Computers Past Extended Warrantee	*Train on-site technology personnel in diagnosing and repairing the most common video network and computer problems*	To maximize reliability and use of the technology for learning
	Define a plan for network/computer maintenance/repair	That is cost-efficient and effective

Teachers increasingly rely on video networks and computers to deliver instruction. This reliance means that this equipment and infrastructure must be dependable and functional. Downtime must be minimized; repairs must be prompt. This plan will include moving from on-site technology staff to district technology staff to outside vendors as needed.

Need	*Action Plan*	Objective
Web-Based Administrative Applications	*Implement a web-based staffing database*	To enable administrators to easily access personnel information necessary for making quality staffing decision and effectively managing staff
	Implement a web-based employee benefit database	To enable staff easy access to their salary and benefits information
	Implement an online application process	To enable potential employees to easily submit applications, and to streamline the hiring process by instantly importing information into the applicant database for use by hiring officials

District human resources issues include personnel management, staffing decisions, employee benefits and recruiting. Using technology in each of these areas would improve efficiency and effectiveness, as well as improve customer service with staff and potential employees.

Section 5 Objectives for the Use of Technology to Address Needs

> Students felt more successful in school, were more motivated to learn and had increased self-confidence and self-esteem when using computer-based instruction; this is especially true in language arts, writing, math, and science.
>
> — *"2000 Research Report on the Effectiveness of Technology in Schools"*
> *Software Information Industry Association*

Sections 3 and 4 of this Technology Plan provide most of the information requested in this section. One exception follows:

How Electronic Government Services (EGS) are Provided

The Anoka-Hennepin School District's web page is located at www.anoka.k12.mn.us. The page is updated at least weekly by instructional technology staff and department representatives; more frequent updates are done as needed. Many school sites also have web pages; they are updated on varying schedules determined by each school site. The district's web page is a standalone site, although it is linked to many others as appropriate to assist users in accessing helpful information.

E-mail accounts are provided only to staff, School Board members, and some parent volunteers. Students are occasionally given e-mail accounts, but only for specific projects under staff supervision. Information is frequently shared with staff and School Board members via e-mail.

The web site is one part of the overall communications strategy of the district. Other ways of sharing information include personal contact, direct mail, telephone, mass media, newsletters, and other written communication. Other web site/Internet uses include:

- District supplies can be purchased electronlcally via an online accounts payable/receivable system offered through TIES.
- Staff openings are posted on the web site; judging by the number of inquiries received, this appears to be an effective method of advertising positions.
- District classes and staff development opportunities are occasionally offered either online via the Internet or using interactive television.
- Students can submit assignments electronically and obtain assignment information electronically; frequency and availability depends on the teacher and the situation.
- All seven middle schools do provide telephone-based Homework Hotlines.
- At this point, students cannot pay school fees over the Internet.

We both receive and report a large amount of information electronically from the state and federal governments, as well as other organizations. It is becoming a common requirement to submit information electronically, particularly student data to the state.

The state could help Anoka-Hennepin improve its electronic system options by providing additional funding for expansion, purchase, training, and development of new systems.

Section 6 Measurable Benefits to Stakeholders

> Kindergartners who have used technology have benefited in areas such as improved conceptual knowledge, reading vocabulary, reading comprehension and creativity. Educational technology has significant positive effects on achievement for special needs populations.
>
> — *"2000 Research Report on the Effectiveness of Technology in Schools"*
> *Software Information Industry Association*

Technology offers a number of benefits to stakeholders in the school district, some more measurable than others. Many have been cited throughout this plan.

According to *Technology in American Schools: Seven dimensions for gauging progress* (Lemke and Coughlin, 1998), technology can:

- Accelerate and enrich basic skills development in reading, writing, mathematics, and the sciences
- Engage students in real-life applications of academics and encourage ownership of one's own lifelong learning
- Help teachers meet the individual learning needs of their students more effectively, and connect teachers with each other across distances and time for professional collaboration
- Serve as a catalyst for educational reform, helping learners explore the world beyond the classroom and enhancing home-school connections

Some examples of benefits for key stakeholders include:

Students and Families

- Enhanced teacher-parent communications
- Timely assessment results for improved student motivation and achievement
- Improved instructional effectiveness resulting in greater student achievement
- Greater motivation for learning
- Real-world modeling of how technology can enhance daily life
- Improved student academic achievement
- Technological skills for present and future needs of students
- Access to a wide variety of video information from various sources (access is available to all or to any configuration of classrooms at the same time)
- Student-produced video reports for classroom academic requirements
- Ease of information access

A recent study indicated that Jackson Middle School social studies students who have access to technology turn in their assignments at 20 to 25 percent higher rate than students who can only use pencil and paper.

Instructional Staff

- Tools to monitor and adjust instruction to meet student needs and learning styles
- Reduced time spent by teachers on noninstructional tasks
- Improved and more timely information for decision-making relative to student progress

- Effective access to electronic curricular materials (which will also facilitate cost reductions in other areas, e.g., print materials)
- Increased staff morale and enthusiasm
- Increased efficiency and productivity
- Increased communication capacities

A district-wide standardized set of productivity application software (i.e., word processing, spreadsheet, desktop publishing) accessible from any network workstation makes it easier and more efficient for staff to share information and documents, and to work together cooperatively.

Administrative Staff

- Improved student data consistency and accuracy
- A central computer system and support for district financial, personnel, operational, and information systems provides access to a centralized, integrated database
- Local Area Networks (LANs) at all sites, providing high-speed interconnection and data and software sharing
- WANs providing high-speed telecommunication links between all sites that support electronic communication and access to centralized information systems
- Fax machines at each site enhance intra- and inter-district communication of hard copy information
- Upgraded telephone system that provides convenient access for intra-/inter-district voice communications by staff and parents

In addition, here are some examples of benefits derived from addressing specific needs identified in this plan:

Media Center Hardware/Software Upgrade

Research shows that a strong media program leads to higher student achievement. Students will no longer be required to scrounge to find ways to gather the information they need to fulfill graduation standard requirements. Teachers and media specialists can ensure that students will be capable and effective researchers. Media centers will run efficiently and serve staff and students effectively.

K-5 Classroom Cluster Computers

"There are many positive results that can be derived from cooperation in learning at the computer. Group work allows students to observe, imitate, and learn from each other. Students keep each other on task and share a sense of accomplishment. The encouragement, support, and approval of peers builds motivation and makes learning an enjoyable experience." (Rysavy & Sales; *Computer Pods in the Classroom, Library, or Hallway*; August 24, 1998. Edmonton Regional PD Consortium, Edmonton, Alberta, Canada)

And "Technology can have a beneficial effect on classroom interaction patterns toward greater interaction among class members and toward more collaborative learning experiences." (Sivin-Kachala & Bialo; *Computer Pods in the Classroom, Library, or Hallway;* August 24, 1998. Edmonton Regional PD Consortium, Edmonton, Alberta, Canada)

Web-Based Administrative Applications

Administrators have immediate access to necessary information. The human resources department becomes more efficient through better use of staff resources. All Anoka-Hennepin employees have immediate access to necessary employee benefit information. Students have better teachers and leaders thanks to more appropriate/faster hiring decisions.

District Web Site Management/Upgrade

The upgraded Web site will provide many benefits, including the following:

- Serves as a means of providing continuous, up-to-date information to students, staff, and community on many topics
- Provides an easy method for community to provide input to district through e-mail
- Serves as a vehicle for providing staff with access to essential information
- Provides basic information about the school district in a cost-effective way to families, potential employees, businesses, etc. interested in relocating
- Provides district with an identity to the larger community

Section 7 Policy and Procedure Development and Revision

Equitable Access Policy

Access to technology is granted to all students equally, regardless of ability, race or economic status. The district technology vision, goals, and objectives support equal access. However, funding and equipment limitations mean that all schools are not always equipped equally. And all students do not have equal access to technology at home or in the community, to support their out-of-school learning. The district strives to offer as much access to technology during school as possible, and to provide extended day learning opportunities, especially for those students who might not otherwise have technology access. A formal equitable access policy is being written at the current time.

Acceptable Use Policy and Guidelines

The *Acceptable Use Policy and Guidelines* were adopted by the school board on September 11, 1995 and revised on December 15, 1997. It outlines acceptable use of all technology resources, including:

- Voice, including telephones and voice mail
- Video, including television monitors
- Data, including computers, servers, and stored data
- Network, both wide area and local area, including connections to other networks via TIES and interdistrict e-mail
- Internet use, including out-district e-mail and Internet browsing, and student e-mail accounts

The acceptable use policy and guidelines can be found on our district website.

Data Disaster Recovery Plan

The *Data Disaster Recovery Plan* outlines plans regarding virus prevention, storage of critical data, district-wide backup procedures and recovery for servers and individual workstations. The plan is maintained by the Network Services Department and is reviewed and updated annually.

Anoka-Hennepin Software Standards

Hardware and software standards are reviewed and updated annually. The latest hardware standards can be found on the district web site at www.anoka.k12.mn.us. Our criteria for determining these standards are:

- Cross-platform versions of the product must be available.
- Aggressive educational pricing must make the product cost effective.
- Features must meet needs and be rated well, compared to competition in the same software class.
- Product support must be available.
- Time must be given for a smooth transition from current to new software standards.

Section 9.1 describes our technology acquisition and approval process.

Phone System Emergency Plan

The *Phone System Emergency Plan* details system design parameters that preclude a phone system disaster. The plan outlines several scenarios in which the phone system could be inoperable and how to take care of these problems. The plan is reviewed and updated annually by the Communications Technology Department.

Summer Equipment Storage/Maintenance Guidelines

These guidelines are maintained by the Technology Services Department and are updated annually and sent out to building staff before the close of school. The guidelines contain procedures for storing and maintaining computers, maintaining network equipment, repairing any equipment, maintaining/changing phones, and procedures for shutting down e-mail accounts during the summer.

Summer Equipment Checkout Guidelines

All property at a school site is managed by that site and the policy of allowing equipment to taken off school property is a site-based decision. These guidelines are maintained by the individual sites and are reviewed annually.

Employees who check out equipment are required to:

- Ensure their homeowners insurance will cover the technology items. If not, they should buy a short-term policy to cover the equipment while it is off school property.
- Allow ample time to return the equipment to its proper location and ensure it is ready to perform functions that it was purchased to do during a normal instructional day.
- Sign a liability waiver making them responsible for any damage to or loss of equipment.

Guidelines on Donated, Used, or Refurbished Computer Equipment

There is an increasing need for technology access in the district. However, since funding can't keep up with demand, many buildings try to solve the shortage by accepting donations or purchases of used computer equipment. Because this creates additional support issues, the Hardware / Software Standards Committee has developed a policy regarding donated or used equipment. The policy spells out minimum requirements, a review process for accepting the equipment and developing support plans, and a requirement that the School Board approve the equipment (due to product liability issues). This policy is posted on our district website.

Guidelines on the Use of Personal Computer Equipment on the District Network

The Anoka-Hennepin School District recognizes that many employees have computer hardware that exceeds the specifications of the hardware that they may be using in their duties as a district employee. These differences can lead an individual to use their personal computer for work-related matters rather than use the hardware that has been assigned by the district for such purposes. To manage the challenges this can place on technology support, data integrity,

and information security, guidelines have been established to regulate personal computer use. This policy is posted on our district website.

Section 8 Technology Inventory

The district keeps a comprehensive inventory of its technology equipment. The inventory is reviewed annually to determine best-use policy for all equipment. Certain functions (like business education and general office use) for computers require a 3-year life cycle; other functions can survive with a 5-year life cycle. These cycles are cross-referenced in our inventory as:

- M1 (Macintosh level 1): These are the newer computers, primarily 1-year-old technology, such as Mac G3s and G4s, as well as the iMac computers. These have a 3- to 5-year life cycle.
- M2 (Macintosh level 2): These computers are currently what we are using in our classrooms, which is 6- to 7-year-old technology. These models include all Macintosh four-digit-numbered (5200, 5400, 7200) computers. These computers need to be replaced for classroom use, but can have a useful life for a few more years in other curricular areas and office settings.
- M3 (Macintosh level 3): These computers are at least 8-year-old technology that is still being used in some classroom settings and as office machines by some of our programs. These include three-digit model numbers, such as LC475, LCIII, and e-mates, used primarily for teaching keyboarding, basic word processing, and minimal Internet access.
- M4 (Macintosh level 4): These computers are at least 10-year-old technology and we are finding it hard to find useful applications for them. They are used for some keyboarding and basic word processing, with no Internet access. They include LCs, IIsi, IIse, and Classics.
- M5 (Macintosh level 5): These computers are the pre-Macintosh computers, such as the Apple II gs, II c, and II e. They are being used for older, gs-based curriculum packages (such as older versions of ***Oregon Trail***) and need to be replaced with newer technology.
- W1 (Wintel level 1): These computers are the newer Wintel computers with Pentium II and above processors. They have a 3- to 5-year life cycle.
- W2 (Wintel level 2): These computers are Pentium-based machines. They need to be replaced for classroom presentation use, but can have a useful life for a few more years in other curricular areas and office settings.
- W3 (Wintel level 3): These computers are used primarily in our Media centers, and need to be replaced with newer technology. They have 486 processors (equivalent to a 030/040 machine).
- W4 (Wintel level 4): These computers are at least 10-year-old technology and, like the Macintosh equivalent, their useful life is almost over. They are 286/386 machines.
- W5 (Wintel level 5): These are AT/XT technology machines and have no real usefulness.

Other functions, still, can be productive with even older equipment, like labs that use computers just for teaching keyboarding skills, and walk-in labs that are used primarily for word processing functions. When determining best use of our computer equipment we match functions with the computers that can do the job and repurpose computers accordingly.

Tables 8-1 through 8-5 list our district technology inventory. Columns in the “Computer Use” section are described below:

Curriculum Delivery: Includes computers used in the classroom and lab settings to actually deliver curriculum. Also includes video studio computers and computers used for announcements throughout the buildings.

Administrative: Includes computers used by central office departments (including buildings and grounds and child nutrition) and in teacher offices.

Special Program: Includes computers used by special education staff, media centers, and community education department staff.

Table 8-1. District Technology Inventory

Building	Computers					Phone System				Network Closet Contents			
						Switch		Phones					
	Machine Type	Curric. Delivery	Admin	Special Programs	Total	Opt 11	Opt 81	Analog	Digital	File Servers	Routers	Hubs	DSU / CSUs
Elementary Schools	M1	697	93	86	876	29	0	1305	265	31	29	224	29
	M2	1344	79	89	1512								
	M3	415	15	114	544								
	M4	135	12	20	167								
	M5	675	5	5	685								
	W1	5	0	1	6								
	W2	0	11	6	17								
	W3	1	4	5	10								
	W4	50	18	8	76								
	W5	15	8	7	30								
Middle Schools	M1	379	90	68	537	14	0	709	151	7	7	100	7
	M2	457	30	59	546								
	M3	204	24	18	246								
	M4	62	0	3	65								
	M5	69	1	0	70								
	W1	0	1	0	1								
	W2	0	4	1	5								
	W3	0	1	1	2								
	W4	0	1	11	12								
	W5	0	3	0	3								
High Schools	M1	771	54	48	873	12	0	947	145	5	4	107	4
	M2	591	28	5	624								
	M3	104	57	46	207								
	M4	289	24	2	315								
	M5	2	1	2	5								
	W1	35	49	2	86								
	W2	98	67	38	203								
	W3	141	0	33	174								
	W4	32	0	2	34								
	W5	4	0	0	4								
Admin Buildings and Other Sites	M1	97	236	98	431	9	1	335	324	22	9	77	9
	M2	96	54	5	155								
	M3	13	2	2	17								
	M4	3	0	0	3								
	M5	4	9	0	13								
	W1	17	101	8	126								
	W2	18	15	4	37								
	W3	0	0	0	0								
	W4	9	1	0	10								
	W5	0	0	1	1								
DISTRICT TOTALS	M1	1944	473	300	2717	64	1	2484	1677	65	49	508	49
	M2	2488	191	158	2837								
	M3	736	98	180	1014								
	M4	489	36	25	550								
	M5	750	16	7	773								
	W1	57	151	11	219								
	W2	116	97	49	262								
	W3	142	5	39	186								
	W4	91	20	21	132								
	W5	19	11	8	38								

Table 8-2. Elementary School Technology Inventory

Building	Computers					Phone System				Network Closet Contents			
						Switch		Phones					
	Machine Type	Curric. Delivery	Admin	Special Programs	Total	Opt 11	Opt 81	Analog	Digital	File Servers	Routers	Hubs	DSU / CSUs
Adams	M1	33	2	4	39	1		40	9	1	1	7	1
	M2	27	3	1	31								
	M3	0	2	4	6								
	M4	26	1	0	27								
	M5	21	0	2	23								
	W1	0	0	0	0								
	W2	0	0	0	0								
	W3	0	0	0	0								
	W4	0	1	0	1								
	W5	0	1	1	2								
Andover	M1	10	3	0	13	2		113	19	2	1	17	1
	M2	176	9	10	195								
	M3	0	0	3	3								
	M4	1	1	2	4								
	M5	65	0	1	66								
	W1	0	0	0	0								
	W2	0	3	2	5								
	W3	0	0	0	0								
	W4	0	0	0	0								
	W5	0	0	0	0								
Champlin	M1	3	4	1	8	1		33	8	1	1	6	1
	M2	52	2	3	57								
	M3	33	0	5	38								
	M4	5	0	1	6								
	M5	33	0	0	33								
	W1	1	0	1	2								
	W2	0	1	0	1								
	W3	0	0	0	0								
	W4	0	1	0	1								
	W5	0	0	0	0								
Crooked Lake	M1	32	3	4	39	1		45	9	1	1	9	1
	M2	57	3	7	67								
	M3	1	0	6	7								
	M4	1	0	0	1								
	M5	0	0	0	0								
	W1	0	0	0	0								
	W2	0	2	1	3								
	W3	0	0	0	0								
	W4	0	0	0	0								
	W5	0	0	0	0								
Dayton	M1	34	5	4	43	1		46	8	1	1	8	1
	M2	36	5	8	49								
	M3	32	0	5	37								
	M4	4	0	0	4								
	M5	15	0	0	15								
	W1	0	0	0	0								
	W2	0	0	0	0								
	W3	0	0	0	0								
	W4	0	0	0	0								
	W5	0	2	0	2								

Table 8-2. Elementary School Technology Inventory

Building	Computers					Phone System				Network Closet Contents			
						Switch		Phones					
	Machine Type	Curric. Delivery	Admin	Special Programs	Total	Opt 11	Opt 81	Analog	Digital	File Servers	Routers	Hubs	DSU / CSUs
Eisenhower	M1	33	6	6	45	1		41	8	1	1	7	1
	M2	36	1	8	38								
	M3	32	0	5	6								
	M4	4	0	0	2								
	M5	15	0	0	45								
	W1	0	0	0	0								
	W2	0	1	1	2								
	W3	0	0	0	0								
	W4	0	1	0	1								
	W5	0	0	0	0								
Evergreen Park	M1	58	4	2	64	1		46	8	1	1	10	1
	M2	29	10	2	41								
	M3	57	1	4	62								
	M4	1	1	0	2								
	M5	15	0	0	15								
	W1	0	0	0	0								
	W2	0	0	0	0								
	W3	0	0	0	0								
	W4	0	2	1	3								
	W5	0	0	0	0								
Franklin	M1	33	2	5	40	1		38	8	1	1	6	1
	M2	54	5	2	61								
	M3	1	3	6	10								
	M4	5	0	0	5								
	M5	18	0	0	18								
	W1	0	0	0	0								
	W2	0	2	1	3								
	W3	0	0	1	1								
	W4	0	0	0	0								
	W5	0	0	0	0								
Hamilton	M1	33	4	5	42	1		40	9	1	1	7	1
	M2	37	2	8	47								
	M3	1	1	6	8								
	M4	30	0	2	32								
	M5	48	0	1	49								
	W1	0	0	0	0								
	W2	0	0	0	0								
	W3	0	1	0	1								
	W4	0	0	0	0								
	W5	0	1	1	2								
Hoover	M1	29	4	6	39	1		48	10	1	1	9	1
	M2	62	5	3	70								
	M3	42	1	4	47								
	M4	7	0	1	8								
	M5	3	0	0	3								
	W1	0	0	0	0								
	W2	0	0	0	0								
	W3	0	0	0	0								
	W4	0	0	0	0								
	W5	0	2	2	4								

Table 8-2. Elementary School Technology Inventory

Building	Computers					Phone System				Network Closet Contents			
						Switch		Phones					
	Machine Type	Curric. Delivery	Admin	Special Programs	Total	Opt 11	Opt 81	Analog	Digital	File Servers	Routers	Hubs	DSU / CSUs
Jefferson	M1	34	4	0	38								
	M2	37	5	5	47								
	M3	1	0	3	4								
	M4	7	0	0	7								
	M5	79	0	0	79	1		45	8	1	1	8	1
	W1	0	0	0	0								
	W2	0	0	0	0								
	W3	0	0	0	0								
	W4	0	1	1	2								
	W5	0	1	0	1								
Johnsville	M1	33	4	0	37								
	M2	33	1	2	36								
	M3	36	2	6	44								
	M4	0	0	0	0								
	M5	3	0	0	3								
	W1	0	0	0	0	1		43	8	1	1	6	1
	W2	0	1	0	1								
	W3	0	0	0	0								
	W4	0	0	0	0								
	W5	0	0	1	1								
Lincoln	M1	32	4	5	41								
	M2	20	5	3	28								
	M3	20	0	10	30								
	M4	0	0	5	5								
	M5	0	0	0	0								
	W1	0	0	0	0	1		37	7	1	1	6	1
	W2	0	0	0	0								
	W3	0	0	0	0								
	W4	0	2	1	3								
	W5	0	0	0	0								
LO Jacob	M1	33	4	5	42								
	M2	21	4	1	26								
	M3	0	0	2	2								
	M4	6	0	0	6								
	M5	68	0	0	68								
	W1	4	0	0	4	1		50	7	1	1	10	1
	W2	0	0	0	0								
	W3	0	0	0	0								
	W4	50	2	0	52								
	W5	0	0	0	0								
Madison	M1	33	1	3	37								
	M2	36	3	1	40								
	M3	4	0	1	5								
	M4	3	0	6	9								
	M5	0	0	0	0								
	W1	0	0	0	0	1		43	8	1	1	6	1
	W2	0	0	0	0								
	W3	0	0	0	0								
	W4	0	1	1	2								
	W5	0	0	0	0								

Table 8-2. Elementary School Technology Inventory

Building	Computers					Phone System				Network Closet Contents			
						Switch		Phones					
	Machine Type	Curric. Delivery	Admin	Special Programs	Total	Opt 11	Opt 81	Analog	Digital	File Servers	Routers	Hubs	DSU / CSUs
McKinley	M1	15	3	2	20								
	M2	69	1	1	71								
	M3	5	0	4	9								
	M4	0	0	0	0								
	M5	34	0	0	34	1		53	9	1	1	7	1
	W1	0	0	0	0								
	W2	0	0	1	1								
	W3	0	2	0	2								
	W4	0	0	0	0								
	W5	0	0	0	0								
Mississippi	M1	14	4	5	23								
	M2	56	2	0	58								
	M3	71	0	4	75								
	M4	5	0	0	5								
	M5	0	0	0	0	1		37	8	1	1	6	1
	W1	0	0	0	0								
	W2	0	0	0	0								
	W3	0	0	0	0								
	W4	0	0	0	0								
	W5	0	0	0	0								
Monroe	M1	49	5	2	56								
	M2	55	3	1	59								
	M3	1	2	3	6								
	M4	23	7	2	32								
	M5	35	0	0	8	1		54	9	1	1	8	1
	W1	0	0	0	0								
	W2	0	0	0	0								
	W3	0	0	0	0								
	W4	0	0	0	0								
	W5	0	2	1	3								
Morris Bye	M1	0	0	5	5								
	M2	64	1	3	68								
	M3	7	0	7	14								
	M4	9	0	0	9								
	M5	7	0	1	8	1		41	8	1	1	8	1
	W1	0	0	0	0								
	W2	0	0	0	0								
	W3	0	0	0	0								
	W4	0	2	1	3								
	W5	0	0	0	0								
Oxbow Creek	M1	40	2	4	46								
	M2	50	2	5	57								
	M3	32	1	11	44								
	M4	0	0	2	2								
	M5	0	0	0	0	1		65	13	1	1	11	1
	W1	0	0	0	0								
	W2	0	0	0	0								
	W3	1	1	2	4								
	W4	0	0	0	0								
	W5	0	0	2	2								

Table 8-2. Elementary School Technology Inventory

Building	Computers					Phone System				Network Closet Contents			
						Switch		Phones					
	Machine Type	Curric. Delivery	Admin	Special Programs	Total	Opt 11	Opt 81	Analog	Digital	File Servers	Routers	Hubs	DSU / CSUs
Park View ECC	M1	17	3	3	23								
	M2	10	5	2	17								
	M3	21	2	2	25								
	M4	0	0	0	0								
	M5	0	0	0	0								
	W1	0	0	0	0			22	6	1	1	5	1
	W2	0	0	0	0								
	W3	0	0	1	1								
	W4	0	0	1	1								
	W5	0	0	0	0								
Peter Enich KC	M1	0	0	0	0								
	M2	13	0	0	13								
	M3	0	0	0	0								
	M4	0	0	0	0								
	M5	0	0	0	0								
	W1	0	0	0	0			16	9	0	1	0	0
	W2	0	0	0	0								
	W3	0	0	0	0								
	W4	0	0	0	0								
	W5	0	0	0	0								
Ramsey	M1	30	8	4	42								
	M2	96	2	13	111								
	M3	16	1	2	19								
	M4	0	2	0	2								
	M5	65	0	0	65								
	W1	0	0	0	0	2		88	17	3	1	13	1
	W2	0	0	0	0								
	W3	0	0	1	1								
	W4	0	0	0	0								
	W5	0	0	0	0								
Riverview	M1	44	4	2	50								
	M2	26	4	4	34								
	M3	1	3	9	13								
	M4	0	0	0	0								
	M5	0	1	0	1								
	W1	0	0	0	0	1		39	8	1	1	8	1
	W2	0	0	0	0								
	W3	0	1	0	1								
	W4	0	1	1	2								
	W5	0	0	0	0								
Sand Creek	M1	33	4	1	38								
	M2	69	1	3	73								
	M3	1	0	5	6								
	M4	1	0	0	1								
	M5	0	0	0	0								
	W1	0	0	0	0	1		41	8	1	1	7	1
	W2	0	0	0	0								
	W3	0	0	0	0								
	W4	0	0	0	0								
	W5	14	0	0	14								

Table 8-2. Elementary School Technology Inventory

Building	Computers					Phone System				Network Closet Contents			
						Switch		Phones					
	Machine Type	Curric. Delivery	Admin	Special Programs	Total	Opt 11	Opt 81	Analog	Digital	File Servers	Routers	Hubs	DSU / CSUs
Sorteberg	M1	32	3	5	40								
	M2	59	1	1	61								
	M3	0	0	0	0								
	M4	1	0	0	1								
	M5	0	0	0	0								
	W1	0	0	0	0	1		31	9	1	1	8	1
	W2	0	0	0	0								
	W3	0	0	0	0								
	W4	0	1	0	1								
	W5	0	1	0	1								
University Ave	M1	32	4	4	40								
	M2	29	2	2	33								
	M3	1	0	0	1								
	M4	0	0	0	0								
	M5	36	0	0	36								
	W1	0	0	0	0	1		35	9	1	1	8	1
	W2	0	0	0	0								
	W3	0	0	0	0								
	W4	0	2	1	3								
	W5	0	0	0	0								
Washington	M1	0	4	3	7								
	M2	55	0	1	56								
	M3	35	0	5	40								
	M4	2	0	0	2								
	M5	15	0	0	15								
	W1	0	0	0	0	1		41	10	1	1	7	1
	W2	0	0	0	0								
	W3	0	0	0	0								
	W4	0	2	1	3								
	W5	0	0	0	0								
Wilson	M1	1	3	4	8								
	M2	68	1	3	72								
	M3	38	0	5	43								
	M4	3	0	0	3								
	M5	73	0	0	73								
	W1	0	0	0	0	1		41	10	1	1	7	1
	W2	0	1	0	1								
	W3	0	0	0	0								
	W4	0	0	0	0								
	W5	1	0	1	2								
TOTALS FOR ELEM. SCHOOLS	M1	697	93	86	876								
	M2	1344	79	89	1512								
	M3	415	15	114	544								
	M4	135	12	20	167								
	M5	675	5	5	685								
	W1	5	0	1	6	29		1305	265	31	29	224	29
	W2	0	11	6	17								
	W3	1	4	5	10								
	W4	50	18	8	76								
	W5	15	8	7	30								

Table 8-3. Middle School Technology Inventory

Building	Computers					Phone System				Network Closet Contents			
						Switch		Phones					
	Machine Type	Curric. Delivery	Admin	Special Programs	Total	Opt 11	Opt 81	Analog	Digital	File Servers	Routers	Hubs	DSU / CSUs
Coon Rapids	M1	67	23	20	112	2		120	26	1	1	13	1
	M2	74	11	20	105								
	M3	40	1	1	42								
	M4	0	0	0	0								
	M5	0	0	0	0								
	W1	0	0	0	0								
	W2	0	0	0	0								
	W3	0	0	0	0								
	W4	0	0	0	0								
	W5	0	2	0	2								
Fred Moore	M1	67	10	16	93	2		100	19	1	1	14	1
	M2	68	5	1	74								
	M3	37	13	12	62								
	M4	2	0	0	2								
	M5	0	0	0	0								
	W1	0	0	0	0								
	W2	0	0	0	0								
	W3	0	0	0	0								
	W4	0	1	2	3								
	W5	0	0	0	0								
Jackson	M1	75	20	2	97	2		102	21	1	1	15	1
	M2	112	0	10	122								
	M3	16	1	5	22								
	M4	21	0	3	24								
	M5	66	0	0	66								
	W1	0	0	0	0								
	W2	0	2	0	2								
	W3	0	0	0	0								
	W4	0	0	0	0								
	W5	0	0	0	0								
Northdale	M1	70	14	16	100	2		112	22	1	1	13	1
	M2	62	11	12	85								
	M3	39	0	0	39								
	M4	10	0	0	10								
	M5	3	1	0	4								
	W1	0	1	0	1								
	W2	0	1	1	2								
	W3	0	0	0	0								
	W4	0	0	6	6								
	W5	0	0	0	0								
Oak View	M1	45	27	6	78	2		114	25	1	1	23	1
	M2	178	19	13	210								
	M3	16	0	0	16								
	M4	0	0	0	0								
	M5	0	0	0	0								
	W1	0	0	0	0								
	W2	3	2	1	6								
	W3	0	0	0	0								
	W4	0	0	0	0								
	W5	0	0	0	0								

Table 8-3. Middle School Technology Inventory

Building	Computers					Phone System				Network Closet Contents			
						Switch		Phones					
	Machine Type	Curric. Delivery	Admin	Special Programs	Total	Opt 11	Opt 81	Analog	Digital	File Servers	Routers	Hubs	DSU / CSUs
Roosevelt	M1	34	13	2	49	2		91	22	1	1	10	1
	M2	93	0	6	99								
	M3	28	9	0	37								
	M4	29	0	0	29								
	M5	0	0	0	0								
	W1	0	0	0	0								
	W2	0	1	0	1								
	W3	0	0	0	0								
	W4	0	0	3	3								
	W5	0	0	0	0								
Sandburg	M1	66	10	12	88	2		70	16	1	1	12	1
	M2	48	3	10	61								
	M3	44	0	0	44								
	M4	0	0	0	0								
	M5	0	0	0	0								
	W1	0	0	0	0								
	W2	0	0	0	0								
	W3	0	1	1	2								
	W4	0	0	0	0								
	W5	0	1	0	1								
TOTAL FOR MIDDLE SCHOOLS	M1	379	90	68	537	14	0	709	151	7	7	100	7
	M2	457	30	59	546								
	M3	204	24	18	246								
	M4	62	0	3	65								
	M5	69	1	0	70								
	W1	0	1	0	1								
	W2	0	4	1	5								
	W3	0	1	1	2								
	W4	0	1	11	12								
	W5	0	3	0	3								

Table 8-4. High School Technology Inventory

Building	Computers					Phone System				Network Closet Contents			
						Switch		Phones					
	Machine Type	Curric. Delivery	Admin	Special Programs	Total	Opt 11	Opt 81	Analog	Digital	File Servers	Routers	Hubs	DSU / CSUs
Anoka	M1	207	14	4	224	3		246	38	1	1	25	1
	M2	152	2	0	154								
	M3	40	1	0	41								
	M4	17	0	0	17								
	M5	1	0	0	1								
	W1	0	0	0	0								
	W2	4	36	20	60								
	W3	49	0	8	57								
	W4	20	0	2	22								
	W5	0	0	0	0								
Blaine	M1	132	11	20	163	3		207	35	1	1	34	1
	M2	146	12	2	160								
	M3	49	2	6	57								
	M4	1	2	2	5								
	M5	1	1	2	4								
	W1	2	29	2	33								
	W2	62	3	0	65								
	W3	32	0	0	32								
	W4	12	0	0	12								
	W5	0	0	0	0								
Champlin Park	M1	196	11	22	229	3		287	31	1	1	21	1
	M2	140	7	0	147								
	M3	0	30	0	30								
	M4	241	18	0	259								
	M5	0	0	0	0								
	W1	33	20	0	53								
	W2	0	0	0	0								
	W3	0	0	25	25								
	W4	0	0	0	0								
	W5	4	0	0	4								
Coon Rapids	M1	236	18	2	256	3		207	41	2	1	27	1
	M2	153	7	3	163								
	M3	15	24	40	79								
	M4	30	4	0	34								
	M5	0	0	0	0								
	W1	0	0	0	0								
	W2	32	28	18	78								
	W3	60	0	0	60								
	W4	0	0	0	0								
	W5	0	0	0	0								
TOTALS FOR HIGH SCHOOLS	M1	771	54	48	873	12	0	947	145	5	4	107	4
	M2	591	28	5	624								
	M3	104	57	46	207								
	M4	289	24	2	315								
	M5	2	1	2	5								
	W1	35	49	2	86								
	W2	98	67	38	203								
	W3	141	0	33	174								
	W4	32	0	2	34								
	W5	4	0	0	4								

Table 8-5. Administrative/Other Sites Technology Inventory

Building	Computers					Phone System				Network Closet Contents			
						Switch		Phones					
	Machine Type	Curric. Delivery	Admin	Special Programs	Total	Opt 11	Opt 81	Analog	Digital	File Servers	Routers	Hubs	DSU / CSUs
Andover Center Consolidated Site	M1	0	0	13	13	1		18	18	1	1	5	1
	M2	11	2	0	13								
	M3	0	0	2	2								
	M4	0	0	0	0								
	M5	0	0	0	0								
	W1	0	0	5	5								
	W2	0	0	0	0								
	W3	0	0	0	0								
	W4	5	1	0	6								
	W5	0	0	0	0								
Bell Center	M1	22	4	0	26	1		38	6	1	1	8	1
	M2	10	6	0	16								
	M3	11	0	0	11								
	M4	0	0	0	0								
	M5	0	0	0	0								
	W1	0	0	0	0								
	W2	0	0	0	0								
	W3	0	0	0	0								
	W4	0	0	0	0								
	W5	0	0	0	0								
Blaine Consolidated Site	M1	21	6	0	27	1		11	1	0	1	2	1
	M2	4	2	0	6								
	M3	2	0	0	2								
	M4	2	0	0	2								
	M5	0	0	0	0								
	W1	3	1	0	4								
	W2	5	0	0	5								
	W3	0	0	0	0								
	W4	0	0	0	0								
	W5	0	0	0	0								
Champlin Plaza Consolidated Site	M1	14	5	0	19	1		17	7	0	1	3	1
	M2	16	2	0	18								
	M3	0	0	0	0								
	M4	0	0	0	0								
	M5	1	0	0	1								
	W1	3	1	0	4								
	W2	6	1	0	7								
	W3	0	0	0	0								
	W4	0	0	0	0								
	W5	0	0	0	0								
Coon Rapids Consolidated Site	M1	20	3	0	23	1		17	11	0	1	4	1
	M2	0	0	0	0								
	M3	0	0	0	0								
	M4	0	0	0	0								
	M5	0	0	0	0								
	W1	11	1	0	12								
	W2	0	0	0	0								
	W3	0	0	0	0								
	W4	0	0	0	0								
	W5	0	0	0	0								

Table 8-5. Administrative/Other Sites Technology Inventory

Building	Computers					Phone System				Network Closet Contents			
						Switch		Phones					
	Machine Type	Curric. Delivery	Admin	Special Programs	Total	Opt 11	Opt 81	Analog	Digital	File Servers	Routers	Hubs	DSU / CSUs
Crossroads Alt HS	M1	8	2	1	11	1		45	10	1	1	12	1
	M2	32	3	5	40								
	M3	0	0	0	0								
	M4	0	0	0	0								
	M5	0	0	0	0								
	W1	3	9	0	12								
	W2	0	0	0	0								
	W3	0	0	0	0								
	W4	0	0	0	0								
	W5	0	0	1	1								
ESC	M1	0	57	0	57	2		24	132	1	1	15	1
	M2	0	5	0	5								
	M3	0	2	0	2								
	M4	0	0	0	0								
	M5	0	0	0	0								
	W1	0	65	0	65								
	W2	0	7	0	7								
	W3	0	0	0	0								
	W4	0	0	0	0								
	W5	0	0	0	0								
LCDC	M1	12	150	94	255		1	142	131		1	23	1
	M2	23	34	0	57								
	M3	0	0	0	0								
	M4	1	0	0	1								
	M5	0	0	0	0								
	W1	0	33	3	36								
	W2	7	7	4	18								
	W3	0	0	0	0								
	W4	0	0	0	0								
	W5	0	0	0	0								
Transition Plus Consolidated Site	M1	0	19	3	22	1		23	8	1	1	5	1
	M2	0	1	0	1								
	M3	0	0	0	0								
	M4	0	0	0	0								
	M5	0	0	0	0								
	W1	0	0	0	0								
	W2	0	0	0	0								
	W3	0	0	0	0								
	W4	0	0	0	0								
	W5	0	0	0	0								
TOTAL FOR ADMIN. & OTHER SITES	M1	97	236	98	431	9	1	335	324	22	9	77	9
	M2	96	54	5	155								
	M3	13	2	2	17								
	M4	3	0	0	3								
	M5	4	9	0	13								
	W1	17	101	8	126								
	W2	18	15	4	37								
	W3	0	0	0	0								
	W4	5	1	0	6								
	W5	0	0	1	1								

Section 9 Technology Operations Management Requirements

Some items requested in this section are covered elsewhere in this plan:
- Operations management needs are in Section 10
- Systems development life cycle is in Section 8
- Some policies and procedures are in Section 7; the rest are described in this section.

Maintenance, Technical Support, and Infrastructure Replacement

At the building level, the Technology Paraprofessional, Instructional Technology Integrator, and Lab Paraprofessional handle maintenance, operations, and technical support. Since funding for these positions is not done centrally and is a building-based decision, it does not exist at all sites. When support goes beyond what site personnel are capable of providing, they work directly with district-level staff (Network Coordinator, Technology Support Technician, Instructional Facilitator, and District Support Team). If assistance is needed beyond the above, our district audio, electronic, and computer repair department is involved. Outsourcing is also used to facilitate timely repair and support. Decisions to outsource are made by involving our district audio, electronic, and computer repair department, Network Coordinator, and/or the Instructional Facilitator. For most of our computer warranty repair and classroom workstation repair that cannot be done at the site level, we have been using Nexus (outsourced vendor). For video system support and repair we have been using Television Service Labs. More detail is included in Section 10.

The budget (Section 12) includes funding for recurring infrastructure expenses. For example, the file server is upgraded on a 5-year cycle; the rest of the LAN/WAN is upgraded on a 3-year cycle. Detailed action steps will be include in the action plans (Section 13).

How Technology Purchases are Made

All recommended hardware and software standards are reviewed annually by the district Technology Steering Committee, identified in Section 2. Planning for purchases of hardware and software can be initiated by:
- Curriculum committees
- Departments (both instructional and administrative) or schools
- Any of the various district technology advisory committees

To Purchase Additional Hardware

1. Each building and/or department is responsible for developing a site-based technology implementation plan. Any hardware purchases, including additional support needed, must first be presented and approved by a building-level technology committee.
2. These requests must be forwarded to the appropriate Technology Facilitator, Coordinator, or the Director of Technology for comment on both technical appropriateness and completeness of the support plan.

3. A list of minimum hardware requirements for purchase will be updated regularly and posted on the district website (www.anoka.k12.mn.us). Support, both instructional and repair, will be provided for "approved" hardware only.
4. If all minimum conditions are met, the building and/or department can proceed with the purchase; the actual ordering is done centrally.
5. Whenever possible, hardware requests are saved until June of each year, when we can take advantage of a volume discount purchase through participating vendors.

To Purchase (or Update) Software

1. The site-based technology committee must approve software purchases and updates. This approval must include written rationale regarding why the software is needed, and plans for staff training.
2. These requests must be forwarded to the appropriate Technology Facilitator, Coordinator, or the Director of Technology for comment on both technical appropriateness and completeness of the support plan.
3. If all minimum conditions are met, the building and/or department can proceed with the purchase.
4. A list of supported software packages will be published and updated regularly by the Technology Steering Committee. The approved software packages will be supported through training and installation provided by the Technology Services department working with the Technology Coordinator/Contacts for buildings and departments and via our TIES membership.
5. Designated building/department technology support personnel have been granted access to a district INSTALLS server to facilitate software installation. Volume license pricing has been secured for all major supported products (i.e., Microsoft Select, Apple, etc.). A purchase order for the software must be provided to authorized installation personnel before the software is installed. A copy of each purchase order is kept centrally in the Purchasing department, as well as within each building or department for license auditing purposes.

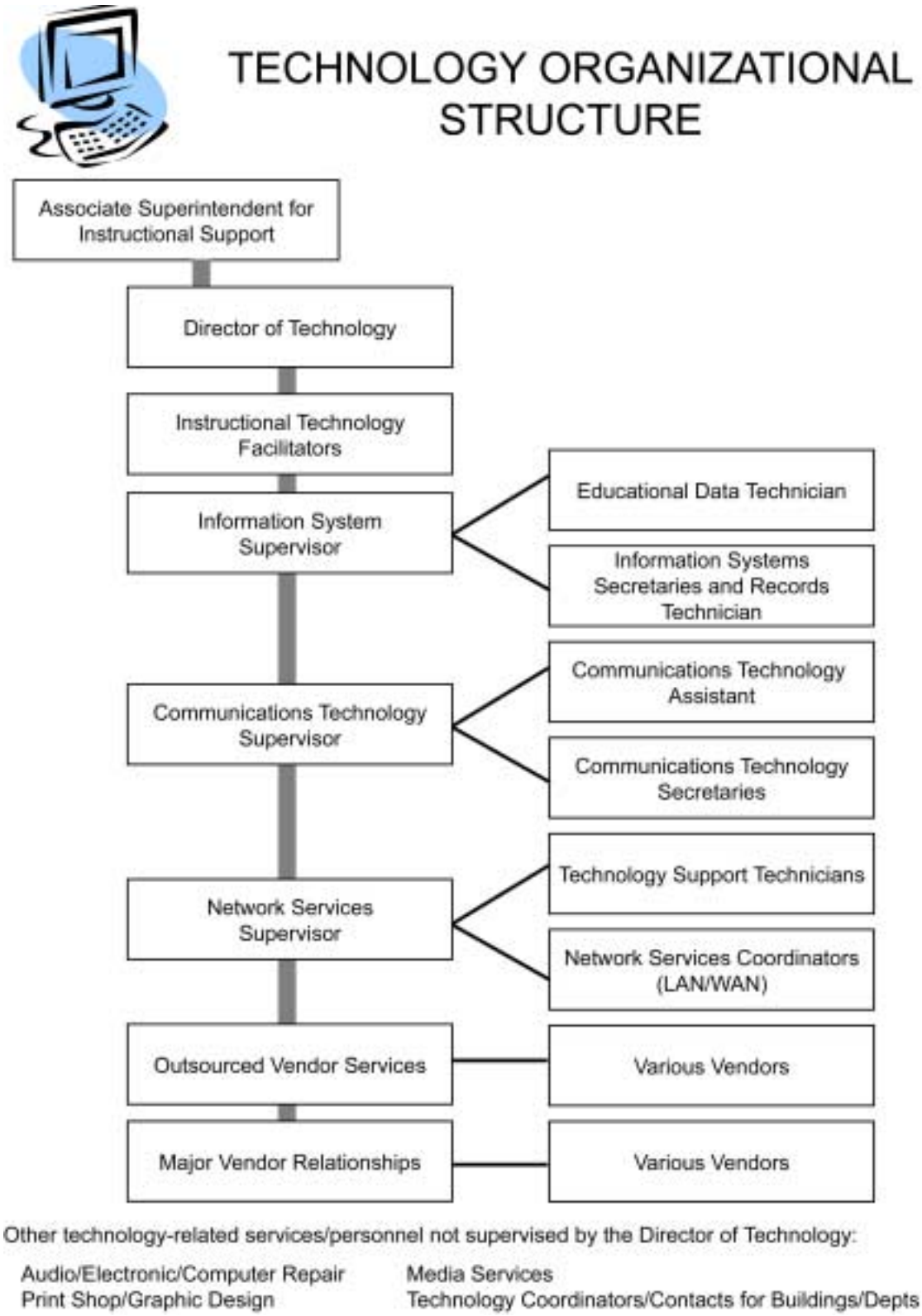

Figure 10-1. Technology Organizational Structure

Technology Support Plan

Technology support is critical for ensuring that technology is used effectively and efficiently.

At the district level, support is provided in four ways: through the district support team, a technology facilitator for each cluster, a network support coordinator for each cluster, and a desktop technology support technician for each cluster. A model for support provided by building staff has been developed and consists of an instructional technology integrator, lab paraprofessional (in secondary schools), and a technology paraprofessional. This support model maintains the school's technology and ensures maximum use of technology in classrooms, multimedia labs and resource areas, and offices.

At the building level, we have developed a technology support model outlining the minimum support requirements essential for each building. This model consists of an instructional technology integrator, lab paraprofessional, technology support technician, and technology paraprofessional. This support maintains the school's technology and assures maximum use of technology in classrooms, multimedia labs/resource areas, and offices.

Unfortunately, funding currently isn't in place for this model support structure. To compensate, several buildings are using their allocation for full-time employees (FTEs), but this causes other programs to suffer. The district needs funding to operate at the level of support required to maintain our technology.

Figure 10-2 shows the complete support structure and how the various people/teams work together to support staff and student technology use. The four positions required at the building level are indicated in the nonshaded area. The range in amount of support needed is based on the level and size of the school. Table 10-1 summarizes the staffing requirements to accommodate this structure.

District-Level Staff

The *District Support Team* consists of departments/staff who primarily support district administrative staff, such as Communications Technology and Information Systems.

The *Technology Facilitator* is primarily responsible for cluster-level development of instructional technology integration. The facilitators support the instructional technology integrator and coordination across the cluster to integrate technology into the curriculum.

The *Network Services Coordinator* is primarily responsible for supporting the WAN and LAN network hardware and software technology for the entire district.

The *Technology Support Technician* is primarily responsible for supporting hardware and software technology at the cluster level. This position is an extension of the technology facilitator position and is currently funded by each cluster.

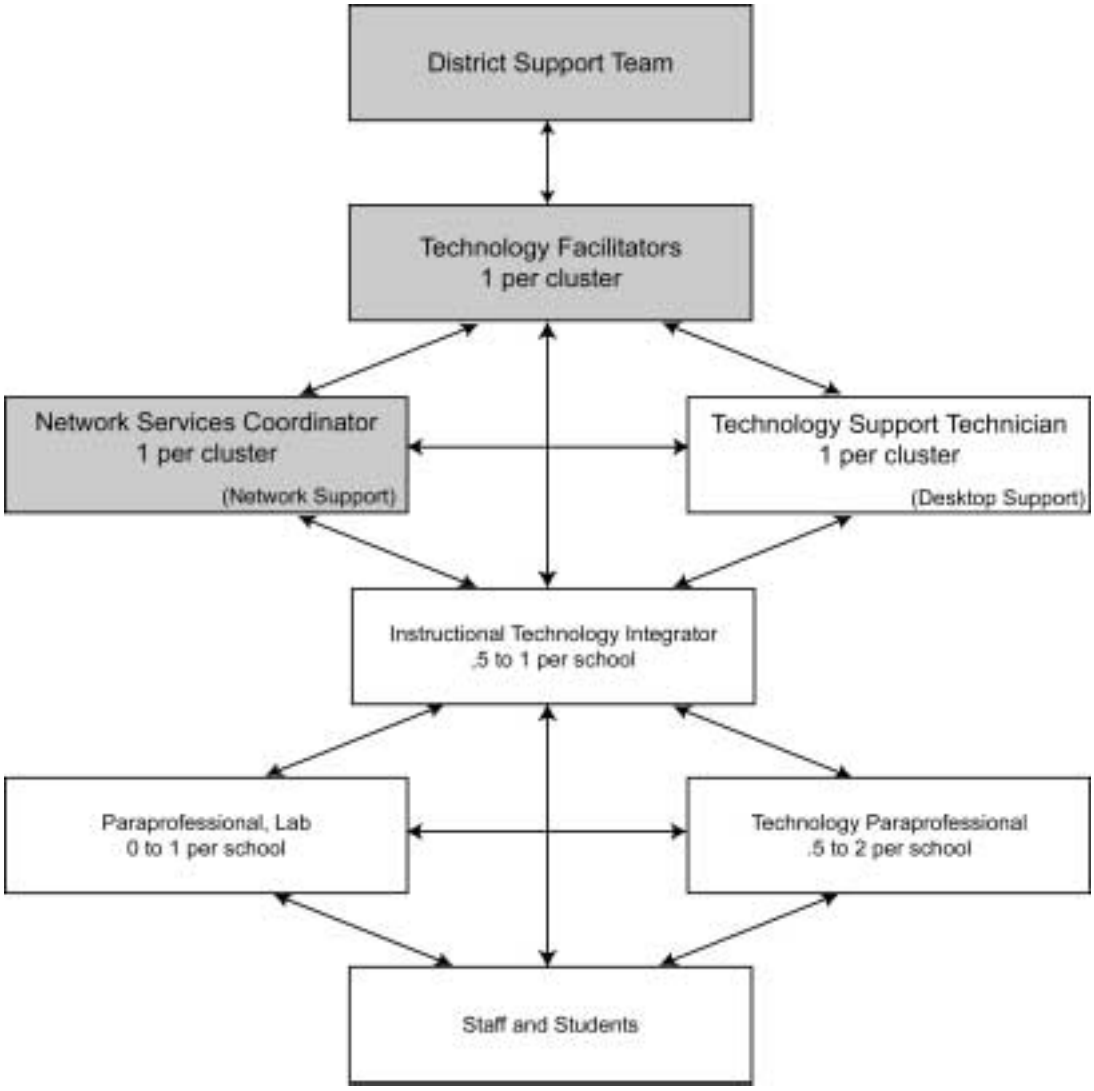

Figure 10-2. Cluster Technology Support Team Structure

Table 10-1. Staffing Summary for the Technology Support Structure Model

School Type	Position			
	Teacher Integrator	Lab Paraprofessional	Technology Support Technician	Technology Paraprofessional
Elementary	0.5	0	1 per cluster	0.5
Large Elementary (>800) or Middle School	1	1		1
High School	1	1		2
Noncluster Total	>0.5	>0.5	2	0
TOTAL FTE	**36.46**	**3.96**	**4.8**	**12.5**

Building-Level Staff – Instruction Integration

These positions integrate technology into the curriculum and provide overall technology management.

The *Instructional Technology Integrator* is primarily responsible for assisting the teaching staff with integrating technology in the curriculum and support of classroom applications, to help increase achievement in all curricular areas and levels. Integrators should perform minimal hardware or software installation and configuration.

The *Lab Paraprofessional* provides minimal hardware and software support for a multimedia lab. This paraprofessional will assist teachers when they are in the lab to complete the project being worked on at that time.

Building-Level Staff – Technical Support

The *Technology Paraprofessional* maintains hardware and software at building sites. Technology paras provide assistance for hardware and software support and work under direction of the instructional technology integrator.

Complete position descriptions for all technology positions can be found in Appendix A.

Training for Technology Staff

Technology is an ever-changing field. It is incumbent on the technology support staff to continually seek opportunities to enhance and upgrade their skills to ensure they are providing the most up-to-date information and service to district staff, students, and families.

Training takes place in many ways, including:

- Monthly meetings of technology staff to share ideas, and troubleshoot and discuss training and technology needs
- TIES technology training, which includes hundreds of workshops on a wide range of topics
- TIES annual technology conference to view vendor presentations, attend workshops, and learn new skills
- Key instructional contact meetings, coordinated through TIES, that include presentations and sharing on all aspects of technology including instructional integration, networking, maintenance, the web, and hardware/software issues
- Certification courses for network staff to periodically upgrade their certification in areas like Novell and Microsoft network operating systems
- National conferences, such as NECC and Connected Classroom
- Vendor phone or onsite support (i.e., Apple, Compaq, Novell, TIES)
- District staff training users on applications such as SASIxp/Class xp and our e-mail clients
- Web-based videos and video streaming

Section 11 Educational Development and Training

If we want students to engage in appropriate technology-based learning experiences and if we want educators to successfully structure and support these experiences, then teacher professional development and support is essential. Educators are more effective after receiving extensive training in the integration of technology with the curriculum. Teacher professional development and decisions about how computers are to be used in instruction may matter more than how often technology is used.

— "2000 Research Report on the Effectiveness of Technology in Schools"
Software Information Industry Association

Training Philosophy

Proper training is one of the cornerstones of effective technology use. To reach our ultimate goal of increased student learning, we must be comprehensive and aggressive in providing high-quality, accessible technology training opportunities.

Training needs are identified in a number of ways:

- *Self Identified.* An online assessment tool for use by any staff member can be found at www.anoka.k12.mn.us/AHNet/classrm/staffdev/technology/index.htm. This assessment identifies areas of weakness and directs the user to helpful "how to" instructions or online video links.
- *Observation*. Supervisors are responsible for helping staff to achieve professional goals in order to maximize performance for students; this often results in identifying key training needs.
- *Request*. As employees notice deficiencies in their technological capabilities or as they begin to work with new hardware or software, they will often request training help.
- *ISTE Standards*. The International Society of Technology in Education (ISTE) sets standards for technology skill and use; various employee groups may require training to meet these standards.
- *Purchases*. New hardware, software or curriculum tools purchases usually include a training component to help staff maximize the new technology.

Once the needs are identified, the district will either create the appropriate training session or access it through existing sources (such as technology conferences or vendor support).

Training Opportunities For All Staff

To help staff learn what they need, when they need it, a wide range of training opportunities are offered, including:

- TIES Learning and Technology Agreement: includes 617 workshop full-day allocations to be used for individual staff training at TIES, TIES classes taught on site, reduced cost of online staff development offerings, classroom online curriculum courses, and assisting in supporting the annual state technology conference
- "Just in time" minimum site-based support and staff development model
- Building-level staff development committee funded activities

- Use of web-based video to support staff basic skills technology literacy
- 1/2-day technology workshop for all new teachers
- SASIxp training for office and classroom staff (includes both one-time training and ongoing user groups)
- E-mail training for office and classroom staff
- Technology sessions during regularly scheduled district staff development days
- 2 hours per month in-service for all tech paraprofessionals
- 8 days of in-service for each building technology coordinator/technology integrator

Plans for expansion of these opportunities include:
- Provide web-based video to support all basic skills to be included in PAS (Performance Appraisal System) assessments
- Update baseline study of staff technology skills (instructional and administrative)
- Expand "just in time" minimum site-based support and staff development model to a consistent district-wide standard with dedicated funding
- Develop college credit technology courses to be offered evenings at the Staff Development Center

Training to Support Technology Integration as an Instructional Tool

Professional development plans for teachers and media center staff also emphasize integrating technology as a teaching tool. In addition to the training opportunities mentioned above, this level of targeted training support is also provided by:
- 12 days of district-wide technology integration classes
- Curriculum-specific technology integration classes offered by facilitators and building coordinators after the school day
- Exemplary Grants with technology emphasis or component funded by district staff development committee
- "Tech TOOLS" activities available for K through 5 – integrates technology with existing adopted curriculum
- Teams of 6th grade teachers trained in implementing technology grad standards within core curriculum

Plans for expansion of these opportunities include:
- Develop "Tech TOOLS" activities for K through 12 – integrating technology with existing adopted curriculum
- Develop college credit technology courses to be offered evenings at the Staff Development Center

Evaluation of Staff Development Efforts

Measuring effectiveness of our staff development plans helps us to continually improve not only our training approach, but also the skills of our staff. The following vehicles are currently in place, or in progress, as ways to evaluate our efforts and our staff's skill development.
- *Self-Assessment*: An online assessment tool for use by any staff member can be found at www.anoka.k12.mn.us/AHNet/classrm/staffdev/technology/index.htm. This assessment identifies areas of weakness and directs the user to helpful "how to" instructions or online video links. Any district staff, student, or family member can also access application training

help through a district agreement with Atomic Learning, located at www.atomiclearning.com. The next step is to provide links to QuickTime video training focused on both skills and integration of technology into the classroom.

- *Performance Appraisal System (PAS)*. Goals and performance expectations are written for each staff category in the district. The goal is to incorporate technology skills into each of those categories, with the skills targeted for the needs and expectations of each group. Currently, technology skills are incorporated in the principals' PAS, with training planned for summer 2001 to assist principals in gaining the necessary skills. Technology skills will be incorporated in PAS for central administrators and teachers in 2001-02, and for paraprofessionals, secretaries, and custodians in 2002-03. A sample of the principals PAS will be forthcoming.
- *Written Evaluations.* Participants in training programs are often asked to complete written evaluations upon completion of the training. These evaluations are used to improve future training efforts and identify additional training needs.
- *Outside Vendors.* When the district uses outside sources for training, these vendors are often able to provide their own evaluations of the participants' experiences and skill levels.

Section 12 Budget Development and Planning for Funding

Budget Development and Administration Policies

The following budget policies of the Board of Education guide the preparation and administration of this budget and help us monitor technology expenditures. Anoka-Hennepin spends $745,369 to cover costs not covered by the E-rate.

Budgets and Budgetary Accounting

Budgets are adopted on a basis consistent with generally accepted accounting principles. Annual appropriated budgets are adopted for the General, Special Revenue, Debt Service, and Capital Projects Funds. All annual appropriations lapse at fiscal year-end.

The annual adopted budget may be amended in the General, Special Revenue, Debt Service, and Capital Projects Funds unless such funds as a group have an unreserved deficit fund balance that exceeds 2.5% of expenditures. This condition is referred to as "statutory operating debt" and must be retired through subsequent operating surpluses in accordance with a "special operating plan" approved by the Minnesota Commissioner of Children, Families, and Learning. Budgeted amounts are as originally adopted or as amended by the School Board.

Total fund expenditures in excess of budget require approval by the School Board. Spending control is established by the amount of expenditures budgeted for the fund, but management control is exercised at line-item levels.

Operating Budget Policies

- The district will cover current expenditures with current revenues. The district will avoid budgetary procedures that cover current expenditures at the expense of meeting future years' expenditures, such as postponing expenditures, accruing future years' revenues, or rolling over short-term debt.
- The budget will provide for adequate maintenance of capital, plant, and equipment, and for orderly replacement of equipment.
- The district will maintain an interactive online budgetary control system to assist in following the budget plan.
- The district will prepare monthly reports comparing actual revenues and expenditures to budgeted amounts.
- An independent public accounting firm will be selected by the Board of Education and will perform an annual audit, and will publicly issue their opinion on the district's financial statement.

Budget

Our Technology budget for FY 2001 through FY 2004 is provided in Table 12-1. A summary of our technology equipment purchased in FY 2000 is provided as Table 12-2. Table 12-3 summarizes our phone system expenditures for FY 2000. Tables 12-4 and 12-5 provide timelines and estimated costing for technology in current and future years (replacement and expansion). Table 12-6 itemizes legally available funding sources for Minnesota School Districts. It indicates where Anoka-Hennepin could or does get funding.

Table 12-1. Summary of General Fund Technology Budget

Program Name	*Description of Expenditure*	*Budget FY 2001*	*Proposed Budget FY 2002*	*Proposed Budget FY 2003*	*Proposed Budget FY 2004*
Info Systems	Salaries / Wages	$207,700	$213,900	$220,300	$226,900
	Empl Benefits	52,800	58,100	63,900	70,300
	Purchased Svcs	569,700	581,100	592,700	604,600
	Supplies & Matls	108,400	110,600	112,800	115,100
	Other Exp	200	200	200	200
	TOTALS	**$938,800**	**$963,900**	**$989,900**	**$1,017,100**
Network Services	Salaries / Wages	$315,000	$324,500	$334,200	$344,200
	Empl Benefits	91,400	100,500	110,600	121,700
	Purchased Svcs	51,800	52,800	53,900	55,000
	Supplies & Matls	19,700	20,100	20,500	20,900
	Capital Exp	266,737			
	Other Exp	1,200	1,200	1,200	1,200
	TOTALS	**$745,837**	**$499,100**	**$520,400**	**$543,000**
Director of Technology	Salaries / Wages	$124,600	$128,300	$132,100	$136,100
	Empl Benefits	22,800	25,100	27,600	30,400
	Purchased Svcs	30,100	30,700	31,300	31,900
	Supplies & Matls	1,100	1,100	1,100	1,100
	Capital Exp.	591,105			
	Other Exp.	1,000	1,000	1,000	1,000
	TOTALS	**$770,705**	**$186,200**	**$193,100**	**$200,500**
Communications	Salaries / Wages	$27,900	$29,300	$30,800	$32,300
	Empl Benefits	10,900	12,000	13,200	14,500
	TOTALS	**$38,800**	**$41,300**	**$44,000**	**$46,800**
Communications Technology	Salaries / Wages	$148,300	$152,700	$157,300	$162,000
	Empl Benefits	40,100	44,100	48,500	53,400
	Purchased Svcs	121,700	124,100	126,600	129,100
	Supplies & Matls	4,900	5,000	5,100	5,200
	Capital Exp.	108,000			
	Other Exp.	200	200	200	200
	TOTALS	**$423,200**	**$326,100**	**$337,700**	**$349,900**
Census	Salaries / Wages	$19,200	$19,800	$20,400	$21,000
	Empl Benefits	1,600	1,800	2,000	2,200
	Purchased Svcs	1,500	1,500	1,500	1,500
	Supplies & Matls	5,400	5,500	5,600	5,700
	TOTALS	**$27,700**	**$28,600**	**$29,500**	**$30,400**
Instructional Technology	Supplies & Matls	$1,200	$1,200	$1,200	$1,200
	TOTALS	**$1,200**	**$1,200**	**$1,200**	**$1,200**
AV & Computer Repair	Salaries / Wages	$226,100	$232,900	$239,900	$247,100
	Empl Benefits	37,700	41,500	45,700	50,300
	Purchased Svcs	(59,500)	(60,700)	(61,900)	(63,100)
	Supplies & Matls	172,900	176,400	179,900	183,500
	Capital Exp.	1,055			
	TOTALS	**$378,255**	**$390,100**	**$403,600**	**$417,800**
Director of Technology Ops	Purchased Svcs	$131,300	$133,900	$136,600	$139,300
	TOTALS	**$131,300**	**$133,900**	**$136,600**	**$139,300**

Table 12-1. Summary of General Fund Technology Budget

Program Name	*Description of Expenditure*	*Budget FY 2001*	*Proposed Budget FY 2002*	*Proposed Budget FY 2003*	*Proposed Budget FY 2004*
All Other Departments	Capital Exp.	$56,844	$14,418,000		$10,878,500
	TOTALS	**$56,844**	**$14,418,000**		**$10,878,500**
District-Wide Admin TOTALS		**$3,512,641**	**$16,988,400**	**$2,656,000**	**$13,624,500**
Instructional Technology	Salaries / Wages	$167,185	$1,933,909	$2,015,448	$2,077,285
	Empl Benefits	19,900	21,900	24,100	26,500
	Purchased Svcs	6,100	11,200	11,400	11,600
	Supplies & Matls	10,800	11,000	11,200	11,400
	Capital Exp.	219,155	635,450		
	TOTALS	**$423,140**	**$2,613,459**	**$2,062,148**	**$2,126,785**
Director of Technology Ops	Purchased Svcs	$321,900	$328,300	$334,900	$341,600
	TOTALS	**$321,900**	**$328,300**	**$334,900**	**$341,600**
All Other Departments	Capital Exp.	$82,295			
	TOTALS	**$82,295**			
Elementary TOTALS		**$827,335**	**$2,941,759**	**$2,397,048**	**$2,468,385**
Special Education Technology	Purchased Svcs	$5,000	$5,100	$5,200	$5,300
	Supplies & Matls	7,900	8,100	8,300	$8,500
	Other Exp.	400	400	400	400
	TOTALS	**$13,300**	**$13,600**	**$13,900**	**$14,200**
Instructional Technology	Salaries / Wages	$389,400	$401,100	$413,100	$425,500
	Empl Benefits	84,200	92,600	101,900	112,100
	Purchased Svcs	43,000	43,900	44,800	45,700
	Supplies & Matls	52,600	53,700	54,800	55,900
	Capital Exp.	104,536			
	Other Exp.	600	600	600	600
	TOTALS	**$674,336**	**$591,900**	**$615,200**	**$639,800**
Director of Technology Ops	Purchased Svcs	$10,100	$10,300	$10,500	$10,700
	TOTALS	**$10,100**	**$10,300**	**$10,500**	**$10,700**
All Other Departments	Capital Exp.	$16,545			
	TOTALS	**$16,545**			
K-12 District-Wide TOTALS		**$714,281**	**$615,800**	**$639,600**	**$664,700**
Instructional Technology	Salaries / Wages	$96,200	$899,100	$926,100	$953,900
	Empl Benefits	29,500	32,500	35,800	39,400
	Purchased Svcs	500	500	500	500
	Supplies & Matls	5,600	5,700	5,800	5,900
	Capital Exp.	2,750			
	Other Exp.	100	100	100	100
	TOTALS	**$134,650**	**$937,900**	**$968,300**	**$999,800**
Director of Technology Ops	Purchased Svcs	$158,700	$161,900	$165,100	$168,400
	TOTALS	**$158,700**	**$161,900**	**$165,100**	**$168,400**
All Other Departments	Capital Exp.	$59,868			
	TOTALS	**$59,868**			
Middle School TOTALS		**$353,218**	**$1,099,800**	**$1,133,400**	**$1,168,200**
Instructional Technology	Salaries / Wages	$186,900	$1,142,500	$1,176,800	$1,212,100
	Empl Benefits	40,100	44,100	48,500	53,400
	Purchased Svcs	1,500	1,500	1,500	1,500
	Supplies & Matls	9,000	9,200	9,400	9,600
	TOTALS	**$237,500**	**$1,197,300**	**$1,236,200**	**$1,276,600**

Table 12-1. Summary of General Fund Technology Budget

Program Name	*Description of Expenditure*	*Budget FY 2001*	*Proposed Budget FY 2002*	*Proposed Budget FY 2003*	*Proposed Budget FY 2004*
Director of Technology Ops	Purchased Svcs	$158,700	$161,900	$165,100	$168,400
	TOTALS	**$158,700**	**$161,900**	**$165,100**	**$168,400**
All Other Departments	Capital Exp.	$74,168			
	TOTALS	**$74,168**			
Secondary TOTALS		**$470,368**	**$1,359,200**	**$1,401,300**	**$1,445,000**
GRAND TOTAL		**$5,877,843**	**$23,004,959**	**$8,227,348**	**$19,379,785**
Capital	Capital	$1,583,058	$15,053,450		$10,878,500
Operating	Operating	$4,294,785	$7,951,509	$8,227,348	$8,492,285
TOTAL		$5,877,843	$23,004,959	$8,227,348	$19,379,785

Table 12-2. Summary of Technology Equipment Purchased
Gen Fund FY 2000

Organization	*Program*	*Total*
District Wide	Administration	$1,656
	District Support Services	433,832
District Wide Total		**$435,488**
Elementary	Administration	$4,922
	Elem / Sec Reg Instruction	46,100
	Instructional Support	174,594
Elementary Total		**$225,616**
K-12 District Wide	Elem / Sec Reg Instruction	
	Instructional Support	100,163
K-12 District Wide Total		**$100,163**
Middle School	Elem / Sec Reg Instruction	$5,340
	Instructional Support	163,713
Middle School Total		**$169,053**
Secondary	Elem / Sec Reg Instruction	$1,620
	Instructional Support	258,591
Secondary Total		**$260,211**
Nonpublic Schools	Instructional Support	$3,950
Nonpublic Schools Total		**$3,950**
GRAND TOTAL		**$1,194,482**

Table 12-3. Phone/Data Systems Expenditures – FY2000

Organization	*Program*	*Total*
District Wide	Communication Services	$86,119
	Data Communications	42,626
District Wide Total		**$128,745**
Elementary	Communication Services	$238,397
	Data Communications	77,151
Elementary Total		**$315,548**
K-12 District Wide	Communication Services	$7,016
	Data Communications	2,851
K-12 District Wide Total		**$9,868**
Middle School	Communication Services	$107,453
	Data Communications	28,214
Middle School Total		**$135,667**
Secondary	Communication Services	$128,462
	Data Communications	27,079
Secondary Total		**$155,541**
GRAND TOTAL		**$745,369**

Table 12-4. Timelines/Estimated Costing – Capital Expenditures

Objectives	*Estimated Costs – New $$ (current year $)*			
	1 to 3 Years	*3 to 5 Years*	*5 to 10 Years*	*Beyond 10 Years*
Hardware/Software/Infrastructure and Transitional Training (current structure)				
Upgrade Classroom Computers (5-Yr cycle)	$5,287,500	----------	$5,287,500	$5,287,500
Upgrade SPED Hardware (5-Yr cycle)	$697,500	----------	$697,500	$697,500
Upgrade Media Center Hardware (5-Yr cycle)	$850,000	----------	$850,000	$850,000
Upgrade Central (including B/G, CNP, Trans)/School Office computers (3-Yr cycle)	$208,000	$1,618,000	$1,618,000	$1,618,000
Infrastructure for Data/Video - Servers (3-Yr cycle) - Infrastructure system (5-Yr cycle)	 $3,661,500	$650,000	$850,000 $3,661,500	$850,000 $3,661,500
Upgrade phone/voice mail system (one-time)	----------	$400,000	----------	$2,500,000
Replace classroom monitors (10-Yr cycle)	----------	----------	$1,000,000	----------
SUBTOTAL	**$10,704,500**	**$2,668,000**	**$13,064,500**	**$15,464,500**
Hardware/Software/Infrastructure and Transitional Training (expansion of current structure)				
Student access: Upgrade Lab computers (3 to 5-Yr cycle)		$3,505,500	$3,505,500	$3,505,500
Middle School IT Labs (5-Yr cycle)	$1,725,000	----------	$1,725,000	$1,725,000
Student access: K- 5 classroom cluster computers (5-Yr cycle)	----------	$5,584,500	$5,584,500	$5,584,500
Student access: portable devices (1 to 1)	----------	----------	----------	----------
SUBTOTAL	**$1,725,000**	**$9,090,000**	**$10,815,000**	**$10,815,000**
TOTAL CAPITAL	***$12,429,500***	***$11,758,000***	***$23,879,500***	***$26,279,500***

Hardware/Software: Hardware (computers, monitors, video-related hardware, network switches and routers, etc.) and software (including operating system, curriculum programs, business software) costs related to new technology equipment.

Table 12-5. Timelines/Estimated Costing – Expanded Operating Expenses

Objectives	*Estimated Costs (Annual)*
Support Structure	
Technology Support Team Structure	$3,219,600
Implement Federal-Mandated Internet Filtering	$80,000
Simplified Website management for buildings and district staff for public communication	$50,000
Web-based administrative applications, i.e., HR applications on line, benefits, CE reg, etc.)	----------
Staff Development	
Implement basic technology skill sets checklist for all staff and train on basic applications	----------
Fully Develop Technology TOOLS program (for students and staff)	$125,000
Integrate Tech Tools Skills with PAS	----------
Video streamed content for training	----------
TOTAL (OPERATIONAL FUNDS)	***$3,474,600***

Support Structure: Costs related to providing a consistent support structure to maintain our technology equipment and provide staff development from a "just in time" standpoint.
Staff Development: Costs related to formal training for district staff in the use of technology.

Table 12-6. Technology Funding Matrix

Funding Source	Description	State or Local Funding Split	Vote Required?	Capital Expenditures	Operating Expenditures	FY01	FY02	FY03	FY04
Capital Bonding	Bonds that cover the hardware cost. The bonds cannot have a duration longer than the useful life of the equipment (approx. 5 years)	The bonds are equalized when the districts total debt level exceeds 12% of net tax capacity. The next bond sale will put the district over the 12% limit.	yes	yes			$12,429,500		$11,758,000
Equipment Notes	Short-term equipment notes, 5 years or less, can be used to purchase technology equipment	The funds to repay the notes come from the operating capital funds that are transferred to the debt service fund for the duration of the notes. 100% local Taxes.	no	yes			$500,000		
Operating Capital	The district currently receives $199 per pupil unit of operating capital revenue	100% state aid	no	yes					
Lease Purchase	The district may enter into lease purchase agreement to purchase technology equipment	100% state aid. The funding comes from the operating capital revenue	no	yes					
Operating Referendum	The district can pass operating referendum to fund technical support	The state will equalize referendum levies up to the first $415 per pupil unit. The district currently levies $496 per pupil unit	Yes		Yes	$200,000	$3,474,600	$3,474,600	$3,474,600
General Education Revenue	Currently $3,964 per pupil unit	The current split is 75% state education aid, 10% education credit aid, and 15% local levy	No	Yes	Yes	$(849,000)	$3,438,949	$3,680,550	$3,932,451
Down Payment Levy	The district can hold a down payment referendum which would allow the district to set up a cash flow to help pay for technology	100% local levy	Yes	Yes					
Technology Access Revenue	This revenue source is new FY01 and is to cover the communication costs related to technology	100% state aid	No		Yes	$399,000	$399,000	$399,000	$399,000

Table 12-6. Technology Funding Matrix

Funding Source	Description	State or Local Funding Split	Vote Required?	Capital Expenditures	Operating Expenditures	FY01	FY02	FY03	FY04
Various State Grants	From time to time, the state has technology access grants available	Varies with the grant	No	Yes	Yes				
E-rate Funding	This is a federal funding system that helps cover communication operating costs associated with technology	Aid or telephone line cost credits	No		Yes	$250,000	$250,000	$250,000	$250,000
Integration Bonding	The current integration budget includes the purchases of technology for Evergreen Park elementary – portable comp project	The capital expenditures for equipment for this program will be funded with integration revenue to be sold in January 2001	No	Yes			$635,450		
Integration Grant	The current integration budget includes the purchases of technology for Evergreen Park elementary – portable comp project	The capital expenditures for equipment for this program will be funded with integration revenue to be sold in January 2001	No	Yes	Yes	$293,403	$130,109	$157,348	$163,285

Section 13 Action Plan

Table 13-1 itemizes actions detailed in section 4 of this plan.

Table 13-1. Action Plan (Summary)

Action	Status	Scheduled Completion	Responsible Party
Upgrade Classroom Hardware	Awaiting funding	12/02	Director of Technology
Upgrade Special Education Hardware	60% complete	12/02	Director of Special Education
Media Center Hardware/Software Upgrade	Awaiting funding	12/02	Media Facilitator
Consistent Technology Support Plans			Director of Technology
• Create Plan	Complete	Complete	
• Implement Support Plan	Awaiting funding	8/02	
Technology Skills for Staff			Technology Facilitators
• Implement better staff training opportunities	Started		
• Use *Technology Standards Checklist* as a measurement of job performance and staff accountability	Started		
• Implement *Technology TOOLS* program	Started		
• Develop and offer college credit technology courses for staff	Started		
• Expand use of web-based video to support staff basic skills	Started		
Infrastructure Upgrade			Network Services
• Firewall in place	Started	04/01	
• Directory Service Information Consolidated	Started	12/01	
• Voice/Data & Video/Data services consolidated	Awaiting Funding		
• Increase LAN infrastructure bandwidth	Awaiting funding		
• Upgrade WAN to IP-based system	Awaiting funding		
• Set up monitoring of web sites accessed to improve internet access	Started		
• Update disaster recovery and backup plans	Started		
Upgrade District Web Site Management			Director of Technology
• Redesign the district web site	Started		
• Create a web site management plan	Started		
Implement Internet Filtering	Policy/procedure development in process	7/02	Network Services/ Media Facilitator
Upgrade Labs			Director of Technology
• Upgrade middle school IT Labs	Awaiting funding	8/02	
• Develop an "equal access" to technology policy	Started	12/01	
K-5 Classroom Cluster Computers	Awaiting funding	8/02	Director of Technology

Table 13-1. Action Plan (Summary)

Action	Status	Scheduled Completion	Responsible Party
Upgrade Administrative Central and School Office Computers			
• Move all staff to common email/calendaring system	30% complete	Contingent on classroom hardware upgrade	Communications Technology
• Follow a 3-year life cycle replacement on administrative computers	Awaiting funding	8/02	Director of Technology
Upgrade Phone System to Accommodate Caller ID	Started	07/01	Communications Technology
Expand Student Information Systems (See Table 13-2)			Information Systems
Replace TV Monitors	Awaiting funding	8/04	Director of Technology
One-to-One Student Computer Access			Director of Technology
• Complete Pilot program at Evergreen Park Elem	In process		
• Create a Plan to accomplish providing portable computers to all students			
Maintain bond-provided video networks and school computers past extended warrantee period			Director of Technology
• Train on-site personnel to diagnose and repair most common problems	Started		
• Create a plan for maintenance/repair that is cost-efficient and effective	Started		
Web-based administrative applications			Director of Human Resources
• Staffing (human resources) database			
• Employee benefit database			
• On-line application process			

Each action item listed in Table 13-1 has detailed action plans maintained by the responsible party. An example of a detailed plan, for Student Information Systems, is provided as Table 13-2.

Table 13-2. Student Information Systems Action Plan

Year	Project	Description
	Graduation Standards	Develop SASIxp Elementary Graduation Standards Tracking process
01-02	Elementary Report Cards	Pilot Test electronic elementary grade reporting at one site per cluster
02-03	Elementary Report Cards	Implement electronic elementary grade reporting for all elementary sites
	Secondary Report Cards	Develop consistent parent reporting tools including report cards.
01-02	NCS4School	Pilot implementation of NCS4School at CRHS and Ramsey Elementary
	Classroom Communications	Test parent reporting and teacher web-based access and telephony options. Make recommendation for implementation.
	Staff Access	Develop and deliver staff development for staff access and responsibility for data access
02-03	NCS4School	Expand pilot implementation of NCS4School
01-02	SQL Server	Test SQL server and SASIxp at High Schools. Develop and implementation plan.
02-03	SQL Server	Implement SQL server model district wide.
	SQL	Purchase SQL Servers, SQL software and ODBC drivers
	Streamline data to TSIS	Implement Street Validation processing
	Streamline data to TSIS	Begin automation of uploading student data from SASI DI to TSIS
01-02	Special Education	Pilot test web based special education data management software solutions
02-03	Special Education	Develop an implementation plan for special education web-based software solution
01-02	AHS/CPHS	Installation, conversion, training. Full implementation of SASIxp at AHS and CPHS.
	New Elementary	Installation, conversion, training. Full implementation of SASIxp at the new elementary.
01-02	Bell, Transition+, Bridges	Installation, conversion, training. Full implementation of SASIxp at AHS and CPHS.
01-02	ESL/Home Language	Determine data needs, implement and train ESL programs.
01-02	Document Imaging System	Select and implement a Document Imaging System for student records classified for permanent retention.
	Upgrade Version	Annually test new version. Convert all SASIxp sites to new version.
	District Integration	Add remaining sites to District Integration server process.
	Health	Add Health History tracking for all sites.
	MS Classroom Attendance	Add classroom attendance taking for MS's
	NCS Health Review	Work with NCS on development of redesigned Health module.
	Scheduling	Evaluate, recommend and implement district Master Scheduling software
	Standardized Testing	Add additional standardized tests to SASIxp database. Develop site required reports. (DRP, ITBS, MAP, DRA)
	Assessment	Develop site/classroom reports for standardized test data
	ALC	Implement SASIxp solution for ALC Satellite sites.
	New High School New Elementary	Install, convert and train. Implement SASIxp for new high school.
	STEP Program	Install, convert and train. Implement SASIxp for STEP program.

Table 13-2. Student Information Systems Action Plan

Year	Project	Description
	ESCE / School Readiness / Pre-School Screening	Install, convert and train. Implement SASIxp for ESCE, School Readiness and Pre-School screening programs.
	Community Education	Develop links between SASI student data and community education systems.
	Gradebook	Work with Technology Facilitators to test and recommend a gradebook package for use with parent reporting recommendations.
	Targeted Services	Develop options for tracking various Title and Targeted Services programs that integrate with SASIxp databases.
	SIF	Pilot test SIF at Ramsey Elementary and CRHS. Develop and implementation plan for expanding district wide.
	SIF	Implementation of SIF district wide.
	Child Nutrition	Determine needs, implement and train CN staff at sites
	IGP	Identify a district recommended teacher gradebook, implementation plan and timeline.
	IGP	Provide training and support for teacher gradebook
	IGP	Purchase gradebook software
	Parent Volunteer	Determine plan
	Application Servers	
	Timbuktu	

Section 14 Evaluation and Benefit Analysis

> Introducing technology into the learning environment has been shown to make learning more individualized and student-centered, to encourage cooperative learning and to stimulate increased teacher-student interaction.
>
> — *"2000 Research Report on the Effectiveness of Technology in Schools"*
> *Software Information Industry Association*

Evaluation of Previous Technology Plan

The last formal Technology Plan was developed in 1997 (http://www.anoka.k12.mn.us/AHNet/depart/technology/ATSO1099.pdf). This plan built on goals and objectives from the 1993 plan, which was revised in March 1994 (http://www.anoka.k12.mn.us/AHNet/depart/technology/ATS0394.pdf). All activities outlined in the Action Plan were completed on schedule. Those identified as ongoing (e.g., internal training, maintenance of technology infrastructure/ hardware) are still ongoing.

Evaluation of Current Technology Plan

The TSC and School Board are ultimately responsible for evaluating the Technology Plan. This evaluation is done in many ways and at various times. Some evaluations are done as part of staff performance reviews. Others are incorporated into written, online or focus group discussions. Section 11 of this plan outlines how staff development efforts are evaluated. Since the overall goal of the Technology Plan is to increase student achievement, any evaluative effort must be linked to supporting or enhancing student learning.

To help us evaluate our technology efforts, we ask the following questions before initiating any technology-related tasks:

- Explain this need (How was it identified?, describe what it means)
- What are we going to do to address the need? (objectives and action plan)
- How does this objective/action specifically impact one or more of our district technology goals?
- What is the purpose of our objective/action? (i.e., "To .....")
- What are the benefits of addressing this need? (i.e., Who does it help? How?)
- How will we evaluate if we have achieved the stated benefits?
- What will the costs be and how can we fund this objective/action?

Throughout this plan, the benefits of technology and various methods of evaluation are mentioned. Following are some examples of how specific objectives will be evaluated.

Upgrade Classroom Computers

A variety of evaluations will be used to measure the effectiveness of upgraded classroom computers, such as:

- Total Value of Ownership (TVO) studies to measure staff perception of how technology saves them time to complete tasks and allows more time with students

- Documentation of time saved running applications on upgraded computers
- Documentation of staff and community use of our video streaming staff development resources

Consistent Technology Support Structure
We will use TVO studies to monitor and measure staff perception of the effectiveness of their technology support structure.

Infrastructure Upgrade
We will continue to use various network traffic studies and monitoring software to measure voice, data, and video network use.

K-5 Classroom Cluster Computers
Students can share their gained access to network curriculum by expressing their ideas in the project learning environment. By comparing results on the standardized tests we give each year, we will look for growth in the areas we support with the classroom clusters.

Upgrade Phone System to Accommodate Caller ID
We will track if calls to family members at home or work are answered instead of being ignored or screened, thus increasing school-parent communication.

Web-Based Administrative Applications
A variety of evaluations will be used:
- Survey of administrators regarding ease of access to the database
- Examination of the quality of staff planning and decisions
- Survey of employees regarding ease of access to benefit information
- Survey of supervisors regarding access to summary benefit cost information for employees within their department or building
- Survey of building administrators regarding access to the applicant database
- Examination of PAS information for probationary teachers

Media Center Hardware/Software Upgrade
One measure will be if students and staff indicate they are able to meet their informational and research needs. Measures of access will include tracking computer availability or availability of information necessary for meeting graduation standards.

Web Site Management/Upgrade
Opportunities for users to provide input on the Web site will be incorporated into the design. Surveys and focus group discussions will also gather input on web site effectiveness.

Maintain Bond-Provided Video Networks/School Computers Past Warrantee
We will track the amount of computer and video system downtime or the number of hours in which equipment is not available to students, staff, and community.

Appendix A: Technology Staff Job Descriptions

Title: ***Director of Technology***	**Reports to:** *Associate Superintendent of Instructional Support*

Responsibilities:

1. Plans and directs technology implementation and support in the school district for all areas of instruction, staff development, central services, and technical support
2. Directs the allocation of existing resources and seeks additional support, both personnel and financial, to ensure the implementation of the School District Technology Plan.
3. Communicates current and future visionary technologies for delivery of curriculum and functional activities to the school board, staff, and public.
4. Develops policies, procedures, and standards regarding technology use.
5. Develops and implements recommendations of the Technology Steering Committee.
6. Coordinates integration of available technologies into school district curriculum.
7. Coordinates use of technology for assessment of instructional learning.
8. Coordinates implementation of technologies across clusters in accordance with the district Technology Plan.
9. Coordinates implementation functions and delivery across the district with other areas, i.e., community education, special education, printing services, media services, and AV repair.
10. Assesses district technology use.
11. Manages and recommends technology support for district personnel.
12. Monitors, evaluates, and updates the district Technology Plan
13. Chairs the Technology Steering Committee and serves as ex-officio member of Instructional Technology and Administrative Technology Committees.
14. Manages major vendor outsourced technology service relationships (i.e., US West, TIES).
15. Initiates participation and represents district interests on state and national technology advisory committees (i.e., MN CFL Graduation Standards data management, Microsoft, Apple, US West).
16. Keeps abreast of current developments and innovations in technology through reading and/or attending related conferences, seminars, and meetings.
17. Executes assigned administrative responsibilities to ensure compliance with federal and state laws in accordance with district policies and guidelines pertaining to equal employment opportunity and affirmative plan.
18. Performs other tasks and duties as assigned by the Associate Superintendent of Instructional Support

Education:	Bachelor's degree with emphasis in information or technology management. Advanced degree preferred	**Experience:**	2 to 5 years instructional technology management. Other related administrative experience considered.

Skills, Knowledge, and Abilities:

- Outstanding communications skills in the area of technology
- Demonstrated skill and understanding of the coordination and interoperability of instructional, central services, and technical support needs of technology in a large school district
- Demonstrated skills in effectively managing human and financial resources
- Ability to establish, maintain, and improve computer networks
- Working knowledge of and experience with a variety of hardware and software applications, networks, and operating systems
- Ability to work cooperatively and effectively with others
- Successful related experience in classroom teaching and/or administration
- Demonstrated ability to perform position responsibilities

Title: ***Instructional Technology Facilitator***	**Reports to:** *Director of Technology*

Responsibilities:

1. Facilitates integration of available technologies into district curriculum
2. Communicates current instructional technology achievements, needs, and future visions to the school board, staff, and public.
3. Facilitates use of technology for assessment of instructional learning.
4. Plans, coordinates, and conducts technology staff development district wide.
5. Coordinates installation of technology for teacher classroom management functions such as attendance, grading, assessment, and communications.
6. Coordinates the content of district Internet servers in cooperation with the Public Information Coordinator and other district personnel.
7. Assesses instructional technology use in the district.
8. Provides for the instructional application of technology within the educational program.
9. Integrates technology in the classroom to maximize each learner's potential.
10. Assists in assessing and providing for instructional and management technology needs for cluster schools.
11. Provides technical support and training in instructional improvement practices.
12. Provides services to assist schools in reaching school improvement goals.
13. Provides references and research information, trends, and applications for technology.
14. Maintains current knowledge of emerging information, trends, and applications for technology.
15. Supports maintenance of technology-related hardware.
16. Facilitates communication between the Technology Steering Committee, other technology staff, and clusters and departments.
17. Serves as a member of a cluster team and the Technology Steering Committee.
18. Performs other tasks and duties as assigned by the Director of Technology.

Education:	Bachelor's degree. Must possess a valid Minnesota Teaching License in level appropriate with building assignment.	**Experience:**	2 years technology background in an educational environment

Skills, Knowledge, and Abilities:

- Organization and management abilities
- Communication skills including writing, speaking, and listening
- Ability to work with diverse groups
- Working knowledge of technology hardware and software
- Working knowledge of telephone, groupware, and server-based software
- Working knowledge of Windows/DOS, Macintosh, and mainframe computer systems

Title: ***Information Systems Supervisor***	**Reports to:** *Director of Technology*

Responsibilities:

1. Directs the day-to-day activities of the district's Information Systems department, which includes data processing in the areas of finance, payroll, personnel, student information, census, instructional programs, research activities, transportation, and student assessment.
2. Assesses district use of information management systems and related technologies, and recommends alterations and expansion as necessary.
3. Develops and recommends policies and procedures to improve student information systems within the district.
4. Develops procedures for the collection, storage, retrieval, and dissemination of student information in accordance with the needs of the district and the district's long-range plan.
5. Supervises the preparation and submission of all required federal, state, and district reports relating to the areas of responsibility.
6. Provides consultant services to those departments that indicate a need, interest, or desire to develop data processing applications; and conducts inservice programs to keep staff informed of application developments in the field of information technology and other related software.
7. Develops schedules and establishes procedures for the administrative use of information technology equipment and staff throughout the district.
8. Interprets output data from the educational information system for users.
9. Serves as a member of the Technology Steering Committee.
10. Supervises and appraises the performance of personnel assigned to the areas of responsibility.
11. Communicates to the Director of Technology the requirements and needs in the assigned areas of responsibility.
12. Prepares and monitors program budgets for the allocation of resources.
13. Executes assigned administrative responsibilities to ensure compliance with federal and state laws in accordance with district policies and guidelines pertaining to equal employment opportunity and affirmative action.
14. Performs other tasks and duties assigned by the Director of Technology

Education:	**Experience:**
Bachelor's degree with emphasis in information or technology management. Equivalent experience/ training considered.	2 years information systems management. Other related administrative experience considered.

Skills, Knowledge, and Abilities:

- Organization and management abilities
- Communication skills including writing, speaking, and listening
- Ability to work with diverse groups
- Working knowledge of information systems
- Knowledge/understanding of laws, rules, and regulations affecting district personnel and operations
- Working knowledge of Windows/DOS, Macintosh, and mainframe computer systems

Title: ***Educational Data Assistant***	**Reports to:** *Information Systems Supervisor*

Responsibilities:

1. Collects and prepares data for state and federally required reports, periodic research reports, and surveys.
2. Act as the MARSS Contact (Minnesota Automatic Reporting Student System), coordinating efforts that ensure compliance with state statutes and maximum general education revenue and other revenue payments to the district.
3. Maintains records for student enrollment projections, boundary decisions, and computerized mapping systems.
4. Prepare student projections used by the Director of Finance for preparing the district budget and by the Human Resources Manager for staffing requirements.
5. Updates mapping and desk reference manual to include boundary changes and real estate development.
6. Coordinates special projects and provides assistance to public relations and communications efforts of the district.
7. Monitors compliance with federal and state laws, including equal employment opportunity and affirmative action.
8. Assigns, organizes, and facilitates data-related projects accurately.
9. Performs other tasks and duties as assigned by the Information Systems Supervisor

Education: Bachelor's degree with emphasis in information or data management. Equivalent experience/ training considered.	**Experience:** 2 years data or information systems management. Other related administrative experience considered.

Skills, Knowledge, and Abilities:

- Organization and management abilities
- Communication skills including writing, speaking, and listening
- Ability to work with diverse groups
- Working knowledge of technology hardware and software
- Working knowledge of telephone, groupware, and server-based software
- Working knowledge of Windows/DOS, Macintosh, and mainframe computer systems

Title: ***Information Systems Secretary***	**Reports to:** *Information Systems Supervisor*
Responsibilities: 1. Performs accurate data input of confidential information using a variety of software and mainframe programs including Windows/DOS and Macintosh platform equipment. 2. Verifies accuracy of data input using output sources. 3. Assists in the development and preparation of training materials for training sessions on a variety of software packages. 4. Handles report requests to include designing, ordering, and record keeping. This involves the regular lifting and sorting of boxes or reports. 5. Provides support and problem resolution in the operation and functionality of computer software for users. 6. Documents written requests and telephone calls regarding the processing of new students, changes to information regarding students, or the removal of students from the district roster. 7. Communicates to the Information Systems Supervisor the requirements and needs of the assigned area of responsibility. 8. Performs other tasks and duties as assigned by the Information Systems Supervisor.	
Education: High School Diploma	**Experience:** 2 years data entry experience
Skills, Knowledge, and Abilities: ▪ Organization and management abilities ▪ Communication skills including writing, speaking, and listening ▪ Ability to work with diverse groups ▪ Working knowledge of Windows/DOS, Macintosh, and mainframe computer systems	

Title: ***Communications Technology Supervisor***	**Reports to:** *Director of Technology*

Responsibilities:

1. Assesses district use of communication-related technologies and recommends alterations and expansion as necessary.
2. Manages the district telecommunications system, including adds/moves/changes, supervising a vendor-provided technician, determining needs for upgrades and new systems, as well as cell phones, pagers, and pay phones.
3. Manages the district e-mail system, including group calendaring.
4. Manages low-voltage wiring (data/phone/video) for the district.
5. Manages word processing, duplicating, receptionist, and mail room services at the ESC.
6. Develops and recommends policies and procedures to improve internal communications using technology in the area of responsibility.
7. Develops and implements staff development programs appropriate to the needs of personnel in the areas of responsibility.
8. Coordinates administrative word processing/computer user training and equipment support.
9. Serves as a member of the Technology Steering Committee.
10. Supervises and appraises performance of personnel assigned to the areas of responsibility.
11. Communicates to the Director of Technology the requirements and needs in the assigned areas of responsibility.
12. Prepares and monitors program budgets for the allocation of resources in the assigned areas of responsibility.
13. Executes assigned administrative responsibilities to ensure compliance with federal and state laws in accordance with district policies and guidelines pertaining to equal employment opportunity and affirmative action.
14. Performs other tasks and duties assigned by the Director of Technology

Education:	**Experience:**
Bachelor's degree with emphasis in information or technology management. Equivalent experience/ training considered.	2 years technology management. Other related administrative experience considered.

Skills, Knowledge, and Abilities:

- Organization and management abilities
- Communication skills including writing, speaking, and listening
- Ability to work with diverse groups
- Working knowledge of technology hardware and software
- Working knowledge of telephone, groupware, and server-based software
- Working knowledge of Windows/DOS, Macintosh, and mainframe computer systems

Title: ***Communications Technology Assistant***	**Reports to:** *Communications Technology Supervisor*

Responsibilities:

1. Supervises mailroom and receptionist personnel for the ESC.
2. Assists in the maintenance of the district wide PBX telecommunications system.
3. Coordinates changes and maintains the district voice mail system.
4. Assists in the maintenance of the district wide e-mail system and group calendaring.
5. Produces the district communications directory.
6. Coordinates changes to the district E911 database.
7. Performs software installation as directed.
8. Coordinates district cell phones and pager requirements.
9. Assists with the development and delivery of training on department-based application software (i.e., e-mail and phone/voice mail).
10. Communicates to the Communications Technology Supervisor the requirements and needs of the assigned area of responsibility.
11. Performs other tasks and duties as assigned by the Communications Technology Supervisor

Education:	2-year degree with emphasis in information or technology management. Equivalent experience/ training considered.	**Experience:**	2 years technology management. Other related administrative experience considered.

Skills, Knowledge, and Abilities:

- Organization and management abilities
- Communication skills including writing, speaking, and listening
- Ability to work with diverse groups
- Working knowledge of technology hardware and software
- Working knowledge of telephone, groupware, and server-based software
- Working knowledge of Windows/DOS, Macintosh, and mainframe computer systems

Title: ***Communications Technology Secretary***	**Reports to:** *Communications Technology Supervisor*
Responsibilities: 1. Performs word processing duties as required. 2. Assists in the development and preparation of training materials for training sessions on a variety of software packages. 3. Updates server-based software programs (i.e., e-mail) by assisting in making changes to passwords, resetting modems, etc. 4. Provides duplicating services for district office staff. 5. Assists in conducting training sessions on groupware technologies (i.e., e-mail, calendaring, and telephone systems). 6. Provides support and problem resolution in the operation and functionality of computer software for users. 7. Handles calls from district staff related to technology repairs and requests including entering and tracking data in a job-ticketing database. 8. Communicates to the Communications Technology Supervisor the requirements and needs of the assigned area of responsibility. 9. Performs other tasks and duties as assigned by the Communications Technology Supervisor	
Education: High School Diploma	**Experience:** 2 years clerical experience. Other related administrative experience considered.
Skills, Knowledge, and Abilities: ▪ Organization and management abilities ▪ Communication skills including writing, speaking, and listening ▪ Ability to work with diverse groups ▪ Working knowledge of technology hardware and software ▪ Working knowledge of telephone, groupware, and server-based software ▪ Working knowledge of Windows/DOS, Macintosh, and mainframe computer systems	

Title: ***Network Services Supervisor***	**Reports to:** *Director of Technology*

Responsibilities:

1. Manages wide and local area networks.
2. Develops and maintains the district technology security and disaster recovery plans.
3. Provides primary direction for the management, support, and inventory of LANs, servers, and wiring closets for a geographic cluster of schools and/or other district facilities. Acts as a resource to plan, implement, and troubleshoot building-based local and wide area networks.
4. Supervises and appraises the performance of personnel assigned to the areas of responsibility.
5. Prepares and monitors program budgets for the allocation of resources.
6. Provides telephone and/or onsite support and remotely solves problems relating to networks, workstations, networked peripherals, and data communications.
7. Installs/maintains network servers, network application software, computers, and network peripheral equipment (printers, scanners, CD ROM towers).
8. Supports general and network applications, including Novell, Appleshare, UNIX, and TCP/IP.
9. Assists buildings with inventory, security, and management of technology equipment for the assigned cluster and/or other district facilities.
10. Assists building staff with workstation application software installation.
11. Maintains/documents network topology hardware such as hubs, bridges, and routers.
12. Assists the Technology Steering Committee in the development and implementation of the district long-range plan for computer use.
13. Assists in maintaining data communications between cluster schools and district offices via the WAN.
14. Assists in the management of Internet information servers, proxy servers, caches, and/or firewalls.
15. Maintains current awareness and knowledge of emerging information, trends, and applications for network technology.
16. Serves as a member of a cluster team and district Technology Steering Committee.
17. Executes assigned administrative responsibilities to ensure compliance with federal and state law as in accordance with district policies and guidelines pertaining to equal employment opportunity and affirmative action.
18. Performs other tasks and duties assigned by the Director of Technology.

Education:	**Experience:**
2-year degree with emphasis in information or technology management. Equivalent experience/ training considered. Certified Network Administrator or Engineer preferred (CAN/CNE, MCSE)	2 years technology management. Other administrative experience considered.

Skills, Knowledge, and Abilities:

- Organization and management abilities
- Communication skills including writing, speaking, and listening
- Ability to work with diverse groups
- Working knowledge of technology hardware and software
- Working knowledge of Windows/DOS, Macintosh, and mainframe computer systems

Title: ***Network Services Coordinator***	**Reports to:** *Network Services Supervisor*

Responsibilities:

1. Installs and manages the wide and local area networks.
2. Provides primary management, support, and inventory of LANs, servers, and wiring closets for a geographic cluster of schools and/or other district facilities. Acts as a resource for planning, implementing, and troubleshooting building-based local and wide area networks.
3. Provides telephone and/or onsite support and remotely solves problems related to networks, workstations, networked peripherals, and data communications.
4. Installs and maintains network servers, network application software, computers, and network peripheral equipment (printers, scanners, CD ROM towers).
5. Provides support for general and network applications, including Novell, Appleshare, UNIX, and TCP/IP.
6. Installs and manages district remote dialup servers and terminal servers.
7. Assists buildings with inventory, security, and management of technology equipment for the assigned cluster and/or other district facilities.
8. Assists building staff with workstation application software installation.
9. Maintains and documents network topology hardware such as hubs, bridges, and routers.
10. Assists the Technology Steering Committee in the development and implementation of the district's long-range plan for the use of computers.
11. Assists in maintaining data communications between the cluster schools and the district office via the WAN.
12. Assists in the management of Internet information servers, proxy servers, caches, and/or firewalls as assigned.
13. Maintains a current awareness and knowledge of emerging information, trends, and applications for network technology.
14. Supports data migration, file transfer, file backup restoration, and file recovery.
15. Performs other tasks and duties as assigned by the Network Services Supervisor.

Education:	**Experience:**
Bachelor's degree with emphasis in information or technology management. Equivalent experience/ training considered.	2 years technology management. Other related administrative experience considered.

Skills, Knowledge, and Abilities:

- Organization and management abilities
- Communication skills including writing, speaking, and listening
- Ability to work with diverse groups
- Working knowledge of technology hardware and software
- Working knowledge of Windows/DOS, Macintosh, and mainframe computer systems

Title: ***Technology Support Technician***	**Reports to:** *Network Services Supervisor*

Responsibilities:

1. Troubleshoot and maintain instructional/administrative desktop computers, computer labs, classroom clusters, media search stations, video crash carts, and video headend equipment, including modulators, tuners, and satellite equipment.
2. Install, troubleshoot, and configure software for desktop computers, computer labs, classroom clusters, and media search stations.
3. Assist the Instructional Technology Facilitator in the preparation for the delivery of staff development by preparing the machines and helping with the print material.
4. Assist with the LAN by troubleshooting network problems and communicating them to the appropriate person, or, in most cases, solving the problem by changing software settings or replacing hardware components such as Ethernet cards or cables.
5. Perform general Novell instructions, including moves/adds/changes of users with clear communication with the Network Services Coordinator.
6. Coordinates activities with other staff (coordinators, teachers, administrators, paras) in relation to supporting building technology.
7. Assist with the setup of the building technology inventory database and train users on correct use.
8. Support the setup of technology as needed for staff development.
9. Support individual users in the use of Novell, servers, e-mail, Internet access, attendance, and assessment software.
10. Supports and provides training to the Technology Paraprofessionals.
11. Coordinates with the Instructional Technology Facilitator in prioritizing technology tasks.

Education:	**Experience:**
2-year with emphasis in supporting desktop computers. Equivalent experience/ training considered.	2 years technology background. Other related administrative experience considered.

Skills, Knowledge, and Abilities:

- Organization and management abilities
- Communication skills including writing, speaking, and listening
- Troubleshooting and problem-solving skills related to software and hardware support
- Ability to work with diverse groups
- Working knowledge of technology hardware and software
- Working knowledge of Macintosh computers

Title: ***Instructional Technology Integrator***	**Reports to:** *Building Principal*

Responsibilities:

1. Attends and participates in monthly Instructional Technology Integrator meetings hosted by the Instructional Technology Facilitators.
2. Chairs the site's Technology Support Team monthly meetings to move forward building goals related to the district's overall technology plan.
3. Provides for the instructional application of technology within the educational program.
4. Integrates technology in the classroom for instructional and management technology needs for the assigned building(s).
5. Assist in assessing and providing for instructional and management technology needs for the assigned building.
6. Provide technical support and training in instructional improvement practices as they are addressed in the PAS.
7. Provide services to assist buildings in reaching school improvement goals.
8. Provide references and research information access for students and staff.
9. Maintain current knowledge of emerging information, trends, and applications for technology.
10. Provide support related to the maintenance of technology-related hardware and software by communicating and setting priorities with the Technology Paraprofessional.
11. Promote communication among and with other technology staff.

Education:	Bachelor's degree. Must possess a valid Minnesota Teaching License in level appropriate with building assignment. Equivalent experience/ training considered.	**Experience:**	5 years teaching, with advanced work in instructional technology applications and experience with staff development as it pertains to technology integration. Other related experience considered.

Skills, Knowledge, and Abilities:

- Organization and management abilities
- Communication skills including writing, speaking, and listening
- Troubleshooting and problem-solving skills related to software and hardware support
- Ability to work with diverse groups
- Working knowledge of technology hardware and software
- Working knowledge of Macintosh computers

Title: ***Technology Paraprofessional***	**Reports to:** *Building Principal*

Responsibilities:

1. Troubleshoot and find solutions related to desktop computers and printers. Order and replace the defective part(s). Reconfigure software if needed and communicate the completion to the user and Instructional Technology Integrator.
2. Assist the Network Services Coordinator in solving LAN and WAN problems.
3. Assist in maintaining the overall building technology inventory database and repair records.
4. Communicate with all staff in a professional way in areas that help their technology work the way it was designed to work.
5. Provide one-to-one staff development as questions arise regarding e-mail, word processing, database, spreadsheet, and grading programs.
6. Perform general Novell instructions, including moves/adds/changes of users with clear communication with the Network Services Coordinator.
7. Communicate with the Technology Support Technician regarding technical questions and ongoing staff development.

Education: High School Diploma or equivalent. Technical School Diploma recommended but not required.	**Experience:** 2 years technology support experience. Must demonstrate competency via a Logic/Technology test.

Skills, Knowledge, and Abilities:

- Organization and management abilities
- Communication skills including writing, speaking, and listening
- Troubleshooting and problem-solving skills related to software and hardware support
- Ability to work with diverse groups
- Working knowledge of technology hardware and software
- Working knowledge of Macintosh computers
- Ability to perform position responsibilities that include physical factors such as computer relocation and materials handling

Title: ***Paraprofessional (multimedia open labs)***	**Reports to:** *Building Principal*

Responsibilities:

1. Assist teachers and students in the use of a multimedia lab as it pertains to the function of the computer, printer, network, and applications such as AppleWorks, Netscape, Hyperstudio, etc.
2. Perform basic troubleshooting tasks to maintain the equipment in the lab and work with the Technology Paraprofessional to solve the problem(s).
3. Help teachers with maintaining a positive learning environment and help all concerned to understand when inappropriate use of technology is observed.
4. Ensure all workstations are in complete working order before students are allowed to leave the lab.

Education:	High School Diploma or equivalent.	**Experience:**	Demonstrated ability to work with adults and students with an interest in technology

Skills, Knowledge, and Abilities:

- Organization and management abilities
- Communication skills including writing, speaking, and listening
- Ability to work with diverse groups
- Working knowledge of Macintosh computers