BOARD OF EDUCATION
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TO: Members, Board of Education
Brian Osborne, Superintendent

FROM: Paul Roth, CIO

SUBJECT: BUDGET DEVELOPMENT REPORT: TECHNOLOGY

Information Technology (IT) has quickly become a foundational support for the curriculum and an integral part of the daily operations for the entire school district. The faculty, students and support staff rely heavily on the computing infrastructure. IT has offered the faculty and the students' access to information and the ability to gather and share data that enhances their learning capabilities. Technology is also essential to the management of the school district. E-mail, Web access, word processing and spreadsheets have all become as critical and important to the district's operations as paper, pencils, telephones and textbooks.

The Technology Department finds itself in a unique position. It is one of the few areas that greatly affects administrative and support functions as well as teaching and learning. Technology is also rapidly changing. On average, systems double in capacity and performance every 18 months. This creates an environment where equipment and software quickly become outdated, requiring frequent upgrades and replacement. Much of the equipment is shared and subject to many more hours of operation, increasing chance of failure and increasing maintenance costs.

Current State of Technology

Currently, The South Orange Maplewood School district provides technology instruction in grades kindergarten through grade eight in combination with library skills. Students in grades nine through twelve can elect to take technology courses (i.e. graphic arts, TV production, photography, journalism).

Each elementary school is equipped with a computer lab (15 computers), library computers (7 computers), and other peripherals as required. The middle school contains two computer labs and a fully automated library. The high school contains a computer lab for each discipline (math, language arts, social studies, science, and world languages), two business labs, a CAD lab, a graphic arts lab, a photography lab, library lab, TV studio, a TV editing lab, and a fully automated library. This equipment is used to teach the core technology curriculum, provide library services, and support teaching and learning in all other content areas.

Currently the technology department provides support for the student information system (SASI), library information system (Destiny), special services system (Tienet), personnel system (Systems 3000), finance system (Systems 3000), transportation system (Versa-Tran), emergency notification system (Call-em-all), website (CMS, Edline), e-mail (Exchange), file storage, and point of sales system (FastLane). Additionally, the department maintains a thin client in every classroom, sound field systems in various locations, file server farm, local area networks (13 total – 1 in each building), wide area network, internet connectivity, internet filtering, telephone system, and a security system (card access in all buildings).

To summarize, the district is supporting a large scale network and technology services for students, teachers, administrators, and support staff (About 7,000 people). All business and curricular areas use technology as part of the daily routine to provide services. The table below summarizes the technology install base supported.

Technology Install Base

Category	2009-2010
LANs	13
WANs	1
Wireless LANs	3
Video Distribution Centers	9
Servers	45
Computers	1,600
Audio/Visual Equipment	1,300
Printers	400
TV Studios	2
Computer Labs	22
District Telephone System	1
District Security System	1
Enterprise Wide Database Applications	10
Central Staff	3
Tech Aides	3
AV/Phone Tech	1
Enrollment	6,188
FTEs	809

The installed base of approximately 1,600 workstations includes approximately 150 used for administrative computing and 1,450 used for student computing, with a district wide Student to Computer Ratio of 4.27.

The Central Technical Support Role

The staffing levels depicted above include a Central Technical Support function. This function provides support for the installed base, including: installation and repair of hardware; configuration, maintenance, ongoing upgrades and troubleshooting of software; daily operational activities such as system backup, account/password maintenance and monitoring of system health; and support of end-users in their use of specific software packages. Some of these activities are supported in part through maintenance contracts with hardware/software vendors. In addition to the many activities involved in supporting the computing infrastructure and its large install base, the Central Technical Support role is also responsible for management and support of the security alarm systems, the district-wide card access systems, the master clock systems, closed circuit television, audiovisual repair, and telephone management, repair and maintenance.

The Technology Facilitator Role

In addition to the Central Technical Support role, the district also employs Technology Facilitators in the schools, playing a variety of roles, including: (1) first-level on-site support and troubleshooting for hardware/software problems; (2) training of teachers and students in the use of software; (3) management of school computer labs and TV studios; and (4) support of school staff in their use of computers.

Support and Renewal of the Installed Base

With an install base of 1,600 workstations, there is a substantial cost involved in maintaining and renewing our existing install base. Furthermore, the cost of upgrading each unit typically involves new versions of desktop software, which adds to the purchase price of each unit. With the growing number of web/JAVA applications even thin client stations are not immune. As web/JAVA applications become more sophisticated the need for greater memory and speed increases.

Technology Curriculum

During the 1990s, school districts began to rigorously incorporate and infuse technology into the educational system and schools began using technology as it became available. May 1997, the state of New Jersey finalized school facility technology standards and by 2001, schools were required to submit technology plans. When President Bush signed into law “No Child Left Behind,” in January of 2002, the legislation also established the “Enhancing Education through Technology” program. At that time, New Jersey resolved to improve student academic achievement through the use of technology in schools, ensuring that every student is technologically literate by the end of eighth grade. By the spring of 2002, the New Jersey Core Curriculum Content Standards (NJCCCS) for Technology Literacy were adopted.

The two NJCCCS technology literacy standards include the following strands:

8.1 – Computer and Information Literacy

A. Basic Computer Tools and Skills – keyboarding, word processing, internet usage, spreadsheets, database concepts and usage, publications and presentations
B. Application of Productivity Tools – social aspects, information access and research, problem solving

8.2 – Technology Education

A. Nature and Impact of Technology
B. Design Process and Impact Assessment
C. Systems in the Designed World

New Jersey's Standards 8.1, Computer and Information Literacy, and 8.2, Technology Education, mirror the International Society for Technology in Education (ISTE) standards. ISTE is recognized as a trusted source for professional development, knowledge generation, and leadership for innovation.

The ISTE standards for students are divided into six broad categories:

1. Basic operations and concepts – an understanding of the nature and operation of technology systems
2. Social, ethical, and human issues – responsible use of technology systems, information, and software; development of positive attitudes toward technology uses that support lifelong learning, collaboration, personal pursuits, and productivity
3. Technology productivity tools – productivity tools (Office suite) used to collaborate in constructing technology-enhanced models, prepare publications, and produce other creative works
4. Technology communications tools – use telecommunications to collaborate, publish, and interact with peers; use a variety of media and formats to communicate information and ideas effectively to multiple audiences
5. Technology research tools – use technology to locate, evaluate, and collect information from a variety of sources; process data and report results using technology tools
6. Technology problem-solving and decision-making tools – use technology resources for solving problems and making informed decisions; develop strategies for solving problems in the real world.

New Jersey also set technology goals for 21st century skills. All students need to develop the following skills to compete in this ever-changing world. (http://www.21stcenturyskills.org)

- Critical thinking and problem solving skills
- Communication and collaboration skills
- Creativity and Innovation skills
- Information and media literacy skills

Student technology is used to deliver the NJCCCS for technology as well as supporting teaching and learning across the curriculum.

Proposed 09-10 Technology Budget

Technology Category	Proposed
Wireless Infrastructure	513,000.00
Classrooms / Read180	306,000.00
Equipment Sub-Total	**819,000.00**
Repairs Sub-Total	**260,000.00**
WAN	155,000.00
Internet	32,000.00
Connectivity Sub-Total	**187,000.00**
Maintenance Contracts/ Software Subscriptions	**329,000.00**
Supplies	**142,845.00**
Security	**135,000.00**
Total	**1,872,845.00**

Equipment

The proposed equipment budget is the cost of equipment to install wireless network access in our secondary schools and to purchase additional equipment to support the reading180 program, associated networking requirements, and to upgrade the technology in our classrooms. 35 classrooms (fifth grade and high school classrooms) will be equipped with a fully functional computer, interactive white board, projector, DVD/DVR units and sound equipment.

Repairs

The proposed repair budget covers the cost of routine maintenance and replacement of aging systems. The school district has over 4,600 pieces of equipment ranging from desktop computers, laptop computers, televisions, cameras, thin clients, servers, and communication equipment. This equipment is shared by 7,000 students and faculty and under continuous use. The district spends approximately $37 per item per year on repairs. Please note this number changes year to year depending on the age of equipment and the percent of equipment under warranty.

Service

The proposed services budget provides all schools with internet access servicing about 7,000 people. Furthermore, a wide area network connects all facilities (13 buildings) to provide access to central application services.

Software Maintenance

The proposed software maintenance budget provides support for the student information system (SASI/PowerSchool), library information system (Destiny), special services system (Tienet), personnel system (Systems 3000), finance system (Systems 3000), transportation system (Versa-Tran), emergency notification system (Call-em-all), website (CMS, Edline), e-mail (Exchange), point of sales system (FastLane), internet filtering, office applications, antivirus/spyware, Citrix software, and several target student applications including online subscriptions to reference material.

Supplies

The proposed supply budget provides toner, ink, disks, bulbs, etc. to operate existing equipment. The district spends approximately $20.42 per person per year on technology supplies.

Summary

Year	Student Enrollment	Total FTEs	Staff and Student Computing (Excluding Security)	Administrative Technology Expenditures	Student Technology Expenditures	Cost per Person	Cost per Employee	Cost per Student
2009-2010	6188	808.96	1,737,845.00	227,700.00	1,510,145.00	248.37	281.47	244.04

Research shows schools spend, on average, from $300 per person to $500 per person. The school district supports a large quantity of resources and services. In relative terms the district spends $248.37 per person (excluding the cost of security).