Section 1 - Prepare to Plan

1.1 SCHOOL DISTRICT AND COMMUNITY DEMOGRAPHICS

1.1.1 School District and Community Demographics

The Greater Johnstown Career & Technology Center (GJCTC) is a comprehensive public, secondary school serving approximately 425 students in grades 10-12. The school is the result of a cooperative, joint effort of seven school districts in Cambria and Somerset Counties. The school is located on a 90-acre campus in a semi-rural residential/farming area in south central Pennsylvania.

The GJCTC is a full time vo-tech. It offers 24 vocational-technical programs as well as a full complement of academic courses, clubs and activities.

The vo-tech school draws students from the city of Johnstown, as well as the surrounding areas that are suburban and rural. The total population of the area is 36,891. The percent enrollment in the school is classified as 42% rural, and 58% suburban.

The economic structure of the community has deteriorated seriously over the past twenty years. The primary economic industries of coal and steel have been reduced from employing thousands to employing hundreds. Service industries, paying a much lower wage, have replaced many of the lost jobs. Twenty-three percent of the families in the community have incomes below the poverty level.

Nearly sixty percent of the students attending GJCTC are eligible for free and reduced lunches. More than one third are "special needs" students. These students are "mainstreamed" for a substantial percentage of their course work.

The general school-age population has decreased with the out-migration of workers, families and new graduates seeking employment. New growth employment, especially in the service industries have replaced typical manufacturing industries.

A substantial portion of the students at the school is from families that have been affected by the very high unemployment rate. Most students are from poor, working class families where the father may be unemployed and the mother may work, or no one works and welfare is the only means of support. Parental absence or non-involvement creates many learning problems and social problems.

The lack of job opportunities in the community emphasizes the need for students to look elsewhere for future employment. In addition, not having a good role model in the family creates social problems and lack of initiative for career planning. The shift from an industrial economy with well-paying, non-skilled jobs to a service economy of low-paying, varied skill jobs has changed the impetus and the content of school curriculum.

1.1.2 School Facilities

The Greater Johnstown Career & Technology Center is a well maintained, 30 year-old facility.

In addition to the secondary education program, the school has an adult and post-secondary education program. The facility is open to outside community usage, such as concerts, corporate meetings and training, local and state pageants, dance studios, non-profit organizations, national athletic tournaments, etc.

Over the past five years, network cabling (cat-5 cable) has been installed in all classrooms, laboratories and offices throughout the school building. Managed 10/100 megabit/second switches have been set up. The school is planning an upgrade to gigabit per second speed on the network by installing 1000 base-T modules in existing switches and a 1000 base-T master switch.

There are currently no major renovation or construction efforts being planned.

The school has an on-site library. It also has sufficient electrical power and space to allow for future planning.

1.2 PLAN PROCESS OVERVIEW AND STAKEHOLDERS

1.2.1 Planning Process Overview

The Greater Johnstown Career & Technology Center has had an ongoing Technology Committee for the past five years. It was this committee that was used to develop this technology plan. The technology committee consists of the administrative director, secretaries, secondary and post-secondary instructors, the network administrator/technology coordinator and the industrial training coordinator at the school. The network administrator/technology coordinator coordinated the project. During the initial development of the technology plan, a copy of the work completed was posted on the school's network so that committee members, administrators, and faculty would have an opportunity to make suggestions and comments. As the plan neared completion it was posted on the school's website to solicit comments from parents and members of the community.

Planning Team Membership List

Name	Role/Organization	Committees
Becky Bidelman	Post-secondary Instructor	Technology Planning Team
Shirley Custer	Secretary to Administrative Director	Technology Planning Team
John Fetchko	Physics Instructor, Network Administrator	Technology Planning Team
Ralph Fetzer	Mathematics Instructor	Technology Planning Team
Robin Gorman	Industrial Training Coordinator	Technology Planning Team
Christian Phillips	Electronics Instructor	Technology Planning Team
Paula Popp	Business Education Instructor	Technology Planning Team
Allen Sell	Administrative Director	Technology Planning

Wayne Sherlock	Data Processing Instructor	Team Technology Planning Team

1.3 TECHNOLOGY AND EDUCATION REFORM

1.3.1 Enhanced Student Learning

Student Achievement

Technology can be used to support student achievement of the Pennsylvania Academic Standards in a number of ways. Computer-based tests can be purchased to evaluate students on their strengths and weaknesses so that instructional time can be focused on areas of need. Computer-based tutorials can be used to allow students with varying areas of weakness to concentrate on those areas. Computer-based test creation programs can enable teachers to develop a wide variety of sample tests that can be used to focus on individual student weaknesses.

On-line Learning

Technology can support students in their learning by providing access to learning resources. Using the Internet to embark on virtual field trips to museums, distant countries, or points of historic significance can enhance student appreciation of topics. Using the web to access research information from other libraries, agencies, search engines and databases can significantly expand the amount of information available to students and allow them to conduct their research much more efficiently.

Simulation software can be used in the sciences and humanities to promote exploration and engage teams of students in complex problem solving tasks. Science and social studies simulation software can allow students to perform simulated experiments that they would not be able to perform in a classroom/laboratory setting.

Expanding Learning Opportunities

Technology can be used to expand the learning opportunities of students. Distance-learning capacity and video broadcasts can provide specialized instruction that would otherwise not be accessible to all students during the school day. Foreign languages and advanced mathematics and science course can be offered in schools, even though a qualified instructor may not be available in that school and the number of students desiring the course may be small. These facilities can also be used to allow students to receive instruction directly from business, industry or academic experts.

1.3.2 Improved Teaching

Equal Opportunity

Teachers can use technology to ensure that all students have equal opportunities to learn. Technology supported learning activities can be used to expand possible instructional responses to diverse learning abilities in heterogeneous and inclusionary classrooms.

Thematic Teaching

Teachers can work cooperatively and have students save their work on the school's network so that it can be accessed in various classes. Portfolios can be developed, maintained, and shared electronically on the school's network.

Sharing

Teachers can use technology to share ideas and methods that have been successful with other teachers. Teachers who have developed successful web-based activities can post them in a statewide or national database so other teachers can access them. Electronic bulletin boards can be developed for teachers in various subjects and grade levels to share ideas, discuss problems they are facing, and make recommendations. Teachers can use electronic mail to communicate ideas and problems with teachers at other schools.

Staff Development

Technology can be used to provide new models of staff development. Staff development can be enhanced through the use of on-line courseware, inter-active video conferencing, and other strategies.

Staff development can be focused around competencies that have linked performance measures.

1.3.3 Decision Support and Organizational Efficiency

Student Progress

Technology can be used to provide students, teachers, administrators, and parents with timely information on student progress. Student-data management programs, gradebook programs, and programs that track student competencies can all be used to collect and manage data. Information can be made available to teachers and administrators through the school network and relevant information can be made available to students and parents through by posting it on the school’s website. E-mail can be used to send progress reports teachers to parents as well as enable parents to request progress information. Administrators and school boards can use the network to gather the most current information for research-based decision making.

Managed Learning

Learning management software and systems can guide in development of standards-based curriculum and help build linkages to a variety of instructional approaches and resources.

Communication with Key Stakeholders

Technology can also be used to enhance communication between and among the district's key stakeholders. Electronic mail can be used to facilitate communications between school board members and administrators, between teachers and advisors in business and industry, and between counselors and colleges. The community can be updated on school information such as weather delays, sporting events, or adult education programs by posting this information on the school's website.

1.3.4 Other Benefits

Community Development

Technology can be used to support community development by implementing strategies that encourage and facilitate increased interaction with parents, community members and organizations, and business and industry. This involvement can make community resources more accessible to schools and school resources more available to the community.

The school can develop alliances with a number of community agencies including:

- National and local business partnerships
- Public library services
- Educational service providers
- Museums and historical societies
- Higher education campuses

These agencies can provide opportunities for students to bring relevance to their learning by experiencing real-world environments, developing a sense of community, and enabling them to access varied information resources. Much of the school's data can be made available at public libraries, community centers and from homes to enable parents and the community to access information about scheduled meetings and events, electronic mail systems, and databases of homework assignments.

Support for Lifelong Learning

It is becoming increasingly apparent that continuous lifelong learning is a necessity. The emerging world economy requires that our businesses and our citizens work harder and smarter in order to compete successfully for a fair market share of goods and services. Businesses have been forced to restructure in order to survive. This has resulted in thousands of highly skilled but unemployed workers. To re-enter the work force, many workers will need to learn new skills and make radical changes in their career plans.

This technology plan must enable students, teachers, and administrators to learn, demonstrate and refine technology skills to access, evaluate, analyze, and manipulate information from a variety of sources to draw conclusions and create new knowledge for their learning. Such opportunities can promote the development of higher-order thinking skills that can foster lifelong learning. The information access and communications structures created in local schools as a result of the information technology planning can become a resource for lifelong learning for the entire community and region.

Partnerships

Technology can create and enhance linkages and partnerships with community, business, and government groups by developing new and more efficient means of communications. These include electronic mail, sharing information by posting it on web sites, and through video conferencing. Learning resources can be made available to community members during after school hours.

Section 2 - Build Communications

2.1 MISSION AND VISION STATEMENTS

2.1.1 Technology Mission Statement

Our mission is to provide learners with quality vocational-technical education utilizing a progressive staff; modern facilities, technology, and equipment; and a rigorous curriculum that promotes high academic achievement and advanced vocational-technical skills to support the success of individuals and business/industry in a global marketplace.

2.1.2 Technology Vision Statement

The Greater Johnstown Career and Technology Center views technology as an effective and necessary tool, capable of enhancing both the communication ability and productive capacity of our students and staff. The opportunity to develop technological proficiency will enable GJCTC students and staff to maximize their access to information, enhance problem solving, and develop effective communications in the Information Age. The GJCTC's vision for technology includes:

- The staff and students will develop the skills needed to enable them to access, use, and process information using the most up-to-date technologies available.
- The staff and students will develop the skills needed to install and maintain these up-to-date technologies. Involving students in the development of technology within the school is a "win-win" situation. It enables the school to get more out of each technology dollar spent and it gives the student an opportunity to develop valuable technical skills that they will be able to use in their careers.
- Technology will be used to develop efficient communications for interactions: a) within our school, b) between school and home, and c) between our school and community.
- Technology planning will take into account the most cost effective means of introducing new technologies and developing plans for upgrading into newer technologies as they unfold.
- Teachers will use technology to improve teaching and enhance student learning.
- Administrators will use technology to improve management functions, support decision-making, and increase organizational efficiency.
- Technology will be used enable students to meet state-approved academic standards.

2.2 ONGOING COMMUNITY COMMUNICATION

2.2.1 Ongoing Community Communications

The GJCTC draws students from seven school districts in two counties. One of the challenges the GJCTC needs to address is how to communicate effectively with students, parents, prospective students, school board members, etc when the geographic area that it services is so large.

The school has had successful open houses in the past that have drawn good crowds and given the school an opportunity to demonstrate many of the opportunities that are available. The school has also sponsored summer enrichment programs and career fairs for middle school students to show many of the programs that are available. The school also needs to try harder to establish ties with the local media and attempt to garner more coverage for its programs and activities.

One new idea that has not been tried previously is the development of a kiosk (using a computer and monitor setup along with a PowerPoint presentation) that describes the school and its selection of offerings. This kiosk would be placed in high traffic areas (such as shopping centers, malls, etc.) and moved from location to location throughout the community.

Community Communications Plan

Message: The GJCTC needs to communicate that it is a Microsoft Academic Training Program (AATP) and Microsoft Office User Specialist (MOUS) program and it offers secondary school programs in Networking Technology, Data Processing, Multimedia and Electronics taught by certified Microsoft instructors. It also need to communicate that there are critical shortages of workers in many of these areas and job prospects are particularly bright.
Audience: Secondary school students and their parents
Methods: Multimedia (PowerPoint) presentations set up as kiosks in high traffic areas, brochures distributed al local events, advertising in local media, soliciting articles from the local newspaper.
Resources: Multimedia students to develop presentation and brochures using photos and video clips (a permanent computer setup is planned that can be transported from location to location around the community).
Timeline: Ongoing, assigned staff members to act as liaison with local media.
Evaluation: Logging of inquiries about these programs and interviews of prospective students.

Message: The GTCTC needs to communicate that it offers many technical post-secondary and adult education programs as well as specialized technical training for business and industry.
Audience: Members of its Joint Operating Committee, board members and administrators from the sending school districts
Methods: Updating course information and schedules placed on the school's website, kiosks in high traffic areas, advertisement placed in local newspapers.
Resources: Use secondary school multimedia students to develop presentation
Timeline: Ongoing, assigned staff members to act as liason with local media
Evaluation: Logging of inquiries and e-mail comments. Interviews with prospective students.

Message: The GJCTC needs to communicate that it has been able to build a state-of-the-art computer network at a very reasonable cost. This has been accomplished by relying on the expertise of its staff and by using the development of the network as a training opportunity for its technical courses.
Audience: The community (taxpayers), local businesses, and industry
Methods: Describe progress with PowerPoint presentation at JOC meeting and meeting of local superintendents, school newsletter distributed to community, solicit articles of the local newspaper.
Resources: Public relations committee to contact media, development of PowerPoint presentation and newsletter by staff and administration.
Timeline: Development of PowerPoint presentation and newsletters in the fall (2000) for use in the spring. Ongoing contact with local media.
Evaluation: Board feedback on PowerPoint presentation and community feedback on newsletter.

Message: The GJCTC needs to be able to communicate course assignments and the progress of its students.
Audience: Secondary school students and their parents.
Methods: Homework assignments posted on the school's website, e-mail communicating with parents.
Resources: The school's website.
Timeline: Established over the next year with teacher training on posting assignments on the website.
Evaluation: Feedback from parents and semi-annual open houses.

2.3 PARTNERSHIPS AND COMMUNITY LINKAGES

2.3.1 Current Partnerships and Community Linkages

The INET

The GJCTC has partnered with four area school districts (Richland Township S.D., Ferndale Area S.D., Westmont Hilltop S.D., and Conemaugh Township S.D.) to develop a wide-area network (WAN) known as the INET. The INET links the GJCTC and the four school districts using cable TV lines provided by Johnstown Cablevision. The INET also provides a T-1 connection to the Internet through Concurrent Technologies Corporation (CTC) in Johnstown, PA. The costs of leasing the cable TV lines and the Internet access are shared among the school districts and the GJCTC, thus providing a high speed connection at a much lower cost than any school could obtain on its own. This group has also applied, as a consortium, to receive e-rate reimbursement to further offset these costs. The potential exists for additional school districts to be added to the INET.

SATPC

The GJCTC is also partnering with the Southern Alleghenies Tech Prep Consortium (SATPC). The SATPC encompasses a six-county region. Its purpose is to promote curriculum development that will enable students to compete in the global workplace. The

GJCTC provides high-speed Internet access for the SATPC offices in the GJCTC building. In addition, the GJCTC offers use of the computers in the GJCTC library to enable them to make use of the GJCTC network, the INET, and the Internet.

Microsoft Corporation

The GJCTC has also partnered with Microsoft to offer approved training to its students. In the spring of 1999, it became an approved Academic Authorized Training Program (AATP) and for the past year has been offering training by Microsoft Certified Professionals (MCP). The school has also become a Micorsoft Office User Specialist (MOUS) program and will become a testing center for MOUS testing.

Advisory committees

Local advisory councils (craft committees) provide direction for each vocational-technical program at the GJCTC. These councils not only assure the relevance of the program, but they help create participation between the program and the community. One of the roles of each committee is to provide advice and guidance related to the use of technology with the vocational-technical program. Craft committees are composed of business and community leaders, parents, students, school administrators, as well as the vo-tech instructors.

Adult education

The GJCTC offers adult basic education (ABE) and general education diploma (GED) training on-site. These programs use the SkillsBank Corporation software for remediation in mathematics and English. These programs also use Internet training to advance student skills.

2.3.2 Potential Partnerships and Community Linkages

The GJCTC hopes to establish a partnership with either 3Com Corporation or Cisco Corporation. The purpose of this partnership would be to help setup a program to train students in the hardware aspects of network administration. Both corporations currently offer such training programs.

Investigation of Potential Partnerships List

G. Technology Vendors/Infrastructure Service Providers

3Com Corporation

Contact Name: Arlene A. Levin
Contact Phone: 508-323-1193
Description of Potential Partnership:
Explore the possibility of partnering with 3Com Corporation to offer networking courses specializing in networking hardware and applications. The 3Com NetPrep program introduces students to the basics of networking and prepare them for more advanced study after graduation from high school.
Possible Benefits to School District:
The 3Com Authorized Technical Education Center (ATEC) program provides schools with local access to the highest standards of networking education within the industry. Students who go through this program will receive a thorough understanding of the basic principles of networking. Students who complete NetPrep are eligible to receive industry standard certification through the National Association of

Computer Systems Engineers (NACSE). If we became a 3Com Authorized Technical Education Center we would have the opportunity to develop our own course portfolio to include courses from the world's leading networking and communications company. We would also be able to provide courses that support the 3Com Master of Network Science program—an industry standard in both practical and theoretical aspects of networking technologies from 3Com. It would expand the level of training we are offering in networking skills. It would also give students an opportunity to obtain additional certifications that meet industry standards.

Possible Benefits to Group or Organization:
We would provide the organization with a pool of students that could become technicians to support the companies equipment in the future.

Potential Contribution to District Technology Planing Effort:
This partnership would give the GJCTC a better understanding of state-of-the art networking equipment and offer it to the school at reduced pricing.

Cisco Corporation

Contact Name:

Contact Phone: (408) 526-4000

Description of Potential Partnership:
The GJCTC will explore the possibility of partnering with Cisco to become a Cisco Networking Academy. The Cisco Networking Academy program trains and certifies students to design, build, and maintain computer networks. It is a partnership between Cisco and schools, government and industry.

Possible Benefits to School District:
Students at the school would get skills leading to employment opportunities in various computer networking fields. The GJCTC would get important new networking curricula and resources to help maintain our internal network.

Possible Benefits to Group or Organization:
There is a critical shortage of skilled Information Technology workers. We would provide Cisco with a pool of trained and certified IT professionals to support their equipment in the future.

Potential Contribution to District Technology Planing Effort:
Schools don't have resources or time to design, build, and maintain networks. This partnership would give the GJCTC a better understanding of state-of-the-art networking equipment and offer it to the school at reduced pricing.

Section 3 - Assess Current Status

3.1 SUCCESS OF PREVIOUS PLAN

3.1.1 Technology Goal Attainment Overview

Since the development of the previous technology plan in October 1997, the GJCTC has attained many of the goals it had laid out. Some of the accomplishments were:

- Network cable has been installed to expand the computer network into nearly all shops, classrooms and offices in the building.
- Replacing 10 mbps hubs with 100 mbps switches has increased the speed of the network. The school is currently in the process of installing a 1000 mbps main switch as well as 1000 mbps modules in existing switches.
- The school has become a Microsoft AATP (Academic Authorized Training Program) and is currently training students in network management using approved Microsoft Curriculum. The training is done by certified Microsoft professionals (MCP's).
- Recently the school has obtained a number of used computers (donated from industry) which has enabled it to set up an additional computer laboratory that could be used by teachers and their classes. Also this donation has made it possible to provide at least one computer with network and Internet access into nearly all shops, classrooms and laboratories in the school.

Attainment of these goals have had a very positive impact on teaching, learning, management, communication and information access within the school.

Currently most teachers use e-mail to communicate with each other and with the community. Most students use the Internet as an integral part of their research and learning experiences. The administration uses a school management program and the school network to track student attendance, scheduling of staff and students, discipline logs, grading, etc.

The school's website is used by parents and the community to learn about the latest school information.

3.1.2 Success Factors Supporting the Attainment of Technology Goals

The following factors were most important in the school achieving the technology goals outlined in the previous plan.

First, and most important, two funding programs (Pennsylvania's Link-to-Learn program and the federal e-rate program) were made available at a time when the school needed the financial assistance to develop, expand, and upgrade our school network. These programs were crucial because, by leveraging Link-to-Learn funds to obtain sufficient e-rate funding, the school was able to accomplish significantly more than it otherwise would have.

Secondly, by becoming a Microsoft training institution and offering a Networking Technology program, the GJCTC was able to use the expansion of the school's network as a training opportunity for its students. Throughout, the school relied heavily on the expertise and effort of its staff.

Finally, by securing donated computers from the community and industry, and by upgrading these computers (using electronics technology and networking technology students), the school was able to obtain approximately 40 computers that it was able to make available to teachers and students. It is likely that not all of these success factors will continue to occur. Continued technology-funding support from the state is not assured and it appears that funding for internal connections through the e-rate program will be less likely.

Current planning efforts will continue to expand its technology training of students, rely on the expertise and effort of its staff, and will continue to look to the community for assistance.

The school plans on making greater use of its own teachers to provide in-service training for its staff in computer and technology related skills.

3.1.3 Barriers Hindering the Attainment of Technology Goals

The biggest barrier to the school achieving all the goals in its previous technology plan was the lack of accessibility to computers to many teachers and classes. This has been remedied recently through the donation of used computers from industry.

The lack of computers during much of this period has limited the amount of staff training in computer skills that could be conducted. Although some staff training was conducted, until each teacher had his or her own access to computers, the amount of progress that could be made was limited.

Now that computers are available in most classrooms, the school is planning to embark on organized computer training of its staff during Act 80 days and in-service days over the next two years.

3.2 CURRICULUM AND STUDENT ACHIEVEMENT

3.2.1 Review of Assessment Data

The GJCTC annually administers the Pennsylvania State System of Assessment (PSSA) test to its 11th grade students. Since the school is composed only of students in grades ten through twelve, the GJCTC can not make comparisons with fifth and eighth grade test scores. PSSA scores were reviewed for the past three years.

The GJCTC administers the Student Occupational Competency Achievement (SOCAT) tests to its 12th grade students. The total number of students (as well as the number of students in each program) receiving certification in this test over the past five years was reviewed.

Average scores on the Preliminary Scholastic Aptitude test (PSAT) which is administered to 11th grade students were reviewed for the past three years.

Finally, program completion rates and program placement rates were reviewed for the past five years.

3.2.2 Curriculum and Student Achievement Strengths

Since the GJCTC is composed of students in grades ten through twelve only, it is difficult to identify trends in student achievement from elementary to middle school to high school.

One area of success is that the GJCTC has consistently had a high percentage of its students successfully complete (become certified in) the SOCAT tests. Several vocational instuctors use computer programs for drill and practice and remediation in the skills required on this test.

3.2.3 Curriculum and Student Achievement Challenges

Since the GJCTC is composed of students in grades ten through twelve only, it is difficult to identify trends in student achievement from elementary to middle school to high school.

One area of concern is that student averages have consistantly been in the bottom quartile of both the mathematics and verbal sections of the PSSA tests. This trend is due, in part, to the observation that many of the students enrolling in GJCTC programs have been low achievers at their sending schools. The GJCTC has recently installed the SkillsBank computer program on its network. This program will be used for remediation in these areas by mathematics and English instructors.

3.3 STUDENT AND STAFF TECHNOLOGY SKILLS, KNOWLEDGE, AND USAGE

3.3.1 Student Technology Access and Attitudes

The majority of GJCTC students have greater access to technology resources at school than at home. The school has traditionally had approximately 60% of its students eligible for free and reduced lunches, therefore the financial resources many of student's families have are extremely limited.

Approximately 28% of GJCTC students have access to computers at home. All GJCTC students have access to computers in school, either in the library, in computer laboratories, or in most shops or classrooms.

The GJCTC requires its students to sign an Internet Student Usage agreement to be able to use the Internet in school. In this agreement, students agree to abide by certain guidelines when using the Internet. Parents of students also must give consent to these students. Nearly all students (approximately 96%) have completed these forms and can access the Internet from the library, computer laboratories, shops, and classrooms. Less than 25% of GJCTC students have access to the Internet from home.

Students invariably view the use of computers, the school network, and Internet as a positive experience. Most students use the Internet to research topics and use the school network and their home directories to produce and save their work.

The school has noticed that a greater percentage of students in technical related shops (like drafting, data processing, health related programs) prefer to use computers to complete their coursework than students in vocational related shops (like auto mechanics, trowel traded, HVAC).

Students have expressed concern about limited access to computers in certain areas of the building. In general, however, students appear to be satisfied with the level of technology in the building as well as access to the school's network and Internet.

The GJCTC provides has a limited number of graphing calculators to provide to mathematics classes. Mathematical calculators are not currently being used regularly in classes.

3.3.2 Student Technology Skills

It should be noted that the GJCTC consists of a single building and contains students in grades 10 through 12.

Only about one third of GJCTC incoming students have a demonstrated knowledge of computer and technology skills upon enrolling at the school. Most students (approximately 80%) receive training in these skills after enrolling through a computer literacy course that is strongly recommended for all students.

The computer literacy course gives students a basic mastery of word processing skills, using spreadsheets, and using the Internet. Therefore, most students (approximately 88%) demonstrate a mastery of word processing and Internet skills before graduating.

In addition, since many of these students are in technology related training programs (such as Networking Technology, Multimedia Technology, Electronics Technology, and Data Processing Technology), a substantial number of students (approximately 28%) have skills technology skills well beyond a basic mastery. Most of these students have skills that exceed many of the GJCTC staff.

Some of these students possess technology skills (particularly in the area of computer repair) that can be shared with other students and staff.

3.3.3 Student Technology Usage

Many students enjoy using computers for game playing at home; however, the use of computers to play games (other than those that are educational) in school is discouraged.

When doing research for their class work, most students prefer to use electronic sources (electronic databases, electronic encyclopedias and the Internet) rather than use traditional sources (i.e. card catalog, books, and encyclopedias) that are available.

Most students appear to be motivated by the convenience and ease of researching information using electronic sources rather than traditional ones.

3.3.4 Staff Technology Access and Attitudes

All staff members have access in school to the network, the Internet, and electronic mail either directly in their shop or classroom or from various laboratories throughout the building.

Approximately 78% of the staff have computers at home and 63% have access to the Internet and email from home.

At this time the school does not provide its staff with dialup Internet access from home but this is something being considered in the future. Neither does it provide its staff with computers that can be used at home.

The staff appears to be satisfied with the level of access of technology for their daily instruction and specialty classes. Most staff would prefer to have newer computers and some staff members have stated they could make use of more computers in their classrooms.

3.3.5 Staff Technology Skills

A competency checklist was given to the staff in April (2000) to determine their master of basic computer operations. The checklist was developed by Indiana University of Pennsylvania to measure the computer competencies of students in their teacher training programs. The survey showed a large variation in the technology skill levels of its staff.

- The survey showed that 72% of the staff had a basic mastery of word processing skills. 22% had an advanced mastery level of these skills.
- The survey indicated that 44% of the staff had a basic understanding of spreadsheets and computational skills. 18% showed an advanced level of those skills.
- The survey also demonstrated that 24% of the staff had a general knowledge of computer databases while 10% demonstrated an advanced knowledge.
- Approximately 51% of the staff showed a basic mastery of presentation software. 29% demonstrated an advanced mastery of this software.
- The survey showed that 77% of the staff had a general understanding of Internet skills (including search engines and electronic mail). 45% had an advanced knowledge of those skills.

Results of the survey showed that, while most staff members demonstrated a mastery of computer skills equal to or exceeding the level of students, others fell short of the students level of understanding.

Several staff members possessed technology skills that could be shared with other staff members and students. Some staff members teach these technology skills as part of their course curriculum (i.e. data processing, networking technology, electronics technology, multimedia) and some teach these skills in the school's adult education program.

3.3.6 Staff Technology Usage

The majority of GJCTC staff members use the Internet for research and electronic mail for communications both at school and at home. Many staff members also use computers to prepare instructional materials and calculate student grades. Use of presentation graphics software to present course content is limited at this time because of availability of equipment. Obviously, staff members who teach technology as part of their courses (i.e., data processing, computer literacy, multimedia technology, and networking technology) tended to use technology the most. It also appears that newer teachers tended to adjust to using technology somewhat faster than veteran teachers.

The most significant factor in determining how quickly teachers were to embrace technology was the convenience of access to the technology. It was found that, in situations where teachers had little computer skills but had access to a computer in their classroom, they improved their skills, began using computers for clerical duties, and in most cases began integrating this technology into their courses. Where teachers did not have this convenient access to computers (even though computer labs were available in the building), the use of technology was significantly less. From one in-service session to

the next, teachers who didn't have computers in their classrooms would have difficulty remembering how to log onto the network.

Many different innovative examples of integrating technology into the curriculum are starting to take place. For example, a science teacher for special needs students used the Internet to track the movement of a hurricane as part of a weather unit. A government teacher uses the Internet to trace the movement of a bill through Congress.

What seems to motivate the staff the most about technology is its ability to bring so much additional information quickly into the classroom. From the networked computer in their classroom, teachers are able to quickly tap into the libraries card catalog and electronic database, electronic encyclopedia, and the Internet and can supplement a lesson with the wealth of information that is available.

3.4 TECHNOLOGY INVENTORY

3.4.1 Quality of Technology Resources

The survey showed that many of the instructional computers are older and more limited in their capabilities. Less than 2% of the instructional computers were in the highest functionality level (category A). Furthermore, although approximately 60% of the instructional computers were in the second functionality level, most of these were confined to laboratory/classrooms where technical programs and classes (data processing, computer literacy, multimedia, and networking) were being taught. The computers available to most teachers and classes were in the lowest two functionality levels.

Several administrative computers were upgraded within the past year so that the functionality levels of these computers are all in the top two categories.

Currently, the GJCTC does not have a school-wide plan or policy on the replacement or upgrading of computers.

3.4.2 Quantity of Technology Resources

The quantity of computers available in the school is marginally acceptable. Most classroom teachers have access to one networked computer in their shop or classroom. There is also one computer laboratory that teachers can reserve to use with their classes. As mentioned early, the functionality level of these computers is limited (generally level 3 or 4).

Several teachers have indicated that, because of the manner in which they would like to incorporate computers into their lessons, they have a particular need for more than one computer in their classroom. It is hoped that some of these requests can be met in the near future.

One area of computer equipment the school needs to improve is the accessibility of printers. One networked color inkjet printer is in the library and all teachers have the capability if printing to this printer. For most teachers, this is the only option for hardcopy printing.

Another area of computer equipment that needs improvement is digital projection. Currently, most teachers have no access to a projection unit they can use for presenting course content. It is planned that such a projection unit will be made available to teachers for the next school year.

The type and quantity of software applications available in the school is generally acceptable.

3.4.3 Distribution of Technology Resources

Approximately 60% of the instructional computers at the school are distributed among its five computer laboratories. The remaining computers are distributed among the various shops, classrooms, and library media center.

Most computers in classrooms and laboratories are connected to 100 megabit per second switches. The school is in the process of upgrading the backbone of the network to 1 gigabit per second.

All students and staff have home directories on network servers that can be used to save their work. Quotas are being placed on these student's home directories limiting them to 50 megabits of disk space. Most of the newer computers are in the computer laboratories. Many of the computers in individual classrooms were ones that were originally in computer laboratories and were replaced with newer machines.

Printers are available in most computer laboratories and the library. Only a few classrooms have a printer.

Classrooms most in need of a computer upgrade are those in English and social studies classrooms as well as those in some vocational shops.

In 1996, the GJCTC decided to standardize on certain software (Microsoft Windows 95/98, Microsoft Office 95/97, and Microsoft Internet Explorer). Standardizing on operating systems, office suites, and browsers have enabled have enabled better communication between users on the school's network. This decision has never been written into the school's policy manual, therefore there continues to be a few stalwarts that prefer to use other software (and occasionally problems arise when they expect support for their software).

One benefit the school receives from being a Microsoft AATP institution is additional software licenses for software it uses for AATP training.

3.4.4 Summary Charts for Narratives 3.4.1, 3.4.2, and 3.4.3

Computer Systems Functionality and Distribution Matrix

The Matrix reads left to right and shows the quantity and percent of each category of computers across the school levels. For each level the quantity and percent are divided into instructional and administrative. Use this matrix to compare the distribution of a category of computers over all the school levels i.e., how many of category A computers does the elementary school have compared to the high school.

		Elementary School 0 Schools		Middle School 0 Schools		High School 1 Schools		Total 1Schools	
Category A		**Instr.**	**Admin.**	**Instr.**	**Admin.**	**Instr.**	**Admin.**	**Instr.**	**Admin.**
• Age less than 18 months • 64 MB RAM minimum	QUANTITY	0	0	0	0	3	6	3	6
• More than 6GB HD • 48x CD-ROM or CDRW or DVD • 17 inch monitor • Macintosh G4 or above • Pentium III or above • Readily serviceable	PERCENT	0.00%	0.00%	0.00%	0.00%	100.00%	100.00%	100%	100%
Category B		**Instr.**	**Admin.**	**Instr.**	**Admin.**	**Instr.**	**Admin.**	**Instr.**	**Admin.**
• 18 to 36 mos. old • 32 MB RAM minimum	QUANTITY	0	0	0	0	96	8	96	8
• More than 2 GB hard drive • 24x CD-ROM or DVD drive • 15 inch multiscan color monitor minimum • Macintosh G3 or above • Pentium II MMX or above • Runs latest versions of complex software packages • Readily serviceable	PERCENT	0.00%	0.00%	0.00%	0.00%	100.00%	100.00%	100%	100%

Category C		Instr.	Admin.	Instr.	Admin.	Instr.	Admin.	Instr.	Admin.
• 3 to 5 years old • 8-24 MB RAM • 160 MB to 2 GB hard drive	QUANTITY	0	0	0	0	33	0	33	0
• 4x to 12x CD-ROM drive • 14 inch multiscan color monitor minimum • Macintosh PowerPC • Pentium • Runs most software packages well • Readily serviceable	PERCENT	0.00%	0.00%	0.00%	0.00%	100.00%	0.00%	100%	100%
Category D		**Instr.**	**Admin.**	**Instr.**	**Admin.**	**Instr.**	**Admin.**	**Instr.**	**Admin.**
• More than 5 years old • Less than 8 MB RAM	QUANTITY	0	0	0	0	31	0	31	0
• Less than 150 MB hard drive • Standard 14 inch VGA color monitor • Macintosh 040 systems • 486 CPU • Software limitations exist • Limited serviceability	PERCENT	0.00%	0.00%	0.00%	0.00%	100.00%	0.00%	100%	100%

Student to Computer Ratio and Computer Distribution Matrix

The Matrix reads top to bottom for each level and shows the student to computer ratio (number of students to number of computers) for each level as well as the distribution of each category of computers across the level. For each level the quantity and percent are divided into instructional and administrative. Use this matrix to see the distribution of the

functionality categories across a school level i.e., percentage of each category A, B, C, and D at the elementary school.

	Elementary School	Middle School	High School	Total
# of Students	0	0	425	425
# of Schools	0	0	1	1
Total # of Computer Systems	0	0	177	177
Total # of Instructional Systems	0	0	163	163
Total # of Administrative Systems	0	0	14	14
Ratio of Computers to Students	Error: Divide by Zero	Error: Divide by Zero	0.38	0.38
CATEGORY A				
Total # of Category A	**Instructional** 0 **Administrative** 0	**Instructional** 0 **Administrative** 0	**Instructional** 3 **Administrative** 6	**Instructional** 3 **Administrative** 6
% of Instructional Category A	0.00%	0.00%	1.84%	1.84%
% of Administrative Category A	0.00%	0.00%	42.86%	42.86%
CATEGORY B				
Total # of Category B	**Instructional** 0 **Administrative** 0	**Instructional** 0 **Administrative** 0	**Instructional** 96 **Administrative** 8	**Instructional** 99 **Administrative** 14
% of Instructional Category B	0.00%	0.00%	58.90%	58.90%
% of Administrative Category B	0.00%	0.00%	57.14%	57.14%
CATEGORY C				
Total # of	**Instructional**	**Instructional**	**Instructional**	**Instructional**

Category C	0 **Administrative** 0	0 **Administrative** 0	33 **Administrative** 0	132 **Administrative** 14
% of Instructional Category C	0.00%	0.00%	20.25%	20.25%
% of Administrative Category C	0.00%	0.00%	0.00%	0.00%
CATEGORY D				
Total # of Category D	**Instructional** 0 **Administrative** 0	**Instructional** 0 **Administrative** 0	**Instructional** 31 **Administrative** 0	**Instructional** 163 **Administrative** 14
% of Instructional Category D	0.00%	0.00%	19.02%	19.02%
% of Administrative Category D	0.00%	0.00%	0.00%	0.00%

Distribution of Computers by Functionality Category Chart

Chart displays the percentage of each category of computers at the instructional level for all the school levels combined.

3.5 FACILITIES

3.5.1 Equipment Layout and Distribution, and Furniture Used

The GJCTC employs several types of technology-enhanced learning environments in its building. These methods are used to maximize the effectiveness of the limited technology available.

Most classrooms use the individual computer configuration. In most areas this configuration is used primarily as a teacher workstation. Access from this computer to the school network allows for flexibility in lesson planning, preparation, resource selection and reporting purposes. The GJCTC acknowledges the importance of teacher access to technology and believes that its educators require tools at least equivalent to those used by students.

A few classrooms (for example, the physics laboratory which is also used for networking technology instruction) currently use the instructional technology cluster configuration. This configuration allows 30% to 50% of the class to working independently or in small groups on instructional activities. Here the technology encourages the use of computers as a learning tool. Drill and practice, tutorials, and simulations can be used to introduce, review, and remediate content related information. Word processing and spreadsheets are used for the preparation of reports. It is hoped that this model will be extended into more areas of the building to provide specialty clusters to the various educational disciplines. As teachers more fully incorporate and integrate technology into their teaching styles they will require these systems to achieve their instructional goals.

The instructional technology classroom (computer laboratory) model is currently used in five instructional areas. Most computers are configured using an around the perimeter station model. These areas are used primarily for computer literacy classes and instruction in data processing, networking technology, multimedia technology, and CAD/CAM.

The library acts as the technology resource center of the building. Given the combined functions of providing access to information, as well as a place to process the information it offers students and teachers an arena to conduct their research. The library makes use of a computerized circulation system with bar code scanning. The library uses a management and information system based on the MARC format and can provide online circulation data, cataloging procedures, and administrative functions. The network can potentially enable students and teachers to determine the availability of books and other library resource from their classroom. The student workstations in this area can provide electronic card catalog access as well as access to informational databases and the Internet.

Finally, the distance-learning classroom provides for real-time two-way audio/video/data transmission from two or more remote locations. This room is designed primarily as a means of extending learning beyond the perimeters of the school site.

The ergonomic capabilities in most areas are limited. Generally, standard desks/tables and chairs are used. One laboratory provides adjustable height chairs.

Nearly all computers are in fixed locations (i.e. not moved from location to location). It is hoped that a computer/projector and cart can be made available to teachers during the next school year to allow for classroom presentations.

The facilities are generally of appropriate quality and are distributed equitably through the building.

The layout of instructional space is determined primarily by teacher instructional desires and is not limited by factor such as age of building.

3.5.2 Facility Power, HVAC, Lighting, and Security

The GJCTC has sufficient power capabilities to handle expansion of the school network. All network servers use uninterruptible power supplies (UPS) to provide power/protection in the event of a power disruption. Most servers provide for an automatic shutdown if power remains off for more than a few minutes.

One area of concern involves power to switches at various locations in the building. Occasionally a disruption in power may occur to a switch, which results in loss of network access to an entire area of the building. One possible solution is to use UPS's with each switch.

Surge suppression is placed on outlets that provide power to switches; however, it is lacking in many areas that power student and teacher workstations.

The school building is divided into several temperature-controlled zones that are computer controlled.

The school uses fluorescent lighting throughout and has adequate lighting in all classrooms, shops and offices. The doors to the GJCTC building are locked during the school day. The school uses video camera systems along with buzzers to gain admission at three entrances to the building.

The school has at least one network connection in each classroom, and nearly all offices and shops. Hubs or switches are used in classrooms where more than one connection is required.

3.5.3 Facility Problem Areas

The age of the GJCTC building has not limited the expansion and development of technology at the school.

While the school could benefit from more ergonomic furniture, there were no identified limitations or barriers to implementing technology that is created by the facility.

3.6 DISTRICT INFRASTRUCTURE PLAN AND DESIGN

3.6.1 Building Level Networking

The GJCTC network consists of a single Fast Ethernet local area network (LAN). Eleven managed 3Com 3300 10/100 24-port switches are located in each computer laboratory and at various locations through the building. Gigabit per second (1000 base-T) modules are being installed in these switches and a 6-port 3Com 9100 gigabit per second switch is being installed in the server room to provide for gigabit per second speed along the backbone of the network. Category-5 UTP cable is used through the entire network. Six DTK servers are currently being used on the network. Three of the servers contain dual Pentium 400 processors and 18-gigabyte hard drives; the other three servers contain dual Pentium 600 processors and 36-gigabyte hard drives.

Four of the servers are located in a secure room along with main switches and the cable modem used for Internet access. One of the remaining servers is located in the data processing area. The remaining server is located in a room adjacent to one of the networking technology classrooms. Security and convenience of access for the network administrator were the two factors used in determining the placement of these servers. The servers perform several functions including file, web applications, and proxy services.

3.6.2 District Level Networking

The GJCTC network is part of a wide area network (WAN) referred to as the INET. The INET connects the GJCTC network with the networks of four other school districts (Westmont Hilltop, Conemaugh Township, Ferndale Area, and Richland Township) using cable TV lines that are leased from Charter Communications of Johnstown, Pennsylvania. Charter Communications has recently completed an upgrade of most of these lines from standard cable TV (thinnet) coax cable to fiber optic cable. Currently the major function of the INET is to provide Internet access to the schools using a T-1 connection with Concurrent Technologies Corporation of Johnstown, Pennsylvania.

By sharing cost for Internet access among all the school districts and by applying for e-rate reimbursement of costs, the GJCTC has been able to acquire a reasonably high-bandwidth Internet access at a very low cost.

While the potential exists for high bandwidth data communications between the various school districts, this function is not being used at this time.

3.6.3 Internet Telecommunications

Currently nearly all classrooms, laboratories, and offices (including the library) in the GJCTC building have access to Internet using the school's local area network and the INET.

All staff have access to the Internet using the network logon. For students to obtain Internet access they must complete an Internet Student Use Agreement that must be signed by their parents. Most students have completed this form and have Internet access. The GJCTC uses Surfwatch for Microsoft Proxy Server to filter and restrict access to certain websites. Surfwatch logs any attempted access to any of these restricted sites. Microsoft Proxy Server also logs all attempted accesses to all sites by all users. Log files are kept for 30 days before they are deleted.

The Internet is used primarily for research purposes and to send electronic mail. The GJCTC currently shares a T-1 connection to the Internet with four other school districts. The current bandwidth is satisfactory for current use of the Internet. It is anticipated that, as the Internet is used more for multimedia capabilities, the school will need to explore means of supplying a greater bandwidth to the Internet.

The GJCTC uses the INET to obtain access to the Internet using a T-1 connection with Concurrent Technologies Corporation of Johnstown, Pennsylvania. The INET connects the GJCTC network with the networks of four other school districts (Westmont Hilltop, Conemaugh Township, Ferndale Area, and Richland Township) using cable TV lines that are leased from Charter Communications of Johnstown, Pennsylvania.

3.6.4 Telephone Service Distribution

Incoming calls to the GJCTC are handled through a switchboard located in the Adult Education Office.

There are approximately 45 telephones with school extensions. All shops, offices, and the library have telephones; however, most classrooms do not. Fax machines are located in the administrative office, the library, and the adult education office. The system is currently near or at its limit in terms of the number of telephones that can be handled.

The school provides voice mail service to its entire staff.

GTE is the local service provider for the school. LCI International/Quest Communications provides long distance service.

The school has two cellular phones, one used by the building supervisor, the other used for school athletic events and activities. AT&T is the service provider for the cellular phones.

3.6.5 Video Distribution

Most classrooms in the building have televisions that are connected to the cable TV network. ChannelOne News and Charter Communications, Incorporated of Johnstown provide Cable TV services for the school.

The school produces its own daily news program for students using a studio housed on the first floor of the building.

The school also has a one meter satellite dish capable of downlink only.

3.6.6 Distance Learning Capabilities

The GJCTC has one distance-learning classroom that is centrally located in the building. The school uses equipment manufactured by PictureTel Corporation. The equipment was purchased through an Educate America grant in which the school partnered with the Forest Hill School District.

During the past school year, the school offered one course (Medical Terminology) through distance learning to the Forest Hills School District. The school also subscribed to one course (Physics) through distance learning from FHSD.

The GJCTC anticipates increasing its use of the distance learning facility during the next school year. The school belongs to the Partners in Distance Learning South-Central Regional Consortium. This consortium coordinates distance learning offerings among its member schools. Schools belonging to this group will offer two distance learning courses and subscribe to at least two distance learning courses each year.

3.6.7 Infrastructure Partnerships

The following infrastructure companies provides the GJCTC with existing services:

- The Hite Company provides network cable, tracking, etc.
- XiTech Corporation provides the 3Com switches, hubs, etc.
- Computer Centerline of Greensburg provides DTK servers and network software.

- Charter Communication of Johnstown leases cable TV line for the INET (wide area network and Internet access).
- Concurrent Technologies Corporation of Johnstown provides the consortium using the INET with a T-1 connection to the Internet.
- AT&T provides ISDN service for our distance-learning laboratory.

Of these companies, Charter Communications and Concurrent Technologies have partnered with the GJCTC and the four school districts that comprise the INET (Westmont Hilltop SD, Conemaugh Township SD, Ferndale Area SD, and Richland Township SD) by providing Internet access and the corresponding cable connectivity at a greatly reduced price.

One of the additional infrastructure services being considered is a lower bandwidth Internet access that the school could use in the case of disruption in service from its primary provider. Several local ISP's (Helicon, Surfshop, etc.) could furnish this service.

Investigation of Potential Infrastructure Partnerships

Technology Vendors/Infrastructure Service Providers

3Com Corporation

Contact Name: Arlene A. Levin

Contact Phone: 508-323-1193

Description of Potential Partnership:
Explore the possibility of partnering with 3Com Corporation to offer networking courses specializing in networking hardware and applications. The 3Com NetPrep program introduces students to the basics of networking and prepare them for more advanced study after graduation from high school.

Possible Benefits to School District:
The 3Com Authorized Technical Education Center (ATEC) program provides schools with local access to the highest standards of networking education within the industry. Students who go through this program will receive a thorough understanding of the basic principles of networking. Students who complete NetPrep are eligible to receive industry standard certification through the National Association of Computer Systems Engineers (NACSE). If we became a 3Com Authorized Technical Education Center we would have the opportunity to develop our own course portfolio to include courses from the world's leading networking and communications company. We would also be able to provide courses that support the 3Com Master of Network Science program—an industry standard in both practical and theoretical aspects of networking technologies from 3Com. It would expand the level of training we are offering in networking skills. It would also give students an opportunity to obtain additional certifications that meet industry standards.

Possible Benefits to Group or Organization:
We would provide the organization with a pool of students that could become technicians to support the company's equipment in the future.

Potential Contribution to District Technology Planning Effort:
This partnership would give the GJCTC a better understanding of state-of-the art networking equipment and offer it to the school at reduced pricing.

Cisco Corporation

Contact Name:

Contact Phone: (408) 526-4000

Description of Potential Partnership:
The GJCTC will explore the possibility of partnering with Cisco to become a Cisco Networking Academy. The Cisco Networking Academy program trains and certifies students to design, build, and maintain computer networks. It is a partnership between Cisco and schools, government and industry.

Possible Benefits to School District:
Students at the school would get skills leading to employment opportunities in various computer networking fields. The GJCTC would get important new networking curricula and resources to help maintain our internal network.

Possible Benefits to Group or Organization:
There is a critical shortage of skilled Information Technology workers. We would provide Cisco with a pool of trained and certified IT professionals to support their equipment in the future.

Potential Contribution to District Technology Planning Effort:
Schools don't have resources or time to design, build, and maintain networks. This partnership would give the GJCTC a better understanding of state-of-the-art networking equipment and offer it to the school at reduced pricing.

3.7 TECHNOLOGY SUPPORT SERVICES

3.7.1 Learning and Technology Resources and Service Functions

The GJCTC has decided to standardize on certain software that is used for learning. This software includes Windows 95/98, Microsoft Office 95/97, and Microsoft Internet Explorer. Due to a lack of personnel, the school is not currently providing support for other software.

Who will be responsible for the maintenance and support of software on individual computers and workstations is an area that needs to be addressed: (When the librarian or classroom teachers want to purchase software to run on their computer, who is responsible for installing that software and who is responsible for troubleshooting and maintaining the software in the future?)

The school librarian is responsible for audio-visual equipment used for learning. Much of the AV equipment is becoming obsolete. There is a need to purchase replacement equipment and to designate someone for repairs and maintenance of the existing equipment.

3.7.2 Information Management Service Functions

The GJCTC uses MMS 2000 software to handle most of the student and staff management of data.

The school has one staff member who administers this program/database. He is responsible for managing access to this database as well as setting up software on the appropriate computers. He also has the responsibility of entering and printing grades and other reports. He uses this program/database to assist the administration in the scheduling of staff and students.

3.7.3 Communications and Network Infrastructure Service Functions

The GJCTC has a supplemental contract with one of its staff members to act as network administrator/technology coordinator. His duties are as follows:

- create and maintain user accounts and home directories for staff and students
- backup home directories on a regular basis
- create and maintain e-mail accounts for staff
- administer Internet access for staff and students
- administer and update Surfwatch filtering program for Internet access
- setup and maintain all software on network servers
- troubleshoot problems occurring on network servers
- develop and implement plans involving the expansion and upgrading of the GJCTC network.

The school also uses members from its maintenance and instructional staff to install network cable, tracking (raceway), electrical power, switches and hubs.

The infrastructure support functions have been supported although occasionally other commitments will delay their completion.

3.7.4 Operations, Maintenance and Support Service Functions

Providing support for the maintenance and troubleshooting of computer hardware and software is currently a problem area that needs to be addressed. The network administrator, electronics technology instructor, and data processing instructor have all volunteered their time to assist with this task. The GJCTC also has engaged students in this task when it provides them with job-related experience that would be educational for them. At many times over the course of the school year, the GJCTC support staff has had trouble keeping pace with the demand.

The school has considered hiring an experienced student, either as an after school position or through a cooperative education position, to help out with this need.

Some other options include:

- using an outside vendor for maintenance,
- providing additional prep time for staff to work on maintenance problems,

- hiring someone under a supplemental contract,
- providing "comp time" for staff members or releasing them from some duties (like assembly supervision, class coverages, homeroom duties, etc.) to work on these issues.

In addition to the staffing issue, there needs to be a procedure or policy developed for how staff members will report computer-related problems and to whom they will be reported.

3.8 STAFF DEVELOPMENT

3.8.1 Status of Staff Development Programs

Traditional Strategies

The GJCTC has designated its technology coordinator as a "technology mentor" to provide technology related assistance to staff members who are pursuing professional certifications.

The GJCTC is in the process of planning a technology training program for its staff in conjunction with Act 48. It is anticipated that most of the training will take place in the form of "hands-on training" supervised by knowledgeable staff members.

Several other strategies will be explored in the planning of his program. These include:

- Online Demonstration/Discussion using Technology (may include video conferencing)
- Development of Technology-Infused Curriculum, Materials, or Lessons w/ word processing
- Web-based Professional Research
- Using CD-ROM based or online Tutorials
- Using students as mentors

The GJCTC plans to also explore collaborative activities such as setting a workshop day including staffs from the sending school districts.

3.8.2 Technology's Role with Respect to Staff Development

The GJCTC uses the I-Learn series of software packages from Spire, Incorporated to provide a technology-based staff development delivery system. The software provides training in Windows 98, Office 97 (Word, Excel, PowerPoint, Outlook, and Access), and Using the Internet. The GJCTC has network licenses for each of these software packages and has them installed on the network so that they can be accessed by each staff member on the computer in their own room or anywhere else in the building. The school offered a full day training session in the use of this software in October, 1999.

This software is not only used by staff members to learn basic computer skills; but many teachers encourage their students to use this software to learn skills that might benefit them.

Staff members have had a very positive response to this training.

3.9 CURRENT TECHNOLOGY BUDGET ANALYSIS

3.9.1 Current Sources of Technology Funds

The GJCTC has made extensive use of its Link-to-Learn funding and has taken full advantage of the federal e-rate program. The GJCTC was able to leverage much of its Link-to-Learn funding to make additional e-rate purchases using its 80% reimbursement level. The majority of the funds for technology purchases has come from these two programs.

Both funding sources will be explored again as a potential source of funds. The Link-to-Learn program for the next year however will be a competitive grant. Because of the amount of funding requests under e-rate for the next year, the GJCTC will not be eligible for funding internal connections, but will receive funds for telecommunications and Internet access.

The GJCTC will continue to explore other grants such as the Technology Literacy Challenge Fund grant.

Since there is no current building or renovation program taking place, retrofit money does not appear to be an option for infrastructure expenses.

Obtaining community support for the inclusion of technology expenditures in the school budget is difficult.

Analyze Previous and Current Technology Budget and Expenditures

Previous Year 1999

	High School		Total	
	total	%	total	%
Hardware	$18,619.00	21.85%	$18,619.00	21.85%
Software	$4,829.00	5.67%	$4,829.00	5.67%
Infrastructure	$54,769.00	64.27%	$54,769.00	64.27%
Staff Development	$3,500.00	4.11%	$3,500.00	4.11%
Support Services	$3,500.00	4.11%	$3,500.00	4.11%
TOTAL	$85,217.00	100%	$85,217.00	100%

Current Year 2000

	High School		Total	
	total	%	total	%
Hardware	$19,217.00	22.02%	$19,217.00	22.02%
Software	$3,587.00	4.11%	$3,587.00	4.11%
Infrastructure	$57,458.00	65.85%	$57,458.00	65.85%
Staff Development	$3,500.00	4.01%	$3,500.00	4.01%
Support Services	$3,500.00	4.01%	$3,500.00	4.01%
TOTAL	$87,262.00	100%	$87,262.00	100%

Pie Chart of Previous Year's Technology Budget and Recent Expenditures (in dollars)

Pie Chart of Current Year's Technology Budget and Recent Expenditures (in dollars)

3.9.2 Level of Technology Funding

The funds spent on technology have been consistent from last year to this year.

The majority of technology funds over the past two years have been spent on infrastructure (servers, switches, hubs, and cabling). This is because the school was able to use Link-to-Learn funds and leverage them to acquire additional funds through the e-rate program (using the school's 80% reimbursement level). The school was fortunate that these funding programs were available at the time the school had a need to expand its network throughout the building and increase its infrastructure.

The past two years showed an increase in technology spending from previous years because of the funding that was available. The GJCTC was not eligible for Link-to-Learn funding during the first year of the program (funding was limited to school districts only).

Section 4 - Identify Strategic Goals

4.1 CURRICULUM AND LEARNING

4.1.1 Curriculum and Learning Goals and Objectives

By developing information skills like word processing and using the Internet, students will make substantial progress towards the goals of becoming effective workers in the future that are outlined in the school's technology mission statement and vision statement. In addition, the development of these skills will enable students to take advantage of technology changes in the future and enable them to adapt to them more readily, thus making them more effective learners in their future pursuits.

Having teachers use technology resources that engage students in cooperative learning activities complements the goal of developing the information skills mentioned previously because it reinforces the skills that students have learned. It is important that students not only be taught how to use technology skills, but they should be completely comfortable using them --these skills should become second nature to them.

The GJCTC has a very high percentage of students who are being "mainstreamed". Having teachers investigate uses of technology to support instruction that addresses multiple learning styles will allow more efficient learning to take place in these classrooms.

Goals and Objectives for Curriculum and Learning

Students will develop the informational skills required for them to become effective learners as well as productive workers in a technical society. Students will develop familiarity with an integrated software package consisting of word processing, spreadsheets, databases, etc.

Associated Objectives:

- Students will be able to acquire information using the Internet (browsing and search engines)
- Students will be able to present information to groups (presentation management)
- Students will be able to prepare and analyze numerical information (spreadsheets)
- Students will be able to prepare text and graphical information (word processing and desktop publishing)

4.2 ADMINISTRATION AND MANAGEMENT

4.2.1 Administration and Management Goals and Objectives

Encouraging administrators to make greater use of the Internet and e-mail will enable them to access more information, more efficiently and will improve in their decision making processes.

Having teachers use presentation applications as part of their courses will increase their teaching effectiveness and improve student learning.

Encouraging teachers to use technical skills like word processing and to manage assignments and grades using the schools student management program will increase their own productivity and give them more time for course planning and student interaction.

Goals and Objectives for Administration and Management

Technology will allow administrators to gather and share current and timely information for decision-making at the school board, administration, school, and classroom levels.

Associated Objectives:

- Administration will make greater use of the Internet to gather information and help with decision-making responsibilities.
- Administration and secretaries will make greater use of e-mail to communicate information currently sent in paper format (fax, print memo) whenever appropriate.

The school will expand its use of the MMS2000 student management system to more efficiently track student progress, provide teachers with accurate and readily assessable information for planning, and eliminate redundancy of effort in the process of managing student information.

Associated Objectives:

- Teachers will store and manage student assignments and grades using the MMS student management system.

Teachers will embrace technology to enhance their own personal and professional productivity, decision-making, and effectiveness.

Associated Objectives:

- Teachers will demonstrate the use of presentation applications to present information visually as well as verbally to increase teaching effectiveness.
- Teachers will demonstrate the use of word processing skills for personal and professional productivity.

4.3 COMMUNICATIONS AND INFORMATION ACCESS

4.3.1 Communication and Information Access Goals and Objectives

Encouraging greater use of technology to improve communications among teachers, administrators, and support personnel will enable the staff to operate more efficiently and give them more time for their decision-making and instructional duties. It will also encourage parental involvement by increasing the use of electronic mail for communication.

It will reduce the need for group meeting time by allowing more communications and collaboration to take place electronically. This will give teachers more time to focus on improving student learning.

Goals and Objectives for Communication and Information Access

The GJCTC staff will use technology to improve communication among all teachers, administrators, support personnel, parents, and the community.

Associated Objectives:

- The GJCTC will expand its current school web-site to describe current happenings, events, and projects taking place at the school.

- The employee handbook will be provided online either as a shared file or on the school's intranet site.
- Electronic forms will be developed to handle supply requistions, discipline logs, equipment requisitions, work orders etc. and these will be mailed to the proper recipient using the school's e-mail capabilities.
- Communication from staff to administration and between staff will be done electronically to reduce the need for group meeting time.
- Communication by administration to staff, such as memos, daily bulletins, absentee lists will be done electronically using the schools e-mail system.

Section 5 - Build Major Initiatives and Create Action Steps

5.1 BROAD-BASED INITIATIVES TECHNOLOGY INITIATIVES

5.1.1 Technology Initiatives in Support of Broad-based Goals and Objectives:

T**A**. To enable teachers to make use of modern technology resources and to increase their ability to communicate with other teachers, administrators, and parents; the GJCTC will provide each teacher with a desktop workstation in each classroom that can be used primarily for teacher use.

Goals and Objective Supported:

The GJCTC staff will use technology to improve communication among all teachers, administrators, support personnel, parents, and the community.

- Communication from staff to administration and between staff will be done electronically to reduce the need for group meeting time.
- Electronic forms will be developed to handle supply requistions, discipline logs, equipment requisitions, work orders etc. and these will be mailed to the proper recipient using the school's e-mail capabilities.
- The GJCTC will expand its current school web-site to describe current happenings, events, and projects taking place at the school.

Teachers will embrace technology to enhance their own personal and professional productivity, decision-making, and effectiveness.

- Teachers will demonstrate the use of word processing skills for personal and professional productivity.
- Teachers will demonstrate the use of presentation applications to present information visually as well as verbally to increase teaching effectiveness.

T**B**. The GJCTC will make greater use of the INET to increase communications and develop collaborative efforts between classes at various schools.

Goals and Objective Supported:

T**C**. To enable teachers to make use of modern technology resources and to increase their ability to communicate with other teachers, administrators, and parents; the GJCTC will provide teachers with access to printers and digital projection that can be used with their classes.

Goals and Objective Supported:

Students will develop the informational skills required for them to become effective learners as well as productive workers in a technical society. Students

will develop familiarity with an integrated software package consisting of word processing, spreadsheets, databases, etc.

- Students will be able to prepare text and graphical information (word processing and desktop publishing)
- Students will be able to prepare and analyze numerical information (spreadsheets)
- Students will be able to present information to groups (presentation management)
- Students will be able to acquire information using the Internet (browsing and search engines)

Educators will engage in a process of review and assessment of specific instructional strategies with the potential to improve learning for the range of student diversity represented in the building.

- Teachers will investigate and demonstrate the use of technology resources to support instructional strategies that engage students in cooperative learning activities.
- Teachers will investigate and demonstrate the use of technology resources to support instructional strategies that address the multiple learning styles of its diverse student population.

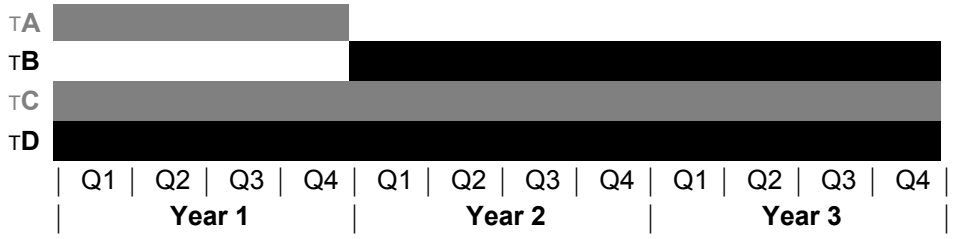
T**D**. Provide students with updated computers by replacing computers in the laboratories and library on a five year rotating basis.

Goals and Objective Supported:

Students will develop the informational skills required for them to become effective learners as well as productive workers in a technical society. Students will develop familiarity with an integrated software package consisting of word processing, spreadsheets, databases, etc.

- Students will be able to prepare text and graphical information (word processing and desktop publishing)
- Students will be able to prepare and analyze numerical information (spreadsheets)
- Students will be able to present information to groups (presentation management)
- Students will be able to acquire information using the Internet (browsing and search engines)

Timeline:



5.2 CURRICULUM AND LEARNING TECHNOLOGY INITIATIVES

5.2.1 Technology Initiatives in Support of Curriculum and Learning Goals and Objectives:

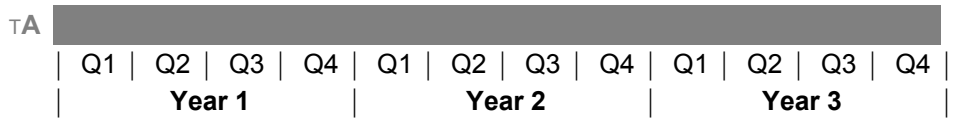
T**A**. The GJCTC will increase its course offering for low enrollment courses (for example: French, German) through the use of distance learning.

Goals and Objective Supported:

Educators will engage in a process of review and assessment of specific instructional strategies with the potential to improve learning for the range of student diversity represented in the building.

- Teachers will investigate and demonstrate the use of technology resources to support instructional strategies that address the multiple learning styles of its diverse student population.

Timeline:



5.3 ADMINISTRATION AND MANAGEMENT TECHNOLOGY INITIATIVES

5.3.1 Technology Initiatives in Support of Administration and Management Goals and Objectives:

T**A**. The GJCTC will expand its use of the MMS 2000 student management system by increasing administrative usage of this program and by developing a procedure for teachers to record their grades directly into this database.

Goals and Objective Supported:

The school will expand its use of the MMS2000 student management system to more efficiently track student progress, provide teachers with accurate and readily assessable information for planning, and eliminate redundancy of effort in the process of managing student information.

- Teachers will store and manage student assignments and grades using the MMS student management system.

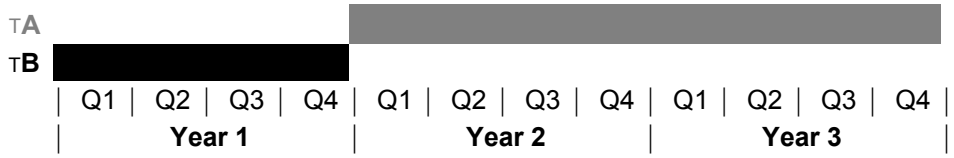
T**B**. The GJCTC will develop a series of policies and procedures to address problems of maintenance, troubleshooting, and replacement of technology related equipment.

Goals and Objective Supported:

Maintenance and troubleshooting problems will not interfere with the delivery of technology to its staff and students.

- The GJCTC needs to develop a policy to address how to handle maintenance and troubleshooting problems related to hardware and software and computers.
- The GJCTC needs to develop a policy to address how to handle maintenance and troubleshooting problems related to distance learning equipment.
- The GJCTC needs to develop a policy to address how to handle maintenance and troubleshooting problems related to audio/visual equipment.

Timeline:



5.4 COMMUNICATIONS AND INFORMATION ACCESS TECHNOLOGY INITIATIVES

5.4.1 Technology Initiatives in Support of Communications and Information Access Goals and Objectives:

T**A**. The GJCTC will increase its use of email and electronic forms at the school for in-school and community communications. The school has a limited telephone capacity and most teachers do not have access to a phone in their room. The school would need provide each teacher with a desktop computer in their room that could be used primarily for this purpose.

Goals and Objective Supported:

The GJCTC staff will use technology to improve communication among all teachers, administrators, support personnel, parents, and the community.

- Communication by administration to staff, such as memos, daily bulletins, absentee lists will be done electronically using the schools e-mail system.
- Communication from staff to administration and between staff will be done electronically to reduce the need for group meeting time.

- Electronic forms will be developed to handle supply requistions, discipline logs, equipment requisitions, work orders etc. and these will be mailed to the proper recipient using the school's e-mail capabilities.

- The employee handbook will be provided online either as a shared file or on the school's intranet site.

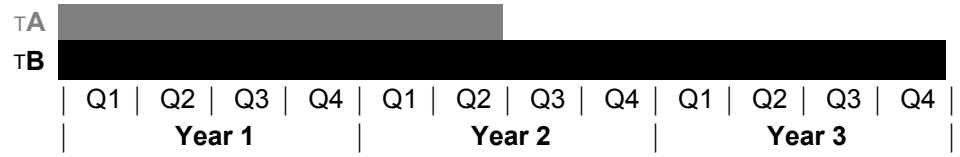
T**B**. The GJCTC will keep the community abreast of happenings at the school through the use of its Internet web-site. The school desires to have active participation from teachers to provide information and from students to assist in the design and ongoing maintenance of this means of communicating with parents and the community.

Goals and Objective Supported:

The GJCTC staff will use technology to improve communication among all teachers, administrators, support personnel, parents, and the community.

- The GJCTC will expand its current school web-site to describe current happenings, events, and projects taking place at the school.

Timeline:



Section 6 - Technology Solution Design and Action Plans

6.1 DETERMINE HARDWARE REQUIREMENTS AND ACTION PLAN

6.1.1 Hardware Action Plan

Hardware Action Steps	Cost Year 1	Cost Year 2	Cost Year 3	3-Year Est. Total
Action Step: Replace student workstations in the library and computer laboratories on a five year rotation basis. **Action:** replace **Level:** high school **Item:** student workstations **Start Date:** Year 1 - Quarter 1 **End Date:** Year 3 - Quarter 4 **Leadership:** Technology Coordinator **Primary:** State Grants **Secondary:** Other **Budget Code:** 768 **Est. Unit Cost:** 54000 **Budget Note:** Replace student workstations on a five year cycle. Adult education needs to help with this funding.	$18500	$18000	$17500	$54000
Action Step: Purchase printers to be accessible for each department. **Action:** purchase **Level:** classroom **Item:** peripherals (i.e.,printers,scanners,etc.) **Start Date:** Year 1 - Quarter 1 **End Date:** Year 3 - Quarter 4 **Leadership:** Technology Coordinator **Primary:** State Funds **Secondary:** None **Budget Code:** 758 **Est. Unit Cost:** 3600 **Budget Note:** Purchase from Link-to-Learn funds if available	$1200	$1200	$1200	$3600

Action Step: Acquire used computers from industry. Troubleshoot computers. Purchase replacement components. **Action:** acquire **Level:** high school **Item:** teacher workstations **Start Date:** Year 1 - Quarter 1 **End Date:** Year 1 - Quarter 2 **Leadership:** Technology Coordinator **Primary:** Vendor Contributions **Secondary:** None **Budget Code:** 438 **Est. Unit Cost:** 3000 **Budget Note:** Donations from Digital Concepts, Inc and others	$1000	$1000	$1000	$3000
Action Step: Purchase digital projection systems. **Action:** purchase **Level:** high school **Item:** projection systems **Start Date:** Year 1 - Quarter 1 **End Date:** Year 3 - Quarter 4 **Leadership:** Technology Coordinator **Primary:** State Grants **Secondary:** None **Budget Code:** 758 **Est. Unit Cost:** 12000 **Budget Note:** Purchase from Link-to-Learn funds if available	$4000	$4000	$4000	$12000
Action Step: Provide each teacher with a desktop computer in their room that be used primarily for teacher use. Use donated computers; gradually upgrade to new machines. **Action:** acquire **Level:** high school **Item:** teacher workstations **Start Date:** Year 1 - Quarter 1 **End Date:** Year 1 - Quarter 4 **Leadership:** Technology Coordinator **Primary:** State Grants **Secondary:** None **Budget Code:** 328 **Est. Unit Cost:** 22500 **Budget Note:** Computers distributed with assistance of staff and networking students; purchase new computers if Link-to-Learn funds are available.	$8000	$7500	$7000	$22500

6.2 DETERMINE NETWORK REQUIREMENTS AND ACTION PLAN

6.2.1 Network Action Plan

Network Action Steps	Cost Year 1	Cost Year 2	Cost Year 3	3-Year Est. Total
Action Step: Install and upgrade networking switches and hubs to support network connections in each shop, laboratory, and classroom. Upgrade speed of backbone to gigabit per second. **Action:** upgrade **Level:** high school **Item:** building network equipment **Start Date:** Year 1 - Quarter 1 **End Date:** Year 2 - Quarter 1 **Leadership:** Network Administrator, Maintenance Staff **Primary:** Federal Funds **Secondary:** None **Budget Code:** 338 **Est. Unit Cost:** 5000 **Budget Note:** Install switches purchases under e-rate program	$3400	$1600	$0	$5000

6.3 DETERMINE FACILITIES REQUIREMENTS AND ACTION PLAN

6.3.1 Facilities Action Plan

Facilities Action Steps	Cost Year 1	Cost Year 2	Cost Year 3	3-Year Est. Total
Action Step: Provide network connection in each classroom for computer setup. **Action:** acquire **Level:** classroom **Item:** network wiring **Start Date:** Year 1 - Quarter 1 **End Date:** Year 2 - Quarter 1 **Leadership:** Network Administrator, Maintenance Staff **Primary:** Federal Funds **Secondary:** None **Budget Code:** 338 **Est. Unit Cost:** 3200 **Budget Note:** Category 5 cable installed by maintenance staff and networking/electrician students.	$2400	$800	$0	$3200

6.4 DETERMINE SOFTWARE REQUIRMENTS AND ACTION PLAN

6.4.1 Software Action Plan

Software Action Steps	Cost Year 1	Cost Year 2	Cost Year 3	3-Year Est. Total
Action Step: Provide data processing and multimedia classes with Microsoft FrontPage software for students to use in the design and development of the school's website. **Action:** aquire license **Level:** classroom **Item:** instructional software **Start Date:** Year 1 - Quarter 1 **End Date:** Year 2 - Quarter 2 **Leadership:** Data processing/Multimedia instructors **Primary:** Site-Based Line Item Budget **Secondary:** None **Budget Code:** 618 **Est. Unit Cost:** 500 **Budget Note:**	$500	$0	$0	$500
Action Step: Install software on computers. **Action:** upgrade **Level:** high school **Item:** instructional software **Start Date:** Year 1 - Quarter 2 **End Date:** Year 1 - Quarter 3 **Leadership:** Network Administrator **Primary:** Site-Based Line Item Budget **Secondary:** None **Budget Code:** 618 **Est. Unit Cost:** 0 **Budget Note:**	$0	$0	$0	$0
Action Step: Setup mailboxes for each staff member e-mail client software (Microsoft Outlook) on each computer. **Action:** aquire license **Level:** high school **Item:** office automation software **Start Date:** Year 1 - Quarter 1 **End Date:** Year 1 - Quarter 4 **Leadership:** Network Administor **Primary:** Site-Based Line Item Budget **Secondary:** None **Budget Code:** 618 **Est. Unit Cost:** 500 **Budget Note:**	$500	$0	$0	$500

Action Step: The GJCTC would determine from which low enrollment courses students would benefit and develop a schedule for offering these courses through the distance learning laboratory. **Action:** subscribe **Level:** classroom **Item:** instructional software **Start Date:** Year 1 - Quarter 1 **End Date:** Year 3 - Quarter 4 **Leadership:** Distance Learning Lab Supervisor **Primary:** Federal Funds **Secondary:** State Grants **Budget Code:** 538 **Est. Unit Cost:** 8500 **Budget Note:** Cost of ISDN line offset by e-rate reimbursement	$2500	$3000	$3000	$8500

6.5 ADDRESS SECURITY ISSUES

6.5.1 Understanding Security Measures

A number of security measures are currently in use in the school.

Physical Security

- School file servers are installed in areas that allow physical access by authorized personnel only.
- Student and staff data (records, grades, etc.) are installed on servers in secure areas.
- Network components (switches, hubs, etc.) are installed in locked closets or, if installed in classrooms, at heights that make them difficult to reach in order to prevent unauthorized access.
- Printers used for the output of protected information (i.e. in general office, administrative office, guidance office) are installed where access to printed matter can be controlled.
- Students and parents are informed of their responsibility and liability for physical damage to or theft of equipment through a student usage agreement.

Software Security

- An acceptable use policy has been developed defining the responsibilities for users of the network and Internet. This policy includes a form that must be signed by parents and students.
- Anti-virus programs are installed on network file servers.
- Access rights to information and applications on the network that are used for administrative use or contain student or personnel records are carefully

controlled. Every user of the network (staff or student) has a unique user logon name.

Security Guidelines

- Network backup procedures have been established to save all key information as part of standard operations.

Education about Security Issues

- General awareness training has been provided to the staff to introduce basic security concepts when logging onto the network and student use of the Internet.

The following additional policies need to be implemented regarding network security:

Physical security

- A policy needs to be developed involving staff usage of portable computing devices (laptop computers, personal digital assistants, etc) for equipment protection and to reduce the likelihood of theft. This policy needs to be included in the teacher handbook.

Software security

- Acceptable use policies for staff members need to be drawn up and included in the employee handbook.
- Anti-virus software needs to be installed on each workstation.
- Desktop protection software needs to be installed that will prevent changes in software by students.

Security guidelines

- Users will be forced to change passwords on a periodic basis.

Education about security issues

- Further awareness training needs to be provided to the staff regarding the use of anti-virus software, desktop protection software, etc.
- More detailed security training needs to be provided to administrators, secretaries, etc. that have access to protected information.

6.5.2 Equipment Security

Serial numbers of all equipment need to be recorded and kept in a database. Procedures need to be established so that all new equipment has serial numbers added to this database. A form needs to be composed for this purpose.

An inventory needs to be conducted identifying the current location of all equipment. A procedure needs to be established to identify when new equipment is purchased or equipment is moved from one location to another. Devising a database to handle this information and composing a form to be used when new equipment is purchased or equipment is moved can do this.

A policy needs to be developed involving staff usage of portable computing devices (laptop computers, personal digital assistants, etc) for equipment protection and to reduce the likelihood of theft. This policy needs to be included in the teacher handbook.

6.5.3 Information Security

Acceptable use policies for staff members need to be drawn up and included in the employee handbook.

Anti-virus software needs to be installed on each workstation.

Desktop protection software needs to be installed that will prevent changes in software by students.

Users need to change passwords on a periodic basis.

6.6 TECHNOLOGY POLICIES AND ACQUISITION STRATEGIES

6.6.1 Technology Policies

Historically, technology policies have been set primarily through the technology planning committee. This process has proven to be somewhat cumbersome particularly where policies need to be established frequently or on short notice.

The goal is to make the technology policy making process as efficient as possible. It is hoped that in the future, most technology policies will be established in direct meetings between the director, principal, and technology coordinator.

These policies will be communicated either by e-mail, memo, or announcements at staff meetings (-- whichever is the most appropriate).

Policies that currently need to be created or updated include:

- a procedure for incoming students to complete a Student Internet Usage Agreement form upon enrollment
- a policy for notifying the technology coordinator whenever technology related equipment or software is purchased
- a policy for report problems with computers and a procedure for dealing with these problems
- a policy for the planned replacement of computers that become obsolete

6.6.2 Procurement Procedures

Most purchases of computer hardware are made using the Pennsylvania Education Purchasing Program for Microcomputers (PEPPM) website. In addition, academic versions and licenses are used for most software purchases.

Currently, one problem area that exists involves the lack of communication that occasionally occurs when purchases are made. The technology coordinator needs to be more involved when purchases of hardware and software are made so that total cost of ownership (cost to install, configure and support) can be calculated before the purchase is made.

In the future, the GJCTC plans on developing a policy whereby the technology coordinator is informed of all purchases made related to technology at the school.

The GJCTC also needs to develop a policy involving the planned replacement of obsolete equipment. Computers in laboratories should be replaced on a five-year rotating basis.

6.6.3 Technology Acquisition

Based on the GJCTC's demographic make-up and size, the following critical mass algorithms are estimated to be appropriate for the school:

- one networked teacher workstation for each teacher in the school
- a school-wide average of one networked student workstation for every three students at the school
- one networked color printer for every department
- three digital projectors for the school (one used primarily by data processing, one for classroom use, and one for adult education)
- three digital cameras for the school

The GJCTC need to develop a plan for replacing its computers, servers, and switches on a five year rotating basis.

In order to ensure that the district applies a "total cost of ownership" model during budget preparation, technology purchases need to be submitted to the technology coordinator (prior to approval) so that "total cost of ownership" calculations can be performed and factored into the cost of the purchase.

Section 7 - Human Resources and Support Management and Development Action Plans

7.1 STAFF DEVELOPMENT

7.1.1 Staff Action Plan

Staff Action Steps	Cost Year 1	Cost Year 2	Cost Year 3	3-Year Est. Total
Action Step: Provide the staff training to use Microsoft Office, Microsoft Internet Explorer, and Microsoft Outlook during inservice sessions. **Action:** provide **Level:** high school teachers **Item:** on-site workshops **Start Date:** Year 1 - Quarter 1 **End Date:** Year 2 - Quarter 1 **Leadership:** Data processing/Computer literacy instructors **Primary:** Other **Secondary:** None **Budget Code:** 318 **Est. Unit Cost:** 1200 **Budget Note:** Costs to attend workshops to upgrade skills	$400	$400	$400	$1200
Action Step: Provide the teachers with an overview of the school"s web-site, give them examples of types of school information and activities that are suitable for the web-site, and give them an opportunity to develop ideas for communication information about the courses and activites. **Action:** provide **Level:** high school teachers **Item:** on-site workshops **Start Date:** Year 1 - Quarter 1 **End Date:** Year 2 - Quarter 1 **Leadership:** Data processing instructors **Primary:** Other **Secondary:** None **Budget Code:** 318 **Est. Unit Cost:** 0 **Budget Note:** Cost to attend workshops to upgrade skills	$300	$300	$300	$900

Action Step: Train teachers with instructions on using digital projectors. **Action:** provide **Level:** high school teachers **Item:** on-site workshops **Start Date:** Year 1 - Quarter 1 **End Date:** Year 1 - Quarter 4 **Leadership:** **Primary:** **Secondary:** **Budget Code:** **Est. Unit Cost:** **Budget Note:**	$0	$0	$0	$0
Action Step: Familiarize teachers with schools using INET. Provide time for them to make contact with teachers from other schools and develop coordinated projects between classes **Action:** provide **Level:** high school teachers **Item:** on-site workshops **Start Date:** Year 2 - Quarter 1 **End Date:** Year 3 - Quarter 4 **Leadership:** Technology Coordinator **Primary:** Other **Secondary:** None **Budget Code:** 318 **Est. Unit Cost:** 0 **Budget Note:** Cost to attend workshops to upgrade skills	$300	$300	$300	$900

7.2 TECHNOLOGY STAFF

7.2.1 Technology Action Plan

Technology Action Steps	Cost Year 1	Cost Year 2	Cost Year 3	3-Year Est. Total
Action Step: Develop support procedures and policies for maintenance, repair, and replacement of equipment. **Action:** expand **Level:** high school **Item:** technical support staff **Start Date:** Year 1 - Quarter 1 **End Date:** Year 1 - Quarter 2 **Leadership:** Technology Coordinator **Primary:** Other **Secondary:** None **Budget Code:** 328 **Est. Unit Cost:** 7500 **Budget Note:** Salary of Network Administrator plus cost to hire student or staff member to perform maintenance duties under supplemental contract	$6000	$6000	$6000	$18000

7.3 END-USER SUPPORT

7.3.1 End User Support Action Plan

End User Support Action Steps	Cost Year 1	Cost Year 2	Cost Year 3	3-Year Est. Total
Action Step: Develop procedure for backing up and restoring software on computers. **Action:** develop **Level:** high school **Item:** technical support services **Start Date:** Year 1 - Quarter 1 **End Date:** Year 1 - Quarter 2 **Leadership:** Network Administrator **Primary:** Other **Secondary:** None **Budget Code:** 758 **Est. Unit Cost:** 500 **Budget Note:** Purchase cloning software	$500	$0	$0	$500
Action Step: Develop quidelines for users to report problems with computers. **Action:** develop **Level:** high school **Item:** on-line processes, FAQs, guidelines **Start Date:** Year 1 - Quarter 2 **End Date:** Year 1 - Quarter 4 **Leadership:** **Primary:** **Secondary:** **Budget Code:** **Est. Unit Cost:** **Budget Note:**	$0	$0	$0	$0

Section 8 - Fiscal Analysis and Budget

8.1 THREE-YEAR BUDGET

8.1.1 Three-Year Line-Item Budget

Over the past three years the GJCTC has been able to make major advances in the infrastructure development of its network. The proposed three-budget focuses on the following areas of weakness.

- Replacing outdated computers used in student laboratories and for teacher workstations.
- Providing teachers more access to printers.
- Providing digital projection units that can be used by teachers and their classes.
- Providing additional technology training for teachers in conjunction with Act 48.

To meet the requirements for this budget, the GJCTC will need to continue to acquire funding through outside sources. It is assumed that the e-rate program will continue to operate and that sources like Link-to-Learn and TLCF will continue to be available.

Line-Item Budget

Workstation Software	Year 1	Year 2	Year 3	Three Year Total	Budget Code	Funding Source
instructional software	$2,500.00	$3,000.00	$3,000.00	$8,500.00	538	Federal Funds
instructional software	$500.00	$0.00	$0.00	$500.00	618	Site-Based Line Item Budget
instructional software	$0.00	$0.00	$0.00	$0.00	618	Site-Based Line Item Budget
office automation software	$500.00	$0.00	$0.00	$500.00	618	Site-Based Line Item Budget
Classroom and Office Hardware	Year 1	Year 2	Year 3	Three Year Total	Budget Code	Funding Source
peripherals (i.e.,printers,scanners,etc.)	$1,200.00	$1,200.00	$1,200.00	$3,600.00	758	State Funds
projection systems	$4,000.00	$4,000.00	$4,000.00	$12,000.00	758	State Grants
student workstations	$18,500.00	$18,000.00	$17,500.00	$54,000.00	768	State Grants
teacher workstations	$1,000.00	$1,000.00	$1,000.00	$3,000.00	438	Vendor Contributions
teacher workstations	$8,000.00	$7,500.00	$7,000.00	$22,500.00	328	State Grants
Facilities, Networks, & Infrastructure	Year 1	Year 2	Year 3	Three Year Total	Budget Code	Funding Source
building network equipment	$3,400.00	$1,600.00	$0.00	$5,000.00	338	Federal Funds
network wiring	$2,400.00	$800.00	$0.00	$3,200.00	338	Federal Funds

Staffing	Year 1	Year 2	Year 3	Three Year Total	Budget Code	Funding Source
technical support staff	$6,000.00	$6,000.00	$6,000.00	$18,000.00	328	Other
Support Services/Materials	Year 1	Year 2	Year 3	Three Year Total	Budget Code	Funding Source
technical support services	$500.00	$0.00	$0.00	$500.00	758	Other
Professional Development	Year 1	Year 2	Year 3	Three Year Total	Budget Code	Funding Source
on-site workshops	$300.00	$300.00	$300.00	$900.00	318	Other
on-site workshops	$400.00	$400.00	$400.00	$1,200.00	318	Other
on-site workshops	$300.00	$300.00	$300.00	$900.00	318	Other
TOTAL COSTS:	$49,500.00	$44,100.00	$40,700.00	$134,300.00		

Potential Funding Distribution List

Funding Source	Total Funding
Federal Funds	$16,700.00
State Funds	$3,600.00
Vendor Contributions	$3,000.00
Site-Based Line Item Budget	$1,000.00
Other	$21,500.00
State Grants	$88,500.00
Total	**$134,300.00**

Section 9 - Plan Review and Evaluation

9.1 PLAN MONITORING STRATEGIES

9.1.1 Plan Monitoring Process

The GJCTC will monitor the implementation of the technology action plans in a number of ways:

- The technology coordinator will monitor the use of the computer laboratories and teacher workstations (amount of usage, by which classes, what laboratory is used for, etc.). This information will be used in planning for future upgrades and to analyze redistribution of computers to receive the maximum benefits.

- The technology coordinator will monitor the use of printers, digital projection units, and other peripherals. This information will be used in planning future purchases and deciding whether units need to be assigned to individual teachers.

- Teachers will modify course curriculum to reflect the integration of technology into their programs.

- Teachers will annually fill out a survey describing how technology has been integrated into their programs. This information will be used to plan for additional purchases of hardware and software.

9.2 EVALUATION STRATEGIES

9.2.1 Impact Assessment

The performance measures for the various objectives described in this will be identified by the technology coordinator with the approval of the administrative director.

Assessment data will be gathered by

- collecting statistics on the usage of computers by students, teachers and administrators

- by reviewing the curriculum of all subjects (during the final year of this plan) to observe the degree that technology has been integrated into courses

- by conducting surveys during the final year of this plan that assesses the access, attitudes, skill level and usage of technology by both staff and students; these statistics will be compared with those obtained during the preparation of this technology plan; the results will be reported to the administrative director and integrated into the next technology plan