



**MCVSD**  
**Technology Plan**  
**for Digital Learning**  
**2017 - 2020**

**Monmouth County**  
**Vocational School District**

[www.mcvsd.org](http://www.mcvsd.org)

# **Monmouth County Vocational School District Technology Plan for Digital Learning**

**2017-2020**

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# **Executive Summary**

## **Mission Statement**

The Monmouth County Vocational School District prepares students for an evolving workplace, lifelong learning and further education through specialized academics, career and technical programs and achievement of the New Jersey Student Learning Standards.

## **MCVSD Philosophy**

The Board of Education of the Vocational Schools in the County of Monmouth believes that a wide spectrum of vocational/technical education programs and services is needed to meet the individual and community needs of Monmouth County. The populations the district is committed to serve are well diversified: secondary public and non-public students; adult students, full and part-time; business and industry, profit and non-profit. In meeting the needs of these populations, the district is sensitive to and cognizant of its responsibilities to assure positive actions are taken in serving individuals with special needs; minority groups; non-traditional interests and abilities, female and male; the disadvantaged; and the training and employee needs of business and industry.

The district is committed to establishing and maintaining a working relationship with the following institutions, agencies and branches of government: public and non-public schools, colleges and institutions of higher learning, proprietary schools, State Department of Education, Board of Chosen Freeholders and applicable departments, public and private service agencies, including those related to the Work Force Investment Act (WIA), business and industrial councils, as well as other groups that have common goals and interests of the district.

Vocational/technical education programs and services are presently provided in four major categories: secondary, special-needs, post-secondary, and adult. The district is committed to provide the secondary school population of Monmouth County, both public and non-profit private high schools, with appropriate shared-time vocational/technical programs and services designed to meet the interests, abilities, and needs of the students that will eventually lead to full-time employment, economic independence, and/or preparation for further education, and the encouragement of life-long learning. The district is also committed to offering full-time educational programs that are on the highest technological level. The district will continually review and update curricula as necessary to provide the best education possible which supports skills necessary for the 21st century.

Special needs students will be provided pre-vocational and vocational/technical programs necessary to assist them in entering the world of work. It is the intent of the district to provide vocational education services in the least restricted

environment and mainstream those students capable of performing in the regular program.

All post-secondary programs are designed to enable individuals to adapt to new experiences, develop a sense of values, and to acquire knowledge, skills, attitudes and the self-discipline necessary to function effectively in society. Programs are structured to meet the immediate needs of students and potential employers.

The Adult Evening School Program serves the immediate and long-term needs of the county's adult population and business, industry, and labor. Programs are designed primarily for entry-level training, upgrading of skills, and vocational/technical interests. Programs are continuously reviewed, revisions implemented and new programs designed as necessary. Apprenticeship training programs are an important aspect of the Adult Evening Program.

The district is committed to the annual review of educational programs offered by soliciting information and data through various studies, surveys, follow-up studies, self-evaluations, and recommendations of advisory committees in order to serve the vocational/technical needs of Monmouth County.

*Non-Discrimination Clause: The Monmouth County Vocational School District does not discriminate on the basis of race, creed, color, national origin, ancestry, nationality, marital or domestic partnership or civil union status, sex, pregnancy, gender identity or expression, affectional or sexual orientation, reprisal or retaliation for prior civil rights activity, religion, age, disability, or socioeconomic status.*

More information on the Monmouth County Vocational School District (MCVSD) can be found on our website at <http://www.mcvsd.org/>

# **Planning Process**

## **Stakeholders**

Technology provides many unique opportunities to the Monmouth County Vocational School District. The impacts of these opportunities reach out into the surrounding communities creating ongoing support from parents, teachers, administrators and board members. Since 1991, the Monmouth County Vocational School District has sought to provide technological leadership and vision through an organized technology committee.

## **Staff, School And District Roles**

The MCVSD Technology Committee has involved key individuals throughout the district and community. These members have served as a guiding force to implement technology in a sound and professional manner.

In order to achieve our mission, we must continue to evaluate, carefully plan and consider every aspect of technology infusion in support of digital learning.

Technology has impacted both the instructional and administrative side of the MCVSD and Technology is tied into each and every student's curriculum. We firmly believe and promote ISTE's National Technology Standards for Students which identify "digital citizenship" and several higher-order thinking skills to help students prepare to work, live, and contribute to the social and civil fabric of their communities, to learn effectively for a lifetime and live productively in our emerging global society (2007, ISTE NETS). With this in mind, we strive to provide students with real world problems so they become learners and problem solvers within their environment.

## **Annual Review & Reporting**

Results from and data collected from our previous needs assessments will continue to drive the future planning and professional development opportunities both in and out of district. The Technology Committee will continue to meet, and review data, building and district plans in conjunction with the new state regulations guiding professional development. Under our professional development structure the MCVSD will explore future opportunities to re-survey all staff members in the upcoming school years to determine top priorities and needs related to technology in our district.



# **Monmouth County Vocational School District Technology Goals and Objectives for Digital Learning**

## **Summary**

In an effort to coordinate our stated goals and objectives with the New Jersey State Department of Education, we have aligned our digital learning goals into five distinct categories. These categories represent our needs as a school district to move forward towards a more technologically literate society and prepare students to live and work effectively in the 21st century. Through these goals, we believe that we are providing a thorough and comprehensive plan that encompasses all aspects of our district.

## **Student Achievement**

**Integrate New Jersey Student Learning Standards and technology throughout the school district's curriculum in support of digital learning.**

- Assess the degree to which the current curriculum correlates with the New Jersey Student Learning Standards.
- Supplement/revise the curriculum to correlate current New Jersey Student Learning Standards with the curriculum objectives & incorporate technology (software, multi-media, Internet, etc.) to reinforce the Standards.
  - Currently, all district curricula are aligned to the current New Jersey Student Learning Standards, and revisions are in progress in all subject areas as standards are revised.
  - Work continues on an online, secure and searchable repository of all board approved MCVSD Curriculum, to be utilized by staff, students, parents, etc.

**Provide students with the opportunities to enhance their skills using the New Jersey Student Learning Standards.**

- Review Student Growth Objectives (SGOs) on an annual basis.
- Students will achieve the acceptable state standard on the online proficiency exam developed by the Partnership for Assessment of Readiness for College & Careers (PARCC).
- Teachers continue to employ a variety of methods, such as computer-based research and problem solving tools to enhance their lessons in support of these goals.

## **Professional Development & Curriculum**

**Provide ongoing professional development on integrating technology for digital learning into the curriculum.**

- Over the next three years, ongoing, sustained professional development opportunities will continue to be provided for all MCVSD employees. Through these educational opportunities, staff will be able to work towards demonstrating



proficiency in the use of 21st century educational tools including wikis, databases, word processors, spreadsheets, blogs, web browsers, email, presentation applications and web 2.0 skills. Staff will also be provided with training on the hardware tools used to promote technology integration, via District-provided portable tools such as laptops, chromebooks, tablets, digital textbooks, as well as use of projectors, digital video, digital still cameras and scanners.

- Staff members will continue to be trained to advance their skills in the use of emerging technologies such as the cloud-based Google G Suite tools, MyLearningPlan, PD360, PowerSchool and electronic course creation and administration tools.
- Staff will also be trained on use of tools to support the flipped classroom, distance learning via Skype, web conferencing via Google Hangouts, online curriculum and assessments, and their integration in the curriculum.
- Staff members will be trained to effectively evaluate hardware and software for purchase and implementation into curriculum.
- Maintain a database of up-to-date curriculum, lesson plans and classroom resources.
- A future goal includes staff members in each building trained to serve as technology instructors and/or support personnel for teachers, secretaries and administrators.
- There will continue to be annual self-skill and needs assessment survey of all staff.

## **Distance Learning**

**Make the use of distance learning, transparent to students and staff, included as an ordinary part of daily lesson plans, to enrich the curriculum and assist student mastery of current New Jersey Student Learning Standards. This goal will be accomplished via the following methods of distance learning:**

### ***Face-To-Face Videoconferencing:***

- Continue distance learning via face-to-face videoconferences with commercial content providers (e.g., hospitals, museums, zoos, science laboratories, etc.) who can support and enhance the curriculum of individual classroom teachers.
- Offer training for teachers involved in distance learning.
- Incorporate the use of Skype face-to-face videoconferencing via teacher laptops to create additional classroom collaboration opportunities, both in and out of district, with experts or college level educators, to enhance individual curriculums.
- Offer students the opportunity to attend courses at locations other than their home schools and meet some of the current New Jersey Student Learning Standards through face-to-face videoconferencing.
- Provide home instruction opportunities for students recovering from major illness or accident.

### ***Online (Internet) Courses***

- Continue to identify webcasts and/or other online tools or courses to enhance MCVSD's total curriculum offerings (e.g., latest advances in science, additional foreign languages, AP courses, etc.).
- Provide professional development to train district staff on how to produce, update and effectively manage online courses using such tools as weblogs, wikis, G Suite, and content management systems such as Moodle.
- Develop online courses (e.g., LPN, Adult Education, Information Technology, etc.) to enable the MCVSD to serve a broader population of potential students.
- Continue to upgrade and maintain a Wide Area Network (WAN) to support distance learning.
- Utilize IP (internet protocol) for single and multipoint distance learning connections within district and when connecting to external partners.
- Maintain existing ISDN lines at our AAHS core site to provide legacy support and flexible dial-in and dial-out support for various content providers and partners.
- Expand use of secure wireless bridging to connect distance learning devices in our campuses, providing increased flexibility in videoconference locations.
- Continue to upgrade videoconferencing hardware/software to the next generation of video codecs, audio codecs, MPEG and HD video to provide increased performance with lower data overhead.
- Continue trials of mobile videoconferencing technology via tablet or smartphone for collaboration in the field with our marine research vessel and other applications

### **Educational Technology Hardware & Software**

**Provide appropriate educational technology hardware and software tools to teachers, students and administrators, to support and enrich digital learning.**

- Review and update hardware and software needs based on administrative and curriculum requirements, in support of state and national initiatives, such as the PARCC online assessment project.
- Review current district needs to determine when to upgrade, reallocate or recycle equipment based on changing needs and equipment obsolescence.
- Review, update and support procedures for district equipment accountability and inventory control.
- Review and update procedures for centralized support material purchases and distribution.
- Maintain district licenses and renewal schedule for all commercial and open source software tools.
- Maintain district access and support cloud-based offsite hosted tools, such as G Suite (including documents, email, voicemail, video and audio communications, sites, blogs, etc.), to reduce the local footprint of onsite hardware and software.
- Evaluate and implement industry-standard security and Internet filtering software/devices.

- Review, update and support a repository for staff to use when evaluating new hardware and software.
- Review, update and support the minimum specifications for computer system purchases throughout the district, and district approved software packages.

## **Research**

**Systematically research the impact of technology on instruction in the school district.**

- Collect and analyze statistical data on the present condition of Monmouth County Vocational School District education and to project future educational trends.
- Support learning opportunities through design and assessment of instruction, with support from the Internet and Distance Learning partners.
- Implement a data driven decision making process to foster continued district growth related to educational technologies, student success, and professional development.

## **Examples:**

### **New Jersey Student Learning Standards**

The MCVSD is currently working on major curriculum updates to align curricula across the county with the New Jersey Student Learning Standards. All curricula in the district is board approved and available in the central office, and will soon be available in digital form via our Intranet and the Internet. Many of our revised curricula incorporate technology as a major component or as a supplement to daily instruction. To promote the continued revision and alignment of curricula across the district, the Curriculum Focus Group and subject area specific Curriculum Committees will continue to track changes in the state standards and new educational models to ensure that MCVSD's curriculum keeps pace.

One example of how the New Jersey Student Learning Standards are incorporated into our classrooms is at the High Technology High School. The goal of the program is to integrate the subject matter of three disciplines: Biology, Humanities, and Computer/Software Applications (BASH) to provide a flexible, cohesive problem solving adventure which will actively engage the ninth grade students at High Technology High School. This will be accomplished by employing aspects of problem-based learning and emphasizing higher order thinking skills within each of the three disciplines. Employing research related to learning styles and multiple intelligences will further ensure an active engagement of ninth grade students in this innovative, interdisciplinary curriculum.

Other examples of technology integration include students in our Spanish courses at the Marine Academy of Science & Technology (MAST). Students in this program

conduct research and then develop PowerPoint presentations in Spanish about an artist from a Spanish-speaking country. They also compete in a webquest contest in which they search for the artist and title of an unnamed painting, and then discuss the painting & artist using an online discussion board.

Another example from MAST: our Chemistry students use spreadsheet and database tools to collect and analyze scientific research data/observations made in their oceanographic studies course (e.g. water chemistry data obtained using probes and instruments aboard our research vessel).

## **No Child Left Behind (NCLB) Enhancing Education Through Technology Goals**

The primary goal of *Title II - Part D: Enhancing Education Through Technology* is to improve student academic achievement through the use of technology in elementary and secondary schools.

Additional goals are:

- To assist every student in crossing the digital divide by ensuring that every student is technologically literate by the time the student finishes the eighth grade, regardless of the student's race, ethnicity, gender, family income, geographic location, or disability.
- To encourage the effective integration of technology resources and systems with teacher training and curriculum development to establish research-based instructional methods that can be widely implemented as best practices by state educational agencies and local educational agencies.

### ***Working Toward Meeting NCLB Requirements:***

The MCVSD continually looks for new ways to use curriculum-based models and strategies in the classroom to effectively assist students with academic achievement in our content areas. Below are some examples describing how our district is working toward meeting the NCLB requirements:

#### **Technology:**

Research confirms that by using digital media in the classroom, students become more involved and motivated to learn. The longer a student's attention is focused on the task in an engaged manner, the greater the likelihood for the comprehension and retention of concepts. Using such tools as SMARTBoards, the multimedia projector, computer based learning, and video clips, our teachers are utilizing these and other methods to assist students to improve academic achievement.

### **Promoting parent and family involvement via technology:**

Using the power of email, web page, and weblog based information, our district allows parents to communicate with their children's teachers at any convenient time. Posting up-to-date information regarding homework, school activities, etc. on our district websites, via email, and through our district weblog tool, allows greater dispersal of information than via traditional print media.

### **Expand access and facilitate technology literacy while providing innovative methods for integrating technology into the curriculum:**

Our district continually looks to expand the amount of available educational technology in our schools. It is our goal to allow teachers, administrators and students to have the latest proven technologies available to enhance their technological literacy and foster learning.

We are currently providing additional educational technology tools for all teachers (e.g. SMARTBoards, laptop computers, digital video and digital still cameras, projectors) to allow them to enhance communication, create innovative learning environments, and facilitate student-centered projects. We realize that in addition to making the learning process more engaging, incorporating digital media into the curriculum helps develop the skills that students will need for success in the 21st century.

The MCVSD recognizes the value of research and evaluation concerning educational technologies. To meet this need, our staff has the ability to research and evaluate many emerging educational technologies. In addition, our technology group, under the guidance of our Director of Technology, is charged with researching the latest educational, information and security technologies, and continually re-evaluating and modifying the minimum requirements for hardware and software in our district.

Future exploration and testing is planned with such digital and networked technologies as cloud computing, cloud-based data storage and cloud-based security, streaming media, content caching, local and hosted storage area networks, 10G gigabit networking, IPv6, Internet 2, wired/wireless network and information security enhancements, and other technologies that will enable continued progress in using technology effectively for education.

# **Continued Progress Toward Our District Goals & Implementation Strategies**

The original identified goals (as above) were intended to provide ongoing guidance for our district's educational technology implementation for the benefit of all students. For the 2017-2020 term, the Monmouth County Vocational School District will continue progress towards achieving these existing Technology Plan for Digital Learning goals to meet the needs of students, staff and administration.

## **Monmouth County Technology Plan**

The MCVSD has made every effort possible to model the goals established in our county's technology plan.

*The Monmouth County Technology Plan includes the following goals:*

- Encourage County-Wide District Participation
- Develop a Shared Technical Base
- Develop Distance Learning Communities
- Professional Development
- Acquiring Funds
- Assessment

## **Distance Learning**

As we work toward implementing our district's goals, the MCVSD has integrated distance learning activities as a central part of curriculum at many of our locations.

Our district Wide Area Network (WAN) has grown from its initial site of High Technology High School to include sixteen sites total. These sites include AAHS, MAST, HTHS, CHS, Freehold, Career Center, Asbury Park, KIVA, Hazlet, Keyport, Aberdeen, Long Branch, Middletown, the Neptune Annex, BTHS, and the Central Office.

In an effort to expand our potential to provide voice and video distance learning, the MCVSD has distributed additional PolyCom mobile videoconferencing tools across the district. Distance learning capabilities are available via wired and wireless IP technology, and one site still maintains its ISDN lines as a backup protocol for communication with outside content providers, enhancing our ability for anytime/anyplace distance learning.

Based on positive feedback from staff and students, Distance Learning continues to evolve from a passive tool to an active, infused educational technology tool in our district. As new resources become available, they are published in our Distance Learning Directory (online) to showcase opportunities to collaborate with a vast array of partners and content providers relevant to every one of our subject areas.

## **Examples Of Videoconferencing In The MCVSD:**

**Social Studies** faculty have consistently used videoconferences with museums, councils, and universities across the country to supplement student classroom learning in the following areas of history, culture, and economics:

- Medieval and Renaissance periods in Europe
- Ancient Egyptian Cultures
- Greek and Roman Cultures
- Aztec and Mayan Cultures
- The Ethics of Social Media
- African & Middle Eastern Cultures and Customs
- US History (Revolutionary War, Civil War, Spanish American War, WWI, WWII etc.)
- World Economic Downturn and Repercussions

**Allied Health/Nursing/Biology** Faculty have enabled their students to see live heart bypass and knee replacement surgeries via videoconferencing, where they may ask questions of the doctors performing the operations. These students also participate in videoconferences where a tape of an actual autopsy is shown which is narrated live by a forensic pathologist who takes questions from them as the autopsy progresses. During the event, students are asked to use the evidence being compiled to determine cause of death and to engage in collaborative discussions about their conclusions. Videoconferences on face transplants, sports concussions and brain injuries, epidemiology, excessive sun exposure and tanning beds, pharmacists' responsibilities in patient protection, laughter and plant therapy for healing, have become part of the regular curriculum support mechanisms.

**Foreign Language** faculty have used distance learning as a way to enhance students understanding of the culture of the countries whose languages are being studied (Spain/Latin America, France, Ancient Rome) by videoconferencing with museums offering programs (in both English and the language being studied) dealing with:

- Spanish and Mexican Art
- Social dances of Latin America
- French Impressionism
- Daily Life in Ancient Rome, Gods & Heroes of Greece & Rome
- Classroom collaborations with students in Columbia, S.A. via Skype have also had a major impact on our students' understanding of the culture and issues of that country.

For the past 3-4 years, our Foreign Language faculty have also used distance learning to participate in "Read Around the Planet" classroom collaborations with other students and teachers across the country and in Canada who are also studying Spanish, French and Latin. The collaborations usually involve enacting scenes from cultural classics in a country's literature, as well as folktales and myths - complete with costumes and scenery.



**English Faculty** have used distance learning to:

- "Visit" the Salem Witch Museum in Massachusetts while reading *The Crucible*.
- Explore Shakespeare by learning about his use of meter (iambic pentameter), language, and sounds through enacting scenes from plays.
- "Visit" the Globe Theatre in England.
- Learn about the 1920's and the Harlem Renaissance while reading *The Great Gatsby* and the poetry of Langston Hughes.
- Study how suspense can be developed in a film by watching and discussing the work of the "master of suspense," Alfred Hitchcock.

**Technology Studies, Math, Chemistry and Physics** faculty have also incorporated videoconferences dealing with the following topics into their curricula:

- Forensic Computing
- Math Gridding and Tessellations
- Real-world applications of parabolas in Calculus
- The Science of Numbers
- Physics of Rocket Science
- Imaging Single Atoms and Molecules Using a Scanning, Tunneling Microscope

Our **Culinary Education Center (CEC)** pioneered classroom collaborations via distance learning in our school district as chefs and their students gave cooking and culinary skills demonstrations for our own Career Center baking students, for Home Economics students at Neptune H.S., and for culinary students at Nassau BOCES' H. Franklin Carey H.S. in Franklin Square, NY.

**Visual Communications** faculty at our Communications High School have used distance learning to enable students to explore careers in Animation and Game Design, Journalism, and Broadcast News, as well as, Portfolio Preparation for college.

**Senior carpentry students** attending Hazlet's Share-Time program recently participated in a videoconference covering a variety of careers in the construction trades by interacting with construction company owners and an apprenticeship coordinator who are part of Associated Builders and Contractors, Inc. a national trades association.

The **Health and Fitness** faculty at several schools in our District have used distance learning to educate students about balancing nutrition with exercise, "sexting," abusive dating relationships, and encourage healthy lifestyles.

Faculty across the District charged with the responsibility of introducing students to **personal finance and financial literacy**, as part of the New Jersey Student Learning Standards, have used distance learning to cement financial concepts in a way that engages students at all levels of proficiency through simulation of managing a rock 'n' roll band's cross-country tour and making the

many financial decisions regarding budget, profit and loss, music distribution channels and costs, sale of band merchandise, travel costs, advertising costs, and the costs vs. benefits of various sound technology support.

Recent technology upgrades have improved our multi-site and point-to-point capabilities, and new wired, wireless and VLAN security now allows distance learning to take place in virtually any classroom, with minimal impact on local data traffic.

## **Sharing Resources**

In the past, the Monmouth County Vocational School District has been fortunate enough to work with a variety of grant programs such as the ETTC, Goals 2000, Pairing and Sharing, Whole School Reform, the Technology Literacy Challenge Fund (TLCF), and development of the Monmouth County Coordinated Services (MCCS) program.

We are currently involved in the following grant programs: Perkins (Secondary & Post-Secondary), NCLB, and IDEA.

The majority of grant programs in the MCVSD utilize internal training resources. Through sharing and collaboration, however, we also help to strengthen the ties between school districts throughout our county.

## **Equity**

All members of the Monmouth County Vocational School District community are afforded equal rights regarding educational technology for digital learning.

The MCVSD does not discriminate on the basis of race, creed, color, national origin, ancestry, nationality, marital or domestic partnership or civil union status, sex, pregnancy, gender identity or expression, affectional or sexual orientation, reprisal or retaliation for prior civil rights activity, religion, age, disability, or socioeconomic status.

As an example, our recent migration to Google's electronic mail and collaboration system and district weblogs have been implemented to provide all users equal and flexible access to data. The district has also provided Internet access as a means to give all students, teachers and administrators a way of accessing a wealth of information online, participating in online learning environments, and interacting with their peers. Our district's web site is accessible to all stakeholders, and has been validated as being in compliance with W3C Web Content Accessibility Guidelines.

Depending on the need, assistive technologies are available to help student/faculty/administrators access educational technology tools. Assistive technologies such as SMARTBoards, screen readers, audiobooks, podcasts, videocasts, and similar

tools are being employed at our full-time and shared-time schools to support the inclusion of students with disabilities in general education settings. It is the intent of our district to provide vocational education services in the least restricted environment and mainstream those students capable of performing in the regular program.

# Technology Inventory

## Network Infrastructure

The MCVSD is continually integrating new technologies into every aspect of operation. In order to provide secure voice, video and data communication in support of digital learning, the district maintains the following technologies:

Quantity	Technology	Application
17	EVPL Lines	Data, Voice and Videoconferencing
6	ISDN Lines	Videoconferencing (Legacy Support)

For robust connectivity, MCVSD currently utilizes networking standards such as TCP/IP for our Wide Area Network (WAN) and Local Area Network (LAN) protocol in order to integrate newer technologies such as IPv6, Internet2, etc. as they are made available. The district has standardized these network protocols within the administrative and educational areas. Any equipment that is purchased from this time forward will fit into the WAN/LAN interoperability plan for data, voice & video transmission.

At all campus locations, Projectors, Scanners, Printers, Digital Video & Digital Still Cameras are available for staff/student/admin use. Infrastructure technologies are also utilized onsite, such as an Internet Proxy, IPS/Firewall, WLAN Security, File Storage & email Services.

## Benefits Of Our Existing Network Infrastructure

This network helps bring collaboration between teachers and students closer than ever before. Each staff member across our district and students at our academies have access to email and collaboration tools through the Google's G Suite systems. A future goal is to add our shared time students into our G Suite system, to supplement the email access provided by their sending-school district.

Today, students and staff attending the Marine Academy of Science and Technology in Sandy Hook can discuss curriculum topics with students and staff from High Technology High School in Lincroft and our Academy of Allied Health and Science in Neptune, among others. Real-time data collaboration over our hard-wired and/or wireless local area networks is just a few keystrokes away.

Our career academy, the Biotechnology High School located in Freehold Township, along with the other career academies in the MCVSD provide technology vision and leadership for schools within the county and beyond. The potential for these schools to serve as technology hubs has greatly increased the district's understanding of technology and how technology integrates into the school environment in all of our educational divisions.

The graphics program at our Communications High School, located in Wall, serves as a great example of how technology is pervasive throughout the graphic arts industry and how technology is reflected in the classroom and curriculum. At Communications High School, graphics students learn how to work in a real world printing environment using Project Based Learning, industry standard computers and printing services.

The shared time programs within MCVSD have also experienced an increased presence of educational technology. In the graphics program at our Aberdeen campus, students use technology hardware tools (desktop computers, digital cameras, professional photography lenses/filters, and portrait studio lighting) as well as software tools (Adobe Photoshop, Adobe Illustrator, Adobe InDesign, Flash, and Dreamweaver) to incorporate web design, illustration, color advertising, package design, and corporate identity development into the curriculum. All of these technology tools prepare students for commercial art careers or continued education in college-level art programs.

Our cosmetology instructors at our numerous campuses employ digital photography and color printing to assist students in creating experience-based portfolios, and also utilize online exam preparation, G Suite to manage student progress towards course goals, and electronic assessment tools to prepare them for industry-level certifications.

## **Software**

The MCVSD currently utilizes G Suite electronic mail and collaboration tools to provide email accounts for all staff, as well as email accounts for all students enrolled in our career academies. A variety of access methods are used for both Intranet and Internet use including Macintosh, Windows, Linux, PDA, cell phone (WAP), web browser, screen reader access for visually-impaired users, and a command line interface. G Suite provides advanced email filtering and mail rules aligned with industry standards, which are further enhanced through the use of security appliances to scan email for electronic threats.

Internet web browsing software is provided free of charge from Mozilla, Microsoft, and Apple, allowing access to online research tools and eLearning opportunities.

Our district has standardized on the latest versions of the Google Drive Apps, Microsoft Office (and OpenOffice) line of software for student/staff/administrative use, and the Adobe Acrobat PDF format for digital document creation/distribution.

To encourage the proper use of software/web publishing in our district, we have developed a “Software Code of Ethics” concerning software installation and duplication, and a “Web Page Guidelines” document to promote appropriate student/staff/school/district web pages and weblogs. These and other technology guidelines documents, as well as many frequently used district forms are available online through our eForms area, and are used in classroom instruction to promote proper use of network resources and intellectual property rights.

In compliance with the Children’s Internet Protection Act (CIPA), every computer used by students and staff throughout the district has Internet security and content filtering software enabled via WebSense/SurfControl products.

Pursuant to CIPA (and E-Rate) compliance, the MCVSD notified the public and held a primary hearing related to our Internet safety policy and protection measures on August 20th, 2012.

In addition, inappropriate inbound email (SPAM, UCE) is filtered via our G Suite email systems, as mentioned above. Onsite, we utilize industry standard firewall IPS, EPS, NAC, and event correlation devices throughout our network to provide additional layers of wired and wireless access security for all users.

We have also standardized our district anti-virus software, provided via Symantec’s Enterprise server & desktop anti-virus and anti-malware protection. In the upcoming years, we plan on making additional improvements to our network traffic scanning (wired, wireless) to provide more robust multi-layer protection against malware, viruses, worms and other threats from internal and external sources.

## **Computer & Equipment Maintenance**

MCVSD provides ongoing computer maintenance in a variety of formats. Two full-time technicians are employed by the district to assist in maintaining the information technology tools available to staff, students and administration. During the summer, computer instructors and students are hired to provide additional routine maintenance on all computers within the district.

When problems are encountered, in-district computer repair programs have been set up to handle the majority of issues. To maintain our in-house computer service contracts, our district has staff members on board with both Dell service & Apple service certifications. If the problem is too intricate for an in-district repair, outside servicing is called upon. We have also implemented an electronic trouble-ticket system to help track technology help requests coming in from around the district. In all cases, computer repairs are handled in a timely fashion with minimal instructional interruption.

## **Replacement Of Obsolete Technology**

The MCVSD recognizes the need to provide the latest proven technologies to our staff and students, and we are continually monitoring the “health” of the technology in place in our schools. Obsolete, irreparable computers/technology are replaced in a timely manner, so as not to disrupt the learning process.

In the case of computing technology, all computers are on a 4-5 year rotation schedule depending on use and specific school programs. As an example, computer labs are

upgraded with the latest technology every three years on average across our district. Older computers are moved from labs to adjoining traditional classrooms, or used as student home-loan computers to assist in providing the students with the greatest need for technology with a no cost solution.

Computers more than 5 years old are considered obsolete for effectively using applications such as Internet browsers, image editing, word processing and presentation software. Older computers are repurposed as low-impact support tools, such as syslog servers, data logging, or are used as hands-on learning tools in our A+, Microcomputer, or Cisco certification programs. Any remaining obsolete technology devices, unsuitable for use in an educational environment, are either auctioned off (if still viable), or are recycled in a proper, environmentally safe manner. This practice ensures that our students and staff will have access to the latest technology, and prevents our schools from getting cluttered with obsolete technologies that prohibit more than they promote student learning.

## **Internet Safety & Network Security**

The MCVSD employs a number of methods to help maintain a quality educational environment, and prevent users from visiting inappropriate content in compliance with CIPA regulations, and in accordance with our Acceptable Use Policy (AUP). In each of our schools, students are educated about the AUP as part of their orientation activities, and staff incorporate topics such as appropriate use, copyright, and digital rights into their curriculum. Copies of our AUP and other related educational technology documents, such as web page/ weblog guidelines are made available for parents, students, staff and the community to view on our district website.

To comply with legislation such as the "Protecting Children in the 21st Century Act", the MCVSD has recognized the need for additional instruction on safe Internet use, and educating minors about appropriate online behavior. As a result, we are currently working on supplementing our curriculum at all levels to include instruction on Internet safety.

Regarding network security, we currently utilize a multi-layer proxy architecture, which includes WebSense/OpenDNS Content Filtering for CIPA compliance as described above, Microsoft TMG Proxy, 802.1x wired and wireless authentication, and a number of Open Source filtering and site-based firewall devices to provide Intrusion Protection and Extrusion Protection for all district campuses. In addition, a number of other industry-standard tools are used to enhance our district's network and data access security, both in the wired and wireless realms.



## **Standardization**

When evaluating any technology tool, such as those mentioned above, the MCVSD has been able to meet the needs of the district by using standardized platforms, devices and software.

For example, we have standardized on the Symantec Endpoint Protection to help defend our computing assets and keep users safe from emerging threats from email, Internet/Intranet and mobile sources. We have also standardized on HP printers to meet our district's imaging needs, utilize G Suite for email/calendar/document collaboration, PBWorks for wikis, and Google Blogger for our district's weblog/videoblog publishing needs.

Our district is always on the lookout for new technologies that may be used to enrich our curricular offerings, and provide a pathway for alternate instruction and assessment. We are currently investigating online learning environments such as Moodle, open source applications such as OpenOffice, and open source operating systems such as Ubuntu. We are also looking to incorporate additional offsite hosting tools & media delivery systems in the future which will allow anytime/anywhere access to educational tools for student, faculty and administrator collaboration.

# Equipment & Facilities Planning

In order to improve student academic achievement, promote increased technology infusion and foster professional development, the following are future technology-related projects planned in our district:

- Obtain additional portable computing tools for use by staff/students for data collection in the classroom and in the field (such as tablet computers, digital probes, sensors, etc.).
- Upgrade data support servers and backup devices to provide increased capacity and backup redundancy.
- Upgrade district's core web servers & file servers to provide additional storage for student/staff/administrators electronic portfolios.
- Develop and deploy a streaming media/caching solution for the storage & distribution of audio/video data to a wide audience via our Intranet, and eventually through the Internet.
- Deploy Voice Over IP (VoIP) solution to connect district locations to a central communications system.
- Enhance Security on our district-wide Virtual LAN (VLAN), which allows users to securely connect to our network from any location in our WAN.
- Upgrade core router and firewalls, allowing for more aggressive traffic management throughout our WAN and increased security.
- Upgrade Student Management System (SMS) to provide additional features & security.
- Add additional Wi-Fi transmitters and enhanced WLAN 802.1x security and authentication to expand coverage of wireless LAN.
- Develop a 10GB based Intranet for use in transfer of digital multimedia projects via a Storage Area Network (SAN)
- Utilize networking technologies such as TLS & switched Ethernet to provide ample bandwidth our campuses, allowing consolidation of services and increased data/backup/voice/video services.
- Investigate use of multiple redundant ISP's (such as Quest, Verizon, AT&T, Optimum, etc.) to provide redundancy, failover and increase overall network "port" speed to the Internet.
- Increase our use of offsite hosting solutions to enhance the digital media and tools available to students/staff/administrators.
- Expand our district's data archiving of electronic communication for security/storage and compliance with new regulations for same.
- Enhance our district's Network Admission Control (NAC) architecture, to help prevent unauthorized use of district resources.
- Complete migration of all email and collaborative data tools to the G Suite cloud infrastructure.
- Upgrade laptop computers, and other portable devices for teachers, student-use, and administrative-use.

- Research the feasibility of 1 to 1 computing, and/or bring your own device (BYOD) for students in our schools, and related topics such as electronic textbooks, tablet/mobile devices, online courses, network based storage/backup, support & maintenance needs, and computer security profiles.
- Implement a guest access wireless LAN to support BYOD student/staff/guest/visitor connectivity via a separate protected Wi-Fi network.
- Purchase additional portable projection units, digital still cameras, digital video cameras, electronic whiteboards and accessories for district classrooms/labs.
- Upgrade wireless laptops used with our portable cart solutions used by students/staff at numerous locations.
- Add additional Polycom units for simultaneous Distance Learning opportunities and bandwidth conservation using new video/audio codecs such as H.264, etc. and to provide additional flexibility for use with home instruction, and multi-point sessions.
- Incorporate additional layers of security in our network to utilize biometric data, 3-phase authentication, eTokens, and other identity validation methods before allowing user access to critical data stores.
- Increase use of SSL Certificates for asset/identity validation, and establish wild-card certificates with industry leading certificate authorities.
- Increase staff members to support educational and professional development initiatives district-wide. Some potential staff positions that may prove beneficial to achieving our goals include the following: technology integration specialists, online course design & development manager, information security manager, communications manager (voice/audio/video/text messaging and conferencing support), additional technical support field technicians & help desk staff.
- Utilize additional online and distance learning tools to allow students/staff/administration to take advantage of new educational opportunities, and provide a means to participate in coursework not available in our district/region (such as online AP courses, certification and ongoing sustained professional development).
- Consolidate LAN sites via a private fiber optic network, providing 10GB trunks between campuses, and allowing additional consolidation of services. One potential site for this private fiber link is our Neptune Campus, which would benefit from connecting the Annex building with our Academy of Allied Health site. Another potential private fiber connected site is our Career Center campus, to potentially connect with the adjacent Biotechnology High School campus.
- Continue expansion of our online application for potential secondary-school students, and expand of our adult-school online course catalog and payment system.

# Professional Development

The MCVSD provides professional development on a proactive basis that is sustainable and meaningful to our curricular offerings. Currently, we have a full-time Staff Development Leader, Lisa English, to provide direction and support for all professional development activities in our district. Professional development is one of the central goals of this technology plan as a means of ensuring that the fruits of that development flow through to our students. Towards this goal, the Technology Committee works closely with the Director of Educational Technology and with our District Level Professional Development Committee (LPDC), under the direction of the Staff Development leader and the chairperson of the committee. Our focus continues to be on how technology will be implemented in our district and in our county to directly support students in the classroom and the professional development of teachers in utilizing technology for instruction.

The MCVSD will work to maintain and utilize existing professional development teams in our schools to ensure that they operate as Professional Learning Communities which are focused on student achievement goals, utilizing data to measure progress, implementing research-based instructional strategies, continuing to share techniques and results, and continuing to integrate new technology that supports instruction and is in compliance with updated state laws and guideline pertaining to professional development.

The existing professional development structure in our district will continue to provide faculty and staff members with the opportunity to continue working with a network of schools, universities, businesses, and industry organizations to keep teachers updated on current practices in their field of study, related technologies, and other areas relevant to the profession. Also, the MCVSD will continue to offer opportunities to attend courses at the undergraduate and graduate level, as well as offering opportunities to attend other professional association conferences (as funding permits). Lastly, the Technology Department will continue to work with the Staff Development Leader to support staff members, to continue to offer opportunities to attend state sponsored learning events centered around implementing New Jersey Student Learning Standards, online proficiency testing from the Partnership for Assessment of Readiness for College and Careers (PARCC), 21st Century skills, and the goal of preparing all learners to be college and career ready.

The District will continue to focus on skills related to work readiness, critical reading, literacy, math, science, and technology, as well as opportunities in learning centered on student social, emotional, and ethical behaviors to help ensure students' lifelong success.

In order to continue support of existing programs, as well as the new building, district, strategic planning and professional development goals, the Technology Department will continue to offer videoconferencing to enable face-to-face meetings, Wikis and blogs to enable teacher collaboration and communication opportunities. The team will also continue to implement strategies and methods from resources such as The NJ Toolkit and the AchieveNJ resources offered on the NJ Department of Education website with

the intention of providing resources and tools to support high quality, research-based professional learning activities connecting to district and school initiatives and enhancing the learning of all students.

As we move forward under the new state regulations pertaining to professional development, the Technology Department will continue to support and communicate pertinent information throughout the District in order to continue collaboration among all stakeholders that are working to meet the District's needs.

As our district works to create 21st Century classrooms and learning communities, we are able to continue offering technology-focused courses. We continue to provide faculty members with the ability to obtain meaningful and appropriate professional development and training opportunities.

In the MCVSD a team of technologists provides technical assistance to staff at all locations. The district currently employs two technicians, trained in computer networking, as well as software and hardware systems to assist in troubleshooting and daily maintenance district-wide. It is the goal of the MCVSD to not only provide technicians to support the maintenance of our educational technology, but to also bring aboard building-level computer specialists to ensure integration of technology tools into the curriculum. With such assistance, such barriers as inoperative networks, malfunctioning hardware and software can quickly be remedied, and allow for professional development and student learning to continue.

To provide a catalyst for additional use of technology in the classroom, instructors in the district have been provided with their own laptop computer to assist in the integration of technology into all subject areas. In addition, all classrooms have wired and wireless access to the Internet, and our district provides additional LCD projectors, digital still cameras, digital video cameras, interactive whiteboards/SMARTBoards, and our goal is to increase secure wireless access at all locations for use in classroom instruction & support.

# **Monmouth County Vocational School District Needs Assessment**

## **Current Status**

Keeping in mind that the standards for required professional development for teachers must address all the stakeholders within the teaching staff, our Local Professional Development Committee (LPDC) is made up to include representatives of various schools, grade levels, departments and teaching responsibilities reflected within the school district. Members of our LPDC reflect dedication to collegial and collaborative dialogue with other educators as well as with each other to develop a professional development plan that would ensure continuous growth for its professional staff.

In addition, each academy, program and vocational teacher has advisory boards comprised of industry members, community members and parents. The advisory boards make recommendations for curriculum changes and training suggestions for staff.

The LPDC has linked all of the district professional development goals and strategic planning goals to the district mission statement: “The Monmouth County Vocational School District prepares students for an evolving workplace, lifelong learning and further education through specialized academics, career and technical programs and achievement of the New Jersey Student Learning Standards.” An emphasis has also been placed on aligning the district professional development goals to 21st Century skills, workplace readiness skills, and social, emotional and ethical behaviors, as well as the technology needed to support all of the above-mentioned areas.

## **Surveying Staff Through A Needs Assessment**

The district continues to address the needs of the staff, both teachers and administrators, through the use of district staff-day reflection forms, pupil performance objectives, strategic planning goals for each division, AFG goals for the academies, and any additional information provided by the teaching or administrative staff throughout our district.

MCVSD teachers and administrators will design and implement Student Growth Objectives (SGOs) in order to collect, analyze, and interpret data to improve levels of student achievement. Teachers and administrators will manage their evaluations, student survey information, and student growth objectives using the technology platform from My Learning Plan OASYS. Both teachers and administrators will continue to develop a form of action plan by using the Professional Development Plan (PDP), as well as the goal setting forms and other additional templates in OASYS.

Our administrators and teachers distributed student surveys from the Stronge Teacher and Leader Evaluation Systems. Data was collected through the use of the appropriate Stronge surveys and was analyzed and summarized into a report submitted on OASYS. This survey is now used as a reflection tool for both teachers and administrators so

they are able to assess the needs and priorities of their various student and staff populations.

### **Needs Assessment Results: Identified Needs**

- Learning to use technology-based tools for gathering, examining, and interpreting data on the student achievement impacts of professional development training undertaken by teachers.
- Increased technology skills and increased integration of technology into the classroom.
- Increase administrator's modeling of effective technology practices/tools, such as electronic communication, weblogs, and multimedia presentations.
- Knowledge and use of a vast variety of instructional skills and strategies of teaching.
- Addressing the needs of exceptional students both gifted and special needs, ethnicity, race and gender.

The MCVSD is currently working to plan-out and provide professional development opportunities to fulfill the identified needs. Throughout the year, staff are encouraged to email the Staff Development Leader or Director of Technology with additional ideas or areas they wish to see addressed as part of our professional development offerings/support. Additional information will be provided as the district moves forward into using the process of the new SCIP Committee and how it will impact professional development.

### **Future Training Opportunities 2017 - 2020**

For the upcoming years, we have developed numerous professional development opportunities based on the data obtained as a result of our recent needs assessment on proficiency in the use of technology. In order to assist teachers and administrators in increasing their level of technological literacy, our professional development courses have been designed to meet the following three objectives:

- Courses that are used to bring the level of technological literacy to a **Beginner Level and beyond** stress **Micro Skills** - competencies that comprise technical literacy; they answer the question, "How does this work?"
- Courses that are used to bring the level of technological literacy to an **Intermediate Level and beyond** stress **Macro Skills** - applications that comprise contextual literacy; they answer the question, "Where can I use this?"
- Courses that are used to bring the level of technological literacy to the an **Advanced/Mastery level and beyond** stress **Mastery** - the process of inquiry that comprises transformational literacy; it seeks to answer the question, "How does use of technology transform teaching and learning in my classroom and in my life?"

Through our professional development days scheduled throughout the academic year, via internal resources, and with the assistance of outside providers, we offer courses targeted at these three goal levels of technological literacy (beginner, intermediate & advanced).



# Technology-Related Funding Plan

## Total Expenditures:

2017-2018	2018-2019	2019-2020
\$842,000*	\$842,000*	\$842,000*

\* Projected funding amount.

The amounts above represent technologies such as hardware, communications access fees, software, support & maintenance expenditure, professional development, digital curricula, subscriptions to online courses, and other educational technology tools used to support our district's goals.

## Funding Plan: Supporting Information

The Monmouth County Vocational School District has demonstrated a commitment to securing the supporting resources to ensure successful and effective uses of technology.

In order to promote effective use of these educational tools, professional development support will be required from both MCVSD staff and other providers. Through the cooperation of the local education association, the District has been able to add professional development days to the annual school calendar. The District's Technology Group and our Staff Development Leader closely monitor activities on these days for their usefulness.

Using the funding sources as above, the documented increase of Internet access speeds will also continue throughout the district. Adoption of online curricula and digital textbooks in support of our subject areas will continue as well as increased expansion of secure wireless technologies for student/staff/administrative support. The concept of fewer "computer labs" and more mobile computer use in the classroom will be further implemented throughout this technology plan period. The district is currently reviewing all digital curricula to determine NIMAS compliance prior to purchase, in order to meet accessibility needs.

The District uses Carl Perkins funds (both State and Federal), IDEA funds, in addition to other competitive and entitlement grants and a local commitment from the Board of Chosen Freeholders to bond money annually to keep the District's equipment up to date and to increase the opportunities for student access to technology.

The same resources are used to equip teachers with the technology needed to meet classroom technology goals. In addition, a staff development coordinator is funded through local operating funds to assist the locally funded technology staff in securing training for teachers to integrate technology into the curriculum. The additional professional development days referenced above will be used to prepare curriculum to meet this goal.

# Evaluation Plan

The Monmouth County Vocational School District (MCVSD) Technology Committee and the MCVSD Local Professional Development Committee are composed of a variety of staff members from across the county. These leaders, under the direction of the MCVSD Superintendent are charged with creating and updating a technology plan that harnesses the strengths and foresight envisioned for the vocational school district. These committees serve as the conduit to encourage all members to participate in a comprehensive plan that brings information and technology into all classrooms throughout the district.

Feedback on the Technology Plan will utilize our district's weblog tools to promote the plan, and seek community feedback on any changes and revisions. Assessment of this plan is a critical step in maintaining a thorough implementation throughout the district. The plan will be examined to determine the extent to which the technology resources promote the teaching/learning process in the Monmouth County Vocational School District. The evaluation will monitor, on a yearly basis, the following areas related to the plan:

- Facilities
- Equipment (Including Upgrades & Obsolescence)
- Software
- Wiring & Access Fees
- Maintenance & Support
- Professional Development
- Funding Sources

The information collected from periodic surveys will be used to update this plan and keep the committee informed of continual progress by assessing the following:

1. The current status of each area as related to the timelines in the plan.
2. The extent to which goals, objectives, activities, resources and services are effective in integrating technology into curricula and instruction, enabling students to meet challenging state academic standards, and developing life-long learning skills.
3. Student performance before-program implementation compared against after-program implementation.