

# Tri-County Regional Vocational Technical School District



## Local Technology Plan

FY 2012 - 2014

## Introduction

The primary objectives of the Tri-County Regional Vocational Technical School District Local Technology Plan include five key criteria as outlined below.

- I. The plan will establish *clear goals* and a realistic strategy for using telecommunications and information technology to improve education.
- II. The plan will have a *professional development* strategy to ensure that the district staff members are properly prepared to engage these new technologies in order to improve the educational process.
- III. The plan will include *an assessment* of the telecommunications services, hardware, and software that will be required to improve the educational process.
- IV. The plan will delineate a *technology budget* to acquire and support the non-discounted elements of the plan. These elements may include hardware, software, professional development, and additional third party services.
- V. The plan will include an *evaluation process* that will allow the district to monitor progress toward the defined goals of the plan. This evaluation process will enable mid-course corrections in response to new developments and opportunities as they may arise during the life of the technology plan.

Every school district must have a long-range strategic technology plan approved by the Department of Elementary and Secondary Education in order to be eligible for E-Rate discounts and federal and state technology grants. Each school district is required to develop a 3- to 5-year plan, which should be kept on file locally. Each year, as part of the technology plan approval process, the Department asks districts to report on the progress they have made in implementing their plans through the Department's security portal. The Department reviews this data, along with the district's long-range plan, to approve the district's plan. To facilitate this process, the Department asks the district to post its long-range plan on its web site or to email a copy of the plan to the Department.

These guidelines are based on the School Technology and Readiness (STaR) Chart developed by the state's Educational Technology Advisory Council (ETAC). Using the STaR Chart, along with advice from stakeholders across the Commonwealth, the Department has developed this new set of guidelines for schools to use in technology planning. These guidelines are not mandated but rather recommended benchmarks for districts to meet by the end of the school year 2014- 2015. The Department will use these guidelines to gauge the progress of districts' implementation in order to approve their technology plans annually.

## Part I: Vision, Mission, and Goals

### Vision

The teachers and administrators of the Tri-County Regional Vocational Technical School District are committed to a future in which high standards and expectations are set for all students. To that end, we integrate technology throughout the system to improve student learning and system efficiency.

Information and communication technologies are essential tools for the process of constantly improving our curriculum, instructional practices and assessment methods. Through the effective integration of technology, our schools will be able to:

- Provide learning experiences which are active, personalized and involve team work
- Involve students' higher level thinking skills
- Focus students on solving real life problems
- Increase student interaction with people from other parts of the world
- Approach learning in ways that use information technology ethically and appropriately

The Tri-County Regional Vocational Technical School District believes the contemporary classroom will be a place where technology is integrated into all aspects of curriculum, instruction, and assessment. Additionally, the vision embraces administrative tasks which will be managed electronically so the school community can access appropriate student and school information online.

The Tri-County Regional Vocational Technical School District also commits to providing student access to teaching professionals who are well prepared and a school equipped with appropriate instructional resources in every learning environment. As our students move through their school experiences, they will have the training and background necessary to become skilled, productive members of a global workforce.

To support this vision, staff development training in technology will be systemic, ongoing, and supported by modeling and peer coaching.

The community, staff, parents, institutions of higher learning, and businesses will work as partners in the process of teaching our students and staff. District stakeholders will understand, support, and appreciate the role of technology in educational settings.

Integrating technology into every subject area across the curriculum and throughout every grade level and managing school data electronically, requires that district personnel be open to the expanding possibilities of technology and willing to make the changes necessary.

## **Mission**

It is the mission of the Tri-County Regional Vocational Technical School District to provide technology that supports the educational and administrative requirements of its students and staff. Technology resources will be continually maintained so that they may be effectively used as a tool to improve the educational process.

## **Goals**

Based on the recommendations of the STaR Chart and advice from technology leaders across the Commonwealth, the Department has developed a new set of guidelines for schools to use in technology planning. These guidelines represent recommended goals for districts to meet during the FY 2011-2015 school years. The Tri-County Regional Vocational Technical School District Technology Plan strives to merge these recommended technology benchmarks with the unique needs and goals of our own district.

The Benchmarks or “Guidelines” are divided into the following categories:

1. Commitment to a Clear Vision and Implementation Strategies
2. Technology Integration and Literacy
3. Technology Professional Development
4. Accessibility of Technology
5. Virtual Learning and Communications
6. Safety, Security, and Data Retention

Objectives for meeting these goals include:

- Improving the design of the instructional setting to support flexible scheduling of labs, and media centers, and use by students for cooperative projects in their own classroom.
- Increasing the number of students who show proficiency in all MA Instructional Technology Standards.
- Increasing the number of teachers who use technology for research, lesson planning, multimedia and graphical presentations and simulations, and share technology uses with colleagues.
- Providing a variety of professional development opportunities in technology that directly tie technology to its use in content areas and how to effectively manage it in the classroom
- Coordinating training opportunities with High Schools that Work Professional Development Committee and continuing to provide a variety of training which

- Providing all teachers with access to a fully functioning, internet connected, A/B type computer in their classroom
- Evaluating the level of technical support provided for our students and staff
- Ensuring that teachers and students will use technology as an integral part of classroom learning
- Staying abreast of technology advances in hardware and software
- Establishing avenues of communication for sharing both information and ideas and supporting the application and integration of technology into the curriculum at every grade level
- Incorporating technology into the assessment and reporting of student progress

## **Part II: Professional Development**

We will strive to achieve the DESE goal which states that by the end of the school year 2013-2014, at least 90% of district staff will have participated in 45 hours of high-quality technology professional development covering technology skills and the integration of technology into instruction. Professional development activities directed toward the growth of technology skills have been provided by the district in the past and efforts will be ongoing. Past activities have included instruction in the use of the student information system, use of the Teacher Portal on our web site to obtain documentation in the use of various tools, and the use of the MassONE web site. Future activities will include additional instruction in these areas as well as new instruction in the integration of technology into the instructional delivery system. One example of this would be the use of Smart Boards to create interactive lessons that are visually stimulating and cognitively engaging. Another example would be the use of test creation and analysis software that aligns classroom assessment to state standards in order to inform current instruction practices.

Technology professional development will be sustained and ongoing and will include coaching, modeling best practices, and district-based mentoring. The professional development will include concepts of universal design and scientifically based researched models. The district will continue to pursue this goal as it has in the past, by providing a well organized mentoring plan, promoting the sharing of knowledge among the staff through the use of collaboration tools, and introduction of assistive technologies.

Professional development planning will include an assessment of district and teachers' needs. The assessment will be based on the competencies listed in the Massachusetts Technology Self-Assessment Tool, in addition to the district specific competencies that teachers require to perform their administrative duties.

## Part III: Assessment of Technology Requirements

In order to support the vision for integration of technology into the educational delivery system, the Tri-County Regional Vocational Technical School District has determined that the following telecommunication services, hardware, software, and other third party services are essential.

1. Telecommunication Services:
  - 1.1. WAN services that provide a link between our school and the Internet that maintain both high throughput and high availability.
  - 1.2. Local and long distance telephone services that provide voice communication between our school and the families of our students, and also between our school and our business partners in the surrounding communities.
2. LAN Infrastructure:
  - 2.1. Network cabling that provides a conduit for data transmission throughout the building.
  - 2.2. Network switches that act as both intersection and aggregation points for data transmission. The LAN Core/Distribution layer runs at 1 gigabit per second rate while the LAN Access Layer runs at 100/1000 Megabits per second rates to the desktop.
  - 2.3. Wireless access points, located where appropriate to provide mobile computing, are running the 802.11n protocol at up to 300 megabits per second.
3. Desktop Computers:
  - 3.1. Windows PCs that serve as platforms for administrative data management applications such as email, accounting, word processing, interaction with the student information system, preparation of lesson plans, and maintenance of electronically entered grading.
  - 3.2. Windows PCs that serve as platforms for student computer labs, providing access to the internet for research, Microsoft Office applications for composition of reports and presentations as well as various web based curriculum.
  - 3.3. Windows PCs that serve as platforms for specialized applications in various vocational and technical career programs as well as providing basic office application support.
  - 3.4. Macintosh computers for the Graphic Communication Program that serve as platforms for specialized design and pre-press applications.
4. Printing and Copying Devices:
  - 4.1. Desktop printers that provide a color, low volume, printing solution for staff members.
  - 4.2. Network laser printers that provide a monochrome, high volume, printing solution for multi-user environments such as computer labs.
  - 4.3. Network attached copy machines and high volume risograph copiers that reproduce documents for distribution to staff, students, and parents.
5. Audio / Visual / Presentation:
  - 5.1. LCD projection devices that enable the delivery of multi-media content to a target audience such as a classroom full of students, an auditorium full of staff members, or auditorium full of parents.
  - 5.2. Interactive white boards that serve to actively engage students in the lesson via a rich, multi-media experience.

6. Core Network Management:
  - 6.1. Directory Services that provide centralized management of user and computer accounts through authentication, authorization, and accounting.
  - 6.2. Network File Services that allocate network share points to teachers and staff enabling collaboration as well as providing a resilient location to save important documents such as custom lesson plans.
  - 6.3. Local DNS servers that provide host to IP address resolution in order to improve performance of local systems during sessions that require internet access.
  - 6.4. Network based backup solution that protects the school's mission critical information systems against data loss in the event of hardware or software based failures.
7. Network Security:
  - 7.1. WAN facing Firewall to insulate the internal network from internet based threats. This unit also performs internal routing and network address translation functions.
  - 7.2. Network based Anti-Virus solution that automatically receives updated definitions and "Pushes" these definitions out to client PCs over the LAN infrastructure.
  - 7.3. Email Gateway that scans incoming mail for malicious content such as viruses and worms.
  - 7.4. Email Anti-Spam solution to mitigate the overwhelming volume of Spam contained in contemporary internet based message systems.
  - 7.5. Internet Content Filter that ensures CIPA compliance and protection against objectionable web based content. Appliance based product is locally tunable.
  - 7.6. Protocol Based Packet Filter that enables control of bandwidth intensive applications that are counter-productive to an educational setting.
8. Information Systems:
  - 8.1. Web based Student Information System that provides a repository of student related data, scheduling functionality, reporting capability, and flexibility in terms of customization.
  - 8.2. Web based Special Education Management System that is accessible to any Internet connected browser enabling staff to work from anywhere there is internet connectivity.
  - 8.3. Web based Competency Tracking System for data collection and reporting that focuses on the attainment of vocational-technical competencies.
  - 8.4. Web based Faculty Intranet that provides staff members access to school related documents and policies such as the Faculty Handbook, Student Handbook, and other support information.
  - 8.5. Client-Server based Financial and Human Resource Information System that enables Business Office staff to manage financial and personnel information.
  - 8.6. Web based Career Exploration and Planning System that provides students with around the clock access to interest inventory analysis and career planning guidance that is consistent across multiple sessions.
  - 8.7. Web based Email solution that provides accessibility from any Internet connected browser, enabling faculty and staff to communicate from anywhere there is internet connectivity.
  - 8.8. Local Web server to provide a presence for our school on the World Wide Web. This web site acts as a conduit for information delivery to parents, students, and the community at large. In addition to providing information related to school events and schedules.
  - 8.9. Client-Server based Telephony for delivery of voice mail to staff desktops, allowing staff members to manage voice data from the convenience of their PC.

## Milestones Achieved by Fiscal Year End 2011.

Reference Points are taken from Part III of the Technology Plan.

<b>1. Telecommunication Services</b>	
1.1	WAN services are provided by Comcast Ethernet Dedicated Internet at 50 mbps
1.2	Local and long distance phone services at in place.
<b>2. LAN Infrastructure</b>	
2.1	The Access Layer of the LAN has been completely wired with category 5/6 UTP cable, running from the Intermediate Distribution Facilities to the desktop.
2.2	The Core layer of the LAN is running at 1000Mbs and horizontal cabling between the Main Distribution Facility and the Intermediate Distribution Facilities category 6 UTP, creating a “Gigabit” backbone.
2.3	9 wireless access points are installed to date in the Library, Conference Room, Auditorium, the Senior Project Room, the North Wing, and the South Wing.
<b>3. Desktop Computers</b>	
3.1	All administrative personnel and teaching staff have a dedicated PC workstation.
3.2	There are five general purpose labs that are equipped with 24 workstations each.
3.3	Vocational – Technical Programs that require dedicated workstations have been identified and PCs have been allocated to those programs. Examples of this are: Computer Information Systems, Electronics Technology, Business Technology, Engineering, and the Computer Aided Design lab.
3.4	The Graphic Communications Program has been allocated approximately 30 Macintosh workstations which are a combination of iMac and PowerMac models.
<b>4. Printing and Copy Devices</b>	
4.1	Desktop inkjet printers have been allocated to all teachers and selected administrative personnel, enabling low volume and color printing tasks.
4.2	Network laser printers have been installed where appropriate and include the administrative office spaces and student computer labs where there is a need for high volume printing.
4.3	Standard copy machines and high volume risograph copiers have been installed in the administrative office spaces and also in a teacher accessible copy room.
<b>5. Audio / Visual / Presentation</b>	
5.1	LCD projection units have been placed in the Auditorium, the Senior Project Room, the Business Technology labs, the Graphic Communications lab, the Main Conference Room and additional units may be signed out of the Library as needed.
5.2	Interactive white boards have been installed in over 40 class rooms and shops.
<b>6. Core Network Management</b>	
6.1	Directory Services being provided as required by our Assessment in Part III.
6.2	Network File Services being provided as required by our Assessment in Part III.
6.3	Local DNS Services being provided as required by our Assessment in Part III.
6.4	Network Based Backup Services being provided as required by our Assessment in Part III, and include a combination of RAID 5 disk storage and LTO-2 tape, combining to form a redundant and tiered solution. Offsite backup is included.

<b>7. Network Security</b>	
7.1	A WAN facing Firewall is in place as required by our Assessment in Part III.
7.2	Network Anti-Virus Services are being provided as required by our Assessment in Part III.
7.3	An Email Gateway is in place as required by our Assessment in Part III.
7.4	An Email Anti-Spam system is in place as required by our Assessment in Part III.
7.5	Internet Content Filtering is being provided as required by our Assessment in Part III. This system uses subscription base service that is updated at regular intervals.
7.6	Protocol Based Filtering is being provided as required by our Assessment in Part III. This system uses subscription base service that is updated at regular intervals.
<b>8. Information Systems</b>	
8.1	A web-based Student Information System is currently in place and provides flexible access from any location. Teachers can update their electronic grade books from home during period of peak load. A feature enabling parents to access their students' grading and attendance records have been in place since 2006. Built-in reporting functionality enables data driven decision making capability.
8.2	A web-based Special Education Management System is currently in place and provides flexible access from any location. Special Education staff can work after hours from home during periods of peak load. Built-in reporting functionality enables data driven decision making capability.
8.3	A web-based Competency Tracking System is currently in place and provides flexible access from any location. Teachers can update their electronic grade books from home during period of peak load. Built-in reporting functionality enables data driven decision making capability.
8.4	A web-based Faculty Intranet is currently in place and provides flexible access from any location. Support content is periodically reviewed and updated.
8.5	The Financial and Human Resource Management System is now hosted and managed internally. Administrators and department facilitators can now generate requisitions electronically and they are automatically queued for approval.
8.6	A web-based, Career Planning and Exploration System, is currently in place and provides flexible access from any location. Students can create an "Electronic Portfolio" that can be reviewed and updated from home as well as in school.
8.7	A web-based Email System is currently in place and provides flexible access from any location. Staff members have around-the-clock access to their accounts. Staff email addresses are listed on the District Web Site and are readily accessible to parents and students in order to promote effective communication between the home and the school.
8.8	A District Web Site has been published to the web and content is frequently updated to provide timely communication regarding upcoming events. There are many links of interest to parents, students, and staff, including links to academic and vocational-technical programs, athletic programs, bus routes, lunch menus, policy handbooks, and guidance information.
8.9	A Client-Server based telephony solution is currently in place that allows voice data to be delivered directly to staff workstations, enabling more efficient management of voice messaging retrieval, forwarding, and archiving.

## Technology Goals FY 2012 - 2014

### Instructional Technology in Class Rooms: (ongoing)

We will continue to install ceiling mounted LCD projectors with wall mounted Smart Boards, amplified audio systems and wall controllers. We purchase additional student response systems, document cameras, and software when possible.

### Your Plan for College:

We will expand student participation in the DESE college and career planning portal to include all students.

### Vertical SIF Integration:

We will complete our vertical school interoperability framework (SIF) integration project with the DESE, allowing a more seamless exchange of data required for state mandated reporting.

### Edge Router Upgrade:

We will upgrade our Internet edge router with a new, higher capacity model that will improve throughput and accommodate future increases in Internet bandwidth.

### Email Gateway Upgrade:

We will upgrade our existing email gateway in an effort to continue to provide spam and virus free email messaging services to our staff.

### Wireless LAN Access: (ongoing)

As we continue to evaluate the feasibility of various “one to one” and “bring your own device” initiatives, we acknowledge that these types of projects represent a large corresponding increase in wireless network traffic. Therefore, any effort in this regard will require substantial upgrades to our existing wireless LAN infrastructure.

### Network Services: (ongoing)

We will continue to maintain our existing system architecture through upgrade and security patch management. Examples of these services would include email, anti-spam, anti-virus, our website, server backup, and the financial and student information systems.

#### Engineering Computer Lab:

We will relocate the Engineering program to the center core and south wing labs. This move will include the purchase of 20 new Dell T-3500 workstations with 19 inch wide screen displays. Software will in the Autodesk Design Academy suite.

#### Computer Upgrades: (ongoing)

We will continue to upgrade our existing workstations by adding memory when required as well as patching or upgrading software when necessary.

#### Staff Professional Development Activities (ongoing)

Professional development will continue to be offered in both formal and informal settings. Training will vary in purpose, but will typically fall into one of two general categories, either the use of technology for administrative purposes, or the use of technology for educational delivery. With regard to the administrative use, topics will include school email, network file sharing, use of the MassOne site offered by the Department of Elementary and Secondary Education, document preparation, and recording and analysis of student assessment data. With regard to educational use, topics will include the use of Assistive Technology such as the Kurzweil System, use of Multi-Media presentation stations, and interactive white board use. We will continue to use a variety of assessment instruments to ascertain the technology proficiency of our staff, including the Department of Elementary and Secondary Education Technology Self Assessment Tool (TSAT).

The continuous improvement of the Department of Elementary and Secondary Education, MassONE portal for educators and students has made the site an attractive venue for curriculum research and lesson plan development. The utility of this site enables the online storage and transfer of documents between teachers and students, as well as providing the opportunity to participate in teacher facilitated, online educational forums. It is our intent to continue to develop the skills of our teachers and students with regard to the use of this web based portal so that they may further exploit the opportunities that is provides.

## Part IV: Budget

### Technology Budget Fiscal Year 2012

BudgetSense Financial System	\$10,000.00
Building Technology	\$26,000.00
Technical Maintenance and Service	\$65,000.00
Instructional Technology	\$15,000.00
Internet Service	\$28,000.00
Instructional Software	\$3,000.00
Technology Staffing	\$220,000.00
Total	\$367,000.00

### Technology Budget Fiscal Year 2013

BudgetSense Financial System	\$10,000.00
Building Technology	\$26,000.00
Technical Maintenance and Service	\$65,000.00
Instructional Technology	\$15,000.00
Internet Service	\$28,000.00
Instructional Software	\$3,000.00
Technology Staffing	\$220,000.00
Total	\$367,000.00

### Projected Technology Budget Fiscal Year 2014

BudgetSense Financial System	\$10,000.00
Building Technology	\$26,000.00
Technical Maintenance and Service	\$65,000.00
Instructional Technology	\$15,000.00
Internet Service	\$28,000.00
Instructional Software	\$3,000.00
Technology Staffing	\$220,000.00
Total	\$367,000.00

## **Part V: Evaluation Process**

The current mechanism in place for evaluating the Tri-County Regional Vocational Technical School District's progress toward the attainment of previously defined goals relies on review by internal stakeholders that include Administration and Faculty, and external stakeholders such as the Technology Sub-Committee of our local School Committee, the School Council, and the Program Advisory Committee. In the case of the former two parties, the process is ongoing throughout the year, allowing the district to respond to the potential opportunities brought about by the constantly evolving nature of educational technology. In the case of the latter parties, their involvement is typically annual in nature, but can be more frequent should their members have questions or concerns.