Master Technology Plan 2014-2016

District plan for Information Technology and Instructional Support

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CONTENTS

District Mission Statement

Dorchester School District Two: Leading the way, Every Learner, Everyday, with Rigor, Relevance, and Relationships

Dorchester School District Two believes in the power and capabilities of digital technology when truly integrated and aligned with quality curriculum and backed by knowledgeable, dedicated teaching. Technology by itself will not create better education, but is a powerful tool for enabling the 21st century learning environment that will allow all students to reach their full potential.

Curriculum & Instructional Technology Goals

GOALS:

Maintain existing current technology per the master technology plan.

- District allocated hardware refresh cycles
  - Server
  - Computer labs Middle/High School
  - Computer labs Elementary
  - Laptops
  - Desktops
  - Projectors
  - SMART Interactive Boards
  - Mobile devices
  - Phones
  - Public Announcement Systems
  - Security/Monitoring Cameras
  - Evaluate technology needs/cost as they apply to refresh cycles and upgrades
  - Core operational software updates:
  - Update student information system
  - Facilitate updates to integrated financial/ human resources management software
  - Other operational software platforms
  - Microsoft licensing
  - Sophos virus protection
  - Cisco services
  - Lightspeed web filtering
  - Upgrade public internet bandwidth to 800mbps
  - Upgrade internal bandwidth (metro-e) from 500mbps to 5 GB - 5 GB to 10 GB
  - Replace/Upgrade Cisco edge switches at each school to a Cisco 3550 or better.
  - Server operating systems current within two-three years of latest version.
  - Email upgrade server software
  - Investigate and implement best practices and usage accountability for electronic communication
  - Core instructional software installation and updates

Upgrade wireless and infrastructure to support one-to-one student computing at all schools.

- Investigate and pilot Bring Your Own Device
- Student provided devices authorized and compliant with District agreement usage police (AUP)
- Implement Bring Your Own Device (BYOD)
- Investigate/implement a pilot of District provided devices
- Investigate and implement privately owned bandwidth
- Investigate and purchase a network access control (NAC) system
- Student logon access
- Investigate and purchase a mobile device management (MDM)system
- Adding more enterprise wireless access points

Monitor and update the student and staff Agreement Usage Policy (AUP).

- All students and teachers will receive annual Children's Internet Protection Act (CIPA) online safety training.
- Digital Citizenship

Deploy a tiered service ticket plan to allow for prioritization of issues.

- Restructure informational technology department
- Investigate an alternative help desk/ticket system
- Provide mobile device training to district technicians
- Hire additional technicians as necessary based on restructuring and need

Provide online and traditional professional development web portal to support 21st Century instruction.

- Provide professional development and training for technology staff
- Provide professional development and training for all instructional staff
- Utilize staff development days for integrated instructional technological focus
- Facilitate an annual Instructional Technology Institute showcasing best practices integrating technology into educational environments

Deploy a hardware/software acquisition process.

Continue to expand the blended learning program to provide students with alternative opportunities to complete courses.

- Explore/utilize a Learning Management System (LMS) that will support blended learning programs
- Explore/utilize emerging online learning systems

Continue to support a data provisioning system that incorporates all necessary connections between critical instructional and operational applications.

- Instructional/Operational Connectors
- HR/Finance to Active Directory Connector
- Student Information System to Active Directory student management login

- Evaluate software programs for future inclusion

Upgrade and explore alternatives to the current IPTV/video delivery services infrastructure.

- Explore emerging cloud based technologies or expand VBrick technology to all schools
- Upgrade the IPTV system
- Purchase and implement an online video conferencing program

Support existing instructional and operational technologies in the district.

Create and facilitate a technology fair showcasing student and teacher technology achievements at each level.

Support district longitudinal data repository (data warehouse).

Increase the use of technology in visual and performing arts.

- Update Finale software at middle and high schools for cataloging instruments and music library
- Provide additional technology hardware for visual art instruction

Evaluate technology programs annually and propose changes for public review.

Assessment of Current Environment

General Information

Dorchester School District Two has made a concerted effort to ensure a computer less than three years old is available in every classroom in the district. The district has mounted projectors and speakers in almost every classroom ceiling to facilitate technology integration into the curriculum. To increase student involvement with instructional technology elementary, middle and high schools have mounted interactive white boards in every classroom. In addition, the district has constructed and equipped computer labs at every school.

Cabling

The cabling in use for all LAN connections is Category 5 Unshielded Twisted Pair (UTP) wiring and adheres to the EIA/TIA 568 "B" standards for termination. Each classroom currently has five data cabling drops for use by the teacher and student workstations.

Local Area Networks (LAN)

Dorchester School District Two currently has a local area network in each school. The network is fully switched operating at 100Mbps (Megabits per second) with a gigabit backbone between wiring closets. All installed switches are fully manageable and provide greater flexibility in the overall network design.

Wide Area Network (WAN)

The Wide Area Network (WAN) utilizes Metro-Ethernet service provided by BellSouth and is made up of 100Mbps (burst) circuits at each elementary school and 1000Mbps (burst) at each middle and high school. All sites communicate over this service to the Technology Data Center for email, Internet access, and centralized SASI database backup and administration.

Desktops, Desktop Operating Systems, and Productivity Tools

The personal computers in use are Intel and AMD with varying ranges in processor speeds. The district has standardized on the Microsoft Windows operating system and the Microsoft Office Suite for desktop productivity tools.

Each school has at least four computer labs consisting of between 25 and 40 computers each for students to use in conjunction with the classroom work. Each classroom has on average one computer at the teacher's work area for use by the teacher. Some of the schools in the district have implemented a mobile technology center equipped with wireless connective and student laptops. This allows for teachers to bring the lab to the students rather than take the students to the lab.

Software utilized by the district is standardize. The district ensures that grade records, student information, data warehouse, email, Internet access, and basic productivity software (such as word processing software) is available

at every applicable computer. Each school or teacher is responsible for maintaining unique locally installed software specific to the needs of the teacher or class.

Servers, Network Operating Systems, and Applications

The present network infrastructure is adequate to meet today's needs, however the district recognizes that future utilization will place additional burdens on the present voice/data connectivity exchanges. To accommodate these increases, the district has migrated to a directory structure that will provide better efficiency in managing the user database. Dorchester School District Two has fully implemented Active Directory. The district has installed a Storage Area Network (SAN) at the Technology Data Center equipped with 15 Hewlett Packard Blade Servers. In addition, the SAN will replace most of the servers currently installed in each school. The SAN is currently configured with 17 terabytes of storage. A consolidation of servers is underway. The district's library management software has been converted to an Enterprise version; thus moving 21 libraries onto one server. The district will continue to evaluate and pursue the most cost effective means to achieve district technology goals without sacrificing performance or stability.

District Email Services

The district has one Microsoft Exchange 2010 Server that provides district wide electronic mail services. The district provides email, scheduling and calendaring services in addition to SMTP gateway services to the internet. Currently maintaining over 3,800 email accounts throughout the district encompassing clerical, certificated, and administrative accounts, Microsoft Outlook 2010 is the principal email application used within the district.

Voice over IP

In the spring of 2005 we conducted a pilot VoIP project within Summerville High School. The district used this pilot to train our staff on how the technology operated, gain some real world experience with the deployment, administration and support of VoIP. This pilot was used as a basis for the setting of a District standard VoIP. Since the fall of 2007 the district opened four new schools with 100% VoIP. The current installation of VoIP in the District encompasses 820 handsets. We have deployed 4 Call Managers for redundancy in the District. The entire system runs over our fiber network. We are currently standardized on the Cisco Call Manager and Unity products. Call Manager handles all phone calls wile Unity moves voicemail into the users email inbox. We will be testing a new system form Microsoft in the coming year that may replace these Cisco products while providing enhanced functionality and interoperability with our email system.

Wireless Communication

The district hosts a Blackberry Enterprise Server to push email from our Exchange email system out to staff members using Verizon Blackberry devices. There are currently 120 users in this system. The district has approximately 1025 wireless (802.11n) access points, mostly deployed throughout the 22 schools and district administrative offices. Included in this wireless initiative are plans for a robust wireless network to support the influx of mobile devices. There have been recent developments in wireless technologies that will necessitate a

reevaluation of this technology in the next several years. Any future wireless deployment of wireless networking will be based on a unified solution using lightweight access points and centrally managed devices for intelligent management of the wireless network layer.

Bring your Own Device (BYOD) / 1:1 Initiatives

The district will continue to explore the idea of planning and building a robust wireless network infrastructure, addressing security concerns along with creating an acceptable-use policy that will support a BYOD or 1:1 initiative. BYOD programs should reflect best practices that recognize and embrace the inevitability of usage, yet offer "built-in" flexibility and adaptability because those best practices are emerging and changing as quickly as the mobile devices themselves. To successfully embrace BYOD or 1:1 initiative, the district will continue to evaluate the environment, budget a BYOD pilot program, prepare the infrastructure for participation, education teachers, students, IT staff, and develop a plan to properly maintain the environment.

Internet and Filtering

The district currently has a 300mb dedicated internet access (DIA) connection to the State backbone for access to the Internet. This connection is utilized by all schools and district personnel for external web applications, and Internet searches. The district has installed a Cisco ASA 5525 (Adaptive Security Appliances) firewall for Internet security, a Barracuda Spam & Virus Firewall 400 for protecting email infrastructures and users against spam, malware and fraud, Sophos Enterprise Virus Protection, as well as, Lightspeed System TTC (Total Traffic Control), URL filtering server for meeting the federal requirements for the Children's Internet Protection Act of 2000.

Training

The district has implemented a district wide professional development plan that incorporates ISTE Teacher Technology Standards and No Child Left Behind. Training is available to teachers throughout the year to enable them to learn more about technology and how to use the technology tools available to them at the district. This includes basic computer use, Powerschool training, productivity tool training, (such as word processing and spreadsheet products), email, interactive white board and curriculum integration training.

Contingencies and Recommendations

General Information

Dorchester School District Two's aims to enhance standards based curriculum through technology use across all content areas. The impact technology can have on curriculum has the potential to change how we teach. By using technology to enhance the teaching process, we can better meet the individual needs of all students.

The recommendations included in this technology plan, where applicable, have taken this strategy into account. Certain recommendations have multiple options. The preferred option that most closely fits with the strategy of

Dorchester School District Two may be cost prohibitive, hence alternatives are provided.

Throughout this technology plan, technology refers to any electronics and their prerequisite support structure used to support or aid teaching and learning. Examples of technology and prerequisite support structure would include:

- Personal Computers, the network equipment they are attached to, and the cabling that is used for this network attachment
- Instructional courseware (CD-ROMs, server based software and web base), the equipment necessary to run them, such as, servers and/or desktop PCs, and in the case of a server based application, the network electronics and cabling.

Lastly, no matter how well we plan, things change. Because of this, this plan will be reviewed on a regular basis to account for changes in district strategy and direction and/or due to the rapid developments and advances in technology. This plan will be reviewed annually at a minimum. This review serves to provide the following:

Progress analysis – what has been done and what is left to do?
Budget analysis – is the implementation of the plan falling within the budgeted funding?
Applicability analysis – is the plan still applicable as it relates to technology and to the districts direction?

STANDARDS

Setting standards are key to any endeavor. They are the set of rules to which all matters are measured. Whether dealing with technology, curriculum selection, business processes, etc. standards need to be adopted and enforced. In particular, as it relates to technology, without a good set of standards, capital improvements and investments may bear a high risk to long-term success. Throughout this technology plan are several recommended standards (cabling, PC and Server Hardware and Software, network connectivity, etc.) to which all product purchases, implementation services, and material selections will adhere.

CABLING

All current intra-building horizontal data cabling will adhere to the EIA/TIA 568 Commercial Building Telecommunications Cabling Standards. These standards, at a minimum, include the use of 4-Pair Category 5 Unshielded Twisted Pair Cabling (plenum rated per state guidelines) terminated on Category 5 patch panels and Category 5 jacks using the 568 B standard. All current cables will be tested and certified to ensure cable lengths and transmission properties meet those of the EIA/TIA 568 standards.

All future intra-building voice and data cabling will also adhere to the EIA/TIA 568 standards. In retrofit installations, as long as the current installed cabling meets the above standards, all new cabling, if similar materials are available, will maintain the same standard as the installed cabling (maintaining consistency throughout a facility simplifies issues such as troubleshooting and problem solving). In new construction, the materials chosen for installation will be, at a minimum, Category 5E, with the most current, high-end standard cable being Category 6 (the EIA/TIA standards will always be reviewed for updated information prior to any new construction).

All backbone cabling (cabling between closets that house the network electronics) will include fiber optic cabling and high count, multi-pair unshielded twisted pair cabling. The fiber will be used to connect data network switches and will have the following minimum characteristics: multi-strand (minimum 6-strand, recommended 12-strand), 62.5/125 micron, plenum rated. The multi-pair unshielded twisted pair cabling will be used to connect future classroom telephones (if traditional PBX or Key System telephone systems are used – if TCP/IP based phones are used, then the data network will carry the voice traffic). The pair count of the multi-pair cable will vary dependent upon the school layout and design. For voice applications, this cable can meet Category 3 specifications. It too will be plenum rated.

Network Infrastructure (Local Area Network (LAN))

All horizontal distribution connections that will support devices such as: desktop personal computers, networked printers, servers, etc. will support, at a minimum, 10/100 Mbps (Mega-bits per second) switched Ethernet. There may be times, in the future, that most servers may require switched 1000 Mbps (Gigabit Ethernet) connections (especially if a centralized model of computing can be deployed).

All intra-building backbone connectivity (i.e. connections between network equipment within closets and between closets) will consist of 1000 Mbps connections (Gigabit Ethernet). Connectivity of electronics within a closet will adhere to best design practices for the equipment chosen. Connectivity between closets will be, unless cost prohibitive, in a starred fashion utilizing six (minimum) to 12 (recommended) strand 62.5/125 multimode fiber to a central main closet (usually referred to as a Main Distribution Facility (MDF)). The electronics design, within the MDF, will include network equipment capable of providing switched, layer 3 (for routing TCP/IP protocol) Gigabit Ethernet function. All network equipment installed will support SNMP (Simple Network Management Protocol) for remote monitoring and management capabilities.

Other features and considerations for the network switches include:

- Inline power capabilities – may be required if networked based telephones or wireless infrastructure is implemented.
- VLAN and QoS – Virtual Local Area Network (VLAN) and Quality of Service (QoS) capabilities will be considered if networked based telephones or other time sensitive applications such as video are implemented on the data network.

School based wireless connectivity within a school will be evaluated for complete mobility capabilities. Current wireless technologies utilize the 802.11n standards that support shared bandwidth speeds up to 600 Mbps. Complete site based wireless coverage would provide for full roaming capabilities such as: wireless networked based telephones, mobile device use and access into administration applications, and widespread wireless notebook connectivity, to name a few.

Network Infrastructure (Wide Area Network (WAN))

High-speed intra-site connectivity is crucial for the long term deployment of content rich instruction, as well as, achieving any long term operational cost savings to deploying a more centralized computing model. Currently all sites have been connected via metro-ethernet connections. All elementary schools connect back to the Technology Data Center via a 100Mbps connection and all middle and high schools connect back to the Technology Data Center via a 1000Mbps connection. The Technology Data Center utilizes a 1000Mbps connection shared between all other sites.

PC Desktop Hardware

The placement and distribution of computers within a school (i.e. in the classroom and/or in labs) has a direct relationship to the instructional philosophy and curriculum plans being developed by the district. The district currently intends to implement an instructional strategy aimed at improving student achievement through technology integration into a standards based curriculum. Computers connected to a projector and displaying images on an interactive white board allows teachers to actively involve students with the learning process. Technology becomes more of a resource to enhance the students experience in the classroom. This allows for greater integration and utilization of the resources available through technology and the internet.

Several configuration options have been developed and can be implemented by Dorchester School District Two. Any of these options can be implemented at any school. Therefore, one option may be better suited for elementary schools while another for middle and high schools. One middle school may use one option and another middle school a different option. The justification for implementing one option over the other at a school may be logistical, financial, or practical. If it is determined that one option provides a better instructional environment than the other options, then the district will move towards standardizing that option across all schools.

Lab Options

As an alternative to adding more computers in the classroom, the district may choose to increase the number of lab computers that are available for students to use. From the data gathered for this technology plan, it is clearly evident that the teachers do not have adequate access to the existing computer labs located at the schools today. It is also clear that the availability of only one computer in the classroom severely limits, or in some cases, prohibits the integration of technology in the classroom.

There are three options for utilizing lab environments to increase the availability and utilization of computers as a part of the instructional process. These options assume the district is not financially prepared to deploy adequate numbers of desktop computers to every classroom in the district.

LAB OPTION 1

Dorchester School District Two will provide more lab space at each school to be used as a source for the use of technology as a part of the instructional process.

ADVANTAGES:

- **Utilization: Additional lab space will lead to more availability and better access to computers by the teachers, and should therefore lead to more use of technology in the instructional process.**

- **Cost: More teachers and students can utilize fewer computers than placing computers in the classroom, but still allows for integration of technology into the instructional environment.**

DISADVANTAGES:

- **Facilities: In most schools, the addition of lab space will mean the elimination of classroom space. This may not be an option in many of the schools in the district.**

LAB OPTION 2

Dorchester School District Two would provide a more effective process for scheduling the use of the existing labs in each school. From the data gathered for this technology plan, many teachers indicated that the labs are rarely available when they need to use them. In many cases, entire days or a series of days were reserved for one class or for only four or five students from a particular class, leaving a dozen or more lab computers unused during these times. More effective use of lab space and lab computers will be a key component in any solution selected by the district.

ADVANTAGES:

- Facilities: No new lab space will have to be created or acquired for this option.

- Cost: Same as Lab Option 1.

DISADVANTAGES:

- Perception. In Dorchester School District Two schools today the following perceptions exist:
  - Labs can only be used by certain students and/or,
  - Labs are never available when needed so why bother trying to schedule them and/or,
  - Only one class can use the lab at one time

These perceptions will need to be overcome if this option is to provide any benefit to the district.

Scheduling. The district will require a more flexible and better organized scheduling system to be implemented at each school for the use of computer lab facilities. With better scheduling and therefore, better access to computer labs, teachers will be more able to integrate technology into their instructional processes.

LAB OPTION 3

Mobile Laptop Carts. In this option, wireless laptops would be used in conjunction with mobile carts that could be moved from classroom to classroom. The lab comes to the classroom instead of the classroom having to go to the lab. This option slightly differs from the classroom option 3 in that wireless technology will strictly be utilized and the rolling carts would contain a full lab of laptops (one for every student).

ADVANTAGES:

- Computer Costs. While laptop computers are more expensive than desktop models, this option requires the Dorchester School District Two to purchase significantly fewer computers to service an entire school.

- Logistics. Many teachers may be reluctant to move their classroom to the computer labs due to the time involved in maneuvering many children around the school. In addition, some students, especially younger students, may be better suited to stay in one classroom for the entire day rather than changing classrooms or going to labs on a regular basis.

- Usability. From the data gathered as a part of this technology plan, many teachers have stated that computers in their classroom would be more conducive to the process of integrating technology into their instructional processes. In this option, the computers would be located in the teacher's classroom. They would not, however, be permanently located in any given classroom.

DISADVANTAGES:

- Scheduling. From the data gathered for this technology plan, it is clear that teachers would better utilize technology during their instructional processes if computers were more readily available to them. Scheduling the use of the carts would have to be closely monitored by each school and the district.

Based on the analysis performed within the district, a combination of all of the Lab options will be considered if desktops in the classroom are not viable. This will be accomplished in the following ways:

- First, when new schools are built or existing schools are remodeled, or in schools where additional space is already available, this space will be used to establish more or additional computer lab facilities.

- Second, whether new labs facilities are made available or not, the district and each school will take immediate action to make the existing computer lab space more readily available and more easily scheduled. In addition, the district will develop an aggressive program to assure teachers that the labs will be made available for their use.

- Third, the concept of a mobile wireless cart will be explored to enable computers to be available in the classroom without the expense of the purchase of thousands of new computers. In addition, the district will develop a program that ensures that these carts will be utilized and will be properly scheduled to make them readily available to the teachers when they are needed.

- Lastly, High Schools need more labs both wired and mobile.

PC Desktop and Notebook Hardware Minimum Standards

The following two lists set the minimum standards for PC desktop and notebook equipment to be purchased by the district. The cost of these systems will be used as the basis for all future purchases as technology advances (i.e. if the cost of the below desktop is $800.00, then the district will establish $800.00 as the basis for all future purchases and will buy as much PC as it can for this amount).

Desktop:

The current desktop standard includes the following features:

Intel® Xeon® E3-1290v2 (3.7 GHz, 8 MB cache, 4 cores) or better
4GB of RAM
500GB of disk
10/100/1000 Ethernet network adapter
1024 X 768 graphics capability (or better)
CDRW/DVD Combo Drive
Sound card integrated speaker
19" flat panel monitor
Optical Mouse
Keyboard
5-Years Parts and on-site labor
MS Windows 7 Professional SP 2
MS Office 2010 Professional

Notebook:

The current notebook standard includes the following features:

AMD A series A4-3310MX / 2.1 GHz (2.5 GHz) (Dual-Core) or better
4GB of RAM
320GB of disk
10/100 Ethernet PCMCIA network adapter/or integrated
1024 X 768 graphics capability (or better)
CDRW/DVD Combo Drive
Integrated sound and speakers
17" display (or better)
3-Years Parts and on-site labor
MS Windows 7 Professional SP2
MS Office 2010 Professional

Network Operating Systems Server

Dorchester School District Two has standardized on Microsoft Network Operating Systems (both Windows Enterprise Server 2003 and 2008). The district has invested in a Network Operating System that will allow implementation of a directory structure for manageability.

All costs associated with the operating system must be considered when evaluating Network Operating Systems. A directory is necessary for the district to move forward in the proper implementation of network operations.

The district will implement a process for maintaining and upgrading these operating systems. Most operating systems must be maintained on a regular basis due to the release of updates and program fixes. Some of these are critical updates, such as security and virus updates. Most updates are not critical and can be delayed for a short time period, but will be installed on a routine basis.

Additionally, upgrades to Network Operating Systems will be researched and considered as new business drivers require the additional features included in such upgrades or if the current Network Operating Systems become out of date or are no longer supported by the vendor.

Server Hardware Minimum Standards

The following list sets the minimum standard for server equipment to be purchased by the district. The cost of this system will be used as the basis for all future purchases as technology advances (i.e. if the cost of the below server is $5000.00, then the district will establish $5000.00 as the basis for all future purchases and will buy as much server hardware as it can for this amount).

Server Hardware:

The current server standard includes the following features:

AMD Opteron™ 6386SE (2.8GHz/16-core/16MB/140W TDP) Processor
16.0GB PC-3 RAM
Raid Level 5 Controller
Minimum 5 Disk drives (1 reserved as a hot swap spare)
Drive capacity will vary with software requirements
Minimum 300 GB SCSI with 10K RPM
10/100/1000 Ethernet network adapter
DVD-ROM
17" monitor
Mouse/Keyboard
Tape Backup unit when applicable
5-Years Parts and on-site labor
Microsoft Server 2008 R2 Enterprise

PC Productivity Tools

Microsoft Office 2010 is the desktop productivity tool currently utilized by Dorchester School District Two. This tool set includes Microsoft products such as Word, Excel, Access, and PowerPoint. This is the toolset of choice in today's environment and will remain so into the near future.

The district will monitor the versions of the Office products that are available on the market and upgrade these products only when business drivers require these upgrades. For example, if the district decides to upgrade their desktop operating systems to a newer version, the district will also upgrade the Office suite to a version compatible with and that takes advantage of the features available in the new operating system.

In addition, should Dorchester School District Two decide to move to a new version of the Office suite package, the district will do so across the entire district in as condensed of time frame as possible and practical. This will reduce the possibility of documents being created at one location or by one department that are incompatible with the software installed on other district computers.

Dorchester School District Two will monitor license agreements to ensure they maintain current licenses. The district will ensure license counts match the software installed throughout the district. The district will actively investigate license agreements that reduce the costs of purchasing new software or additional copies of existing software, such as "site licenses" and "Microsoft Enrollment for Education Solutions (EES licensing) that are readily available from most software vendors.

Electronic Mail

Dorchester School District Two has implemented a district-wide email system that all staff personnel and all teachers can access. This system consists of an email service running Microsoft Exchange Server 2010 and desktop clients running Microsoft Outlook 2010. These two products working together form a well-established and globally accepted email system.

The email system is currently designed to enable internal and external (Internet) email functionality. These two capabilities are critical processes and will be monitored on a real-time basis to ensure availability and reliability of the system.

Another feature of the email system is remote email access. The district has implemented a web access feature of this email system to provide access from locations outside of the district network. This has been successful and the district will continue to provide this feature.

To assist in decreasing the amount of network traffic and undesirable email within the system, the district has implemented a spam firewall (Barracuda Networks). The benefits of this system in providing a more reliable email system require that his remain in place unless it is determined to no longer be a benefit. Currently it assists in protecting the district from email virus activity as well as undesired email to staff.

INTERNET

Depending upon the technologies deployed across the district's wide area network, whether in whole or in part, the district's Internet connection may require an increase in speed performance to support the increase speeds of the district's new wide area network. This connection will require collaboration with and support from the State.

Additionally, the district has implemented a Cisco ASA 5525 (Adaptive Security Appliances) with firewall for Internet security, as well as, LightSpeed System TTC (Total Traffic Control), URL filtering server. This is a viable solution for these functions and will continue as is. The district will consider enhancing access through this security interface from the Internet for remote access to the district's resources, in particular, electronic mail. This remote access solution would give district staff and faculty access to the district email system either while traveling or from home. Enhanced security for permitting this function, if desired and if cost effective, could be accomplished by introducing a VPN (virtual private network) solution integrated with the ASA firewall. Using this type of setup minimizes the management of multiple user id/password combinations that users and district staff need to manage.

INTRANET

Dorchester School District Two has implemented an Intranet (Microsoft SharePoint Services is housed at the district technology center which may, for example, be configured by school level, grade level or by subject) for enhancing district communications and fostering collaboration amongst faculty and staff. The Intranet site effectively trains staff throughout the district accordingly, has become the first site researched by teachers for technology-based curriculum developed within the district. The idea is to promote the sharing of ideas and teacher developed training aids and tools across all schools. Finding curriculum-enriched content that has already been developed to take advantage of technology is still the biggest challenge for the successful integration of technology in the classroom. The district will encourage those teachers, who have the skill and are creative in developing content based around the district's curriculum standards, to post their works on the district's internal web site for sharing.

This site will also contain such information as the district's professional development plan. Course offerings, their descriptions, their prerequisite skills, etc. are just a few examples of the information that could be posted under this topic.

Lastly, this site could also be the source where continued data could be collected from staff and teachers (either through online surveys or an online suggestion box) as an assessment of their current skills and future technology related suggestions and requirements.

TELEPHONY

Dorchester School District Two will consider placing a telephone in every classroom throughout the district. This by far, based on the survey results, would offer the most return for the district's investment. Teachers view the telephone as a productivity tool that would significantly reduce their administrative burdens. Ready and convenient access to a telephone would permit teachers to respond quickly to parent requests, as well as, schedule parent teacher conferences. In certain grade levels, they see it as an effective classroom disciplinary tool as well. In addition to the teachers' views, a telephone in each classroom would offer a means of increased safety within the school. Having ready access to a telephone offers faster response to emergency situations. Implementing telephones that support wireless technologies offers increased flexibility and security for all teachers as the phones are portable and can be taken with them during all circumstances. These telephones would use the same wireless infrastructure (discussed under the Network Infrastructure (Local Area Network (LAN)) section) that was implemented to support PC, notebook, and PDA connectivity.

During the consideration of the use of telephones in the classroom, Dorchester School District Two will evaluate both traditional and networked based telephone systems. Traditional systems, which utilize a separate cabling network, would include the following: PBXs, Key Systems, and Hybrid Systems. These systems would traditionally communicate between sites utilizing systems provided by the local telephone company. Any special services, such as 5-digit dialing, would also traditionally be a service provided by the local telephone company. Networked based systems would utilize the same data cabling system as the PCs and would communicate across the internal data network (WAN) between sites. In this configuration, special services, such as 5-digit dialing, would be configured and controlled by the school district.

In either of the above scenarios, decisions relating to the WAN Network Infrastructure will most likely have impact on the design and deployment of telephone systems. If a high-speed WAN infrastructure can be deployed, then there exists the possibility for a consolidation of systems into one main system (located in a central location) with just handsets deployed at each school site connected by the high-speed network. (Please refer to the Network Infrastructure (Wide Area Network (WAN)) section previously discussed).

DISASTER RECOVERY

Data, especially which is used to support and monitor the additional accountability requirements, is critical to the long-term success of any school district. Dorchester School District Two will develop a disaster recovery plan for its computing environment. This plan will include large, critical systems such as SASI, email, and other current or future critical reporting and assessment systems, as well as, small systems such as local school servers or high use desktop workstations. A major component of any disaster recovery plan is the daily tape backup of critical data. The district will enhance their current written backup procedures to ensure the process is easy to understand and follow. Included in this plan will be the periodic testing of the process to restore individual data files or entire systems. Logs will be maintained on all backup processes that occur at all district and school sites, and a summary of these logs will be provided to the district on a regular basis. In addition, the district will audit the disaster recovery processes on a yearly basis to ensure processes are being followed and that new personnel understand the importance of the disaster recovery plan implemented by the district.
The district will ensure that uninterruptible power supplies (UPS) are installed on every major network resource device (servers and network electronics) in the district. Not only will a UPS keep devices working during short interruptions in power, they also extend the life of most devices since the UPS suppresses power surges. We will

explore power support options in support of our expanding network operations center, including emergency power generation equipment.

The network operations center will also be retrofitted with proper cooling, supporting redundant backup of cooling units and will be modified with an appropriate fire suppression system that poses minimal danger to the District's considerable resources being housed there.
Dorchester School District Two will continue to aggressively deploy virus protection software to every computing device at the district. The school district has implemented a process for deploying virus protection updates to every computer on a regular basis. New viruses are developed and released almost daily. Students and teachers have access to both school computers and home computers on a daily basis. This home and school access, though unavoidable, significantly increases the risk to the district for attacks by viruses. This automated process to deploy the updates to protect the district from these new viruses has become an essential tool for the district. By implementing this automated system, the district has significantly reduced the amount of virus infections within the network.

TECHNOLOGY TRAINING

Training of staff and faculty is crucial to the successful implementation of this technology plan. Without adequate and timely training, teachers will not effectively utilize the equipment. The training plan for using and integrating technology into the classroom must also be periodically revised due to the rapidly changing nature of technology. Hence, this should be considered an ongoing expense.

Training for teachers and staff members in Dorchester School District Two is available throughout the year to enable them to learn more about technology and to use various technology based tools of both operational and curricular nature.

The district utilizes its Instructional Technologists in each school to promote and conduct training sessions on the varying curriculum and technology utilized at the district. These training sessions are valuable sources of information for disseminating best instructional practices to students, faculty, and support staff. The data gathered from surveys for this technology plan indicates that teachers need additional, targeted training on how to use the technology that is available to them. Structuring a portion of these training sessions that specifically focuses on the integration of technology into daily instruction is a key component to deploying and using technology effectively in the classroom.

The district has implemented a Technology Professional Development Plan with Technology Competencies based on the ISTE Teacher Technology Standards and No Child Left Behind. A full curriculum of courses (with their objectives and prerequisites) and the course schedule is available within the District's online professional development platform. Success stories and methods for integrating technology into the classroom are regularly highlighted through the Office of Public Information and the Instructional Technology program. The District's Technology Training Plan is attached in Appendix A.

Maintenance and Support

The district currently utilizes twenty employees to support the various technology tools and packages deployed by the district. This includes sixteen technicians, two district software support personnel, one telephone technician, the director of technology and one secretary. The technology staff is struggling to meet the demands for the support and maintenance of this hardware and software. The following are actions that will improve and streamline the maintenance and support process utilized by the district.

- **Develop and publish a common list of standard operating procedures for all aspects of the support process performed by the technology staff. When writing these procedures, the technicians must have input into the content of the procedures to ensure accuracy and completeness. In addition, standard templates will be developed for these procedures to ensure the content of each procedure meets the minimum standards for such a document, as established by the district.**

- **The district will develop a documented and tested disaster recovery plan. This will include critical systems such as backbone network devices, critical hardware and software tools, tape backup and recovery, and any other components that provide high profile services within the district.**

- **The district will negotiate and publish a Service Level Agreement between the technology department and its customers (the schools, teachers, and staff). These Service Level Agreements will be specific (i.e. turn around times for the repair of equipment – these turn around times will vary based upon the criticality of the equipment being serviced) and will be tracked to ensure that the expectations of the customer, as well as, the ability of the technology staff to deliver the required services, are inline with the overall expectations of the district.**

Several additional recommendations for the support and maintenance of the district's technology infrastructure and tools are included below. These recommendations are tied to other recommendations in this technology plan.

- If the district decides to lease its computers, the district will also consider purchasing support contracts/extended warranties that outsource the daily break/fix support issues associated with the leased computer hardware. This will free the existing technology staff to devote more time to the support and improvement of a technology-enriched curriculum and to manage those issues not included in any other maintenance contracts.

- When purchasing new software programs or technology systems, the district will evaluate contracting with the vendor of those systems to provide primary support and maintenance for their system. In doing so, this will enable the technology staff to utilize the expertise and knowledge of the vendors to quickly expand the overall knowledge and capabilities of the technology department. Items that could be included in this process are: WAN technologies such as the WAN and components itself, telephony,

and/or content delivery systems, large district-wide software programs, security of technology components, disaster recovery planning, and others.

Strengths and Weaknesses of Information Technology

Developing a support mechanism for technology is a complex process. Technology changes rapidly and support mechanisms must change rapidly to keep pace. As a result; policies, procedures, systems and even the mind-set of how projects are approached are often revised before the projects are completed. Upon analysis, this process often yields strengths and weaknesses in how the district manages complexity. Following are some of the strengths and weaknesses identified by the information technology department.

Strengths of Information Technology

- Information technology staff is professional, knowledgeable, experienced, cooperative and dedicated.
- Information technology staff is motivated and flexible; willing to take on additional responsibilities, learn new programs and technologies.
- Information technology staff has good working relationships with district's staff.
- Customer (teachers and administrators) satisfaction is priority for information technology staff.

Weakness of Information Technology

- The information technology staff members are spread throughout the district with poor office space. This situation impacts inter-departmental communications.
- The information technology department is under-staffed; staff is not cross-trained, too few staff manages too many resources.

Building Templates

Many times when new construction or renovation projects are undertaken, the space, power, and environmental needs of technology are an afterthought - sometimes even overlooked. Dorchester School District Two will form a committee of teachers (elementary, middle, and high) and facilities staff to develop standard room templates for instructional classrooms and labs. These room layout templates will serve as input to any new construction or renovation projects. Additionally, Dorchester School District Two will work with an RCDD (Registered Communications Distribution Designer) or equivalent to develop standard telecommunications closets, which would also serve as input to any new construction or renovation projects. By creating and routinely updating these templates, the district will not have to reinvent the wheel and will ensure that the architects used for renovation and new construction projects will take into account the standards set forth by the district for the use of technology throughout the schools and in the classroom. Please see Appendix B for samples of these templates.

Purchase / Leasing Options

The ability and necessity to maintain standards and keep up with technology advancements is a huge issue in school districts around the country. Dorchester School District Two is no exception. Only a few computers currently installed in the district are reaching the end of their useful life cycle. This can be expressed in two ways: 1) while the computers may still work, the cost and time to maintain them in good working order increases to a point where that work is no longer cost effective, and 2) the ability of the older computers to run new software at all or at speeds that make the new software usable by staff and teachers will lead to non-use, ineffective use, or perceived lack of functionality of the computing environment at the school or in the classroom.

Dorchester School District Two has adopted a process for refreshing their entire computer inventory every three to four years. This would be accomplished by leasing computers over a three or four year period and refreshing two thirds of the inventory every three years. In addition to leasing the hardware, the district would also purchase extended onsite warranty support contracts for the leased equipment that would ensure that broken or defective components are repaired in a timely and cost effective manner by an outside firm.

Through this continuous rotating three-year cycle of computer replacement, Dorchester School District Two would ensure that the newest technology is incorporated into the learning environment in the district. This does not necessarily mean that the district will be on the cutting edge of technology at all times. Instead, the process simply ensures that five, six, or even ten year old technology is not trying to run new and advanced curriculum programs being introduced in the district.

Several classroom and lab computer configuration options are being evaluated by the district which in turn will affect the number of computers that could be deployed and the utilization of those computers. The leasing process here can be applied to any of the configuration options selected by the district.

IMPLEMENTATION TIME LINE

GENERAL INFORMATION

Below is a list of clear annual timelines for obtaining the hardware infrastructure, learning resources and technical support needed to align with implementing the district's 5 year strategic plan.

Note: All purchases will be contingent upon funding

STRATEGIES/ACTIVITIES	***TIMEFRAME***	***RESPONSIBLE PERSONNEL***	***EXPECTED RESULTS***
Maintain all existing equipment	*Ongoing*	Technology Director	Continued stabilization of the network for continuous, reliable operation with minimal downtime and interruptions in service
Maintain a five-year replacement plan for all hardware and devices across the district	*Ongoing*	Technology Roundtable and Chief Financial Officer	The process ensures that five, six, or even ten year old technology is not trying to run new and advanced curriculum programs being introduced into the district
Evaluate technology needs/cost as they apply to refresh cycles and upgrade	*Ongoing*	Technology Roundtable and Chief Financial Officer	Investing in the right network infrastructure the district can create a solid foundation for management cost and as well as creating a powerful learning environment for students
Maintain a core operational software upgrade strategy to include but not limited to instructional, integrated financial/human resources management software, and licensing agreements	*Ongoing*	Technology Director	District will investigate and understand purchase cost, maintenance fees in future years, training cost, upgrade cost, technical support cost and upgrades to the infrastructure before deciding to purchase
Upgrade district internet access (DIA) from 300mbps to 800mbps	*2013-2014*	Technology Director	Network upgrade delivers significant benefits to the district, in addition to exciting new learning opportunities for students; it will enable the district to extend its existing network investment, maximize the efficiency of staff, reduce costs, and deliver the benefit of powerful new technologies district-wide

Upgrade metro-e circuit from 500mbps to 10gb	***2013-2016***	**Technology Director**	**The district will continue to increase bandwidth to ensure seamless and dependable access to communications, informational and instructional technologies**
Replace/Upgrade Cisco edge switches at each site to a Cisco 3550 or better	***2013-2018***	**Technology Director**	**Will enable district to transmit data, voice and video in a more reliable manner**
Upgrade wireless and infrastructure to support 1:1 and BYOD	***Ongoing***	**Tech Roundtable**	**The district will continue to map out a technology roadmap that includes expanding wireless coverage, increasing network speed and eventually implementing BYOD or 1:1 initiatives**
Investigate and pilot BYOD, student provided devices authorized and compliant with District agreement usage policy (AUP)	***2013-2014***	**Technology Director**	**The district will build a solid technology infrastructure to support the influx of mobile devices and create an acceptable-use policy to set rules, expectations and responsibilities for students**
Investigate and purchase a network access (NAC) system to support BYOD and student logon	*2013-2015*	Technology Director	To initiate the proper wireless infrastructure to meet the security and capacity requirements of BYOD initiatives, sound security practices and infrastructure can reduce the risk of external and internal threats to end-systems by blocking unauthorized connections, detecting suspicious traffic patterns, and filtering malware
Investigate and purchase a mobile device management (MDM) system	*2013-2014*	Technology Director	The district implementation of mobile device management will secure and manage multiple devices on the district's wireless network given specific users certain privileges and access to applications, data and configurations based on a set of rules

Increase the use of the district's wireless network to allow for more enhanced mobile communication and connectivity	*Ongoing*	Technology Director	Installing enterprise access points will enhance performance and range for 802.11n and 802.11a/g devices, enabling a robust wireless network
Upgrade the district's domain infrastructure to Server 2012 Active Directory and Exchange Server version 2013	*2015-2016*	Technology Director, Core Team	The latest Microsoft technology will enable the district to take advantage of new features; high availability on server hardware, reduced network traffic and enhanced security district-wide
Replace/Upgrade the technology's Cisco ASA 5500 (Adaptive Security Appliances) firewall for Internet security to Cisco ASA 5525-X	*2015-2016*	Technology Director, Core Team	The next-generation firewall will enable the district to reap the productivity benefits of new applications and devices without compromising security
All students and teachers will receive annual Children's Internet Protection Act (CIPA) online safety training and Digital Citizenship training	*2013-2018*	Assistant Superintendent for Administration and Personnel	The district will continue to monitor and make adjustments as needed while allowing our students to enter into the digital world with a toolkit to ensure safety and success
Restructure informational technology department to include an alternative help desk solution, hire additional technicians as necessary based on restructuring and need	*2013-2014*	Technology Director	Implementing a multi-tiered technology support team will provide the best possible service in the most efficient possible manner with the options of escalating and solving complex issues in a timely fashion
Continue to support a data provisioning system, active directory connector that incorporates all necessary connections between critical instructional and operational applications	*Ongoing*	Technology Director	Using provisional data systems will ensure the ability to scale software
Upgrade and explore alternatives to the current IPTV/Video delivery services infrastructure emerging cloud based technologies or expand VBrick technology to all schools to include the upgrade of the IPTV system and the purchase and implementation of an online video conferencing program	*Ongoing*	Technology Director	Educational IPTV provides instant classroom access to a virtually unlimited global archive of instructive material

Purchase and implement a scalable data provisioning system	***Ongoing***	**Technology Director, Instructional Technology, Deputy Superintendent, Chief Financial Officer**	**Data provisioning will allow us to scale other software product implementations without the attendant costs of increases in manual management activities**
Provide professional development and training for technology staff	***Ongoing***	**Technology Director**	**Increase awareness of technologies as they are introduced. Technical staff development will increase as they are involved**
Monitor all aspects of the data and voice network to insure a 99% uptime for all network resources using a variety of monitoring tools	***Ongoing***	**Technology Director, Core Tech Team, Network Technician**	**A reliable and robust network will insure that teachers and students have fact access to need resources to enhance and improve instruction and learning**
Deploy a tiered service ticket plan to allow for escalation of issues	***2014-2015***	**Technology Director, Core Tech Team, Network Technician**	**Restructure of technician duties and levels for a quicker service response and resolution**
Impact checks on each component of the Master Technology Plan	***Ongoing***	**Technology roundtable, BOE community**	**Impact checks will identify what has worked and what needs to be adjusted**

With speed in which Technology changes occur, this is truly a projected timeline and will be adjusted as necessary to accommodate those changes.

Funding Sources

Dorchester School District Two will strategize and make use of all available funding sources for implementing this technology plan in a timely and cost effective manner with the goal of providing equitable access to technology for all district students. These funding sources include, but are not limited to, the following:

E-Rate

Dorchester School District Two is not positioned well to take advantage of all that the E-Rate program has to offer (in particular Internal Connections – which funds cabling, network electronics, and server hardware and software) due to the district's current discount funding level (Universal Service Fund Discount – 55%). However, Dorchester School District Two will examine and take financial advantage of all financially viable leasing services offered through E-Rate under Priority 1 Telecommunications Services and/or Internet Access.

Grants

Dorchester School District Two will aggressively pursue all technology related grants that support the district's efforts in implementing this plan.

Leasing

Dorchester School District Two will evaluate the financial viability of leasing equipment in lieu of large capital acquisitions. Through this evaluation, the district will make decisions regarding controlled long term operating expenses versus periodic large one-time capital expenses.

District Funds

Dorchester School District Two will apply its budgeted technology funds in the most cost effective manner to achieving the successful implementation of this technology plan. These funds will be applied in support of the above funding sources and initiatives, as well as, direct purchases.

PROCUREMENT – STATE CONTRACTS

Dorchester School District Two will make use of all viable State procurement vehicles for acquiring equipment and services for the implementation of this technology plan. In doing so, the district will minimize its financial administrative burden on the procurement process. The following are examples of current State contracts that Dorchester School District Two can take advantage of:

- **Cabling (Indoor and Outdoor)**
- **Hardware & Software (Multiple Vendors – Servers, Personal Computers, Software and Network Electronics)**
- **Smart Person (IT Services)**

DORCHESTER SCHOOL DISTRICT 2 - PLAN FOR TECHNOLOGY PROFESSIONAL DEVELOPMENT

Assessment: Certified staff members are required to complete 30 hours of new technology based professional development upon each recertification period.

Graduate Courses	**3 Graduate credits from The College of Charleston** **60 renewal and technology hours**
The SMART Way to Integrate Technology	
Advanced SMART Way to Integrate Technology: A Step SMARTER	
Navigating the Library Media Program	
Incorporating Technology for the Modern Learner	
Integrating Mobile Devices in the K-12 Classroom	
The SMART Way to Integrate Technology	
Continue to develop graduate courses to keep up with current technology trends/needs.	

New Hire Instructional Technology Initial Training Plan – Laptop Deployment

Technology Acceptable Use Policy
Outlook 2007: Email, Calendar, Contacts
Aesop: Substitute program
Power School/Teacher: Student information system, Teacher gradebook
Work order system: Access and navigation
Safe Schools: Online safety training access, navigation, and overview of mandatory trainings
ERO Staff Development Registrar: Access and navigation
Discovery Education Online Video Portal: Access and navigation
Online curriculum repository: Access and Navigation
Continue to review and update new hire initial training plan

Instructional Technology Online Professional Development Opportunities
Certified staff may earn renewal and/or technology renewal credit for each hour of successful course completion.
Compass Learning – Certified Teacher Grades 2-8
Compass Learning best practices guideline review
Create classes, add students, assign curriculum
Create and assign learning paths based on CCSS
Navigate and Utilize the Compass Odyssey Writer program to create and assign CCSS based lessons
Data Management- ENRICH

Access and basic navigation of the Enrich data storage program
Accessing data report templates
Interactive Whiteboard Use (SMART Boards)
SMART Notebook basics
Toolkit navigation basics and practical use
Microsoft Office- Instructional Staff
Office 2010: Word
Office 2010: Publisher
Office 2010: Excel
Office 2010: Power Point
Office 2010: Outlook
PowerTeacher- Certified Teachers
Taking Attendance
Printing Interim Reports
Printing Report Cards
Access Student Demographics
Student Response Systems (SMART Response)
SMART Response: Class setup and management
SMART Response: Formative, Summative, and Checking for Understanding
SMART Response: Accessing, navigating, and utilizing reports

Utilize Social Media to Connect with All Stakeholders
Facebook: Create, manage, and effectively support school Facebook accounts in order to connect and communicate with all stakeholders.
Twitter: Create and effectively manage school based Twitter accounts for communicating with all stakeholders.
Edmodo: Create, manage, and support school, teacher, student, and parent accounts in order to connect and communication with all stakeholders.
Remind 101: Create and effectively utilize school, teacher, and coach accounts for communicate with families via text.
Waterford- Pre-K-1st Grade Teachers (ELA, Math, and Science Curriculum Software)
Bundle #1 (approximately 1 hour)
Minutes to Mastery
WF5 "What's New with Waterford Early Learning Version 5.1?"
WF5 "Getting Started" (Teacher)
WF5 "Early Reading Program Overview"
WF5 "Math and Science Program Overview"
WF "Curriculum Overview"
Seconds to Success
WF5 "Assigning Courses"
WF5 "Logging in as a Student User"
WF5 "Launching Class Rotations"
WF5 "Skipping a Student in Class Rotations"
WF5 "Pausing a Student Session"

WF5 "Logging Out of a Student Session"
Waterford- Pre-K 1st Grade Teachers (ELA, Math, and Science Curriculum Software)
Bundle #2 (approximately 1 hour)
Minutes to Mastery
WF5 "Materials Overview—Reading"
WF5 "Materials Overview—Math"
WF "Phonics"
WF "Comprehension & Vocabulary"
WF "Phonological Awareness"
WF "Language Concepts"
Seconds to Success
WF5 "Adding New Students"
WF5 "Moving a Student to Another Class or School"
WF5 "Generating Reports"
Bundle #3
Minutes to Mastery
WF "Materials—Reading"
WF "Materials—Math & Science"
WF "Level One Reading Print Resources"
WF "Using Waterford with Pre-K Students"
WF "Exploring the Benefits of Writer's Corner"
WF "Getting Parents Involved"
Website Development and Effective Communication

Classroom website and teacher profile creation and management
Faculty Pages: Access, navigation, and management
Blogging: Creation and lesson ideas
Video: Creation and lesson ideas
Announcements: Effective ideas for communication with parents

Instructional Technology Professional Learning Collaborative Workshops **Certified staff may earn renewal and/or technology renewal credit for each hour of successful course completion.**
ISTE NETS-T: Effective teachers model and apply the NETS·S as they design, implement, and assess learning experiences to engage students and improve learning; enrich professional practice; and provide positive models for students, colleagues, and the community. All teachers should meet the following standards and performance indicators.
Facilitate and Inspire Student Learning and Creativity
Design and Develop Digital Age Learning Experiences and Assessments
Model Digital Age Work and Learning
Promote and Model Digital Citizenship and Responsibility
Engage in Professional Growth and Leadership
BUILDING RELATIONSHIPS: Utilizing Communication and Collaboration Tools

Utilizing social media and digital resources to communicate with stakeholders
Effectively utilizing social media resources to connect with families: Facebook, Twitter, Remind 101, Edmodo, Google Resources
Effectively utilizing parent link to connect with stakeholders
Utilizing virtual conferencing resources to connect all stakeholders
Accessing and utilizing Skype and Google Hangout to make learning connections with classrooms around the world
Accessing and utilizing WebEx, GoToMeeting, and other virtual conferencing resources to engage in meetings and debriefings.
Accessing and utilizing Facetime to connect iPad users to various stakeholders to engage in meetings and debriefings.
Collaboration Tools
Google Docs: Interacting and collaborating with all stakeholders
Data Management
Enrich: Analyzing your data to make data driven decisions
PowerSchool for Administrators: Effective management using PowerSchool tools
PowerTeacher for Certified Teacher: Getting to know your student using PowerTeacher tools
RELEVANCE AND RIGOR
Understanding the purpose and effective utilization of the data
SRI: Purpose, access, navigation, and analyzing and using report data
SMI: Purpose, access, navigation, and analyzing and using report data

AIMSWeb: Purpose, access, navigation, and analyzing and using report data
Excel: Purpose, access, navigation, and analyzing and using report data
APEX: Purpose, access, navigation, and analyzing and using report data
Effectively Accessing and Utilizing Benchmark Data
iTarget Teach: Purpose, access, navigation, and analyzing and using report data
Acheivement Series: Purpose, access, navigation, and analyzing and using report data
Differentiated Instruction: Utilizing digital tools to support learning
Utilizing your SMART Board, wireless headphones, and available software programs to create an interactive and engaging student learning station
Connect common core writing standards and create digital publishing stations in the 1-5 desktop, laptop, or iPad classroom
Creating mobile device learning stations to allow students to engage, collaborate, and create
Integrating webcams, digital cameras, and document cameras to engage students
Utilizing Reading Counts to create differentiated reading goals
Implementing and managing effective differentiated math instruction through the use of Fastt Math
Making Classroom Connections with iPad Technology
Utilizing an iPad station for effective differentiated instruction
Project based learning with your iPad
Effective assessment of student projects created with iPads
Practical teaching tips for integrating an iPad into your teaching delivery
Creating e-reading and audiobook stations with iPads

Practical iPad assessment ideas: Nearpod, Edmodo, Socrative
Monitor student progress and behavior with your iPad
"Appy Hours": monthly opportunities for teachers to connect and collaborate on iPad technology in their classroom
Making Administrative Connections with iPad/iPhone Technology
Initial deployment, account setup, access and navigation
Utilizing your iPad with the district provided teacher evaluation walkthrough form
Accessing social media apps to connect with stakeholders
Accessing student data on your mobile device
Accessing and Using Online Curriculum Repositories to locate specific tools to meet the needs of your students
Navigating, uploading and downloading resources Learning Village
Navigating, sharing, uploading and downloading resources from Next Network
Incorporating Digital Tools into your Presentations: Instructional Staff and Students
SMART Notebook cross curricular content creation
SMART Notebook creative and engaging lesson design using SMART Toolkit
Best practices lesson ideas with digital media presentation tools: Haiku Deck, PhotoStory, PowerPoint, Animoto
Best practices lesson ideas with digital video production tools: Movie Maker, iMovie, xtranormal, Animate Me

Discovery Education tools and resources
Connecting Science/Social Studies and Writing through the use of videos and digital publishing
Connecting Science/Social Studies and Writing through the use of videos and blogging
Exploring the use of the IPTV portal and VBrick Technology
Navigating and utilizing the portal for producing a live broadcast
Navigating and utilizing the portal to access digital media content
Promote and Model Digital Citizenship and Responsibility
Advocate, model, and teach safe, legal, and ethical use of digital information and technology, including respect for copyright, intellectual property, and the appropriate documentation of sources
Making relevant home and school connections to promote and model digital etiquette and responsible social interactions related to the use of technology and information
Model Digital Age Work and Learning
Access, navigation, and practical use of the district virtual library program Overdrive

ACKNOWLEDGEMENT

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Ms. Kristy Mitchell, Instructional Technology Specialist

Ms. Kristi Selander, Instructional Technology Specialist

INFORMATION AND INSTRUCTIONAL TECHNOLOGY PROJECTED BUDGET

Goal: We will provide the human, financial, physical resources and services necessary to support our vision of achievement for all students to succeed in a competitive global economy.

ACTION STEPS:	Timeline	Estimated Cost	Funding Source
Maintain existing current technology per the master technology plan.			
a. District allocated hardware refresh cycles			
Server	2013-2016	$60,000 Annual	General Fund
Computer labs Middle/High School	2013-2016	$1,338,620	Bond Proceeds
Laptops	2015-2016	$1,200,538	Bond Proceeds
Desktops	2014-2016	$30,000 Annual	General Fund
Projectors	2013-2016	$1,428,615	Bond Proceeds
SMART Interactive Boards	2013-2016	$2,426,300 $26,000 Annual	Bond Proceeds
Mobile devices	2013-2016	$30,000 Annual	GF/E-rate
Phones	2013-2016	$60,000 Annual	Building Fund
Public Announcement Systems	2013-2016	$100,000 Annual	Building Fund
Security/Monitoring Cameras	2013-2016	N/A	General Fund
b. Evaluate technology needs/cost as they apply to refresh cycles and upgrades	2013-2016		N/A
c. Core operational software updates:		$20,000.00 Annual	
Update student information system	2014		General Fund
Facilitate updates to integrated financial/ human resources management software	2013-2018		
Other operational software platforms			
Microsoft licensing		$ 124,000 Annual	
Sophos virus protection		$ 70,000 Annual	
Cisco services		$ 35,000 Annual	
Lightspeed web filtering		$ 40,000 Annual	
d. Upgrade public internet bandwidth to	2014-2016		
300mbps		$ 24,000 Annual	
800mbps		$ 42,000 Annual	GF/E-rate
e. Upgrade internal bandwidth (metro-e) from	2013-2014		GF/E-rate
500mbps to 5 GB	2017-2018	$ 6,000 Annual	

f. Replace/Upgrade Cisco edge switches at each school to a Cisco 3550 or better. g. Server operating systems current within two-three years of latest version. h. Email upgrade servers /software i. Investigate and implement best practices and usage accountability for electronic communication j. Core instructional software installation and updates	2013-2016 2013-2018 2013-2018 2015 2013-2014 2013-2014 2013-2018	$102,000 Annual $124,000 Annual $147,000 $ 10,000 $172,000 Annual	GF/E-rate Building Fund General Fund General Fund General Fund General Fund
Upgrade wireless and infrastructure to support 1:1 student computing at all schools. a. Investigate and pilot Bring Your Own Device Student provided devices authorized and compliant with District agreement usage policy (AUP) b. Implement Bring Your Own Device (BYOD) c. Investigate/implement a pilot of District provided devices d. Investigate and implement privately owned bandwidth e. Investigate and purchase a network access control (NAC) system f. Student logon access g. Investigate and purchase a mobile device management (MDM) system h. Adding more enterprise wireless access points	2013-2014 2014-2015 2013-2014 2013-2014 2014-2015 2014-2015 2013-2014 2013-2018	N/A N/A $80,000 $20,000 Annual $248,000 N/A (data prov.) $180,000 $1,623,500	N/A N/A Building Fund General Fund Building Fund N/A Building Fund Bond Referendum
Monitor and update the student and staff Agreement Usage Policy (AUP). a. All students and teachers will receive annual Children's Internet Protection Act (CIPA) online safety training.	2013-2018	N/A	N/A

b. Digital Citizenship			
Deploy a tiered service ticket plan to allow for prioritization of issues. a. Restructure informational technology department. Investigate an alternative help desk/ticket system. b. Provide mobile device training to district technicians. c. Hire additional technicians as necessary based on restructuring and need.	2013-2014 2013-2014 2013-2018	N/A $ 10,000 Unavailable	N/A General Fund General Fund
Provide online and traditional professional development web portal to support 21st Century instruction. a. Provide professional development and training for technology staff. b. Provide professional development and training for all instructional staff. c. Utilize staff development days for integrated instructional technological focus. d. Facilitate an annual Instructional Technology Institute showcasing best practices integrating technology into educational environments.	2013-2018 2013-2018 2013-2018 **2013-2018**	Unknown $15,000	Unknown General Fund
Deploy a hardware/software acquisition process.	2013-2014	N/A	N/A
Continue to support a data provisioning system that incorporates all necessary connections between critical instructional and operational applications. a. Instructional/Operational Connectors b. HR/Finance to Active Directory Connector c. Student Information System to Active Directory student management login d. Evaluate software programs for future inclusion.	2013-2018 2013-2014 2014-2015 2013-2018	$95,000 Annual $24,000 Annual $24,000 Annual N/A	General Fund General Fund General Fund N/A
Upgrade and explore alternatives to the current IPTV/video delivery services infrastructure. a. Explore emerging cloud based technologies or expand VBrick technology to all schools.	2013-2018	$120,000	Building Fund

b. Upgrade the IPTV system. c. Purchase and implement an online video conferencing program.	2013-2014 2013-2014	$50,000 $15,000 Annual	General Fund General Fund
Support existing instructional and operational technologies in the district.	2013-2018	N/A	N/A

SIGNATURE PAGE

I verify that all above components for the Dorchester School District Two technology plan have been addressed.

Technology Director's name (Please print) Frank Lakins Jr.

Technology Director's signature _____ Date signed 4/1/14

Superintendent's name (Please print) Joseph R. Pye

Superintendent's signature _____ Date signed 4/1/14

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