Long-Range Technology Plan
for School Years 2009 - 2014

Greater New Bedford Regional
Vocational-Technical High School

1121 Ashley Boulevard, New Bedford, Massachusetts 02745

www.gnbvt.edu
1. INTRODUCTION
   1.1 School Committee Members
   1.2 School Administration
   1.3 Technology Committee

2. BACKGROUND INFORMATION
   2.1 History of Greater New Bedford Regional Vocational-Technical High School
   2.2 School Demographics
   2.3 Overview of the Technology Planning Process
   2.4 Community of Stakeholders and Resources Linkages
   2.5 District Technology Vision and Mission Statements

3. CURRENT STATUS
   3.1 Inventories of Equipment and Services
      3.1.1 Hardware
      3.1.2 Telephone / Video Distribution
      3.1.3 Network and Internet Services
   3.2 Curriculum Status and Technology Initiatives
   3.3 Assessment of Existing Professional Development Activities and Structures
   3.4 Assessment of Current Technology Support Staff
   3.5 Recommended Staffing – Instructional, Administrative, & Infrastructure

4. PROGRAM GOALS AND TECHNOLOGY INITIATIVES
   4.1 Administrative and Management Goals and Initiatives
   4.2 Communications and Information Access Goals and Initiatives
   4.3 Instructional and Curricular Goals and Initiatives
   4.4 Staff Competency Goals in Support of Student Learning

5. TECHNOLOGY DESIGN
   5.1 Software Priorities
      5.1.1 Administrative and Management
      5.1.2 Communications and Information Access
      5.1.3 Instructional and Curricular
   5.2 Hardware, Facilities, and Network Priorities
      5.2.1 Hardware: Workstations and Peripherals
      5.2.2 Network: Design
      5.2.3 Implementation Issues
   5.3 Operations, Maintenance, and Upgrade Priorities

6. TECHNOLOGY IMPLEMENTATION ACTION PLAN
   6.1 Software Procurement Leadership, Activities, Timeline, Budget
   6.2 Hardware Facilities and Network Acquisition/Implementation
   6.3 Operations, Maintenance, and Upgrades: Timeline, Budget
6.4 Professional Development: Timeline, Budget
6.5 Additional Human Resources in Support of Technology: Timeline, Budget

7. MONITORING, EVALUATION, AND REVISION OF TECHNOLOGY PLAN
   7.1 Monitoring and Evaluation Process
   7.2 Incorporation of Evaluation Information for Ongoing Planning
   7.3 Process for Reporting to Stakeholders
   7.4 Process and Timeline for Ongoing, Long Term Planning

APPENDIX
   Instructional Computer Distribution and Replacement Schedule
1. INTRODUCTION

High school education must include occupation-based computer training integrated with language, math, history and science curricula. Because this integration of occupational and academic skills is the most effective way to prepare students for their future and because computers are not only an important part of the world and good resource but also the most cost-effective way to achieve this integration, it is essential to have technology available in every classroom for every student in the district.

This technology should be involved in the instruction and integration of all disciplines. For the past century schools have been driven by the premise that they are teacher-centered learning institutions. Students would receive from teachers all the knowledge they would need in the classroom to prepare them to go out into the world and make a living. This premise is obsolete, primarily due to advances in technology. The world has been opened up to everyone, from densely populated urban centers to remote and sparsely populated rural expanses, thanks to the introduction of technologies such as cable systems, satellite transmissions, smart technology and the explosion of Internet connectivity.

In this technology age, students view the "norm" as having a cellular phone and computer as standard equipment. Teens feel that cell phones have become a vital part of their identities; instant communication is the expectation. It is hard to conceive of a world without computers, ATMs, PDA's, Smartphone’s, iPod’s with built in Wi-Fi and other portable devices.

Education reform has provided the impetus for school systems to evaluate the role of technology, and to create learning experiences for students that utilize technology in innovative ways. Technology in all its complexities and the expectations for its use must transcend the classroom walls. We must design a new educational system that academically and technologically prepares students with skills and competencies to meet the challenges of the 21st century economy and society.
1.1 **School Committee Members (2010-2011)**

- Joaquim Nobrega, Chair, New Bedford
- Norman Bergeron, New Bedford
- David Darmafol, Fairhaven
- Randall C. Durrigan, Fairhaven
- Dr. Thomas E. Kelly, Dartmouth
- John P. Montigny, Dartmouth
- Rita Ribeiro, New Bedford
- Fred Toomey, New Bedford

1.2 **School Administration (2009-2010)**

- Linda Enos, Superintendent-Director
- Paula Gendreau, Business Manager
- Michael Gagliardi, Principal for Career and Technical Education
- Michael Murphy, Academic Principal

1.3 **School Technology Team (2013-2014)**

- Carole Girouard, Co-Chair, Media Center Specialist
- Sue Demers, Co-Chair, Scheduling / Reporting Coordinator
- Rob Da Silva, Special Services Instructor
- Rob Delaleu, Math Teaching Assistant
- Michael Murphy, Academic Principal
- Michael Gagliardi, Principal for Career and Technical Education
- Jenifer Gaspar, Media Technology Instructor
- Cheryl Hebert, English Teacher
- Steven Johansen, Drafting Technology Instructor
- Michelle Morris, Cluster B Administrative Assistant
- Michael Wildrick, Technology Director
2. BACKGROUND INFORMATION

2.1 History of the Greater New Bedford Region

The population of New Bedford and its surrounding community is approximately 180,000. The area is strongly influenced by its Portuguese, Cape Verdean, French-Canadian, Hispanic, Polish and Irish descendants.

New Bedford is best known for its fishing industry. New Bedford's catch is one of the most valuable of any port in the United States. The harbor's waterfront is lined with fresh and frozen fish-processing plants, boat gear and machinery manufacturers, shipyards, ice houses, fuel suppliers, ship chandlers, settlement houses, and other firms associated with the industry. These once-prosperous companies have been hit hard by the recent decline in the fishing industry.

The growth and significance of textile mills in New Bedford is well documented. In 1920, during its peak, 70 factories crowded the city. More than 40,000 mill workers were tending 3.5 million spindles and 55,000 looms. New Bedford earned a reputation for quality. Percale sheets, a New Bedford creation, among other items, became synonymous with the highest quality in the industry.

Now, what was once a thriving industrial boom town is a struggling community. In recent years, the area has witnessed more than 35 major plant closings and the loss of over 10,000 manufacturing jobs.

The geographic location of New Bedford, however, offers great potential. New Bedford is close to three major highways leading to Boston, New York, Springfield, Worcester, and other major cities. New companies are coming to New Bedford because of its proximity to Boston, without the associated overhead expenses. These companies are looking for employees with basic knowledge in new technologies, and are willing to provide further training. Boston commuters are also moving to New Bedford's suburbs because of the lower cost of living and real estate.

2.2 School Demographics

Greater New Bedford Regional Vocational Technical High School is a four-year vocational / technical high school for young men and women. The school provides career and technical education as well as academic instruction to students from New Bedford, Dartmouth and Fairhaven. With roots dating back to 1908, it opened as a regional vocational technical high school in 1977.

As of October 1, 2012, there were 2,124 students enrolled in grades 9-12. Of those, 1,667 lived in New Bedford, 246 lived in Dartmouth and 207 lived in Fairhaven.

Many of our graduates become leaders in business and industry in the region. Many continue their education. In a typical class, over 70% of our graduates chose to continue
their education, either at colleges, universities or technical schools. Another 25% of the graduating class directly enters the workforce and about 5% enter the armed forces.

GNB Voc-Tech is an accredited member of the New England Association of Schools and Colleges, the regional accrediting body for secondary schools in New England. Faculty members are certified by the Massachusetts Department of Education.

### 2.3 Overview of the Technology Planning Process

Greater New Bedford Regional Voc-Tech’s Long Range Technology Plan is based on the School Technology and Readiness (STaR) Chart\(^1\) developed by the Educational Technology Advisory Council (ETAC)\(^2\) which was established to advise the Board of Education and the Commissioner is three broad areas:

1. the development of policies guiding the use of information technology and educational support in the schools of the Commonwealth;
2. the identification of current and emerging issues involving technology, together with the concerns of educators, employers, higher education institutions and others; and the development of policies to address such issues; and
3. the management and oversight policies for the Department’s educational technology programs

Greater New Bedford Regional Voc-Tech’s instructional technologies focuses on the goals developed by state’s Educational Technology Advisory Council (ETAC)\(^2\) listed below:

1. *To teach students the skills and competencies they will need to succeed in the 21st century economy and broader society.* Students will be able to do research on the web, evaluate web resources and demonstrate other skills for the 21st century workplace. They will be able learn new skills and gain extensive new knowledge online, enabling them to tackle new disciplines and deal with situations and problems that we currently cannot even imagine.

2. *To empower students to construct knowledge; to give students power over their own learning; to be independent learners.* Implementing technology in schools empowers students to become active learners. Students can access information without any obstacles.

3. *To teach students responsibility.* Teaching students the distinction between public and private information, to respect the rights of others whether they are visible or not, to understand that anonymity online is an illusion and that using technology has consequences both to people and the environment are new challenges that we must help schools to meet. Students must understand that doing the right thing with technology is what a free society needs to grow and thrive in a global society. Students must understand technology literacy and develop a clear understanding of cyber-ethics.

4. *To expand faculty teaching repertoires.* With technology, faculty can organize their classes differently than they do currently: use the web, interact on line, and provide
instruction from a distance. Teaching with technology creates many new opportunities for differentiated instruction that meet the needs of all students, regardless of ability.

5. **To improve management.** Computer and other technology resources are powerful instruments for measurement, data collection, sharing and analysis. ETAC recommends that educators have access to these instruments and know how to use them effectively and responsibly so that they become a source for improving education and realizing human potential for good in a free society. Mobile technologies, including wireless handheld devices, smart phones etc, provide connectivity and information availability at all times.

6. **To set standards for student, teacher and administrator use of technology.** These standards describe the physical and human resources necessary to harness technology in support of learning objectives and define the skills and competencies necessary to teach and to learn in the 21st century. It must also work to set the use of technology in service to the goals of improving student capacity for reasoned thought in the context of American democracy so essential to the founding and ongoing purpose of the Commonwealth of Massachusetts.

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1 School Technology and Readiness (STaR) Chart. [http://www.dos.mass.edu/boe/sac/edtech/star.html](http://www.dos.mass.edu/boe/sac/edtech/star.html)

### 2.4 Community of Stakeholders and Resources Linkages

Our goals closely relate to the goals set by statewide curriculum frameworks, especially in the area that calls for integrating technology into the curriculum. The technology team has carefully reviewed the guidelines of the Education Reform Act, Goals 2000, the Switched-On-Classroom, Mass. Ed. Online, and Curriculum Frameworks and incorporated these state, federal, and district goals into the final District Technology Plan.

Greater New Bedford Regional Vocational Technical High School established a Technology Committee, chaired by the Director of Technology. The committee is comprised of administrators, teachers, and support personnel. Parents have had input through the School Council. Other members of the school community completed a survey, which assessed their abilities and interests in training opportunities. Students and staff also completed needs assessment surveys, and were involved in all aspects of the plan development.

Each occupational department has an advisory committee comprised of local employers, students, and parents. Each committee annually reviews the needs of the department and makes recommendations to the department chair and teachers on how to improve the existing program. Those needs are considered in this plan.

The academic departments’ needs are addressed through representation on the Technology Committee and through annual review of curriculum by departments and the development of needs, completion of surveys, and representation on the school council.
All stakeholders have been consulted, and have played an active and relevant role in this plan's development.

2.5 District Technology Vision and Mission Statement

The high school graduate of the 21st Century works in a world that requires continuous learning. This world depends on computers and human mastery of their combined powers of calculation and communication. Therefore, a high-school education must include occupational and technical training integrated with language skills, math, and science curricula to ensure that every student is proficient in the use of current and emerging technologies.

Greater New Bedford Voc-Tech High School encourages the use of e-Learning; creating an alternative learning environment delivering specialized course content. E-learning offers students more challenges than the average classroom can offer keeping students engaged and giving them ample opportunities to prepare for state mandated exams. E-learning can also provide intervention and remediation for students in need of additional services. E-learning offers students dynamic interactive instructional content that engages and makes learning fun while benchmarking assessments and credit recovery tool.

Technology is used to deliver curriculum frameworks, assist with instruction, and assess our curriculum. Greater New Bedford Voc-Tech uses technology for our business office, school building maintenance, technology help desk tracking system (which aides in our assessment for faculty professional development), communication and collaboration with area colleges and professional development COHORTS. Greater New Bedford Voc-Tech High School uses technology to improve school safety and security with automating door locking system, CCTV, and an automated calling system that facilitates notification of time sensitive information updating parents, faculty and staff within minutes.

Based on the needs assessment conducted by the schools technology team, the decision was made to enhance the classroom learning environment by installing Smart Technologies SMART Boards and permanently mounted data projectors throughout the academic and career and technical education areas. On-going input from faculty and staff has lead to the addition of SMART Response interactive response systems, allowing instructors to gain accurate and immediate insight into student learning while increasing comprehension, retention and engagement. In addition, the district has installed SMART Sync 2009 allowing the teachers to teach, monitor and collaborate with students. SMART Document Cameras have been installed allowing teachers to display real-time images of any static or moving objects onto an interactive whiteboard for the entire class to see.

Based on the results of the CPR review, the first step to initiate the planning and design of the district’s expansion of computer assessable classrooms, an extensive enterprise wireless network site survey was conducted by Presidio Network Solutions. The comprehensive wireless security will reduce capital costs while streamlining security
operations. The secure wireless solution delivers (1) proactive threat and intrusion
detection (2) comprehensive protection to safeguard our districts confidential data and
communications (3) simplify user management with single user identity and policy, which
protects against unauthorized access (4) Collaboration with the districts wired security
system. Building a wireless infrastructure will allow the deployment of mobile laptop labs to
space confined classrooms.

Beyond this valuable internal integration, the computer network will further open the school
to the community and to the world. Parents will have immediate access to course
descriptions, progress reports, school calendars, and other information; students will have
available all the latest literature related to their occupational studies; teachers will be
connected to the Commonwealth of Massachusetts Department of Education as well as to
research and curriculum centers; and students will have full citizenship in the “global
village,” connected with their peers all over the world.

**Goals**

- Using the results from the Massachusetts TSAT (Technology Self Assessment Tool); the
district will identify areas for professional development for each teacher, create
professional development programs for the entire staff and monitor the proficiency of
each teacher.
- Continue to implement the districts e-Learning environment, providing the faculty and
staff professional development opportunities for both themselves as well as their
students.
- Implementation of the district’s new student information system (including a digital
rank book that has the ability to communicate with a family and student portal, track
courses, certificates, credentials, and demographics of personnel, health alerts into
the digital grade book, special educational with built-in workflows, professional
development tracking, and assessment tracking of students).
- Implementation of an enterprise wireless solution along with mobile laptop carts, and
netbooks used for internet research and Microsoft office collaboration suite.
- Continue to implement SMART Technologies SMART Boards, SMART Response
System, SMART Sync 2009, and SMART Document Cameras in all Academic and
Career and Technical Education areas.
- Provide Professional development for all faculty and staff, including certifying staff
members as certified SMART technology trainers.
- Continue updating the computer network infrastructure, which will allow the district to
utilize VOIP communications.
- Increase the Internet bandwidth, which will allow for more interactive and content rich
streaming media.
- Implement the Discovery Channel Streaming media
- Evaluate how cloud computing could benefit both faculty/staff as well as the student
body.
- Continue the implementation of the Adobe Certified Associate (ACA) Certification
Program. ACA offers both students and instructors multiple options to validate their
digital media skills.
3. CURRENT STATUS

3.1 Inventories of Equipment and Services

3.1.1 Hardware
The Greater New Bedford Regional Vocational Technical High School owns 1300 personal computers in administrative areas, career areas, classrooms and labs for administrative, faculty and student use. In addition, the district owns iPads, Kindles and Nooks. A detailed breakdown and inventory is included in the Appendix. All hardware purchases are made using approved Massachusetts State Contract Vendors (Comm-Pass) whenever possible. Hardware standards are set each school year by the Technology Committee and are keep current by the Technology Director at the time of purchase.

3.1.2 Telephone
Through the Building Expansion and Renovation Project, the Telephone System has been upgraded. The telephone system provides: telephones in every educational and office space, capable of providing voice mail for all staff, and enhanced 911 services just to highlight a few of the features available.

3.1.3 Network and Internet Services
Based on the needs assessment conducted by the district’s leadership committee with support from the district School Committee, the decision to relocate the MDF (Main Distribution Facility) from the tunnels of the school building to a new location will support future infrastructure growth and protection. The newly renovated areas have a Distributed Fiber Optic Backbone delivering 1GB of bandwidth to the IDF (Intermediate Distribution Facility). Each fiber optic cable has the capabilities to be scalable to 10 GB of bandwidth, delivering 100/1000MB network connection to each computer system or peripheral located in each classroom, lab and administrative space. The school is running Microsoft Windows 2000 Active Directory Domain with over 1200 computer systems and devices connected to it. Plans are underway to upgrade our Microsoft Client Server environment to Active Directory 2008 including VMware vSphere 4. Each academic classroom is provided with at least 4 primary type computers. The school has 4 computer labs containing 105 type A computers. Many career areas have installed computer labs within their area, for a total of 14 additional career area computer labs. There are several wireless laptop carts which use wireless technology to connect to the school’s network. The schools’ Library and Media Center has 20 additional computers for staff and student use. The district is currently in the process of updating the wireless infrastructure to a Cisco secured wireless solution. Technology is also being made available in major assembly areas for portable computing. The school’s network covers 100% of its facility and all networked computers have access to the Internet. The school currently maintains a dedicated fiber optic 50 Mbps TLS connection through Earthlink Business and a 6.5MB high speed cable connection through Comcast as a backup and for special purposes.
In accordance with the Children’s Internet Protection Act and No Child Left Behind Act, we provide URL filtering and Email filtering. The filtering is done via our Cisco IronPort Web Security Appliance which allows our district to take advantage of web 2.0 capabilities while remaining in control of enterprise security. Barracuda Spam firewall’s along with Barracuda’s Message Archiver protects our enterprise email system.

Our server infrastructure contains 2 Microsoft Exchange 2010 Servers (CAS & HUB) and 1 web server that are published through our Juniper Firewall. Plans are currently underway to upgrade our firewall to a Cisco ASA 5500 Series. The in-house web server is maintained by students enrolled in the Information Technology Career and Technical Education area.

The Technology Department also maintains an EMC Celera NS20 Storage Attached Network with 8 TB of data storage network attached storage units that are available from any pc in the building for storage and retrieval of all faculty and student files. Plans are currently underway to implement three Dell Equallogic SAN’s providing 40 TB of data storage.

3.2 Curriculum Status and Technology Initiatives

Curricula in the technical career training areas are infused with technology. Every technical area utilizes computer technology, either via a stand-alone personal computer or a network computer using a specific software application or as an integral part of a technical process, such as a computer-driven four-wheel alignment system in automotive or a computer driven milling machine.

Some examples are:

Construction and Drafting Cluster-A
Electromechanical and Architectural Drafting – AutoCAD, SolidWorks, Chief Architect
Carpentry – Computerized Routing, 20/20 Software, EnRoute

Education, Health Services and Hospitality Cluster-B
Dental Assistant – Computerized Patient areas, Dentrix Software (Dental practice management software for Dentist offices)
Health and Medical Services – Office Skills and Practices

Transportation and Manufacturing Cluster-C
Automotive Technologies – MOTOR All Data (Online Automotive Diagnostic & Repair Information for the Professional Automotive Technician)
Machine Technology – Computerized Millers and Lathes, Mastercam cnc software

Science, Engineering and Technology Cluster-D
Engineering Technology – PLTW software, Computerized Millers and Lathes
Environmental Science & Technology – ArcView GIS and Topographical Mapping

Arts, Communication and Consumer Services Cluster-E
Media Technology – Adobe Creative Suite, ToonBoom Studios,
Office Technology – Microsoft Office Suite, Intuit Quick Books Pro.

English Department - Accelerated Reader, Phonics Tutor, Microsoft Office Pro 2007
Math Department - Accelerated Math, Star Math, Geometry Sketchpad, Graphing Software
Social Studies Department - Virtual field trips, to examine primary source documents and
tour museums that would otherwise be impossible to see or visit Woman in History Program
Designing PowerPoint Presentations

Science Department - Science Fair WebQuest, Online Ebsco Database, Experiment
simulation software, Lab research, Scientific calculations and graphing using Microsoft Excel

The Library / Media Center Specialist has started an initiative to work with the shop and
related teachers to integrate Accelerated Reader in the Related and Career Areas.

Cyber Ed’s Plato software is utilized in the Special Services area as well as for credit recovery.

The goals and objectives of the Greater New Bedford Regional Vocational Technical High
School curriculum align with the Massachusetts Curriculum Frameworks for technology
through the following means: advancing student learning and academic achievement, and
preparing students for the world of work; promoting the skill, knowledge, and performance
of teachers and administrators as defined by the professional development standards; and
improving the effectiveness of the class and school management.

3.3 Assessment of Existing Professional Development Activities and Structures

Greater New Bedford Regional Vocational Technical High School has provided its staff
members the opportunity to individualize their professional development plans and
activities. The school also has formed a Professional Development Committee made up of
teachers and an administrator to assist in the professional development process. Every
attempt is made to accommodate teachers’ requests to attend training workshops and
conferences held throughout the state and the region. Accommodations are made for
departments or groups of teachers to bring industry or manufacturer's representatives in to
deliver specific training. Technology purchases of hardware or software include training as
part of the contract if the purchase is for something new or unfamiliar.
A survey of the faculty has revealed that most professional development activity has taken place after school or during school vacations. Staff members have taken advantage of continuing education courses in software applications. In addition to courses offered on campus, the district provides training after school in many different applications. Some of these applications are Microsoft Word, Excel, PowerPoint, FrontPage, X2 Aspen grade book training. These applications have been chosen to assist staff in classroom planning, presenting, and record management. Finally, there are those who have acquired their expertise through self-study and on-the-job training.

### 3.4 Assessment of Current Technology Support Staff

With the demands of technology in education comes the responsibility to provide professional and responsible staff to maintain and implement the technology systems of today and tomorrow. The school’s current level of staffing includes:

**Technology Director**

Establishes, plans, and administers the overall strategic long-term goal’s, policies, and procedures for the school. Determine the school's long-term systems needs and hardware acquisitions to accomplish the school's objectives indicated in the Schools Improvement Plan. Analyzes the needs of departments and establishes priorities for feasibility studies, systems design and implementation to develop new and/or modify the school's information processing systems.

**Network Administrator - (One)**

Maintain a complex network system consisting of state-of-the-art switches, routers, servers and network operating systems. High level support for Microsoft server applications and operating systems. Continued development and maintenance of the school's Veritas Backup System and the school's web and mail servers. Re-engineer and provide assistance in the installation and re-routing of the fiber optic 1GB backbone. Supports and maintains faculty and staff user account information including rights, security and system groups. Other duties include Scheduling and maintaining the various reports on web activity and network usage.

**Computer Systems Technician - (Three)**

Oversee any and all technology requests submitted to the Student Technology Support Help Desk. Maintain, analyze, troubleshoot, and repairs computer systems, hardware and computer peripherals. Document, maintain, upgrade or replace hardware and software systems. Support, monitor, test, and troubleshoot hardware and software problems pertaining to LAN. Recommend and schedule repairs. Install and configure workstations. Support and maintain faculty and staff user account information including rights, security and system groups.

**Media Center Specialist**

Maintains the school’s library Follett software database and leased information databases, in addition to maintaining the library’s collections of books, serial publications, documents,
audiovisual, and other materials, and assists groups and individuals in locating and obtaining materials. Furnishes information on library activities, rules and services available. Participates in instructing student and staff technical training programs.

**Audio Visual Specialist**
Provides scheduling and distribution of audio and visual technology equipment. Manages and operates the school’s media retrieval and video distribution system. Maintains an inventory of printing and media supplies for faculty and staff use.

**Student Help Desk**
Our Student Help Desk is operated during school hours. The technicians are students in the Information Technology Program. Responsibilities include answering trouble calls, minor troubleshooting, review tickets with information technology instructor, dispatching and follow ups on all trouble calls. The district has moved to the online helpdesk system provided by Schooldude ITDirect (IT Help Desk/Incident Management). The district also utilizes the Schooldude ITAMDirect (Inventory and Asset Management System). The student helpdesk have been delegated the rights needed to reset student passwords.

### 3.5 Recommended Staffing – Instructional, Administrative, & Infrastructure

With the growth of technology within our school system and the state, the school needs staffing levels necessary to provide a reasonable degree of autonomy in the ability to use technology effectively. This would include staff to assist teachers with integrating technology into the curriculum, and assist staff with problems they cannot solve as well as, maintain a complex network system consisting of state-of-the-art switches, routers, servers and network operating systems. We therefore recommend the following additional staffing:

**1 FTE – Educational Technology Specialist**
Participates in, and conducts technical training programs. Determines training objectives. Writes training programs, including outlines, text, handouts, tests, and designs laboratory exercises. Provides end-users support for all LAN based applications. Facilitate the newly implemented Adobe Certified Associate (ACA) Classroom License. Provides faculty and staff training for computer application software and network communication software. Manages and schedules computer resource labs and manages student network accounts.

### 4. PROGRAM GOALS AND TECHNOLOGY INITIATIVES

#### 4.1 Administrative and Management Goals and Initiatives

- Establish Greater New Bedford Regional Vocational Technical High School as a technology-rich facility capable of providing students, staff, and community quality training in all aspects of technology
• Enable school administrators to become more effective and efficient in their administrative responsibilities utilizing technology
• Transition our Student Information System to X2 Aspen. Long range goals include adding the SPED component from eSped and opening a Family Portal
• Improve our platform and application for management of curriculum and assessment

4.2 Communications and Information Access Goals and Initiatives

• Plans are currently underway to evaluate Microsoft SharePoint Server. SharePoint is an integrated suite that would allow academic and career technical areas to improve organizational effectiveness by providing comprehensive content management.
• Use group based calendaring and mail software to communicate effectively
• Continue to develop our school’s Edline Portal to provide student and parent services such as homework connection, communication system to access staff, online application forms, online learning media and Web-based instruction until the Family and Student Portal on X2 Aspen is completely implemented
• Plans are currently underway to evaluate Discovery Education streaming Plus. The will allow both students and faculty the opportunity view content-specific video.
• Develop a faculty policy for the increased use of MassOne

4.3 Instructional and Curricular Goals and Initiatives

• Provide instructional technology to improve student communication and computational skills
• Develop Instructional Technology Media, making it available to our staff and students through DVD and Streaming Video
• To help students develop into well rounded user of the Internet and the Microsoft Office Suite of software
• The School Technology Team is currently looking into the use of the FLIP Video recorders and TechSmith Camtasia Software. FLIP Video recorders and TechSmith Camtasia allows faculty to recreate content rich presentations and projects that can be use for independent study. These tools could also be used for students that need intervention the ability to pause and play instructor led tutorials.
• Electronic Portfolio for students

4.4 Staff Competency Goals in Support of Student Learning

• Technology Committee will continue to provide training opportunities for teachers to have the necessary technical skills needed to be effective in the use and integration of technology into the classroom.

5. TECHNOLOGY DESIGN
5.1 Software Priorities

5.1.1 Administrative and Management
The school is transitioning to X2 Aspen for the management and administrative functions of student records. We presently maintain a database for scheduling, grading, and attendance, which prepare information for reports requested by the Department of Elementary and Secondary Education. The collaboration between the new X2 Aspen Student information system and Blackboard ConnectEd enables the district to place calls home on absences, custom letters, interim warning reports, and certificates of recognition. These reports enable the school to keep parents better informed by merging information about their child's attendance, discipline behavior and grades in a single letter home. Financial management functions are handled by an application called Munis. All accounting and budgeting functions such as accounts receivable, accounts payable, payroll, and general ledger are performed on this system. The system is Windows based and is available anywhere throughout the school. The districts Microsoft School Agreement enables the school to implement Microsoft Collaboration Suite on every school owned computer system. Microsoft School Agreement is also used a teaching tool to educate the district's students on the importance of ethical practices regarding intellectual property. SchoolDude's online operations management solution has been purchased; providing management of a Help Desk, PC Inventory and Auditing, Faculty Training and Reporting.

5.1.2 Communications and Information Access
Microsoft Windows 2010 Server Domain is the network operating system for the school. All administration, faculty, staff and students access school resources via this operating system. Microsoft Outlook has been selected as the communication software. This will provide all administration, faculty and staff communication, calendaring and email. In addition, a Juniper Firewall is used to manage the link between the school and its Internet Service Provider and by creating a Proxy/Firewall limiting access to internal and external resources to and from the school. A Cisco IronPort Web Security Appliance provides the school with the ability to manage policy at a granular level, as well as custom filtering down to the group or user level. McAfee Web Gateway is a comprehensive solution comprising of a Proxy/cache, Category and reputation-based web filtering, anti-malware, antivirus, anti-spyware, SSL scanning, data leakage protection and reporting. Symantec Endpoint Protection software is installed on all servers and all PCs for data protection. Greater New Bedford has created and maintains its own web site for communication of information to our local communities and beyond. Library/Media services use the Follett software system to deliver catalog lookup and circulation services to networked PCs maintained within the library.

5.1.3 Instructional and Curricular
Microsoft Office 2010 is the integrated package to be used as a base for instruction and curriculum development and delivery to provide consistency across the disciplines. All PCs purchased come with Microsoft Windows XP Professional Operating System or Windows 7. The school’s Microsoft School Agreement allows the district to add any Microsoft software products on all PCs throughout the school ensuring all software is legally licensed.
The instructional technology staff with the assistance of academic teaching staff utilizes the Microsoft Office Suite, to assist in integrating technology into the academic curriculum. For example, Microsoft Word is used in the 10th grade English curriculum, as Microsoft Excel is used in the 11th Grade Math curriculum, and Microsoft PowerPoint is used in the 12th Grade Science curriculum to assist in this endeavor.

All instructional software purchases will be made according to priorities set by the Principal of Career and Technical Education and the Academic Principal. Instructional software also includes all software used in the technical career areas that are an integral part of the technical curriculum. Software titles include AutoCAD, CCC Collision and Estimating Software, Rosetta Stone Spanish, Quark Xpress, Adobe Mastercam Collection Suite. Software applications are found in all vocational areas – Autodesk Design Academy software in drafting technology, diagnostics in automotive, construction estimating in the building trades, CAD applications in electronics, electrical, and metal fabrication, and restaurant management and hospitality application in the service industries.

5.2 Hardware, Facilities, and Network Priorities

5.2.1 Hardware: Workstations and Peripherals
The Director of Technology in conjunction with the Technology Committee maintains an established minimum standard for all hardware purchases for computers and peripheral systems. Each teacher, administrator, secretary, and other staff member has access to a networked workstation including a printer in their work area. They will also have access to scanners, digital cameras, laptop computers and other technology needed for presentations available through our Audio Visual Department.

5.2.2 Network: Design
All classrooms have been wired to meet or exceed the minimum standard provided by the Department of Elementary and Secondary Education for student-to-computer ratios. In addition there are 7 Computer Resource Labs located throughout the facility with a 1:1 student to computer ratio. Many technical career areas also have computer labs maintaining a 1:1 student to computer ratio.

5.2.3 Implementation Issues
Issues to be resolved:
- Coordination and management of hardware and software updates.
- Addressing the large volume of call tickets with limited staff.
- Upgrading the district’s internet bandwidth. The district’s current bandwidth cannot handle the rich online resources that engage students and help them learn.

5.3 Operations, Maintenance, and Upgrade Priorities

Overseeing the operation of the school’s network is currently performed by the Director of Technology while service requests for hardware, software, and cabling problems are coordinated through the Technology Help Desk. Coordination of software licensing and
upgrades is also the responsibility of the Director of Technology in conjunction with the Technology Help Desk staff.

The Technology Committee will continue to meet and monitor all phases of the implementation process, including operation, maintenance, and upgrades. Recommendations for hardware and software upgrades and expansion will be part of the ongoing evaluation process, and the Technology Committee will ensure compliance with the overall district technology plan.
### 6. TECHNOLOGY IMPLEMENTATION ACTION PLAN

#### 6.1 Software Procurement

<table>
<thead>
<tr>
<th>Leadership</th>
<th>Activities</th>
<th>Timeline</th>
<th>Budget</th>
</tr>
</thead>
<tbody>
<tr>
<td>Instructional</td>
<td>Microsoft School Agreement (Annual Software Subscription)</td>
<td>2009-2010</td>
<td>$35,000</td>
</tr>
<tr>
<td>Instructional</td>
<td>Select additional career and academic educational application programs</td>
<td>2009-2010</td>
<td>$34,000</td>
</tr>
<tr>
<td>Instructional/Administration</td>
<td>X2 Aspen (Student Information System)</td>
<td>2009-2010</td>
<td>$29,000</td>
</tr>
</tbody>
</table>

#### 6.2 Hardware Facilities and Network Acquisition/Implementation

<table>
<thead>
<tr>
<th>Leadership</th>
<th>Activities</th>
<th>Timeline</th>
<th>Budget</th>
</tr>
</thead>
<tbody>
<tr>
<td>Instructional</td>
<td>Acquire Additional PC’s</td>
<td>2009-2010</td>
<td>$17,000</td>
</tr>
</tbody>
</table>

#### 6.3 Operations, Maintenance, and Upgrades

<table>
<thead>
<tr>
<th>Leadership</th>
<th>Activities</th>
<th>Timeline</th>
<th>Budget</th>
</tr>
</thead>
<tbody>
<tr>
<td>Operations</td>
<td>Designate Network/System Manager Coordinator</td>
<td>2006 -2008</td>
<td>$77,000</td>
</tr>
<tr>
<td>Maintenance</td>
<td>Maintain service contracts for network, Internet, communications and all its components</td>
<td>Annual</td>
<td>$75,000</td>
</tr>
<tr>
<td>Administrative</td>
<td>Replace 10 PC’s</td>
<td>Annually</td>
<td>$12,000</td>
</tr>
<tr>
<td>Instructional</td>
<td>Replace 204 PC’s</td>
<td>Annually</td>
<td>$280,000</td>
</tr>
<tr>
<td>Administrative</td>
<td>Peripheral replacement</td>
<td>Annually</td>
<td>$1,000</td>
</tr>
<tr>
<td>Instructional</td>
<td>Peripheral replacement</td>
<td>Annually</td>
<td>$10,000</td>
</tr>
<tr>
<td>Network</td>
<td>Server Replacement</td>
<td>Annually</td>
<td>$6,500</td>
</tr>
</tbody>
</table>

#### 6.4 Professional Development: Timeline, Budget

<table>
<thead>
<tr>
<th>Leadership</th>
<th>Activities</th>
<th>Timeline</th>
<th>Budget</th>
</tr>
</thead>
<tbody>
<tr>
<td>Administrative</td>
<td>Provide continued training for administrators, business office, discipline, guidance and other support staff on new applications</td>
<td>Annually</td>
<td>$14,400</td>
</tr>
</tbody>
</table>
Instructional Provide continued training opportunities on use of instructional software and management applications, Internet, Email, GradeQuick, etc… Annually $20,000

6.5 Additional Human Resources in Support of Technology

<table>
<thead>
<tr>
<th>Leadership</th>
<th>Activities</th>
<th>Timeline</th>
<th>Budget</th>
</tr>
</thead>
<tbody>
<tr>
<td>Training</td>
<td>Designate Educational Technology Specialist</td>
<td>2010-2011</td>
<td>$45,000</td>
</tr>
</tbody>
</table>

7. MONITORING, EVALUATION, AND REVISION OF TECHNOLOGY PLAN

7.1 Monitoring and Evaluation Process

The monitoring and evaluation process to be implemented by Greater New Bedford Regional Vocational Technical High School will be an annual assessment.

Faculty and students will be surveyed to assess the degree to which the application of technology has been integrated into academic and technical career programs. Utilizing tools and instruments designed for the Massachusetts Department of Elementary and Secondary Education and internally developed materials. Such instruments as: Technology Plan Implementation Report, TSAT, Teacher Technology Use Survey and a Student Technology Use Survey. Using the information from these tools, the Technology Committee will evaluate its progress towards its Long Range Technology Plans, provide the school district with current status, and what changes in implementation strategies need to be made. The technology committee will provide oversight to this process to assist the school in how well the plan is being implemented in terms of facilities, time lines, and budget. Results of all assessments will be shared with administrators who meet weekly, department chairpersons who meet at least monthly and are responsible for dissemination to members of their departments and to their advisory committees, and school committee members via quarterly updates. Evaluation will also consist of an inventory update of technology, training, and maintenance expenditures.

7.2 Incorporation of Evaluation Information for Ongoing Planning

The results of the monitoring and evaluation assessments will be used to make adjustments to the implementation plan. The results will also be used to reassess priorities, and will lead to the development and addition of a fourth and fifth year to the action plan.

7.3 Process for Reporting to Stakeholders

Revised Date: 10/14/2012
School and community stakeholders will be kept apprised of all activity, accomplishments and barriers of the technology plan. Ongoing communication is the key to the process. Internal communication as stated in the above section will be accomplished via the professional development program for faculty and staff, weekly administrative meetings, monthly department chairpersons meetings, and other in-service and full faculty meetings. Periodic reports will be sent to the school committee upon request.

Advisory committees comprised of local employers, parents, and students assist career and vocational programs in the development or their annual goals and prioritizing their needs, which are submitted to the Principal of Career and Technical Education. All technology purchases and upgrades must be processed through the Director of Technology. This requires communication between all groups.

The school council meets monthly. As part of their responsibility the council will be reviewing the progress of the Technology Plan throughout the school. Parents will be kept apprised of all activities via the school newsletter, open house, parent nights, newspaper articles and the parent’s portal.

7.4 Process and Timeline for Ongoing, Long Term Planning

The implementation of all initiatives under Education Reform is ongoing and long term. It is the process of continuous improvement that will drive all facets of reform, and technology is no exception. It will be the responsibility of the Technology Committee to update, revise, readjust, and amend the direction that the implementation process is taking based on factors that will arise over the next few years, new goals will be set after the original goals are met, and new technologies can be incorporated into the school's plan. New professional development goals will be set as faculty and staff, master the new technologies and integrate the use of technology into the curriculum.
# Human Resources in Technology 2009-2010

<table>
<thead>
<tr>
<th>Functions:</th>
<th>District Staff FTE (full-time equivalent)</th>
<th>Contracted Services FTE (full-time equivalent)</th>
<th>Other (students, volunteers, aides, paraprofessionals, etc., FTE (full-time equivalent))</th>
</tr>
</thead>
</table>
| **Leadership - Technology**  
Director/Coordinator, Assistant Superintendent, Principal, etc. | 1 | 0 | 0 |
| **Technology Curriculum Integration**  
Technology Curriculum Integration Specialist, Library Teacher, Instructional Technology Specialist, etc. | 0 | 0 | 0 |
| Technology Curriculum Integration Support, Technology Aides, Tutors, Volunteers, etc. | 0 | 0 | 0 |
| **Administration - Application**  
Developer/Programmer | 0 | 0 | 0 |
| Data Manager or Operator | 0 | 0 | 0 |
| Webmaster | 0 | 0 | 0 |
| Other | 0 | 0 | 0 |
| **Network/Technical Support – Network/System Manager** | 1 | 0 | 0 |
| Maintenance & Repair Specialist | 3 | 0 | 0 |
| Lab Coordinator, Manager, Technician | 0 | 0 | 0 |
| Teachers trained to provide technical support | 0 | 0 | 0 |
| Students trained to provide technical support | 60 | 0 | 0 |

# Proposed Human Resources in Technology 2010-2011

<table>
<thead>
<tr>
<th>Functions:</th>
<th>District Staff FTE (full-time equivalent)</th>
<th>Contracted Services FTE (full-time equivalent)</th>
<th>Other (students, volunteers, aides, paraprofessionals, etc., FTE (full-time equivalent))</th>
</tr>
</thead>
</table>
| **Leadership - Technology**  
Director/Coordinator, Assistant Superintendent, Principal, etc. | 1 | 0 | 0 |
| **Technology Curriculum Integration**  
Technology Curriculum Integration Specialist, Library Teacher, Instructional Technology Specialist, etc. | 1 | 0 | 0 |
| Technology Curriculum Integration Support, Technology Aides, Tutors, Volunteers, etc. | 1 | 0 | 0 |
| **Administration - Application**  
Developer/Programmer | 0 | 0 | 0 |
| Data Manager or Operator | 0 | 0 | 0 |
| Webmaster | 0 | 0 | 0 |
| Other | 0 | 0 | 0 |
| **Network/Technical Support – Network/System Manager Coordinator** | 1 | 0 | 0 |
| Maintenance & Repair Specialist | 3 | 0 | 0 |
| Lab Coordinator, Manager, Technician | 0 | 0 | 0 |
| Teachers trained to provide technical support | 0 | 0 | 0 |
If the Proposed Human Resources in Technology are met in school year 2010-2011 then the Greater New Bedford Regional Vocational Technical High School has met it’s goals in this area for its Local Technology Plan 2009-2012.

### Teacher and Student Use of Technology 2009-2010

<table>
<thead>
<tr>
<th>Frequency</th>
<th>Estimated percentage of instructional staff who use technology for professional activities; lesson planning, administrative, communication etc…</th>
<th>Estimated percentage of instructional staff who use instructional technology with students for activities such as research, multimedia, simulations, data interpretation etc…</th>
<th>Early</th>
<th>Developing</th>
<th>Proficient</th>
<th>Advanced</th>
</tr>
</thead>
<tbody>
<tr>
<td>Every day</td>
<td>80%</td>
<td>40%</td>
<td>35%</td>
<td>20%</td>
<td>20%</td>
<td>20%</td>
</tr>
<tr>
<td>Once a week</td>
<td>15%</td>
<td>50%</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Once a month</td>
<td>5%</td>
<td>5%</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Rarely</td>
<td>0%</td>
<td>5%</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

### Technology Training and Professional Development 2007-2010

<table>
<thead>
<tr>
<th>Year</th>
<th>Technology Professional Development - Estimated percentage of staff who have received formal technology professional development</th>
<th>Estimated total number of staff hours of formal technology professional development</th>
<th>Estimated percentage of staff who have been reached by ongoing technology professional development</th>
<th>Estimated percentage of staff who have taken online technology professional development courses</th>
<th>Estimated percentage of staff who have received technology professional development (Any Type)</th>
<th>Topics covered in Technology Training and Professional Development – Maintenance, Repair and Network Operations</th>
<th>Computer Applications</th>
<th>Integrating Technology into the Curriculum</th>
<th>Other topics</th>
</tr>
</thead>
<tbody>
<tr>
<td>2007–2008</td>
<td>85%</td>
<td>450 Hours</td>
<td>55%</td>
<td>0%</td>
<td>97%</td>
<td>15%</td>
<td>45%</td>
<td>40%</td>
<td>0%</td>
</tr>
<tr>
<td>2008–2009</td>
<td>71%</td>
<td>600 Hours</td>
<td>60%</td>
<td>20%</td>
<td>90%</td>
<td>20%</td>
<td>60%</td>
<td>20%</td>
<td>0%</td>
</tr>
<tr>
<td>2009–2010</td>
<td>75%</td>
<td>500 Hours</td>
<td>65%</td>
<td>15%</td>
<td>90%</td>
<td>10%</td>
<td>50%</td>
<td>30%</td>
<td>10%</td>
</tr>
</tbody>
</table>
Appendix

Instructional Computer Distribution and Replacement Schedule