HACKENSACK PUBLIC SCHOOLS

DISTRICT TECHNOLOGY PLAN

July 1, 2013 - June 30, 2016

Hackensack Board of Education

May 2013

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Table of Contents

2013-2016 District Technology Plan Stakeholders 5

Executive Summary 6

Technology Inventory 7

Technology Equipment 7
Assistive Technology 8
PARCC Technology Readiness Needs 9
Network Capacity 10
Filtering Method 12
Software Used for Curricular Support and Filtering 13
Technology Maintenance and Support 18
Telecommunication Services 20
Other Services 21

Needs Assessment 23

Three-Year Goals and Objectives 24

Three-Year Implementation Activity Tables 25

Professional Development Strategies 40

Educators 40
Technical Staff 40
Application of Assistive Technologies 41
Professional Development Planned for 2013-2016 42

Evaluation Plan 48

Funding Plan 50

Appendix I: Obsolescence Plan 53

Appendix II: School-Based Technology Planning Teams 56

Appendix III: 21st Century "Classroom Jobs" 58

Appendix IV: ISTE NETS Standards for Students 59

Appendix V: ISTE NETS Standards for Teachers 60

Appendix VI: ISTE NETS Standards for Administrators 62

Appendix VII: Board Resolution 64

Appendix VIII: District Technology Plan Checklist 65

2013-2016 District Technology Plan
Stakeholders

Stakeholders		
Title	**Name**	**Signature**
Superintendent	Joe Abate	
Principal	Jim Montesano	
Technology Coordinator	Adrian Cepero	
Director of Curriculum	Alma Morel	
Director of Bilingual/ESL and World Languages	Felisha Wood	
Director of Special Education	Dr. Stuart Barudin	
Library Media Specialist - Middle School	Maureen Carroll	
Library Media Specialist - High School	Cynthia Ortiz	
District Data Coach	Jason Koepke	
Teacher - Elementary	Patricia Burleson	
Teacher - Elementary	Titia Lomax	
Teacher - Middle School	Theodore Malin	
Teacher - High School	Johanna Espinal	
Community Member	Leyla Hagihossein	
Teacher - Elementary	Adi Madden	

Executive Summary

In alignment with the District's mission "to maximize academic achievement, and develop confident students who are accountable for their ongoing learning, who value initiative and diversity, and who are able to contribute meaningfully to the ever-changing global society", Hackensack's vision of technology is to create model 21st century learning environments that transform the teaching and learning process for all students in the District to a more student-centered, teacher-facilitated experience that will lead to higher levels of engagement, empowerment and ultimately, academic achievement.

This will be accomplished by providing technology-rich 21st century classroom environments and curriculum-aligned resources, a state-of-the-art network infrastructure, and on-going, high quality professional development to all Hackensack teachers and administrators to enable them to lead and teach in these environments.

Teachers and administrators will become leaders in implementing 21st century themes and skills by developing and implementing lessons and instructional programs infused with the ISTE NETS technology standards for students[1] that emphasize:

- Creativity
- Collaboration
- Communication
- Critical-thinking
- Digital Citizenship

As a result, students will be empowered to assume responsibility for their learning by applying new and existing technologies to solve real world problems while simultaneously expanding their global and cultural awareness and developing essential skills necessary for college and career readiness.

[1] See Appendix IV on page 59.

Technology Inventory

To ensure the successful integration of 21st Century knowledge and skills in classrooms across the district the following technology needs must be met during the 2013-2016 school years:

Technology Equipment

Over the past few years, in alignment with the 2010-2013 District Technology Plan, much has been done by Hackensack Public Schools to provide each classroom in the district with adequate access to technology equipment and internet resources.

Through various initiatives, many district classrooms have been provided approximately four computers in small technology centers, a SmartBoard, digital projector, teacher workstation, LaserJet printer and document camera. All 9th graders were assigned an Apple iPad during the 2012-2013 school year. The District also made a significant investment in desktop virtualization, which will be expanded each year as an alternative to standard desktops in classrooms and labs. In many cases, these efforts have also been complemented at the school-level and by other departments to provide access to technology resources to classes not included in major District initiatives.

However, additional devices are still needed to further reduce our current student-to-device ratio to 2:1 in our elementary schools and 1:1 in our High School and Middle School by 2015-2016 and to replace older, obsolete systems (Obsolescence Plan is described in detail in Appendix I on page 53).

21st Century Model Classroom

In order to ensure consistency and foster collaboration, the technologies listed below are considered by the District as the standard for a model "21st Century" classroom:

- Interactive whiteboard (SmartBoard) with wall-mounted digital projector
- Teacher workstation
- Student devices (Class set or student-assigned)
- Student response system ("clickers")
- Document camera (for student interaction and to showcase products)
- iPod Touch or comparable device (as an assistive learning device and for audio/video recording and playback)
- Shared/dedicated LaserJet printer (networkable and duplex-capable)

High School 1:1 (1-to-1) Initiative

Hackensack Public Schools is currently implementing an iPad-based 1:1 initiative at the High School level, which will provide all High School students and staff with a District-

owned Apple iPad by 2015-2016.

Ninth grade students and staff were assigned iPads in September 2012. These devices will continue with the students during their time at Hackensack High School. Each year the incoming Ninth grade class will receive iPads. Tenth grade staff will receive iPads in September 2013. However, moving forward, in order to better facilitate professional development and provide adequate time for staff acclimation, Eleventh grade staff will receive their iPads in Spring 2014 and Twelfth grade staff in Spring 2015.

Students use their iPads during class and are able to take them home to complete assignments. They also have access to a District-provided CIPA-compliant email account as well as District-approved applications and resources. Some courses are piloting iPad or web-based textbooks in lieu of traditional print textbooks.

All student iPad internet traffic is monitored/filtered to ensure CIPA compliance while on and off the District network through the use of a proxy. Staff and student iPads are managed by the Department of Technology utilizing a cloud-based mobile device management solution.

The District plans to continue its 1:1 Apple iPad initiative at the High School through at least 2016 in order to increase academic achievement by "provid[ing] students with the tools and resources that are necessary for the 21st Century Learner" (High School iPad Policy). This will require the purchase of additional iPads annually based on projected ninth grade enrollment for the following year with an additional 10% to be maintained as loaners/replacements in case of damage, loss or theft.

Middle School and Elementary Initiatives

The District will provide class sets of Chromebooks for daily instructional use in the Middle School and elementary schools. In the Middle School, these devices will facilitate the 8th Grade STEM initiative by providing a mobile tool for conducting research and working collaboratively on projects. In the elementary schools, they will be used to augment the District curriculum while simultaneously strengthening students' knowledge and understanding of 21st century themes and skills.

These initiatives will also support the District's PARCC-readiness goals by providing technology that could be used for assessment purposes and developing student technical knowledge and skills necessary for future online testing.

Assistive Technology

Part of the mission of the Hackensack Public Schools is to ensure **"all students** are entitled to opportunities to maximize their talents and abilities**."** To this end the Department of Technology maintains a robust network infrastructure that allows for our general education, special needs and Bi-lingual/ESL students to access any technology

resources needed and recommended for their individual needs.

Hackensack has implemented amplified classrooms, special keyboards and mice, Apple iPads, and interactive white boards in various Special Education classrooms. Furthermore, all High School bi-lingual students have been assigned an iPad as part of the High School 1:1 initiative. The Department of Bilingual/ESL also plans to provide Middle School bilingual classrooms with access to class sets of mobile devices and Scholastic Read180 to High School ESL classes beginning September 2013. High School Bilingual/ESL students will also have access to Rosetta Stone, a web-based computer-assisted language learning program, to facilitate acquisition of the English language.

The Department of Technology makes itself available for consultation to child study teams, school caseworkers, teachers, administrators, and parents during the development of student IEP's. The District uses the process outlined in The Assistive Technology Training Online Project (ATTO) to identify AT applications that help students with disabilities learn in elementary classrooms (http://atto.buffalo.edu/). Recommendations are then forwarded to the Department of Technology for approval. Subsequently, decisions are made on any district-wide purchasing initiatives and implementations specific to these assistive technologies, including NIMAS compliance.

PARCC Technology Readiness Needs

In preparation for the upcoming PARCC assessment, the District must focus on several key areas to ensure readiness:

- Increase the number of available approved testing devices District-wide.
  Currently, a majority of classroom desktops throughout the District utilize the Windows XP operating system and therefore, do not meet PARCC requirements beyond 2013-2014 (as per PARCC Technology Guidelines version 2.1). The District has invested in desktop virtualization and plans to expand this initiative. This expansion, coupled with the Chromebook initiatives for the Middle School and Elementary schools, will provide additional devices that could be used in preparation for PARCC testing.
- Establish or designate temporary/permanent online testing areas (such as computer labs, media centers, gymnasiums, etc.) in all schools.
  Currently, elementary schools do not have a computer lab. The District will explore creating computer labs in these schools as an option in 2013-2014.
- Increase network capacity and add wireless to all buildings (discussed further in the following section).
- Increase student exposure to basic technology skills and operations as well as online testing.
  In order to ensure students have the technical knowledge, skills and experience needed for online testing, the District will create more K-12 technology-related courses and offer more opportunities for students to participate in online assessments.

Technology Equipment Needs for 2013-2016		
2013-2014	**2014-2015**	**2015-2016**
• Replace obsolete desktops with new physical or virtual PC's • Add/Replace Smartboards w/Projector • Replace failing projectors • Add/Replace Document Cameras • Computer monitors for virtual PC's • Student Response Systems • Add/Replace Printers • High School iPads • Middle School/Elementary Chromebooks • iPod Touch or comparable assistive learning tools • Purchase additional loaners for instructional technology (desktops, printers, projectors, iPads, Chromebooks, etc.)	• Replace obsolete desktops with new physical or virtual PC's • Add/Replace Smartboards w/Projector • Replace failing projectors • Add/Replace Document Cameras • Computer monitors for virtual PC's • Student Response Systems • Add/Replace Printers • High School iPads • Middle School/Elementary Chromebooks • iPod Touch or comparable assistive learning tools • Purchase additional loaners for instructional technology (desktops, printers, projectors, iPads, Chromebooks, etc.)	• Replace obsolete desktops with new physical or virtual PC's • Add/Replace Smartboards w/Projector • Replace failing projectors • Add/Replace Document Cameras • Computer monitors for virtual PC's • Student Response Systems • Add/Replace Printers • High School iPads • Middle School/Elementary Chromebooks • iPod Touch or comparable assistive learning tools • Purchase additional loaners for instructional technology (desktops, printers, projectors, iPads, Chromebooks, etc.)

Network Capacity

The success of this planned influx of technology and resources is highly dependent on the availability of a stable, high-speed network infrastructure that can meet the demands of over 6,000 devices (projected by 2015-2016) throughout the District.

The Hackensack Public Schools Department of Technology has and continues to develop a highly-capable, centralized network of schools and offices interconnected via District-owned Fiber connections. Main Distribution Frames (MDFs) in each building are connected to each Intermediate Distribution Frame via Fiber[2] as well. All classrooms and offices have at least one (1) CAT5e network connection with a 5- or 8- port switch to provide connectivity to multiple devices. Currently, the District has a 1 Gigabit internal network capacity down to the classroom level.

The District utilizes a "hub-and-spoke" topology with all buildings (spokes) connecting to the Hub located at the High School. At the hub, we currently have a core switch that handles all District-wide routing, several physical and virtual servers[3], a Storage Area Network device for District staff and student file storage, and content filtering/endpoint

[2] With the exception of 2 IDF closets at the High School that are currently connected via copper, but will be upgraded to Fiber by 2014-2015.

[3] 2 virtual domain controllers (for DNS/Active Directory), 4 "VDI-in-a-Box" (for virtual desktops), 2 web/database servers, 2 camera system servers, 1 Anti-Virus/EPO update server, 1 security server and 3 virtual print servers.

appliances to handle firewalling, threat management, and CIPA compliance. All buildings share a single 100 Mb internet connection, which currently has 100% utilization during peak times (8:30 AM – 11:00 AM).

Network Printing

The majority of LaserJet/multifunction printers and copiers are available on the network and managed by three (3) virtual print servers. Copiers also have the ability to scan documents to email or a network folder. The District plans to implement rules-based printing to better manage printing activity, improve efficiency and lower costs and reduce our environmental impact.

Wireless Connectivity

During the 2012-2013 school year, wireless connectivity was added throughout the High School in preparation for the 1:1 iPad initiative. Other buildings have limited coverage based on previous initiatives and grants. Many rely on legacy wireless technology that is out-dated/obsolete and does not have the capacity to support current network demands.

Next Steps

In order to support increasing demand for network and web-based ("cloud") resources, the District, at a minimum, will need to:

- Increase internet bandwidth to 500 Mb by July 2013 and 1 Gb by 2015-2016 to meet increasing network demands and PARCC/SETDA minimum standards.
- Increase core network capacity to 10-Gigabit (between buildings, MDF-to-MDF, by 2014-2015; within buildings, MDF-to-IDF, by 2015-2016)
- Add wireless connectivity throughout each District building to meet the demands of mobile devices and BYOD.
- Replace aging network technology in MDF's and IDF's.
- Add a network monitoring appliance to properly monitor/manage internal network traffic to identify and prevent bottlenecks.
- Utilize software for monitoring and optimizing District-wide print activity to improve efficiency and reduce maintenance needs.
- Add a redundant, diversified internet connection at the Middle School to ensure maximum availability of resources and to prevent a network "single-point-of-failure". (For more information on improvements needed to guarantee availability of network resources, see "Facilities Infrastructure" below)
- Add additional servers and storage at the High School and Middle School to expand/maintain district-wide initiatives such as Scholastic Reading Inventory, Scholastic Read180, Genesis Student Information System, Discovery Education, and desktop virtualization.

Facilities Infrastructure

To ensure maximum availability of resources, the District will need to improve its Hub by upgrading or adding the following:

- A fire suppression system
- Properly sized battery backups to protect systems against power failures
- Emergency electrical power/generator for prolonged outages.
- Additional Security Measures
- Concrete or Tiled flooring
- Ventilation/Air conditioning

To meet growing demands on the building level, where it is necessary and funds allow, we will upgrade the Main and Intermediate Distribution Frames in some, if not all, of the areas above.

Network Capacity Needs for 2013-2016		
2013-2014	**2014-2015**	**2015-2016**
• Increase internet bandwidth to 500 Mb (from 100 Mb) • Add wireless connectivity to Middle School and elementary schools (if funds allow) • Upgrade High School and Middle School Core Switches to 10 Gb capacity • Add network monitoring appliance • Replace aging servers at High School • Add backup servers and storage at Middle School • Replace aging UPS backups in MDF's and IDF's • Add secondary data connections to offices and classrooms for future use	• Maintain 500 Mb internet bandwidth • Add wireless connectivity to all elementary schools (staggered coverage) • Upgrade Elementary School MDF's to 10 Gb • Upgrade IDFs at High School, Middle School, and Elementary (if funds allow) to 10 Gb • Add secondary data connection at Middle School • Replace aging servers at High School • Add additional backup servers and storage at Middle School • Upgrade High School hub (replace flooring, improve ventilation, add security)	• Increase internet bandwidth to 1 Gb • Add additional wireless connectivity to all elementary schools (full coverage) • Upgrade remaining IDFs at High School, Middle School, and Elementary (if funds allow) to 10 Gb • Replace aging servers at High School and Middle School • Add additional backup servers and storage at Middle School • Upgrade High School hub (fire suppression system and other improvements)

Filtering Method

The District uses a centralized, "hub and spoke" network topology, which means all schools connect to the internet through a single internet connection located at the hub (in the High School). At this endpoint, we filter all content and traffic using an endpoint

solution[4] to ensure CIPA compliance.

All District-owned devices that are assigned to staff or students (i.e. iPads, laptops, Chromebooks) will be filtered even while "off" the District network by means of a proxy or agent.

Staff can request to have individual websites/domains "unblocked" District-wide through an online form or can request override credentials to manually override/unblock sites when needed by completing a paper form and submitting it to the Department of Technology. All requests are evaluated on an individual basis by the District Technology Coordinator or his designee.

The District will regularly re-evaluate (and improve) its content filtering system to better support the increased internet bandwidth and number of users/devices added each year and to ensure staff and students have adequate access to educational resources.

Filtering Needs for 2013-2016		
2013-2014	**2014-2015**	**2015-2016**
• Upgrade content filtering to support increased bandwidth, proxying of student devices, and to add granular controls for improved access to appropriate educational resources.	• Maintain content filtering	• Add additional content filtering appliance at Middle School for load-balancing

Software Used for Curricular Support and Filtering

In an effort to support academic achievement, Hackensack Public Schools has implemented the following software programs for supplemental curricular support:

- Language Arts/Literacy:
  - Scholastic Reading Inventory (Grades 6-11)
  - Scholastic Read180 Next Generation (Grades 5-11)

- Mathematics:
  - VMath Live
  - MathType
  - Sketchpad

- Science/Industrial Arts/STEM:
  - Adobe Dreamweaver
  - Adobe Flash
  - Adobe Fireworks

[4] Sonicwall (As of April 2013). District plans to discontinue use of Sonicwall's native content-filtering feature and add an inline, dedicated content-filtering appliance by July 1st, 2013.

- Adobe Illustrator
- Adobe InDesign
- Adobe Photoshop
- Adobe Premier
- AutoCAD
- Alice
- CADKey
- GameMaker Pro
- NetBeans

- Social Studies:
  - Amistad

- Bilingual/ESL and World Languages
  - Rosetta Stone (Grades 9-12)
  - Scholastic Read180 (Grades 9-12)

- Cross-disciplinary:
  - NovaNET Online Courseware (High School Alternative Program)

- Assessment
  - Pearson iNSIGHT
  - Sungard PerformancePlus
  - Fitstat (Physical Education)

- All computers in the district come with the following software pre-installed:
  - Microsoft Office Professional 2010 (Word, Excel, PowerPoint, Outlook, Access, Publisher, Visio)
  - Adobe Acrobat Pro
  - Microsoft PhotoStory
  - Google Chrome
  - Mozilla Firefox

- In addition to the above, many schools throughout the district have been provided the following programs for administrative/instructonal use:
  - Adobe Acrobat Pro
  - Audacity
  - CSI Budgetary Accounting
  - CSI Personnel Recordkeeping
  - iMovie
  - iTunes
  - Microsoft Visio
  - Quicken
  - Smart Notebook
  - Smart Response

- Other District-recommended/provided online resources and subscriptions:
  - Aesop
  - Applitrack
  - BrainPOP
  - Destiny Automated Library System
  - Discovery Education Streaming
  - Edmodo District sub-domain (hackensack.edmodo.com)
  - EDU 2.0
  - Genesis Student Information System with Lesson Planner
  - GoogleApps (Drive, Gmail[5] and Calendar)
  - Grolier
  - IEP PlaNET
  - Join.me
  - Naviance (Guidance)
  - PDPlanner (in-house application)
  - Prezi
  - Razkids/Reading A-Z
  - SchoolDude IT/Maintenance Direct
  - SchoolWorld District/School Website Hosting
  - SlideShare
  - SimpleK12 Teacher Learning Community[6]
  - Study Island
  - SurveyMonkey
  - Teachscape
  - Teamviewer
  - The VHS Collaborative
  - Voyager
  - Worldbook Online

- District-provided iPad Apps:
  - Adobe Acrobat
  - Airwatch Browser
  - Cloud On
  - Common Core Standards
  - Dictionary
  - Dropbox
  - Edmodo
  - EduCreations
  - Evernote
  - ExplainEverything
  - Flashcards
  - Graphing Calculator
  - ItunesU

[5] As of July 2013.

[6] As of July 2013.

- Khan Academy
- Math Terms
- Molecules
- My Homework
- PDF Max
- PDF Notes
- Prezi
- Proloquo2Go
- QuickOfficeHD
- Quizlet
- Student Clicker (Socrative)
- Study Blue

Professional development has been provided on an ongoing basis for a majority of the titles listed above with additional PD planned for the 2013-2014 school year and beyond.

Security/Anti-Virus Protection

In addition to our endpoint security (detailed in the previous section), the District also utilizes McAfee Enterprise, a server-controlled anti-virus solution that protects all district computers from mal-ware and viruses. The McAfee database is updated regularly, which is then replicated to all client computers for maximum security compliance. Scans are run daily and cannot be disabled by users. The Department of Technology also utlizes Faronics DeepFreeze on all District computers to prevent malware- and virus-related operating system changes as well as installation of non-approved software. In order to ensure compliance with all applicable laws and to prevent intentional/unintentional mis-use of technology and/or network resources, all software installed on District devices must be approved/installed by the Department of Technology.

Active Directory

The District currently uses Windows Server 2003 with Active Directory and plans to upgrade to 2008 by summer 2013. All Windows-based computers in the District are on a single domain. All staff is assigned an Active Directory account for the domain, which is being integrated with various services to provide Single-Sign-On (SSO) capability. Staff is also provided with access to a "Home" folder and District-wide shared drive for file storage and sharing. Students in grades 6-12 will also be provided with an Active Directory account beginning September 2013.

Mobile Device Management

The District will continue using a mobile device management solution[7] to monitor and manage all District iPads. This web-based software allows the District to enforce usage policies, remotely install or remove applications, and track stolen or lost devices.

[7] Airwatch as of April 2013

"Going Green" with Rules-based Printing and Digital Scanning/Faxing

It is estimated that the average office employee consumes 10,000 pages of printed material per year, or 1.2 trees annually, and the average printer cartridge takes 3 quarts of oil to produce.

Therefore, in an effort to improve efficiency and limit our environmental impact, the District plans to cut paper consumption and print activity significantly over the next three years. This will be accomplished by utilizing tools such as rules-based printing software to monitor and optimize print activity throughout the District, encouraging double-sided printing (when possible) and providing training for staff on the use of built-in digital scanning, faxing, and network functions of modern-day copiers/multi-function printers to reduce printing needs.

While this will ultimately lead to lower costs and maintenance, it will also ensure we are setting a positive example for our students on how to care for the environment responsibly.

Software Needs for 2013-2016		
2013-2014	**2014-2015**	**2015-2016**
• Continue subscriptions to District-provided software used for instruction, intervention and assessment (Scholastic Read180/SRI, Rosetta Stone, Voyager, PerformancePlus, etc.) • Continue subscriptions to administrative/productivity software tools (Microsoft Office, Aesop, CSI, Naviance, Applitrack, etc.) • Continue subscriptions to technology-related software (McAfee, DeepFreeze, Airwatch) • Add rules-based printing software	• Continue subscriptions to District-provided software used for instruction, intervention and assessment (Scholastic Read180/SRI, Rosetta Stone, Voyager, PerformancePlus, etc.) • Continue subscriptions to administrative/productivity software tools (Microsoft Office, Aesop, CSI, Naviance, Applitrack, etc.) • Continue subscriptions to technology-related software (McAfee, DeepFreeze, Airwatch)	• Continue subscriptions to District-provided software used for instruction, intervention and assessment (Scholastic Read180/SRI, Rosetta Stone, Voyager, PerformancePlus, etc.) • Continue subscriptions to administrative/productivity software tools (Microsoft Office, Aesop, CSI, Naviance, Applitrack, etc.) • Continue subscriptions to technology-related software (McAfee, DeepFreeze, Airwatch)

Technology Maintenance and Support

An important goal of the district is to ensure the availability of technology resources and services to support/improve academic achievement.

All technology[8] through-out the District is maintained by the following personnel:

- 3 field technicians
- Network engineer
- District Technology Coordinator

Maintenance: Desktop and Laptop computers are routinely scanned for viruses, re-imaged and updated to ensure reliability. District-owned Apple iPads are maintained via a mobile device management solution to ensure compliance with District acceptable-use policies and standards.

The District will perform regular preventative maintenance on desktops and projectors twice a year to improve their lifespan. Older generations of projectors and Smartboards that are no longer performing efficiently or are showing signs of failure will be replaced on an ongoing basis. All traditional desktops/workstations will be evaluated for replacement based on the "Guidelines for Obsolescence" set forth in Appendix I on page 53.

Warranties: Desktops and laptops are covered by three-year on-site extended warranties purchased separately from the manufacturer or re-seller. All Apple devices such as iPads, iMacs, and MacBooks are covered by the standard two-year AppleCare+ protection plans, which cover repairs and up to two incidents of accidental damage. District-owned iPads and other mobile devices assigned to staff or students in which the device may be taken off District property must be covered by a third-party insurance plan purchased through an approved provider[10].

Spares/Loaners: The Department of Technology maintains spares of certain types of equipment for emergency replacements and temporary loaning including desktops, laptops, printers, projectors, network switches, and iPads. It is recommended that all initiatives involving large purchases of technology for instructional use dedicate an additional 10% of inventory for replacement and loaning purposes.

Technology Support

Technology support in the district will be provided from two different approaches (Instructional and Technical) and at various levels within each approach.

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[8] District copiers and laserjet printers are currently maintained through a Managed-Print Services contract with Stewart Business Systems (as of April 2013). This service provides toner as well as technical support by way of a 1-800 number available on each machine. Department of Technology staff does assist with installation of toners and troubleshooting if needed.

[10] Currently, GoCare, Inc.

Instructional Support: Support provided to aid in implementation of educational technologies during instruction including pedagogy, best practices, and resource development. This will be provided through the use of educational consultants, content-area supervisors, coaches and Department of Technology staff. We plan to offer the following levels of instructional support:

I. Remote Support
    - By phone or email
    - Webinars/Tutorials
II. On-site support
    - Job-embedded or in-class coaching
    - Professional development workshops
    - Planning/Grade-level meetings

Staff at each school will have access to a discussion forum for on-going support and a resource portal with links to resources including software, sample lessons, tutorials, and forms.

Technical Support: Support provided to aid with technology and infrastructure issues including malfunctioning devices or computer systems, internet connectivity, software installation and support, and equipment setup. This will be provided primarily by the Department of Technology through a web-based help request system according to the following levels:

I. Remote Support
    - By phone or email (Helpdesk)
    - Remote desktop control/software deployment
II. On-Site Support
    - Field Technicians/Network Engineer
    - AppleCare (based in the High School)

Next Steps

With the growing number of new technologies in the District, it is imperative that the following is done to ensure that all the needs of the schools are met:

- Establish an "AppleCare" Service Center at the High School to support all District iPad initiatives (2013-2014).
- Establish a help desk with a telephone hot-line for basic troubleshooting and support.
- Hire one (1) additional technician to support schools (2013-2014).
- Develop "floating" 21st Century Coaches to provide on-site instructional support and job-embedded professional development to all schools on how to effectively analyze/use data and integrate technology into instruction.

- Maintain current online help desk ticket system[11] for submitting support requests to Department of Technology.
- Expand District Resource Portal to provide access to more online tutorials and resources.

Technology Maintenance and Support Needs for 2013-2016		
2013-2014	**2014-2015**	**2015-2016**
• Establish AppleCare Service Center at High School • Establish helpdesk/telephone support option • Maintain online help desk ticket system • Add remote support option • Hire additional technician to support schools • Develop "floating" 21st Century instructional support coaches • Continue Managed Print Services	• Maintain/expand AppleCare Service Center at High School • Maintain helpdesk/telephone support option • Maintain number of technicians • Maintain/expand "floating" 21st Century instructional support coaches • Continue Managed Print Services	• Maintain/expand AppleCare Service Center at High School • Maintain/expand number of technicians to support increased number of devices/resources • Maintain/expand "floating" 21st Century instructional support coaches • Continue Managed Print Services

Telecommunication Services

Telephones: Currently, the District uses a Centrex-based phone system operated by Earthlink (Conversant Communications Inc.)[12] that provides basic features such as extension dialing within schools and between buildings, voicemail, caller ID, call forwarding and "hunting". Phones are primarily located in school and administrative offices.

As part of the overall District goal to improve security and communication in schools, the district plans to upgrade its telecommunications system in the 2014-2015 school year to a full Voice over IP system that provides the district with the necessary and effective telecommunications it requires for the future. Phones will be available in every classroom and each staff member will be provided with an extension/voice mailbox. This system will allow us to centrally manage our telecommunications system and provide all the features of state-of-the-art VoIP systems such as paging, "hot-desking", auto attendant, "find-me-follow-me", and online extension/mailbox management.

This upgrade will also require infrastructure improvements[13] to provide additional Ethernet connections in each area without an available secondary data connection; Power-over-Ethernet (PoE) switches at each IDF/MDF will also need to be added as will

[11] SchoolDude ITDirect (as of April 2013)

[12] As of July 1, 2013.

[13] See "Network Capacity" on page 10.

an independent data connection at each site to create a separate parallel VoIP network that does not rely on the District's primary internet connection or ISP. This reduces the likelihood of a District-wide failure as a result of our "hub-and-spoke" topology.

Cellular/Wireless: A District cellular/wireless account is assigned to administrators and technical support staff for communication and security purposes. This service is currently provided by Verizon Wireless and will be continued.

Telecommunications Needs for 2013-2016		
2013-2014	**2014-2015**	**2015-2016**
• Continue Centrex phone service with Earthlink (Conversant Communicatins) • Continue cellular/wireless service for administrators and technical support staff	• Transition to hosted VoIP telephony system • Continue cellular/wireless service for administrators and technical support staff	• Maintain hosted VoIP telephony system • Continue cellular/wireless service for administrators and technical support staff

Other Services

Web Site Accessibility

The Hackensack District website, located at www.hackensackschools.org, is maintained by the Department of Technology.

The goal of the website is to effectively disseminate information regarding Hackensack Public Schools, its programs and events. The site is accessible by all users via computer, tablet and other web-enabled mobile devices.

The District currently uses the services of a Web vendor, Blackboard Engage SchoolWorld to ensure navigation and design consistency across all District sites.

The service is evaluated annually to ensure the following guidelines are met:

- Consistent viewing experience across all platforms (browsers, devices, etc.)
- 100% compliance with ADA and Section 508 standards including:
    - Text that can be enlarged
    - Audio accompanied by text
    - A color palette that is "easy on the eye" with sufficient contrast for those who might be color blind
    - A text equivalent for all non-text multimedia elements (i.e., audio, video, graphics, animation, graphical buttons, and image maps)
    - "Alt" tags with alternative text descriptions for images that convey information (that is, non-decorative images), graphs, and other graphics in Word, PowerPoint, PDF, and HTML
    - Keyboard navigation to functional elements will be provided to

accommodate individuals with motor disabilities.
- Compatibility with assistive software such as Opera.

The District also provides access to schools and community groups to post relevant educational/community information on the website.

District Notification System

The district currently utilizes a broadcast notification system (School Messenger) to send pre-recorded audio/text notifications to staff and parents over telephone/cellphone, email, SMS (text messaging), and social media platforms. Messages to parents are sent in both English and Spanish. This is used in case of emergencies, school closings and to raise awareness of school and community events.

Security

In line with the District's mission of "maintaining a safe and secure learning environment", the District will continue to implement and improve various security measures throughout District buildings, including:

- Surveillance cameras/systems at the High School, Middle School, and elementary schools
- Photo-Identification badges for all staff
- Visitor tracking/management systems at each building
- Proximity card time-clock systems at each building for staff

Other Service Needs for 2013-2016		
2013-2014	**2014-2015**	**2015-2016**
• Continue web-hosting service (Blackboard Engage SchoolWorld) • Continue SchoolMessenger District Notification System • Add additional surveillance cameras/systems at High School, Middle School and elementary schools • Replace current and add additional visitor tracking/management systems at all schools • Assign photo-identification badges (proximity cards) to all staff • Implement District-wide time-clock system	• Continue web-hosting service (Blackboard Engage SchoolWorld) • Continue SchoolMessenger District Notification System • Maintain/Add surveillance cameras/systems at High School, Middle School and elementary schools • Maintain District-wide time-clock system	• Continue web-hosting service (Blackboard Engage SchoolWorld) • Continue SchoolMessenger District Notification System • Maintain/Add surveillance cameras/systems at High School, Middle School and elementary schools • Maintain District-wide time-clock system

Needs Assessment

The District based its needs assessment on various sources of information including:

- An online survey at both the school- and district-level on technology needs (both professional development and equipment);
- Informal observations
- Anecdotal feedback from staff, students and parents;
- State and district reports;
- Recommendations from the District Technology Planning Committee
- Published guidelines from major initiatives or organizations such as PARCC and SETDA.
- Review of current and past work orders and help requests.
- Regular internal evaluation of services by the Department of Technology

A survey of K-12 teachers in the district was conducted using GoogleDocs and designed to assess the needs of educators in regards to professional development, technology equipment, software, and technical support. Questions ranged from simple uses of basic technology tools to more advanced 21st century learning concepts and skills.

Students' needs are also regularly assessed at both the district- and school-level by analysis of student products and results of proficiency assessments based on the NJTAP-IN 4th grade checklist and 8th grade rubric. Activities are planned at both levels to address needs during the current or upcoming school-year. Through this plan, student technology organizations/clubs will also be established in each school that will help provide feedback to the school-based technology planning teams regarding student technology needs.

Three-Year Goals and Objectives
2013-2016

Goal 1: **All teachers and school administrators will demonstrate evidence of acquiring and implementing teaching, learning and leadership practices needed in 21st century learning environments by:**

Objective 1.1: Engaging in sustained and intensive professional development to assist with the implementation of 21st century instructional/assessment practices that meet diverse student needs.

Objective 1.2*:* Using technology as a tool to promote a student-centered school culture and to improve and enhance professional development and leadership skills.

Objective 1.3**:** Using student data to modify instructional strategies and personalize learning experiences.

Objective 1.4: Using technology to create and/or administer online assessments for students***.***

Objective 1.5: Using technology and telecommunication services to enhance communication with students, parents and the community.

Goal 2: Students will demonstrate increased engagement in learning and in using 21st century skills to assist in meeting the Common Core State Standards by:

Objective 2.1**:** Applying information-literacy skills to access, manage, and communicate information using a range of emerging technological tools.

Objective 2.2: Thinking critically and creatively to solve problems, synthesize and create new knowledge, and make informed decisions that affect individuals, the broader community, and the environment.

Objective 2.3: Gaining enhanced understanding of global interdependencies as well as multiple cultural perspectives, differing points of view, and diverse values.

Goal 3: The District Technology Planning Committee and Department of Technology will facilitate the creation of 21st century learning environments by:

Objective 3.1: Ensuring that all students, teachers, and administrators have equitable access to all appropriate technology tools and resources for instructional, assessment and administrative purposes.

Objective 3.2: Ensuring that all students, teachers, and administrators have adequate access to instructional and technical support to meet their 21st century teaching and learning needs.

Objective 3.3: Establishing and maintaining an environmentally-friendly, safe, secure and state-of-the-art technology, telecommunications and security infrastructure to support 21st century learning.

Objective 3.4: Fostering collaboration between the Department of Technology and the Departments of Curriculum, Special Services and Bilingual/ESL to integrate technology effectively into instructional curriculum and initiatives.

Three-Year Implementation Activity Tables
(July 2013 – June 2016)

Goal 1: **All teachers and school administrators will demonstrate evidence of acquiring and implementing teaching, learning and leadership practices needed in 21st century learning environments by:**

Objective 1.1: Engaging in sustained and intensive professional development to assist with the implementation of 21st century instructional/assessment practices that meet diverse student needs.

Objective 1.2*:* Using technology as a tool to promote a student-centered school culture and to improve and enhance professional development and leadership skills.

Objective 1.3**:** Using student data to modify instructional strategies and personalize learning experiences.

Objective 1.4: Using technology to create and/or administer online assessments for students***.***

Objective 1.5: Using technology and telecommunication services to enhance communication with students, parents and the community.

Goal I Activities					
#	**District Goal and Objective**	**Strategy/Activity**	**Timeline**	**Person Responsible**	**Documentation**
1	1.1	Establish school-based technology planning teams to develop school technology plans that include a detailed implementation plan for professional development for teachers in all grade levels and content areas and to perform other technology/PARCC-related planning activities. (See Appendix II on page 56 for a complete list of responsibilities)	FY 13-14 FY 14-15 FY 15-16	Principals	-Meeting Agendas -School Technology Plan -Roster of planning team

Goal I Activities					
#	**District Goal and Objective**	**Strategy/Activity**	**Timeline**	**Person Responsible**	**Documentation**
2	1.1	Build teachers' capacity to integrate technology into instruction and assessment practices through targeted professional development strategies. • Provide ongoing, tiered professional development on new technologies and their applications including assistive technologies for Bilingual/ESL and special needs students. • Use PLCs to integrate new technology into existing lessons. • Provide online portal with links to relevant resources, sample lessons and tutorials. • Provide online discussion forum for technology integration.	FY 13-14 FY 14-15 FY 15-16	-Curriculum Director/PD Coordinator -Principals -District Technology Coordinator -Director of Special Education -Director of Bilingual/ESL -School-based 21st Century Technology Planning Team	-PD calendar or list of PD offerings -PD agendas/sign-in sheets -PD session evaluations -PLC agendas/sign-in sheets -Portal screenshot -Forum log
3	1.1	Build administrators' capacity to evaluate effective use of technology in instruction and assessment practices through targeted professional development strategies. • Provide professional development on effective use of relevant new and existing technologies including assistive technologies for Bilingual/ESL and special needs students. • Provide online discussion forum for technology integration.	FY 13-14 FY 14-15 FY 15-16	-Curriculum Director/PD Coordinator -District Technology Coordinator -Director of Special Education -Director of Bilingual/ESL	-PD calendar or list of PD offerings -PD agendas/sign-in sheets -PD session evaluations -completed observations -Forum log

Goal I Activities					
#	**District Goal and Objective**	**Strategy/Activity**	**Timeline**	**Person Responsible**	**Documentation**
4	1.2	Provide professional development and support to enhance teachers' and administrators' technological literacy and technology integration skills.	FY 13-14 FY 14-15 FY 15-16	-Curriculum Director/PD Coordinator -Principals -District Technology Coordinator -School-based 21st Century Technology Planning Team	-PD calendar -List of PD offerings -PD session agendas -PD session attendance -PD session evaluation -results of tech literacy and tech implementation assessments
5	1.2	Establish and maintain a virtual professional learning community for students, teachers, and administrators in order to facilitate communication, professional development, mentoring, and collaboration activities.	FY 13-14 FY 14-15 FY 15-16	District Technology Coordinator	-list of user names -usage logs -screen shot of website
6	1.2	Survey students, teachers and administrators with an assessment tool in September and then again in June of each school year to gauge the impact of technology on professional development outcomes, development of leadership skills and creating a student-centered school culture.	FY 13-14 FY 14-15 FY 15-16	-District Technology Coordinator -District Technology Planning Committee	-Survey results & recommendations
7	1.1, 1.2	Secure and maintain a partnership with a local university/organization to provide sustained on-going support for the professional development of teachers and administrators in acquiring and implementing teaching, learning and leadership practices needed in 21st Century Learning environments.	FY 13-14 FY 14-15 FY 15-16	-District Technology Coordinator -District Technology Planning Committee	-Meeting minutes -Log of PD sessions

Goal I Activities					
#	**District Goal and Objective**	**Strategy/Activity**	**Timeline**	**Person Responsible**	**Documentation**
8	1.1	Implement a "train the trainer" professional development model where tech savvy teachers provide training and mentoring to their peers.	FY 13-14 FY 14-15 FY 15-16	-District Technology Coordinator -District Technology Planning Committee -Principals	-District Job-embedded Professional Development Catalog
9	1.3, 1.4	Provide professional development and support to teachers and administrators on the use of formative assessment and data-driven decision making. • Use data from formative assessments to target instruction and revise curriculum as needed • Analyze summative data for each student stored on the District's student information and assessment management systems. • Using technology tools and resources such as iPads/Chromebooks, student response systems, GoogleDocs/SurveyMonkey to design/conduct formative assessments.	FY 13-14 FY 14-15 FY 15-16	-Director of Curriculum -District Data Facilitator/Coach -District Technology Coordinator -Principals	-PD calendar -Agendas -Session evaluations
10	1.3, 1.4	Maintain and expand current PerformancePlus assessment system and process to collect, manage and analyze student assessment data.	FY 13-14 FY 14-15 FY 15-16	-District Technology Coordinator -Director of Curriculum	-purchase order -data reports
11	1.3, 1.4	Continue monitoring/assessing student progress in developing technology literacy skills (NJCCS 8.1) in grades 4 and 8 using NJTAP-IN 4th grade checklist and 8th grade rubric, respectively. District will also develop/implement a valid 21st Century Skills online assessment tool aligned to the ISTE NETS standards for students.	FY 13-14 FY 14-15 FY 15-16	-District Technology Coordinator -Director of Curriculum -Principal -Librarian -Classroom Teachers	-Rubric results

Goal I Activities					
#	**District Goal and Objective**	**Strategy/Activity**	**Timeline**	**Person Responsible**	**Documentation**
12	1.5	Provide professional development to teachers and administrators on how to use technology to improve communication with students and parents using the following tools: • School Messenger Notification System (for Administrators) • Gmail/GoogleApps • Edmodo/EDU 2.0 • School website/teacher pages	FY 13-14 FY 14-15 FY 15-16	-District Technology Coordinator	-List of offerings -Examples of notifications

Goal 2: Students will demonstrate increased engagement in learning and in using 21st century skills to assist in meeting the Common Core State Standards by:

***Objective 2.1*:** Applying information-literacy skills to access, manage, and communicate information using a range of emerging technological tools.

Objective 2.2: Thinking critically and creatively to solve problems, synthesize and create new knowledge, and make informed decisions that affect individuals, the broader community, and the environment.

Objective 2.3: Gaining enhanced understanding of global interdependencies as well as multiple cultural perspectives, differing points of view, and diverse values.

Goal II Activities					
#	**District Goal and Objective**	**Strategy/Activity**	**Timeline**	**Person Responsible**	**Documentation**
1	2.1	Provide students with opportunities to choose appropriate technology tools, including assistive technologies, to complete tasks and apply them to real-world situations in ways that foster increased collaboration and innovative approaches in the preparation of work products and presentations. • Establish 21st Century "classroom jobs" for students including Tutorial Designers, Official Scribes, Researchers, Collaboration Coordinators, Social Responsibility Committee, Curriculum Reviewers and Learning Documenters (See Appendix III on page 58).	FY 13-14 FY 14-15 FY 15-16	-District Technology Coordinator -Director of Curriculum -Principal -Classroom Teachers -Librarian	-Classroom observations -Lesson plans -Examples of student work/products
2	2.1, 2.2	Encourage student participation in online learning communities with learners from other regions, states or countries to understand their perspectives on a local or global problem or issue, and propose possible solutions.	FY 13-14 FY 14-15 FY 15-16	-District Technology Coordinator -Principal -School Librarians -Classroom Teachers	-Lesson plans -Examples of student work/products

Goal II Activities					
#	**District Goal and Objective**	**Strategy/Activity**	**Timeline**	**Person Responsible**	**Documentation**
3	2.1	Implement District-wide Cyber-Safety Awareness Program related to cyber-safety, security, ethics and bullying. • Establish student cyber-safety ambassadors at each school that will spearhead efforts to raise awareness and promote safe use of technology. • Implement components of CommonSenseMedia.org Cyber-safety Curriculum in grades K-12.	FY 13-14 FY 14-15 FY 15-16	-District Technology Coordinator -Principal -School Librarians -Classroom Teachers	-Lesson plans related to Cyber safety, security, and ethics.
4	2.1	Establish student technology clubs in Middle School and High School that will help school-based planning teams maintain/troubleshoot technology issues, maintain student information page/blog and provide feedback concerning student needs.	FY 13-14	-District Technology Coordinator -Principal -Librarians (or other designee)	-Meeting agendas -Reports
5	2.1	Increase technology-based course offerings at the elementary, middle and high school levels for college-, career- and PARCC-readiness.	FY 13-14 FY 14-15	-Director of Curriculum -District Technology Coordinator	-List of offerings -Results of student 21st century skills assessment
6	2.1	Provide training opportunities for parents on various technology-related topics, including: • Integrating 21st Century Learning at home • Cyber-safety including (safeguarding identity and how to monitor/manage your child's online activity)	FY 13-14 FY 14-15 FY 15-16	-District Technology Coordinator	-List of offerings
7	2.2	Develop and implement instructional activities that require students to access information efficiently and effectively, evaluate information critically, and use information accurately and creatively to solve problems.	FY 13-14 FY 14-15 FY 15-16	-District Technology Coordinator -Director of Curriculum -Classroom Teachers -School Librarian	-Sample completed research projects/activities -Completed assessment rubrics

Goal II Activities					
#	District Goal and Objective	Strategy/Activity	Timeline	Person Responsible	Documentation
8	2.3	Design and implement activities that foster understanding of the interdependence of various systems (i.e., social and economic) in other countries using technological tools.	FY 13-14 FY 14-15 FY 15-16	-District Technology Coordinator -Director of Curriculum -Classroom Teachers -School Librarian	-Sample lesson plans -Sample digital products
9	2.3	Design and implement activities that support understanding and appreciation of world cultures, including the evolution of cultures caused as a result of a technological society.	FY 13-14 FY 14-15 FY 15-16	-District Technology Coordinator -Director of Curriculum -Classroom Teachers -School Librarian	-Sample lesson plans -Sample digital products
10	2.3	Provide students with opportunities to synthesize and publish information about a local or global issue or event on a collaborative, web-based service.	FY 13-14 FY 14-15 FY 15-16	-District Technology Coordinator -Director of Curriculum -Classroom Teachers -School Librarian	-Published GoogleDocs, Voicethread's, Prezi's, wiki's, blogs, podcasts, etc.

Goal 3: The District Technology Planning Committee and Department of Technology will facilitate the creation of 21st century learning environments by:

Objective 3.1: Ensuring that all students, teachers, and administrators have equitable access to all appropriate technology tools and resources for instructional, assessment and administrative purposes.

Objective 3.2: Ensuring that all students, teachers, and administrators have adequate access to instructional and technical support to meet their 21st century teaching and learning needs.

Objective 3.3: Establishing and maintaining an environmentally-friendly, safe, secure and state-of-the-art technology, telecommunications and security infrastructure to support 21st century learning.

Objective 3.4: Fostering collaboration between the Department of Technology and the Departments of Curriculum, Special Services and Bilingual/ESL to integrate technology effectively into instructional curriculum and initiatives.

Goal III Activities					
#	**District Goal and Objective**	**Strategy/Activity**	**Timeline**	**Person Responsible**	**Documentation**
1	3.1	Provide schools with additional 21st century learning tools (computers, mobile devices, printers, interactive whiteboards, digital projectors, document cameras, student response systems, etc.) for teaching, learning and assessment purposes, including: • Additional iPads for High School 1:1 initiative (2013-2016) • Chromebooks for Middle School STEM initiative and Bilingual/ESL program (9/2013) • Chromebooks for elementary schools to develop 21st century skills and PARCC-readiness (9/2013) • Expand virtual desktop initiative to be able to provide additional virtual desktops for classrooms and labs.	FY 13-14 FY 14-15 FY 15-16	-District Technology Coordinator	-Purchase orders

Goal III Activities					
#	**District Goal and Objective**	**Strategy/Activity**	**Timeline**	**Person Responsible**	**Documentation**
2	3.1	Continue upgrading/replacing obsolete and malfunctioning technology such as: • SmartBoards • Projectors • Computers • Document Cameras	FY 13-14 FY 14-15 FY 15-16	-District Technology Coordinator	-Purchase orders
3	3.1	Explore creation of computer labs at Elementary schools and additional labs at Middle School and High School for technology courses and PARCC-readiness.	7/2013-9/2013	-Director of Curriculum -District Technology Coordinator -Principals	-Meeting agendas/minutes
4	3.1	Implement and maintain a common platform/interface regardless of operating system/device using Classlink's Launchpad to ensure consistency and access to relevant instructional resources.	FY 13-14 FY 14-15 FY 15-16	-District Technology Coordinator	-Purchase order -Screenshot

Goal III Activities					
#	**District Goal and Objective**	**Strategy/Activity**	**Timeline**	**Person Responsible**	**Documentation**
5	3.1	Provide opportunities for students with special needs to participate in 21st century learning environments that include appropriate assistive technologies such as: • Touch-sensitive devices for interaction and communication; • Hearing aids and amplification devices that enable hearing-impaired students to hear what's going on in the classroom; • Glare-reduction screens, screen magnifiers, and Braille note-taking devices that enable visually impaired students to participate more fully; • Voice-recognition software that turns the spoken word into type on a computer screen so students unable to move their limbs can take part; and • Technologies that enable severely disabled students to control their computers simply by following letters and commands on the computer screen with their eyes.	FY 13-14 FY 14-15 FY 15-16	-Director of Special Services -District Technology Coordinator -Classroom Teachers	-Purchase orders -Lesson Plans -Student Products
6	3.1	Provide opportunities for Bi-lingual/ESL students to participate in 21st century learning environments that include appropriate assistive technology and/or applications such as: • Translation/Dictation tools/applications • Interactive Books • Visual Brainstorming/Story-telling tools/applications • Literacy-, Phonemic Awareness- and Comprehension-building applications	FY 13-14 FY 14-15 FY 15-16	-Director of Bilingual/ESL -District Technology Coordinator -Classroom Teachers	-Purchase orders -Lesson Plans -Student Products
7	3.2	Establish and maintain AppleCare Service Center at High School to provide support for Apple iPads throughout the District.	FY 13-14 FY 14-15 FY 15-16	District Technology Coordinator	-AppleCare completed work orders -Satisfaction survey

Goal III Activities					
#	**District Goal and Objective**	**Strategy/Activity**	**Timeline**	**Person Responsible**	**Documentation**
8	3.1	Update/Add all staff and students in Active Directory to facilitate access to network resources and services including printing, scanning, storage, Email.	9/2013	District Technology Coordinator	Listing of all accounts
9	3.1	Review and update District technology policies to reflect current trends and include emerging technologies to ensure students and staff have necessary access to educational resources.	12/2013	District Technology Planning Committee	-Approved updated policies
10	3.1, 3.3	Improve internet content filtering by adding a robust, dedicated solution to handle increase in bandwidth/devices, properly filter content on student-assigned devices, and add enhanced granular controls allowing for more access to appropriate educational resources (i.e, Youtube).	FY 13-14	District Technology Coordinator	-Purchase Order(s) -Content-filter reports
11	3.1, 3.2	Maintain and expand web-based District resource portal to provide additional online resources for instruction and professional development and information on emerging trends and best practices.	FY 13-14 FY 14-15 FY 15-16	-District Technology Coordinator	-Screenshot of website
12	3.1, 3.2	Expand use of District Edmodo subdomain to improve communication District-wide and provide a forum for discussion and collaboration.	FY 13-14 FY 14-15 FY 15-16	-District Technology Coordinator -Director of Curriculum -Principals	-Usage logs
13	3.2	Sustain and expand number of field technicians to ensure availability of technical support to schools and offices.	FY 13-14 FY 14-15 FY 15-16	District Technology Coordinator	-Personnel action forms -Completed work orders

Goal III Activities					
#	**District Goal and Objective**	**Strategy/Activity**	**Timeline**	**Person Responsible**	**Documentation**
14	3.2	Provide various technical support options including: • Remote support • Phone support (help desk) • Online help-request system • Managed-print services (printer repair and toner supply)	FY 13-14 FY 14-15 FY 15-16	District Technology Coordinator	-Support Logs
15	3.2	Provide various instructional support options including: • "Floating" data/technology integration coaches to provide instructional support and professional development to staff on how to effectively analyze/use data and integrate technology into instruction. • Online/on-demand training/professional development. • On-site professional development by District staff and/or consultants • Online webinars	FY 13-14 FY 14-15 FY 15-16	-District Technology Coordinator -Director of Curriculum -Coaches	-List of PD library/offerings -Coaching logs
16	3.3	Increase District internet bandwidth/capacity to 500 Mb by July 2013 (and 1 Gb by July 2016) to meet growing network demands and PARCC/SETDA standards.	FY 13-14 FY 14-15 FY 15-16	District Technology Coordinator	-Purchase orders -Utilization reports
17	3.3	Provide wireless network access throughout all District buildings. -Middle School (Summer 2013) -Elementary Schools (Fall 2013-Summer 2014)	FY 13-14 FY 14-15	District Technology Coordinator	-Purchase orders -Wireless connectivity tests
18	3.3	Replace aging network technology in MDF's and IDF's with higher capacity, more energy efficient technology.	FY 13-14 FY 14-15 FY 15-16	District Technology Coordinator	-Purchase orders -Network tests
19	3.3	Add a network monitoring appliance to properly monitor/manage internal network traffic to identify and prevent bottlenecks.	FY 13-14	District Technology Coordinator	-Network performance reports

Goal III Activities					
#	District Goal and Objective	Strategy/Activity	Timeline	Person Responsible	Documentation
20	3.3	Utilize software for monitoring and optimizing District-wide print activity to improve efficiency, reduce maintenance and lower the District environmental impact.	FY 13-14 FY 14-15 FY 15-16	District Technology Coordinator	-Efficiency reports
21	3.1, 3.3	Upgrade District-wide core network from 1 GB to 10 GB.	FY 13-14 FY 14-15 FY 15-16	District Technology Coordinator	-Purchase orders -LAN connectivity tests
22	3.3	Transition District-wide Centrex phone service to Earthlink (Conversant Communications Inc.) for 1 year term.	FY 13-14	District Technology Coordinator	-Board Approval/Contract -Invoices
23	3.2, 3.3	Continue to provide cellular service to District administrators and technical support staff for communication and security purposes.	FY 13-14 FY 14-15 FY 15-16	District Technology Coordinator	-Invoices
24	3.3	In preparation for transition to VoIP telephony system, add additional network connection(s) from IDFs to classrooms/offices where only 1 connection is available.	FY 13-14 FY 14-15	District Technology Coordinator	-Purchase order(s) -Project plan/scope of work
25	3.3	Maintain, upgrade, or add security systems and/or cameras throughout District buildings as needed to ensure safety of students and staff.	FY 13-14 FY 14-15 FY 15-16	-District Technology Coordinator -Director of Buildings and Grounds -Principals	-Purchase orders -Security reports
26	3.3	Implement District-wide time and attendance system with proximity card readers at each building to accurately monitor building staff attendance for security and auditing purposes.	7/2013	-District Technology Coordinator -Principals	-Time clock reports

Goal III Activities					
#	District Goal and Objective	Strategy/Activity	Timeline	Person Responsible	Documentation
27	3.3, 1.6	Replace current Centrex phone service with a unified VoIP telephony system to improve security and communication throughout District buildings and with parents.	FY 14-15	District Technology Coordinator	-Purchase order(s) -Project plan/scope of work
28	3.1, 3.3	Install second internet connection from a different ISP at Middle School for redundancy/fail-over and load-balancing.	FY 14-15	District Technology Coordinator	-Purchase orders
29	3.1, 3.3	Add additional virtualized servers at High School and Middle School hubs to support future initiatives and provide redundancy.	FY 13-14 FY 14-15 FY 15-16	District Technology Coordinator	-Purchase orders
30	3.1, 3.3	Add additional storage at High School and Middle School hubs for storage of staff/student files and replication of existing data.	FY 13-14 FY 14-15 FY 15-16	District Technology Coordinator	-Purchase orders -Disk space usage reports
31	3.4	Meet with Curriculum Department and all content area supervisors to review curriculum and develop a Technology Integration Matrix.	7/2013-9/2013	-District Technology Coordinator -Director of Curriculum -Supervisors	-Completed matrix
32	3.4	Meet monthly or as needed with Curriculum Department and content area supervisors to review initiatives, emerging technology trends/best practices and refine technology integration matrix.	FY 13-14 FY 14-15 FY 15-16	-District Technology Coordinator -Director of Curriculum -Supervisors	-Meeting agendas/sign-in's -Matrix revisions

Professional Development Strategies

Educators

The District will expand teachers' and administrators' expertise in how to use 21st Century tools and more importantly, how to wisely enable students to apply them in their learning by providing staff with professional development that is:

- Ongoing/Sustained;
- Needs-based;
- Data-driven;
- Tiered (Beginner, Intermediate, Advanced);
- Content-area specific;
- Instructionally-focused (less technical, more pedagogical); and
- Aligned to District curriculum and/or Common Core State Standards as well as ISTE NETS standards for teachers and administrators (Appendix V and VI on pages 60 and 62, respectively).

Professional development will be provided in-person or through the use of live/recorded webinars. The District will also identify tech savvy teachers and administrators at each building that will provide training and mentoring to their peers via a "train the trainer" model, and school-based technology planning teams, created by this plan, will further facilitate professional development at the school-level by meeting regularly to assess progress and needs. This will be complemented by on-demand training resources and webinars available through the District Resource Portal (http://www.hpsnet.org).

All professional development activity in the District is cataloged and recorded using PDPlanner, an online professional development management system. Through this system, evaluation feedback can be gathered from event participants to review overall effectiveness and relevance of the topic/material presented as well as any suggestions for additional or future sessions.

Technical Staff

The Department of Technology will continue to support the professional growth of its own technical staff through online training resources, monthly staff meetings and vendor-conducted webinars. Additionally, the Department of Technology will continue to contract with corporations and training entities targeting products and services from Microsoft, Dell, Lenovo, Google, Apple, HP, McAfee, VM Ware, Citrix, Airwatch and Meraki, to provide on-site and off-site training for both its technical support staff and network engineer.

In addition to technical training, the District Technology Coordinator will provide staff development of process methodologies including but not limited to ITIL, CoBIT, and Six

Sigma.

Application of Assistive Technologies

Staff from the departments of Special Services, Bilingual/ESL and Technology, visit schools regularly and help in assistive technology implementation wherever it is needed. Professional Development will be provided by vendors of specialized technologies and in-district staff when possible. Online resources such as implementation guides and video tutorials are also available for on-demand viewing.

Teachers can make requests for support to their School-Based Technology Planning Team which will review the student's needs, consider teacher recommendations, and reevaluate resources as needed. Fulfillment of these requests is coordinated by either the Department of Special Services or Bilingual/ESL (depending on the specialized program) and the Department of Technology.

Professional Development Planned for 2013-2016

Educators' Proficiency/ Identified Need	Ongoing, sustained, high-quality professional development planned	Support
Teachers: 1. Facilitate and inspire student learning and creativity; 2. Design and develop digital-age learning experiences and assessments; 3. Model digital-age work and learning; 4. Promote and model digital citizenship and responsibility; 5. Engage in professional growth and leadership. (NETS-T, 1-5)	Teachers in grades K-12 will learn best practices for how to integrate popular 21st Century tools into lesson plans. Topics will include: • Integrating a Smartboard into daily instruction as a student-driven tool • Creating a student-centered learning experience using web-based tools such as GoogleDocs, Prezi, SlideShare and StoryBird • Using cloud-based storage tools such as DropBox and GoogleDrive to share and transfer files easily and safely • Creating an online classroom with Edmodo or EDU 2.0 • Leveraging the Genesis Student Information System • How to access and implement District resources such as United Streaming/Discovery Education, PerformancePlus, RazKids, Reading A-Z and Voyager • Using mobile devices such as iPads and Chromebooks for student-centered learning	Trainings will be provided in-person or via live/recorded webinar regularly by staff from the departments of Technology and Curriculum to groups or individuals (who will turn-key information). All training will be tiered for beginner, intermediate and advanced levels when appropriate. Individuals will have the opportunity to advance through all levels at their own pace. Topics will be infused into the curriculum through the development of a Technology Integration Matrix. Additional support can be requested from the school-based technology planning team created by this plan.

Teachers: 1. Facilitate and inspire student learning and creativity; 2. Design and develop digital-age learning experiences and assessments; 3. Model digital-age work and learning; 4. Promote and model digital citizenship and responsibility; 5. Engage in professional growth and leadership. (NETS-T, 1-5)	Teachers in grades K-12 will learn best practices for how to integrate popular 21st Century strategies into lesson plans. Topics will include: • Exploring the ISTE NETS standards for students and teachers • Applying the District Technology Integration Matrix • Creating and administering online assessments, analyzing student data and implementing intervention strategies. • Addressing Cyber- safety, ethics, and bullying • Extending/"flipping" the classroom • How to incorporate "blended learning" when creating/developing lessons • Using email and other communication methods to keep parents informed and involved • Classroom management in a 1:1 environment	Trainings will be provided in-person or via live/recorded webinar regularly by staff from the departments of Technology and Curriculum to groups or individuals (who will turn-key information). All training will be tiered for beginner, intermediate and advanced levels when appropriate. Individuals will have the opportunity to advance through all levels at their own pace. Topics will be infused into the curriculum through the development of a Technology Integration Matrix. Additional support can be requested from the school-based technology planning team created by this plan.
Teachers: 5. Engage in professional growth and leadership. (NETS-T, 1-5)	Use a "train-the-trainer" model to facilitate professional development throughout schools.	Through this plan, schools will create school-based technology planning teams, which will regularly assign (based on content-area and/or level of expertise) teachers and/or administrators that will receive extensive training to be able to turn-key information and best practices to staff within their buildings. Prinicpals will allow for turn-key training to occur during any of the following times: • Planning meetings • Staff meetings • PLC's • In-services • In-class

Teachers: Teachers model collaborative knowledge construction by engaging in learning with students, colleagues, and others in face-to-face and virtual environments. (NETS-T 1d) Teachers participate in local and global learning communities to explore creative applications of technology to improve student learning. (NETS-T, 5a) Teachers contribute to the effectiveness, vitality, and self-renewal of the teaching profession and of their school and community. (NETS-T, 5d)	<u>Participation in Online Teacher Learning Communities</u> Teachers will be able to create/join a virtual learning community (using Edmodo) and have access to an online learning community (SimpleK12) that includes a video library that addresses the best education research regarding instruction, leadership, differentiation, diverse learners and technology in order to boost student learning and engagement and improve educator practice.	District will provide access to an online training library to all instructional staff for self-paced learning. Certain technology topics will be featured District-wide regularly in alignment with the goals of this plan.

Teachers: Teachers model collaborative knowledge construction by engaging in learning with students, colleagues, and others in face-to-face and virtual environments. (NETS-T 1d) Teachers participate in local and global learning communities to explore creative applications of technology to improve student learning. (NETS-T, 5a) Teachers contribute to the effectiveness, vitality, and self-renewal of the teaching profession and of their school and community. (NETS-T, 5d)	<u>Participation in "PLC's"</u> Teachers will participate in school-level professional learning communities that focus on the effective use of instructional technology in daily lessons to support academic achievement and development of student technology knowledge and skills (as per ISTE NETS-S).	District and school administrators will provide PLC opportunities and share/showcase products/outcomes District-wide.
Teachers: Teachers contribute to the effectiveness, vitality, and self-renewal of the teaching profession and of their school and community. (NETS-T, 5d)	Sponsor participation of teacher members of the District Technology Planning Committee in New Jersey-based technology conferences such as: • NJAET • NJECC • NJASL • NJASA/Techspo	District pays for travel expenses and substitutes (if needed).

Administrators: Ensure effective practice in the study of technology and its infusion across the curriculum.(NETS-A 2d)	Administrators are provided professional development on the effective integration/use of the following: • District Technology Integration Matrix • Interactive Whiteboards • Document Cameras • Student Response Systems • Web 2.0 Tools such as GoogleApps • Chromebooks • iPads • Copiers/Multifunction Machines • Telecommunication Services	Professional development will be provided to school administrators by the District Technology Coordinator, Director of Curriculum, content-area supervisors and other professional development providers on a need-basis either in-person or through webinar.
Administrators: Ensure effective practice in the study of technology and its infusion across the curriculum. (NETS-A, 2d)	District-level administrators participate in professional development activities for teachers and administrators in order to adopt successful 21st Century Learning practices into curriculum and lesson plans.	Curriculum director and supervisors will attend administrator and teacher professional development sessions and will participate in online discussions.
Administrators: 1. Visionary Leadership 2. Digital Age Learning Culture 3. Excellence in Professional Practice 4. Systemic Improvement 5. Digital Citizenship (NETS-A 1-5)	Provide professional development to school administrators on how to develop a school-based technology plan that addresses the ISTE NETS standards for students, teachers and administrators and is aligned to District academic and technology goals.	Professional development will be provided by the District Technology Coordinator and supported through live webinars to guide development of plans. Plans will guide District and school budget planning and professional development priorities.

Administrators stay abreast of educational research and emerging trends regarding effective use of technology and encourage evaluation of new technologies for their potential to improve student learning. (NETS-A 3d)	Sponsor participation of administrators and members of the District Technology Planning Committee in local and national technology conferences such as: • NJAET • NJECC • NJASL • NJASA/Techspo • ISTE	District pays for travel expenses.

Evaluation Plan

Three-Year Technology Plan Evaluation Narrative	
Describe the process to regularly evaluate how...	
a. Telecommunication services, hardware, software and other services are improving education. *b. Effective integration of technology is enabling students to meet challenging state academic standards.* *c. The LEA is meeting the identified goals in the educational technology plan.*	The District will regularly evaluate services and progress in the following ways: a) Department of Technology will conduct internal bi-annual reviews of all services provided based on: o online surveys of staff, students and parents; o anecdotal feedback; o past work orders/help requests; o review of usage logs; and o correlation of services to student performance on District benchmarks and state assessments b) Monthly meetings between Director of Curriculum, department supervisors, building administrators and the District Technology Coordinator to review and refine initiatives and technology/curriculum integration matrix based on walkthroughs/observations and analysis of District and state student data. c) District Technology Planning Committee will meet several times a year (see proposed schedule table below) to review technology plan progress and refine activity and professional development plans. Review will be based on: o Feedback from school-based technology planning teams o Feedback from professional development activities o Relevant changes in instructional technology (equipment and best practices) o Requirements of District, state and federal initiatives Proposed changes/amendments will be submitted for Board review and approval as needed.

Timeline for Review of Technology Plan Activities

Date
June 2013
December 2013
March 2014
June 2014
December 2014
March 2015
June 2015
December 2015
March 2016

Funding Plan

Three-Year Educational Technology Plan Anticipated Funding Table (2013-2014)						
Item	Description	E-Rate Eligible	Federal Funding	State Funding	Local Funding	Misc. (e.g. Donations, Grants)
Digital Curricula						
	Scholastic Read180				$ 5,900	
	Classlink Launchpad				$ 10,000	
	SimpleK12				$ 10,000	
	Rosetta Stone		$ 10,000			
	PerformancePlus				$ 14,693	
	Discovery Education Streaming		$ 10,000			
	NovaNET Courseware				$ 41,650	
	FitStat				$ 1,000	
	Voyager		$ 46,000			
Print media needed to achieve goals						
	Cybersafety and technology-related course materials				$ 10,000	
Technology Equipment						
	Computers				$ 110,000	
	Monitors				$ 30,000	
	Projectors				$ 65,000	
	SmartBoards				$ 45,000	
	iPads - Hgh School				$ 425,000	
	iPads - District				$ 25,000	
	Chromebooks w/carts				$ 310,000	
	Document Cameras				$ 10,500	
	Printers				$ 15,000	
	Copiers - Leases and Volume Pools				$ 325,600	
Network						
	Sonicwall				$ 6,000	

Three-Year Educational Technology Plan Anticipated Funding Table (2013-2014)						
Item	Description	E-Rate Eligible	Federal Funding	State Funding	Local Funding	Misc. (e.g. Donations, Grants)
	MDF/IDF POE Switches				$ 20,000	
	Desktop Switches				$ 5,000	
	High School Core Upg				$ 26,000	
	Middle School Core Upg				$ 26,000	
	UPS Replacements and Supplies				$ 15,000	
	Middle School Wireless Install				$ 86,000	
Capacity						
	Lightpath Internet - 500Mb	**Y**			$ 50,400	
Filtering						
	McAfee Web Gateway				$ 15,000	
Software						
	Genesis Student Information System				$ 26,500	
	School Messenger				$ 11,800	
	Destiny Library System				$ 7,000	
	Microsoft Office Subscription				$ 23,000	
	AESOP Attendance System				$ 16,000	
	CSI Budget/Personnel System Support				$ 38,550	
	Adobe ConnectPro				$ 750	
	Deepfreeze				$ 3,510	
	Airwatch MDM				$ 26,000	
	SchoolDude Work Order Sys				$ 6,000	
	McAfee Antivirus				$ 13,500	
	Applitrack				$ 2,700	

Three-Year Educational Technology Plan Anticipated Funding Table (2013-2014)						
Item	Description	E-Rate Eligible	Federal Funding	State Funding	Local Funding	Misc. (e.g. Donations, Grants)
	Email	**Y**			$ 30,000	
	District Website Hosting	**Y**			$ 8,000	
	Windows Licensing				$ 4,700	
	Oracle Licensing				$ 1,750	
Maintenance						
	Managed Print Services				$ 70,000	
	GoCare Insurance for HS iPads				$ 95,550	
	GoCare Insurance - Other				$ 6,000	
	Projector Service				$ 15,000	
	SmartBoard Warranty Replacements				$ 1,000	
	Cables, Projector Bulbs, Computer Parts				$ 50,000	
	Misc Support Plans				$ 25,000	
Telecommunications						
	Phone Service	**Y**			$ 187,000	
	Cellular Service	**Y**			$ 6,000	
	ATC Voice/Data				$ 5,000	
Other Services						
	Camera System Upgrades				$ 20,000	
	Training				$ 5,000	
	Telvue Local TV Access Channel				$ 2,400	
	E-Rate Consultant				$ 5,600	
Totals for 2013-2014			**$ 66,000**	**$ -**	**$ 2,417,053**	**$ -**

Appendix I

Guidelines for Obsolescence

In devising guidelines for planned obsolescence the following facts are considered:

The software that is needed determines the specifications of the hardware required:

- ✓ Software drives Hardware
- ✓ Newer hardware has requirements that obsolete old software.
- ✓ Hardware and Operating Systems drive available software.

For the District to operate cohesively and to reduce support burdens we need standardization such as:

- ✓ Standardized Operating Systems
- ✓ Standardized Antivirus Software
- ✓ Standardized E-mail Platform
- ✓ Standardized Office Productivity Platform

Hardware:

Computer technology can be divided into "generations or stages". These are listed from newest to oldest.

Premium Stage:

This generation is high cost. It is marketed towards high-end software requirements. This generation will soon be "industry standard" and significantly cheaper. There must be a specific curricular reason for the district/school/office to purchase this generation of equipment since it will soon be Industry Standard.

Current Industry Standard:

The standard is CPU technology that the industry is producing in quantity for the corporate/consumer market. Historically a computer of this generation is between $800 and $1000. This cost should include a three year warranty, which is a district recommendation for all new computer purchases. Equipment of this generation has a good cost vs. life expectancy ratio for the district.

One Generation Old:

One generation from the Current Industry Standard. Evaluation of this generation depends on the leap of technology between this and the current industry standard generation. In general, speed is most likely the issue for this generation running the latest software. In some cases spending the money to upgrade this generation (i.e.

RAM) may make sense.

Two Generations Old:

Current software will most likely not run on this generation. In most cases this generation is not cost effective to upgrade or repair (depending on the component).

Three Generations Old:

Current software will not run on this generation. Usefulness in district is limited and must be carefully evaluated considering support resources (i.e. personnel). This generation may be considered obsolete.

The above stages comprise a typical "**lifecycle**" of a computer.

The lifecycle of a computer begins with a **planning stage**. During this stage of the computer's lifecycle, the requirements for the new computer are identified. This is an important step in the process and should not be overlooked. There is no set timetable for this stage, but it should take long enough to fully plan for the arrival and foreseeable future of this computer.

The second stage of the computer's life is the **setup and early use stage**. This stage will identify most of the problems with the new system. This stage is also the most expensive of the entire process. This is when the computer and required accessories are purchased. This stage lasts about 6 months to a year, and starts when the computer arrives.

The third stage of the cycle is the **use stage**. This stage is where the computer is to be considered viable and updates are usually warranted if the need arises. This stage lasts about 3 years, assuming a 5 year lifespan (based on NJ guidelines).

The fourth stage of the cycle is the **late use stage**. This stage is where the computer is past the warranty period, but still has some use left. Any updates to the system should be very carefully evaluated, as it may be more profitable to wait for a new system. This period lasts 1 to 2 years, depending on lifespan.

The last stage of the lifecycle is the **replacement stage**. This stage covers what is going to occur to the outgoing station. This stage matches very closely to the first stage of the next computer, and might be considered the same.

Our "planned obsolescence" takes into account the "**lifecycle**" of a computer and the five "**generations**" of computers. This "Obsolescence Plan" drives the budget process.

There is a simple formula that can be used to determine the annual budget for computer equipment. The recommendation of this plan for schools, departments, offices, and district-wide is to purchase computers on a rotating schedule, based on the expected lifespan of each computer. This will ensure that the computers in each location are all within their lifespan, and the budget will not be over burdened in a particular year.

How this works is based on the following formula:

$$Annual Replacement = \frac{Number of Computers}{Expected Years of Service}$$

This means that if you have 10 computers, and expect them to last 5 years, then you should replace the 2 oldest computers every year.

$$\frac{10 Computers}{5 Expected Years of Service} = Replace 2 Computers per Year$$

Eventually, this regular replacement will ensure a stable, predictable computing environment. A stable environment will reduce costs dramatically.

These guidelines are merely a recommendation for assessing needs and planning for the replacement of equipment. They are flexible and not mandated. Other variables may affect budget plans during a school year. Priorities may also change from year to year based on local, state and federal initiatives and new technologies and best practices may emerge that do not fit these guidelines.

Appendix II

School-Based Technology Planning Teams

Background: Technology has dramatically altered our society in the past 25 years. The ability to automate tasks, communicate instantly, and share large quantities of information via electronic devices has created a demand for knowledgeable workers that are able to demonstrate creativity and innovation in applying higher-order, critical-thinking, and problem-solving skills to complex problems across various cultures, continents, and mediums. While these workers must be proficient in all academic content areas, it is imperative that they also possess the necessary technological- and information-literacy skills that will allow them to access, apply, and synthesize knowledge in both their personal and professional lives. The development of these essential skills requires increased student engagement and ownership of learning through the implementation of 21st century student-driven, teacher-facilitated learning environments where students are exposed to interdisciplinary project-based learning opportunities that seamlessly integrate relevant technological tools.

Purpose: To assist in the systematic integration of 21st century instructional and assessment practices throughout their school in alignment with the ISTE NETS standards for students, teachers, and administrators, Common Core State Standards, and the District 3-Year Technology Plan.

Suggested Team Members:

- Administrator
- Library Media Specialist
- Professional Development Coordinator
- Technology Teacher
- 2 Content Area Teachers

Any of the above members may be substituted where position is vacant or non-existing. Additional members may be added at the discretion of the school administration. Student representation is also recommended.

Goals and Responsibilities:

- Support all goals of the District 3-Year Technology Plan.
- Develop School 3-Year Technology Plan.
- Develop and execute annual Technology Integration Plan aligned to school and district plan goals and objectives which specifies all activities and strategies to be conducted throughout school year including person(s) responsible and evaluation methods.
- Meet regularly to plan technology integration, assess progress, allocate resources, and address teacher and student needs.
- Plan and conduct professional development activities including but not limited to workshops, in-services, in-class coaching, and professional learning communities

to meet needs of staff.

- Maintain and manage inventory of technology resources.
- Implement NJTAP-IN 8th grade rubric.

Appendix III

21st Century "Classroom Jobs"

Teachers will facilitate the personalization of learning by assigning students "classroom jobs" to provide them the means to manage and take ownership of their learning. This constructivist approach to learning was conceived by Alan November and first published in his article, *Students as Contributors: The Digital Learning Farm*, and includes the following student roles which are integrated into instruction by the teacher during a typical school week:

- **Tutorial Designers** create screen casts using desktop recording software such as Jing to assist other students with difficult concepts, similar to the days of the one-room schoolhouse when teachers would pair older and younger students for peer tutoring.
- **Official Scribes** are responsible for taking notes, collecting diagrams, and publishing them online for students to access.
- **Researchers** use critical thinking skills to select the best online resources to support the unit being learned and will bookmark them to share with the whole class using online social bookmarking tools or a Google Custom Search Engine.
- **Collaboration Coordinators** use web conferencing applications such as Skype to make connections with people from around the world who can enhance their learning and bring the world into the classroom.
- **Social Responsibility Committee** explores and enacts plans for students and their families to contribute to social justice and empathy using social responsibility websites such as www.kiva.org.
- **Curriculum Reviewers** organize, record, and edit podcasts or other audio recordings of student-made curriculum material to be posted and shared with the world, making the students content providers.
- **Learning Documenters** produce recorded reports on what the class has learned and will share them with administrators, parents, and fellow students.

ISTE NETS Standards for Students

iste.nets.s
ADVANCING DIGITAL AGE LEARNING

1. Creativity and Innovation

Students demonstrate creative thinking, construct knowledge, and develop innovative products and processes using technology.

a. Apply existing knowledge to generate new ideas, products, or processes
b. Create original works as a means of personal or group expression
c. Use models and simulations to explore complex systems and issues
d. Identify trends and forecast possibilities

2. Communication and Collaboration

Students use digital media and environments to communicate and work collaboratively, including at a distance, to support individual learning and contribute to the learning of others.

a. Interact, collaborate, and publish with peers, experts, or others employing a variety of digital environments and media
b. Communicate information and ideas effectively to multiple audiences using a variety of media and formats
c. Develop cultural understanding and global awareness by engaging with learners of other cultures
d. Contribute to project teams to produce original works or solve problems

3. Research and Information Fluency

Students apply digital tools to gather, evaluate, and use information.

a. Plan strategies to guide inquiry
b. Locate, organize, analyze, evaluate, synthesize, and ethically use information from a variety of sources and media
c. Evaluate and select information sources and digital tools based on the appropriateness to specific tasks
d. Process data and report results

4. Critical Thinking, Problem Solving, and Decision Making

Students use critical thinking skills to plan and conduct research, manage projects, solve problems, and make informed decisions using appropriate digital tools and resources.

a. Identify and define authentic problems and significant questions for investigation
b. Plan and manage activities to develop a solution or complete a project
c. Collect and analyze data to identify solutions and/or make informed decisions
d. Use multiple processes and diverse perspectives to explore alternative solutions

Appendix V

ISTE NETS Standards for Teachers

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.

1. Facilitate and Inspire Student Learning and Creativity

Teachers use their knowledge of subject matter, teaching and learning, and technology to facilitate experiences that advance student learning, creativity, and innovation in both face-to-face and virtual environments.

a. Promote, support, and model creative and innovative thinking and inventiveness
b. Engage students in exploring real-world issues and solving authentic problems using digital tools and resources
c. Promote student reflection using collaborative tools to reveal and clarify students' conceptual understanding and thinking, planning, and creative processes
d. Model collaborative knowledge construction by engaging in learning with students, colleagues, and others in face-to-face and virtual environments

2. Design and Develop Digital Age Learning Experiences and Assessments

Teachers design, develop, and evaluate authentic learning experiences and assessment incorporating contemporary tools and resources to maximize content learning in context and to develop the knowledge, skills, and attitudes identified in the NETS·S.

a. Design or adapt relevant learning experiences that incorporate digital tools and resources to promote student learning and creativity
b. Develop technology-enriched learning environments that enable all students to pursue their individual curiosities and become active participants in setting their own educational goals, managing their own learning, and assessing their own progress
c. Customize and personalize learning activities to address students' diverse learning styles, working strategies, and abilities using digital tools and resources
d. Provide students with multiple and varied formative and summative assessments aligned with content and technology standards and use resulting data to inform learning and teaching

3. Model Digital Age Work and Learning

Teachers exhibit knowledge, skills, and work processes representative of an innovative professional in a global and digital society.

a. Demonstrate fluency in technology systems and the transfer of current knowledge to new technologies and situations
b. Collaborate with students, peers, parents, and community members using digital tools and resources to support student success and innovation
c. Communicate relevant information and ideas effectively to students, parents, and peers using a variety of digital age media and formats
d. Model and facilitate effective use of current and emerging digital tools to locate, analyze, evaluate, and use information resources to support research and learning

4. Promote and Model Digital Citizenship and Responsibility

Teachers understand local and global societal issues and responsibilities in an evolving digital culture and exhibit legal and ethical behavior in their professional practices.

a. 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
b. Address the diverse needs of all learners by using learner-centered strategies providing equitable access to appropriate digital tools and resources
c. Promote and model digital etiquette and responsible social interactions related to the use of technology and information
d. Develop and model cultural understanding and global awareness by engaging with colleagues and students of other cultures using digital age communication and collaboration tools

5. Engage in Professional Growth and Leadership

Teachers continuously improve their professional practice, model lifelong learning, and exhibit leadership in their school and professional community by promoting and demonstrating the effective use of digital tools and resources.

a. Participate in local and global learning communities to explore creative applications of technology to improve student learning
b. Exhibit leadership by demonstrating a vision of technology infusion, participating in shared decision making and community building, and developing the leadership and technology skills of others
c. Evaluate and reflect on current research and professional practice on a regular basis to make effective use of existing and emerging digital tools and resources in support of student learning
d. Contribute to the effectiveness, vitality, and self-renewal of the teaching profession and of their school and community

Appendix VI

ISTE NETS Standards for Administrators

iste.nets·a
ADVANCING DIGITAL AGE LEADERSHIP

1. Visionary Leadership

Educational Administrators inspire and lead development and implementation of a shared vision for comprehensive integration of technology to promote excellence and support transformation throughout the organization.

a. Inspire and facilitate among all stakeholders a shared vision of purposeful change that maximizes use of digital-age resources to meet and exceed learning goals, support effective instructional practice, and maximize performance of district and school leaders
b. Engage in an ongoing process to develop, implement, and communicate technology-infused strategic plans aligned with a shared vision
c. Advocate on local, state and national levels for policies, programs, and funding to support implementation of a technology-infused vision and strategic plan

2. Digital Age Learning Culture

Educational Administrators create, promote, and sustain a dynamic, digital-age learning culture that provides a rigorous, relevant, and engaging education for all students.

a. Ensure instructional innovation focused on continuous improvement of digital-age learning
b. Model and promote the frequent and effective use of technology for learning
c. Provide learner-centered environments equipped with technology and learning resources to meet the individual, diverse needs of all learners
d. Ensure effective practice in the study of technology and its infusion across the curriculum
e. Promote and participate in local, national, and global learning communities that stimulate innovation, creativity, and digital age collaboration

3. Excellence in Professional Practice

Educational Administrators promote an environment of professional learning and innovation that empowers educators to enhance student learning through the infusion of contemporary technologies and digital resources.

a. Allocate time, resources, and access to ensure ongoing professional growth in technology fluency and integration
b. Facilitate and participate in learning communities that stimulate, nurture and support administrators, faculty, and staff in the study and use of technology
c. Promote and model effective communication and collaboration among stakeholders using digital age tools
d. Stay abreast of educational research and emerging trends regarding effective use of technology and encourage evaluation of new technologies for their potential to improve student learning

4. Systemic Improvement

Educational Administrators provide digital age leadership and management to continuously improve the organization through the effective use of information and technology resources.

a. Lead purposeful change to maximize the achievement of learning goals through the appropriate use of technology and media-rich resources
b. Collaborate to establish metrics, collect and analyze data, interpret results, and share findings to improve staff performance and student learning
c. Recruit and retain highly competent personnel who use technology creatively and proficiently to advance academic and operational goals
d. Establish and leverage strategic partnerships to support systemic improvement
e. Establish and maintain a robust infrastructure for technology including integrated, interoperable technology systems to support management, operations, teaching, and learning

5. Digital Citizenship

Educational Administrators model and facilitate understanding of social, ethical and legal issues and responsibilities related to an evolving digital culture.

a. Ensure equitable access to appropriate digital tools and resources to meet the needs of all learners
b. Promote, model and establish policies for safe, legal, and ethical use of digital information and technology
c. Promote and model responsible social interactions related to the use of technology and information
d. Model and facilitate the development of a shared cultural understanding and involvement in global issues through the use of contemporary communication and collaboration tools

Appendix VII

Minutes, Regular Board Meeting, May 6, 2013

HACKENSACK BOARD OF EDUCATION
HACKENSACK, NEW JERSEY

RESOLUTION

D – 10 Approval to Adopt the 2013-2016 District Technology Plan

WHEREAS, the mission of the Hackensack School District includes developing students that are "effective communicators, quality producers, self-directed lifelong learners, community contributors, collaborative workers and complex thinkers"; and

WHEREAS, a District goal is to "increase the use of technology for instructional purposes that supports student achievement goals and improve effectiveness of programs and organizational systems"; and

WHEREAS, the 2013-2016 District Technology Plan will guide the District in establishing technology-rich 21st Century teaching and learning environments that blend physical and digital infrastructures to seamlessly support learning; and

WHEREAS, the District Technology Plan will also guide the development of professional development opportunities for teachers and administrators to become leaders in implementing and integrating 21st Century instructional and assessment practices to meet diverse student needs; and

WHEREAS, the District Technology Plan will support the District's Common Core and PARCC readiness goals by planning activities that provide students with the resources and opportunities to apply information-literacy skills using a range of emerging technological tools, think critically and creatively to solve problems, synthesize new knowledge, make informed decisions, and enhance their understanding of global interdependencies;

NOW THEREFORE LET IT BE RESOLVED, that the Hackensack Public Schools approves the 2013-2016 District Technology Plan effective July 1, 2013 to June 30, 2016.

Moved by:	M. Stein
Seconded by:	J. Nunnermacker
Yes:	8
No:	0
Absent:	2
Abstained:	0

I certify that this is a true and correct copy of minutes passed at the meeting of the Hackensack Board of Education held on May 6, 2013.

Mark Kramer, School Business Administrator/Board Secretary

Appendix VIII

NJ Department of Education
District/Nonpublic School/ Charter School
Three-Year Educational Technology Plan Checklist

DIRECTIONS: Place a check ☑ in the unshaded **COMPLETED** column when the **TASK** has been completed.

TASK	Completed: Req'd by E-Rate	Completed: Not req'd E-Rate
DATE: Provide your educational technology plan's creation date (the date when the technology plan first contained all of the required elements in sufficient detail to support the products and services requested on the Form 470). (http://www.usac.org/sl/applicants/step01/default.aspx) **Tech Plan creation date**: **05-06-2013**		

	Indicate in the unshaded spaces the page number where the corresponding information is found	
Inventory Sample Table	**Req'd by E-Rate**	**Not req'd by E-Rate**
TECHNOLOGY INVENTORY: 1. Describe the technology inventory needed to improve student academic achievement in the 2013-2014 school year that informs the basis for the Form 470. Include in the description the internal connections and basic maintenance *for 12 months of the e-rate funded year*, such as the following areas: a) Technology equipment including assistive technologies b) Networking capacity c) Filtering method d) Software used for curricular support and filtering e) Technology maintenance and support f) Telecommunications equipment and services g) Other services **NOTE:** If this plan is intended to be used for three years of E-Rate funding, provide anticipated inventory information for all three years. See Inventory Sample Table. Definitions of items eligible for e-rate discounts: http://www.usac.org/sl/applicants/beforeyoubegin/eligible-services/default.aspx	6-21	
NEEDS ASSESSMENT: 2. Describe the needs assessment process that was used to identify the necessary telecommunication services, hardware, software, and other services to improve education.	22	

	Indicate in the unshaded spaces the page number where the corresponding information is found	
	Req'd by E-Rate	**Not req'd by E-Rate**
THREE-YEAR GOALS: **3.** List clear goals for 2013-2016 that address district needs. There must be strong connections between the proposed physical infrastructure (bandwidth, cabling, electrical systems, networks) and goals. Include goals for using telecommunications and technology that support 21st century learning communities. E-Rate requirements: www.ecfr.gov	23	
THREE-YEAR IMPLEMENTATION AND STRATEGIES TABLE: Implementation Activity Sample Table 4. Describe the realistic implementation strategies to improve education. Include in the description the timeline, person responsible and documentation (or evidence) that will prove the activity occurred. Address only 'a' and 'b' below to meet e-rate requirements. Address all areas below to continue planning for a technology-rich learning environment. a. telecommunications, b. information technology, c. educational technology (including assistive technologies), and d. student technology readiness in preparation for online testing in 2014-2015.	24 32-38	 32-34 24-38
PROFESSIONAL DEVELOPMENT STRATEGIES: Professional Development Sample Table 5. Professional development strategies should ensure that staff (teachers, school library media personnel and administrators) knows how to effectively use the technologies described in this plan to improve education, and will continue to support identified needs through 2016. *Address only 'a' below to meet e-rate requirements. Address all areas below to continue planning for a technology-rich learning environment*. Describe the planned professional development strategies by addressing each of the following questions: a) How will ongoing, sustained professional development be provided to all educators, (including administrators) that increases effective use of technology in all learning environments, models 21st century skills, and demonstrate learning experiences through global outreach and collaboration in the classroom or library media center? b) What professional development opportunities, resources and support (online or in person) exist for technical staff? c) How will professional development be provided to educators on the application of assistive technologies to support educating all students?	39-46	 39 40
EVALUATION PLAN: Evaluation Plan Sample Table 6. Describe the evaluation process that enables the progress and effectiveness of goals to be monitored.	47	
7. Describe the process to make mid-course corrections in response to new developments and opportunities as they arise.	47-48	
FUNDING PLAN (July 2013 – June 2014): Funding Plan Sample Table 8. Provide the anticipated costs for **2013-2014** by source of funds (federal, state, local and other) and include expenses such as hardware/software, digital curricula including NIMAS compliance, upgrades and other services including print media that will be needed to achieve the goals of this plan. Allow specific provisions for interoperability among components of such technologies to successfully achieve the goals of this plan.		49-51