



PLAINVIEW-OLD BETHPAGE CENTRAL SCHOOL DISTRICT

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Where We Would Like to Go: Strategic Long-Range Technology Plan/Needs Assessment

FY 2014-2015	FY 2015-2016	FY 2016-2017
<p align="center"><u>HIGH SCHOOL (Grades 9-12)</u></p> <ul style="list-style-type: none"> ➤ Secondary Wireless BYOD Infrastructure: Completed in 2013. Review status/needs to support curricula and STEAM initiatives ➤ High School Wireless Mobile Devices to Support Content Areas: Purchase (64) additional devices on (2) carts to bring total carts to (6) – note comprised of (4) newer carts and (2) older carts to be refreshed in 2015-2016. ➤ High School Library e-books: Review status/needs ➤ High School Math Computer Coding/Programming Lab Refresh VB6, JAVA 5, Microsoft Visual C++ (17) ➤ H.S. Library Follett Destiny Automation System Support ➤ H.S. Administrative Office Computer Workstation Refresh () ➤ High School Interactive/Multimedia Classrooms: <ul style="list-style-type: none"> - Ceiling Mounted Projectors Refresh (31) - Smartboard Refresh (5) - Peripherals: (31) printers, (1) large format, (1) business lab plotter ➤ Review High School Wireless Mobile Device Needs and continue BYOD initiatives <p align="center"><u>MIDDLE SCHOOLS (Grades 5-8)</u></p> <ul style="list-style-type: none"> ➤ Secondary Wireless Infrastructure Enhancement Initiative: To be completed in 2013-2014 school year. Review status/needs to support curricula and STEAM initiatives ➤ Middle School Computer refresh: Instruct (116) Admin: (204) ➤ M.S. Library Follett Destiny Automation System M.S. Library Computer Refreshed in 2013-2014 ➤ Middle School Interactive/Multimedia Classrooms: <ul style="list-style-type: none"> - Projector refresh (10) Smartboard (10) ➤ Middle School Library e-books: Review pilot status/needs 	<p align="center"><u>HIGH SCHOOL (Grades 9-12)</u></p> <ul style="list-style-type: none"> ➤ High School Computer Lab Refresh (Total 106): English Rm. 142 (28), English Rm. 150 (20), Library/English (29), Library/Fiction (29). (755-core2 duo with 4-g rm) <i>Note: Artlabs (58) refreshed in 2013-14 (990-core-17-8g-ram-64-bit) Science Rm-240 (25) refreshed in 2013-14 Research (17) World Language (32) refreshed in 2013-14</i> ➤ Purchase (64) mobile devices to refresh (2) wireless carts to bring total wireless content area carts to (6) ➤ High School Instructional Device Totals: <ul style="list-style-type: none"> - Projected Student Grade Level Enrollment (379) - Total High School Computers (498) [Comprised of (192) wireless devices and (306) lab computers.] ➤ High School Library e-books: Review status/needs ➤ High School Virtualization/Cloud: Review status/needs ➤ High School Interactive/Multimedia Classrooms: Review status/needs/refresh. <p align="center"><u>MIDDLE SCHOOLS (Grades 5-8)</u></p> <ul style="list-style-type: none"> ➤ Secondary Wireless Infrastructure: <i>Completed in 2014. Review Status/Needs</i> ➤ Middle School Wireless Mobile Devices: Purchase (64) additional devices to bring total carts to (8) ➤ Middle School Computer Labs Refreshed in 2013-2014 ➤ Middle School Instructional Device Total: <ul style="list-style-type: none"> - MMS Projected Student Grade Level Enrollment (209) - POBMS Project. Student GradeLevel Enrollment (203) - Middle School Total Computers (314) [Comprised of (128) wireless devices, (128) lab computers., (24) Library, (34) Read180/Project Challenge mini-labs ➤ Middle School Technology Program Enhancement ➤ Middle School Interactive/Multimedia Classrooms: <i>Review refresh status/needs.</i> 	<p align="center"><u>HIGH SCHOOL (Grades 9-12)</u></p> <ul style="list-style-type: none"> ➤ Secondary Wireless Infrastructure: Review Status/Needs ➤ High School Wireless Mobile Devices: Review status/needs and continue BYOD initiatives. ➤ High School Computer Lab Refresh (62): Business Rm. 218 (21), Business Rm. 219 (22), Technology Rm. 168-b (19). Read-180 (6)(755) ➤ High School Instructional Device Totals: <ul style="list-style-type: none"> - Projected Student Grade Level Enroll (TBD) - Total High School Computers (498) [Comprised of (192) wireless devices and (306) lab computers.] <p align="center"><u>MIDDLE SCHOOLS (Grades 5-8)</u></p> <ul style="list-style-type: none"> ➤ Secondary Wireless Infrastructure: Review Status/Needs ➤ Middle School Instructional Device Totals <ul style="list-style-type: none"> - MMS Project Student Grade Level Enroll (TBD) - POBMS Project. Student G. Level Enroll (TBD) - Middle School Total Computers (314) [Comprised of (128) wireless devices, (128) lab computers., (24) Library, (34) Read180/Project Challenge mini-labs ➤ High School Wireless Mobile Devices: Review status/needs and continue BYOD initiatives. ➤ Review mobile wireless device needs to create a designated grade level one-to-one initiative targeting STEAM-driven curricula goals that will continue as students progress to higher grade levels into the high school. ➤ Review projector and interactive whiteboard needs status.

ELEMENTARY SCHOOLS (Grades K-4)

- Wireless Infrastructure Initiative: All elementary schools to be completed by Spring 2015
- M.S Library Follett Destiny Automation System Support
- Elementary School Computer Refresh Grades K-4: Instructional (302) – Admin (188)
- Elementary School Interactive/Multimedia Classrooms:
 - Pas (2) Rms. Resource/Lib - Strat (1) Rm. 306 + Total Refresh All Elementary (5)
 - Peripheral needs/refresh all schools (TBD)

DISTRICT-WIDE K-12

- **Wireless Networks:** Continue implementing district-wide networks to support BYOD (Bring Your Own Device) access and STEAM (Science, Technology, Engineering, Arts, Math) curricula-driven instructional activities.
- **Classroom Projector/Interactive Whiteboard Refresh:** Assess classroom locations that require projectors and interactive whiteboards to be refreshed/updated to support instructional initiatives and activities.
- **Network Environmental : Generator:** Implement a natural gas fired generator system to support NOC and mission critical MDF closets during electrical outages in addition to maintaining network operation stability. - Upgrade district-wide uninterruptable power supplies and begin wiring closet restructuring for POBJFKHS, POBMS, and MMS. – Identify power outage and phase electrical related issues at Pasadena ES, Stratford Rd, and POBMS.
- **Network Performance Assessment:** Perform detailed network performance assessment with specialized tools to establish a performance baseline to determine key network parameters such as network latency (core and edge), bandwidth consumption on key interfaces, and IP flow data of entire network in order to provide a holistic view of areas that may require improvement.
- **Student Information Management System:** (Infinite Campus) Continue *Infinite Campus Parent Portal Initiative* Grades K-12 to enable remote parent/guardian access to student attendance, grades, etc.
- **Evaluate** Wireless Device implementations and status of emerging technology tablet devices such as the apple/ipad, android, pc tablet, ms-surface, etc
- **Network Infrastructure/SAN/Replication/Disaster Recovery:** Content Filter Redundancy – E-mail Archive – Redundant Mail Server – Print Servers – Redundant ASA Firewall/Security – Citrix Remote Access/BYOD

ELEMENTARY SCHOOLS (Grades K-4)

- Wireless Infrastructure Initiative: Completed in 2015. Evaluate installation and review needs.
- Elementary School Wireless Mobile Devices: Purchase (320) [Note: provides (2) carts of (32) devices per elementary school. (1) wireless cart per elementary totaling (125) devices purchased in 2014 grades 1-4.]
- **Elementary School Instructional Device Total:**
 - OB Projected Student Grade Level Enrollment (93)
 - PKWY Project Student GradeLevel Enrollment (89)
 - PAS Project Student GradeLevel Enrollment (89)
 - STRAT Project Student GradeLevel Enrollment (103)
 - **Elementary School Total Computers (480)**
[Comprised of (445) wireless devices and (160) lab computers.

DISTRICT-WIDE K-12

- **Review Internet Bandwidth Needs:** To maintain/support high-speed Internet access for online state assessments, instructional Web-based resources, video streaming/videoconferencing/distance learning instructional resources/activities.
- **Network Architecture: In-Chasis redundancy and dedicated core switch.** Backup supervisor engine for data center in active/standby mode to enhance core network redundancy. Purchase and install second fiber card. Benefit: Will improve current 99.8% to 99.95% SLA (Service Level Agreement)
- **Network Environmental:** Perform wiring closet restructuring for Stratford/K-Center, Pasadena, Old Bethpage, and Parkway elementary schools. – Install IP based cameras at all wiring closets to monitor equipment space for an enhanced level of security. – Install (2) additional quad outlets to support current and future network equipment. – Install (1) new 24 strand 50 micron OM3 link between POBJFKHS and MMS to support proposed redundant data center at POBJFKHS. – Upgrade any existing 62.5 micron fiber optic cable to the new 50 micron OM3 6 strand cable between all wire closets to future-proof up to 10Gps speeds.
- **Document Imaging:** Implement solution for Guidance Office to reduce paper usage/expenditures and create a searchable repository of mission critical documents, daily file sharing, and archiving of federal/state mandated records
- **Scale Remote Access:** To provide students with Citrix remote access. Implement Citrix Netscaler to DMZ off CISCO ASA.
- **Student Information Management System:** (Infinite Campus) Evaluate new modules and data integration

ELEMENTARY SCHOOLS (Grades K-4)

- Elementary School Wireless Infrastructure: Completed Spring of 2015 - *Review Status/Needs*
- Elementary School Wireless Mobile Devices: *Review status/needs*
- Review Elementary School Instructional Device Totals: Including wired and wireless mobile devices based on 2015-2016 projections.

DISTRICT-WIDE K-12

- **Review Internet Bandwidth Needs** to maintain/support high-speed Internet access for online state assessments, instructional Web-based resources, video streaming/videoconferencing/distance learning instructional resources/activities.
- **Network Architecture: Inter-Chasis redundancy at Single Data Center.** Install two new chasis to create a true device-redundant core in NOC. Benefit: Will improve current 99.95% to 99.9% which equals 52.56 minutes of downtime per SLA (Service Level Agreement). This upgrade will also future-proof the district with 400% more processing power with a rating of 280-Gbps switching capacity with 225 million packets (Mpps) of throughput.
- **Internet Redundancy:** Add a secondary ISP at the datacenter to provide Internet fail-over redundancy of Internet service.
- **Evaluate** Software Infrastructure Plan/Licensing implementation.
- **Review** Smart Card Technology.
- **Review** SIF (Schools Interoperability Framework) implementation to link district-wide database-driven information systems such as Library Automation, Transportation, and Pupil Personnel Systems, etc.
- **Evaluate** Document Imaging Implementation to reduce paper usage/expenditures and create a searchable repository of mission critical documents, daily file sharing, and archiving of federal/state mandated records
- **Evaluate** IP Telephony /unified messaging solution status/needs/reduced costs
Note: New System Implemented 2012-2013

<ul style="list-style-type: none"> ➤ Website/Communication:(Schoolwires) Review content creation, navigation, and user friendliness to enhance digital communication opportunities with parents, community members, and district-wide personnel. Website management and digital communication features for this system include: a) editorial control and workflow; b) online content authoring; c) integrated and customizable calendars; d) Website analytics; e) e-alerts, and content subscriptions; f) multimedia including podcasts, premium photo gallery, and clip art; g) forms and surveys including online surveys, quizzes and registrations, and f) RSS services. ➤ Emergency Phone/E-mail Communication: (SchoolMessenger) Review upgrade options to include attendance calling, general building-based announcements to enhance the district's ability to communicate with parents about district programs, information, and website content. Continue evaluating and reviewing Emergency Management Technology Plan initiatives to maintain continuity of educational programs in the unfortunate event of a national and/or local pandemic, for example. ➤ Virtualization/Cloud Computing Project: Continue Cloud Computing initiative to enhance computer performance and reduce computer hardware, management and electrical expenditures. Review MS Office 365 and GOOGLE Apps ➤ Data Warehouse: Continue the development of district Data Warehouse capabilities and provide comprehensive staff data analysis training to inform instruction. ➤ Professional Development: Continue staff professional development to enhance technology utilization in supporting teaching and learning environments and the development of 21st Century skills integrated into mandatory 18 professional hour sessions. ➤ Network Security/Internet Safety: Review/upgrade district-wide network security systems and Internet Safety procedures in alignment with federal mandates and auditor mandates ➤ FAS (Fabric Attached Storage Area Network / Network Attached Storage): Evaluate ongoing Implement centralized file storage needs to meet the growing instructional /administrative data storage needs of district and to provide redundant backup site for disaster recovery. ➤ Review all status of student to device ratio to meet potential PARCC needs and evaluate MS Office 365 cloud-based solutions. ➤ Evaluate Strategic TCO budget implications 	<p>functionality</p> <ul style="list-style-type: none"> ➤ Evaluate Wireless Device implementations via status of post radio mapping tests grades K-12. ➤ emerging technology tablet devices such as the apple/ipad, android, pc tablet, ms-surface, etc. ➤ Website/Communication: Evaluate Schoolwires effectiveness and review new modules ➤ Emergency Phone/E-mail Communication: (SchoolMessenger) Evaluate upgrade options to include attendance calling, general building-based announcements to enhance the district's ability t communicate with parents about district programs, information, and website content. Continue evaluating and reviewing Emergency Management Technology Plan initiatives to maintain continuity of educational programs in the unfortunate event of a national and/or local pandemic, for example. ➤ Data Warehouse: Continue the development of district Data Warehouse capabilities and provide comprehensive staff data analysis training to inform instruction. ➤ Professional Development: Continue staff professional development to enhance technology utilization in supporting teaching and learning environments and the development of 21st Century skills integrated into mandatory 18 professional hour sessions. ➤ Review district-wide use of information technology resources to better manage and reduce expenditures. Assess the use and implementation of district-wide printers to better leverage the network, and redeploy. Assess the use of printer supplies, ink, toner, etc. ➤ Evaluate refresh needs status of Interactive/Multimedia Enriched Presentation System comprised of: Computer/DVD/cloud streaming player/recorder, visual presenter, student response system, large group instruction projector device and screen/or interactive whiteboard; videoconferencing, video streaming, and audio/sound field classroom speaker technologies designed to enhance curricula-driven learning environments to meet the diverse learning modalities and multi-sensory needs of all students. Specialized network hardware/software designed to streamline teacher instructional work flow/presentation; professional development to ensure curriculum infusion; and technical support will be key budgeted components of this implementation. ➤ Evaluate Strategic TCO budget implications 	<ul style="list-style-type: none"> ➤ Virtualization/Cloud Computing Project: Evaluate project status and user experience to continue implementation of private cloud into instructional networks to enhance computer performance and reduce computer hardware, management and electrical expenditures. ➤ Evaluate Wireless Device implementations and status of emerging technology tablet devices such as the apple/ipad, android, pc tablet, ms-surface, etc. ➤ Review Strategic TCO budget implications ➤ Review Emergency Management Technology Plan initiatives. ➤ Evaluate professional development plan / mandatory 18 hour curricular-driven sessions ➤ Evaluate Software Infrastructure Plan/Licensing standardization implementation to reduce expenditures and network incompatibility issues. ➤ Evaluate District-wide IP-based Security Camera System consolidation ➤ Continue to review/upgrade district-wide network security systems and Internet Safety procedures in alignment with auditor recommendations. ➤ Continue to Implement centralized file storage FAS system (Storage Area Network / Network Attached Storage) - to meet the growing instructional /administrative data storage needs of the district and to provide a redundant backup site for disaster recovery (Phase three of project 100% completed). ➤ Review disaster recovery site needs and recommendations ➤ Evaluate K-12 Library Automation System (<i>Follett Destiny</i>) ➤ Evaluate Transportation Management System (<i>Transfinder</i>) ➤ Evaluate Substitute Management System (<i>AESOP</i>) ➤ Review core network transmission capabilities to enhance Instructional and Administrative applications. ➤ Review centralized NOC file servers to support instructional and administrative building implementations.
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PLAINVIEW-OLD BETHPAGE CENTRAL SCHOOL DISTRICT

District-wide Educational Technology Status Report

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Where We Are Today: Strategic Long-Range Technology Plan

In a Nutshell: Summary of Current Educational Technology Resources:

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A) POBJFKHS: Average building-wide student to Network/Internet accessible computer/device /ratio is 3:1. A LAN (Local Area Network) provides each classroom with a total of (4) CAT6 (Category 6 rated cable) network drops and clean electrical power to support current and future growth of instructional and administrative educational technology needs. Computers/devices connect to the LAN via a 100/1000 Megabit (Mbps) Ethernet switched connection to a building-wide Gigabit Ethernet Fiber Optic Backbone connected to a Gigabit Ethernet 12-strand Fiber Optic Wide Area Network (WAN). Wireless 802.11 a/b/g/n access points and devices provide targeted instructional programs secure network access to district-wide digital resources including home directories, research databases, the Internet, etc. In addition, the district provides *authorized user* Bring Your Own Device (BYOD) access to the Internet for the library, department offices, and other instructional locations. Instructional programs are supported with classroom computers connected to Interactive Whiteboards, Digital Projectors, networked printers/other interactive peripherals/devices in addition to a total of (19) specialized content-area related computer labs/clusters.

Specialized content-area instructional labs/minilabs and multimedia enriched learning environments include:

- (3) Computer Graphic/Media Arts labs (Refresh of 73 computers scheduled for 2012-2013)
- (1) Technology Lab
- (1) Technology A+ Computer Repair Lab
- (1) LOTE (Languages Other Than English) Lab (Refresh of 37 computers scheduled for 2012-2013)
- (1) Music Lab
- (2) Business Labs
- (2) English Classroom Perimeter Labs
- (1) Research Lab
- (1) Science Lab
- (1) Reading Instruction Lab (Read180)
- (2) Library Media Center Labs with access to (8) Web-based Research Databases
- (1) Follett Destiny Library Automation System with student OPACs and Web Portal for home-to-school online catalogue access
- (2) Social Studies Classroom Perimeter Labs
- (1) Math Computer Programming Lab
- (88) Classroom Multimedia Presentation Systems (LCD/DLP Projectors, audio systems, DVD players); (9) Mobile Projector Systems (+ 14 for 2012-2013)
- (76) Interactive whiteboards (SmartBoards) + (1) Mobile Interactive Whiteboard Cart (+ 7 for 2012-2013)
- (1) Radio Station (WPOB 88.5 FM is a share time station with WKWZ Syosset and broadcasts Monday to Friday from 7:30 am to 2:30 pm)
- (1) Television Studio (multi-camera studio/set, linear and non-linear editing, digital cameras)
- (5) Content Area Department Office Computer Mini Clusters including BYOD (Bring Your Own Device) Wireless Access to the Internet
- Special Education Teacher IEP-Direct access and Special Education Assistive/Adaptive Technology Computer Clusters and Specialized Software
- Guidance Office Naviance Information System
- (1) Guidance Office CSE Conference Room Data Projection System and Student College Research/Essay/Resume Mini Computer Cluster
- Wireless Instructional Netbooks/Cart, Wireless Staff and Student BYOD (Bring Your Own Device) access, Wireless Security Guard devices

Plainview-Old Bethpage Central School District - Where We Are Today: Strategic Long-Range Technology Plan, Fiscal Years 2001-2012 (5-17-12)

B) MIDDLE SCHOOLS (GRADES 5-8): Average building-wide student to Network/Internet accessible computer ratio is 4:1. A LAN and WAN (identical to the aforementioned POBJFKHS high school technical network design specifications) support all instructional and administrative technology applications. In addition Wireless 802.11 a/b/g/n access points and devices provide targeted instructional programs secure wireless network access to district-wide digital resources including home directories, research databases, the Internet, etc. In addition, the district provides *authorized user* Bring Your Own Device (BYOD) access to targeted areas in each building. Instructional programs are supported with classroom computers connected to Interactive Whiteboards, networked printers, and other interactive peripherals/devices in addition to the following educational technology resources:

- (1) Library Media Center Networked Computer Lab per middle school
- (1) Follet Destiny Library Automation Systems + student Computer Cluster OPACs and Web Portal for home-to-school online catalogue access in addition to (6) Web-based Research Databases; centralized network resources and Internet access per middle school
- (2) Networked Computers/printer per classroom per middle school (One computer per classroom refresh scheduled for 2012-2013)
- (2) Computer Labs with LCD projector presentation systems per middle school;
- (1) Project Challenge Computer Cluster Lab per middle school
- (64) Wireless Netbooks per middle school (Total of 128 wireless devices in addition to pilot i-Pad initiatives in targeted locations)
- (132) Classroom Presentation Systems (LCD/DLP Projectors) with pending computer-based DVDs; (+ 9 for 2012-2013)
- (10) Mobile Projector Systems; (70) Audio Support Systems
- (113) Interactive whiteboards (SmartBoards) (+ 8 for 2012-2013)
- Special Education Teacher IEP-Direct access / Assistive/Adaptive Technology Computer Clusters and Specialized Software Applications
- Read180 Minilabs in specialized locations
- Special Education CSE Conference Room Data Projection System/ Computer Access
- New Guidance Office Naviance Information System

C) ELEMENTARY SCHOOLS (GRADES K-4): Average student to Network/Internet accessible computer ratio is 4:1. A building-wide LAN and WAN (identical to the high school and middle school specifications listed above) support all instructional and administrative technology applications. Instructional programs are supported with classroom computers connected to Interactive Whiteboards, networked printers, and other interactive peripherals/devices in addition to the following educational technology resources:

- (1) Follett Destiny Library Automation System with student OPACs and Web Portal for home- to-school online catalogue access in addition to (5) Web-based Research Databases per elementary school.
- (1) Library Media Center Networked Computer Lab/LCD presentation system with centralized resources / Internet access per elementary school.
- (3) Networked Computers/printer per classroom (district-wide Grade Level 3 and 4 classroom computers/printers were installed as funded by a Dell Computer Corporation Grant and special pricing negotiation initiatives. Computers labs were upgraded in 2007 migrating existing computer lab computers to Grade Levels 1 and 2. (One computer per classroom refresh scheduled for 2012-2013)
- (113) Classroom Presentation Systems (LCD/DLP Projectors) with computer-based DVDs; (+ 11 for 2012-2013)
- (14) Mobile Presentation Systems;
- (65) Audio Support Systems
- (96) Interactive whiteboards (SmartBoards) (+ 11 for 2012-2013)
- Special Education Teacher IEP-Direct access / Assistive/Adaptive Technology Computer Clusters and Specialized Software Applications
- Read-180/System44 Minilabs and specialized locations
- Special Education CSE Conference Room Data Projection System/Computer Access
- Installation of Earobics Learning System for K-Center

In a Nutshell: Summary of District-wide Information Technology Action Item Status:

D I S T R I C T

- 1) Implemented a district-wide assessment of existing technology resources, student needs, staff needs, instructional and administrative needs, technical infrastructure needs, technical support personnel needs; budget implications/needs;
- 2) Implemented technology teams to provide on-going enhanced communication of building technology needs;
- 3) Created and implemented a secure *Central Office of Technology NOC (Network Operation Center)* and server farm to provide the required foundation to support short and long-term district-wide instructional and administrative network resource/application needs, goals, and emerging technology initiatives. The current network is 100 Base-T operating over a Gigabit Ethernet backbone and is comprised of a core CISCO 4507 multilayer network switch; 3750 multilayer network switches, and 3550 network switches. Dynamic VLANs are implemented in all buildings. The network is secured by a CISCO PIX firewall. The primary operating system used in the district is Windows Server 2000/2003. Computer Associates Threat Manager has been implemented for virus/spyware control.
- 4) Implemented a preliminary *NOC* technical support personnel infrastructure to maintain an average of (175) administrative mission critical computers, (1,486) instructional computers, (750) peripherals, (38) software applications/suites and (158) network devices with: (1) director of technology, (1) office secretary, (1) part-time higher-level network technician position, (3) full-time field technicians, and (1) 1/2 –time technician as of FY 2008-09. The current *support technician to computers/infrastructure* ratio is 1:651.75
- 5) Created and implemented district-wide building-based *Computer Technology Teacher Aide* positions to provide basic maintenance and first-line instructional technology support for teachers and staff. High School (2) positions; Middle Schools (1) position per building; Elementary Schools Grades K-4 (1) position per building.
- 6) Implemented the installation and upgrade of district-wide administrative *LANs (Local Area Network)* located at *Central Administration and Annex, POBJFKHS, Mattlin MS, POBMS, Parkway ES, Stratford ES, Pasadena ES, Old Bethpage ES, and Kindergarten-Center*;
- 7) Began the implementation of an administrative/instructional *Computer Hardware/Software Infrastructure Plan* initiative to support cost-effective district-wide standardization goals to provide for the ongoing development of grade-level curricula-driven software application alignment with state/national standards, technology skill benchmarks, and software relevant professional development workshop opportunities for all staff members. The long-term goal of this initiative is to provide district-wide equity of technology budget resources to reduce legacy OS (Operating System) and software version incompatibilities; instructional and administrative computer crashing/downtime, viruses, loss of data; incompatible hardware/software related technical support troubleshooting, incompatible software purchasing waste, and software licensing costs;
- 8) Installed and implemented a district-wide *Gigabit Ethernet Fiber Optic WAN (Wide Area Network)* to support and provide *Centralized Network Resource* and *Internet* connectivity to all buildings;
- 9) Implemented a district-wide computer hardware/software and printer upgrade for all central administration and building-based offices, guidance counselors, social workers and nurses;
- 10) Implemented the infrastructure to support the installation of a new e-mail system for teachers and administrators with remote web-based applications to enhance and support communication between buildings;
- 11) Installed/implemented a new centralized *Financial & Human Resource Management* system and provided district-wide user application training;
- 12) Implemented the capital project design, bid specifications, project management, and installation of district-wide *Instructional LANS (Local Area Networks)* for classroom grades 1 through 8 at *Mattlin MS, POBMS, Parkway ES, Stratford ES, Pasadena ES, and Old Bethpage ES* comprised of (4) CAT6 copper data lines to the desktop, fiber optic backbone, network switches, and clean electrical power. In addition, this installation provides the prerequisite wiring required to implement wireless technology classroom carts and building-wide access points for future growth;

- 13) Implemented district-wide building-based *IDF (Intermediate Distribution Frames)* and *MDF (Main Distribution Frame)* infrastructure with *UPS (Uninterruptible Power Supply)* to support newly installed network switches, routers, and patch panels;
- 14) Implemented a centralized disaster recovery infrastructure system to provide daily district-wide file server backup and virus scanning/definition updates, and *UPS (Uninterruptible Power Supply)* emergency backup power and surge protection;
- 15) Implemented a *Data Warehouse* to provide a repository of instructional testing data elements organized for optimal disaggregated and longitudinal analysis/gap reporting to help inform instructional needs and implemented content-area related district-wide *Data Warehouse Analysis Teams*;
- 16) Implemented a district-wide *Technology Communications Teams* to evaluate emerging web-based *Student Information Management Systems*;
- 17) Implemented the infrastructure to support a new web-based *Office of Pupil Personnel IEP* data management system; *Office of Curriculum* web-based *Professional Development* and *Curriculum Mapping* applications; *Buildings & Grounds* web-based *Maintenance/Repair Request & Tracking System*; *Central Office of Technology* web-based *Maintenance Request/Repair and Tracking System*; and *Office of Personnel* web/phone-based *Substitute Employee Management System*;
- 18) Created and developed a *K-12 Computer Technology Curriculum Guide*;
- 19) Implemented district-wide instructional technology *Professional Development* workshops into required 18 hour training for certified teaching staff;
- 20) Implemented district-wide clerical software application training support workshops to migrate from Corel Word Perfect to MS Word, financial/human resource management systems, student management systems, etc.
- 21) Implemented Metro Ethernet solution to replace T-1 line and legacy ISDN circuits, and consolidation of *Intellipath Consortium* telephone circuits;
- 22) Redeveloped *District Web Site* to provide timely information including the addition of a *Parent-Information-Link*; *Daily Event Calendar*; *Emergency School Closing, Snow Days and Delayed Opening Alerts*; *School Contact Numbers* and *First Alert, Board of Education Meetings and Agendas*; *Lunch Menus*; *Online Access to School Library Catalogues and Research Database Resources*; *BOE Policies*, Counseling Center/Guidance cite, and special program schedules for athletics, cultural arts and music;
- 23) Implemented new *Library Media Center Computer Labs* at all buildings K-12
- 24) Implemented *Library Automation Systems* at all buildings K-12;
- 25) Continued implementation of instructional LCD/DLP multimedia classroom projector presentation systems;
- 26) Implemented and installed an *Instructional LAN (Local Area Network)* at *POBJFKHS* and *Kindergarten Center* comprised of (4) CAT6 data lines, fiber optic backbone, network switches, and clean electrical power. In addition, this installation provides the prerequisite wiring required to implement wireless technology classroom carts and building-wide access points for future growth;
- 27) Implemented a computer refresh cycle. To date 100% of all classrooms, computer labs/clusters, and Library Media Centers have been upgraded to the *Dell Optiplex GX Enterprise Series* model specifications.
- 28) Installed new Storage Area Network (SAN) / Networked Attached Storage (NAS) / Fabric Attached Storage (FAS) type solution .
- 29) Implemented Off-site Disaster Recovery Site
- 30) Implemented a new Parent Emergency Notification System.
- 31) Implemented a new Student Information Management
- 32) Implemented a new Transportation System
- 33) Implemented a new Library Automation System
- 34) Implemented new Security/Camera Systems
- 35) Piloted virtualization solution for servers and desktops – administrative desktop implementation in progress. Instructional lab pilots in progress.
- 36) Evaluate, design, and implement Internet Protocol Telephony System to support digital communication goals and provide switch upgrades for wireless