Technology Plan

in support of Teaching, Learning and Administration
in the Brockton Public Schools

2012-2015

Technology Goals

Supporting and enhancing the quality of teaching and learning in the Brockton Public Schools

The Brockton Public Schools (BPS) 2012-2015 Technology Plan responds to the benchmark recommendations in Department of Elementary and Secondary Education (DESE) Guidelines for Local Technology Plans for School Year 2012-2013 and includes longer-term goals through 2015. The DESE guidelines expressly call for –

- Commitment to a Clear Vision and
- Implementation Strategies
- Promoting Technology Integration and Literacy
- Providing Technology Professional Development
- Ensuring Accessibility of Technology
- Appropriate Use of E-Learning and Communications

As importantly, the BPS Technology Plan supports *Focus on Results, a Roadmap for Improving Teaching and Learning in the Brockton Public Schools* and the *Standards for Classroom Instruction, a Guide for Brockton Educators.* Pages 3-7 of this BPS Technology Plan detail how DESE technology guidelines are implemented and Brockton's *Focus on Results* and *Standards for Classroom Instruction* are supported through activities keyed to the following objectives:

- Improving technology integration in all instructional areas and increasing technological literacy
- Facilitating data-driven instruction and improving efficiency through well-integrated and widely-deployed information systems
- Promoting effective, interactive channels of communication among school stakeholders – staff, parents, students, community
- Providing the necessary stability, security and scalability in the existing infrastructure to meet increased demands
- Maintaining satisfactory levels of hardware and software support for all instructional and administrative user

The technology overview in Appendix B describes the BPS infrastructure to promote and support its many initiatives in the application and integration of educational technology. Appendix A provides a sampling of planned and ongoing technology professional development activities. Appendix C shows the current technology support organization.

BROCKTON PUBLIC SCHOOLS – TECHNOLOGY PLAN

Objectives:

- ***A. Improve technology integration in all instructional areas and increase technological literacy***
- ***B. Facilitate data-driven instruction and improved efficiency through well-integrated and widely-deployed information systems***
- ***C. Promote effective, interactive channels of communication among school stakeholders – staff, parents, students, community***
- ***D. Provide the necessary stability, security and scalability in the existing infrastructure to meet increased demands***
- ***E. Maintain satisfactory levels of hardware and software support for all instructional and administrative users***

A. *Improve technology integration in all instructional areas and increase technological literacy*

Activities	Responsible	2012-2013 Target	Long-term (2013-2015) Target	Indicators	Resources
A1. Monitor technology plan implementation; respond to overall district priorities	Instructional Technology; Technology Services; Office of Teaching and Learning	Tech task force sets goals, priorities and recommends allocations	Continue each year	An annual technology plan aligned with state goals and district needs	None needed
A2. Promote greater integration of technology in all curriculum areas	Instructional Technology; Office of Teaching and Learning	Improved integration in the middle school curriculum	Changing integration model across all grade levels as skill levels and needs change	Demonstrated increase in technology skills by end of Grade 8	Local budget
A3. Implement a curriculum-aligned, streaming video library and delivery system	Instructional Technology; Technology Services; Office of Teaching and Learning	Discovery Education library and curriculum materials.	Increase usage and integration of streaming video in all curriculum areas	Video usage statistics, observation	Local budget; e-rate, if applicable
A4. Develop cost-effective, flexible solutions for multi-media instruction	Instructional Technology; Technology Services	Deploy mobile cart presentation stations and increase wireless capacity	Continue to increase availability of mobile presentation stations	Increased availability of mobile presentation stations, usage logs, observation	Local budget; e-rate
A5. Promote use of appropriate technology for improved interactivity in the classroom	Instructional Technology; Technology Services; Office of Teaching and Learning	Continue deploying IWBs, document cameras, student response systems	Further integrate interactive technology into all curriculum areas	Increase in lessons using interactive systems, observation	Local budget, grants
A6. Provide necessary levels of professional development for technology integration and literacy	Instructional Technology	Technology training in all curriculum areas	Provide ongoing technology training in all curriculum areas	PD/training hours & staff self-assessment surveys	Local budget, grants

Activities	Responsible	2012-2013 Target	Long-term (2013-2015) Target	Indicators	Resources
A7. Conduct periodic assessment of students' technology skills	Instructional Technology; Office of Teaching and Learning	Standardize assessment of students' technology skills	Continued implementation of student technology assessments	Results from student technology assessments	Local budget, Grants
A8. Automate all student network activity from account creation to deletion	Technology Services; Data Services;	Use SIF/DA to expand student user accounts to all Middle Schools	Investigate possibility of providing student email accounts	Students actively utilizing portable network accounts and resources	Local budget
A9. Increase capacity of all district staff to troubleshoot lower-level hardware, software issues	Technology Services	Create library of self-help audio/video clips for simple tech tasks	Continue to add and refine technology self-help aids based on feedback	Maintain districtwide 24-hr response & resolution time as availability of equipment and usage increases	Local budget
A10. Evaluate Video Conferencing technologies to facilitate distance learning	Instructional Technology; Technology Services; Office of Teaching and Learning	Implement two mobile VC units in every school	Expand availability and functionality	Track usage statistics; analyze DL evaluations	Local budget, E-Rate
A11. Increase targeted professional development opportunities in technology	Office of Teaching and Learning; Instructional Technology	Offer at least ten hybrid graduate courses via Moodle (use of Web 2.0)	Expand number of courses based on periodic needs assessments	Track courses offered and students attending; analyze course evaluations	Local budget grants

B. Facilitate data-driven instruction and improved efficiency through well-integrated and widely-deployed information systems

Activities	Responsible	2012-2013 Target	Long-term (2013-2015) Target	Indicators	Resources
B1. Evaluate interventions, investigate and deploy new intervention programs	Instructional Technology; Office of Teaching and Learning	Research-based interventions to close performance gaps in ELA and mathematics	Implement additional intervention programs and monitor students' use and results	Installation, observation, effectiveness data	Local budget, grants
B2. Maintain and improve student formative assessment programs and data files	Associate Dir. Assessment, Analysis, Research, and Evaluation; Office of Teaching & Learning	Maintain program updates and student assessment history	Improve staff capacity to extract and analyze assessment data	Availability of data, use of assessment reports to differentiate instruction	Local budget
B3. Promote use of data ware-house (DWH) for improved single source access to data and longitudinal studies	Exec. Dir. of Accountability, Planning and Technology; Data Services	Continue training program for district and school leadership teams	Train Data Services group in ESE's EDW; assess tie in	Usage statistics & improved access to historical data for effectiveness studies	Local budget, hosting e-rate if eligible

Activities	Responsible	2012-2013 Target	Long-term (2013-2015) Target	Indicators	Resources
B4. Deploy an improved student information management system (SIS)	Data Services	Continue to SIS training in new modules	Integrate new SIS with all data systems & DWH; train staff in add'l SIS modules	Improved site-based control over and use of IT services (scheduling, ad hoc reporting, etc.)	Local budget, hosting e-rate if eligible
B5. Design and deploy dashboard to monitor key performance indicators (KPIs)	Exec. Dir. of Accountability, Planning and Technology; Data Services	Deploy near real-time, DWH-sourced system of KPIs for district and school progress	Refine KPIs to utilize business intelligence projection systems	Successful district and school intervention based on KPI data	Local budget
B6. Improve the logistical and analytical aspects of formative assessment system	Exec. Dir. of Accountability, Planning and Technology; Office of Teaching and Learning	Pilot and adopt improved scanning & scoring platform (Edusoft to TestWiz)	Expand use of scanning/scoring platform beyond ELA & Mathematics	More timely reports of student performance for data meetings, etc.	Local budget
B7. Implement Curriculum-Based Measurement (CBM) system in Mathematics	Office of Teaching and Learning	Use scanning/scoring system to collect and analyze CBM test data	Promote data analysis at the classroom level	Use of data reports at data meetings, etc.	Local budget Grants
B8. Improve efficiency of student progress monitoring in reading, mathematics and behavior	Instructional Technology; Office of Teaching and Learning	Use Palm technology in Gr.1-3 for student progress in reading, math, and behavior	Expand monitoring to all grades Pre-K to 5	Generate and use progress reports by student, grade, school and districts.	Local budget. grants
B9. Implement standards-based report cards for Grades K-5 and district's International Baccaulaureate MY program	Data Service; Office of Teaching and Learning	Integrate standards-based report cards into districts SIS	Integrate all report cards K-12 nto district website and parent portal	Website use and 'hits'; parent satisfaction	Local budget.

C. Promote effective, interactive channels of communication among school stakeholders – staff, parents, students, community

Activities	Responsible	2012-2013 Target	Long-term (2013-2015) Target	Indicators	Resources
C1. Expand district's website to provide actionable data for staff and community	Office of Communication, Community Schools and Development; Office of Teaching & Learning	Create instructional knowledge base for staff & information base for parents	Develop and deploy parent portal for secure access to student data	Website access statistics and satisfaction surveys	Local budget, e-rate
C2. Implement standards-based report cards for Grades K-5 and district's International Baccaulaureate MY program	Data Services; Office of Teaching and Learning	Integrate standards-based report cards into districts SIS	Integrate all report cards K-12 nto district website and parent portal	Website use and 'hits'; parent satisfaction	Local budget.

D. Provide the necessary stability, security and scalability in the existing infrastructure to meet increased demands

Activities	Responsible	2012-2013 Target	Long-term (2013-2015) Target	Indicators	Resources
D1. Ensure internet and WAN capacity continues to meet growth and demand	Technology Services	Improve monitoring to better prioritize existing internet and data traffic	Add additional circuits to meet growth and demand as needed	Satisfactory performance and stability	Local budget; e-rate
D2. Maintain reasonable replacement cycle for desk computers and laptops	Technology Services	Maintain six-year life-cycle for networked type "A" student PCs	Utilize virtual & thin client technologies to extend PC life-cycle to, and beyond, 5 yrs	DOE annual tech report with higher type "A" PC statistics and improved student-to-computer ratio	Local budget; grants; e-rate
D3. Maintain a comprehensive storage solution for backup, disaster recovery, and e-mail archiving	Technology Services	Utilize blade and SAN technology for redundant backup at two locations	Ongoing evaluation of security and systems' ability to withstand disasters	Recovery from catastrophic failures; compliance with archiving mandates	Local budget, hosting e-rate if eligible
D4. Provide ubiquitous Wi-Fi environment for instruction, communication & signaling	Technology Services	Create 100% wireless coverage for all PreK-12 Schools	Increase coverage to support VOIP	Robust wireless access throughout the district	Local budget e-rate
D5. Implement schedule of preventive basic maintenance of the network infrastructure	Technology Services	Identify all equipment eligible for supported maintenance (e-rate)	Augment existing capacity for basic network maintenance with 3rd party vendors	Improved network maintenance and support; fewer network related issues	Local budget e-rate
D6. Improve network monitoring and performance	Technology Services	Identify remaining unmanaged, non-gigabyte switching devices	Install optimized, managed, gigabyte-capable switching systems	Stability and improved performance using entire available bandwidth	Local budget e-rate
D7. Improve stability of critical network devices	Technology Services	Identify network vulnerability without adequate backup battery capability	Provide necessary battery backups and replace marginal UPS equipment	Mission-critical network stability as measured by minimized downtime	Local budget e-rate
D8 Collaborate with City of Brockton to wire municipal buildings, including schools, with own fiber network	Technology Services	Complete final phase(V) of Municipal Fiber Project	Identify non-ancillary sites for possible connectivity	Achieve significant gain in bandwidth and ROI from increased capacity of Municipal Fiber	Local budget e-rate, if eligible

E. Maintain satisfactory levels of hardware and software support for all instructional and administrative users

Activities	Responsible	2012-2013 Target	Long-term (2013-2015) Target	Indicators	Resources
E1. Seek new funding sources for technology expansion	Instructional Technology; Technology Services; Grants Administrator	Investigate funding sources for technology in the district	Augment local funding for technology initiatives	Amount of new funding	None needed
E2. Provide ongoing training to technology support personnel to maintain/upgrade required skill levels	Instructional Technology; Technology Services	In-service network staff, technicians, help desk, software specialists	Maintain certification skills and cross-train for specialized services	Improved problem resolution and decreased response time; satisfaction surveys	Local budget
E4. Collaborate with Brockton Community Schools in choosing registration/fee/credit collection system	Technology Services; Brockton Community Schools	Assist with installation of system	Integrate into district website and parent portal	Efficient registration; improved collections	Brockton Community Schools revolving fund

Appendix A – Planned and Ongoing Technology Professional Development Activities

1. **Training in use of Promethean Interactive Whiteboards** Promethean Interactive Whiteboard is an Activeboard to ensure student engagement through participation. Promethean has its own software ActiveStudios and is also supported by the Promethean Planet website which allows teachers to collaborate. *Introduction:* This training provides teachers with the resources to Promethean Planet, Tools, Flipcharts, and getting started skills. *Level 2 training:* Teachers will review skills learned, Explore the resource library, how to manipulate resources in the library, grids, editing grids, incorporating sound and actions. *Level 3 training:* Review of skills, using Activestudios in annotate-over-desktop mode, camera tools, customize user-defined buttons on the toolbar. ActiveInspire has replaced Activestudio as the core software element that drives the Promethean Interactive Whiteboard. A new training regime is being developed to assist all existing and new users with the integration of ActiveInspire.
2. **Training in use of Document Cameras** The Elmo Document Camera brings the overhead project to the next level. Teachers are able to capture the moment and project live objects to the class.Document camera use in the classroom; this training is a basic How –to program. Teachers learn to the set up and the functions of the camera. Teachers learn how to use the camera in conjunction with other technologies e.g. interactive whiteboard, microscopes.
3. **Training in use of Student Response Tools** Teachers are taught how to use this tool to redirect teaching and create teachable moments from real-time feedback.Teachers are shown how to set up their classes in Accel Test to identify students and be able to track progress. Teachers are trained how to use the responders in conjunction with other technologies e.g. interactive whiteboards.
4. **Training in use of Frontrow Audio Enhancement Systems** Provide teachers with an initial training to learn how to use the tool alone and with other technologies (IWBs, filpcharts, etc.) and troubleshoot simple issues they may have.
5. **Training in Basic Computer Skills** E-mail skills – how to open an attachment, send an attachment, and manage account. Windows- how to manage the desktop. MS Office 07 – how to create, manage, and, save documents, and use of basic tools.
6. **Training in Web 2.0 Tools in the Classroom** Teachers will use Blogs, Wikis, and other interactive forums to collaborate with student and educators. Teachers will expand their access to resources worldwide.
7. **Training in Universal design in the Classroom** Making use of all the educational resources for all students and demonstrating how to give access to for the “typical student” as well as the “sped student”. Creating opportunities in the classroom for every student to be able to use all technologies available.
8. **Training for Streaming Video in the Classroom** Discovery Education, as well as other video/audio content providers utilizes streaming video, media share, teacher resources, and an educator network. Discovery aligns curriculum with the MA state standards. Demonstrating the use of streaming video in the classroom. Using the streaming video with the use of the Promethean board’s interactive tools. Using streaming video with Movie Maker to enhance lessons. Incorporating Web 2.O tool with Discovery Education resources. Use the supplemental resources of Discovery Education to create dynamic lessons.
9. **Training for Teacher On-Line Courses** Moodle is a on-line format for designing and delivering on-line courses. Creating courses for teachers to keep current with the course work they need for certification. Giving teachers a format to create training for any needs throughout the district. Promote the use of Moodle to increase online PD availability.
10. **Training on distributed use of student information system SIS** Navigation. Scheduling. Ad hoc queries. Gradebook. Standards-based report cards for K-5. Standard-based International Baccalaureate Middle Years report card. Labels.
11. **Training on BPS eScholar and DESE Cognos data warehouses** Refresher eScholar training for 200 administrators and district/building instructional leadership team members; key Data Services staff training on Cognos EDW.

Appendix B – Technology Overview

INFRASTRUCTURE AND SUPPORT

- **Interconnectivity/Wide Area Network (WAN)** Completing final phase(V) of Municpal Fiber Project bringing "dark fiber" to all prek-12 schools.
  - High Bandwidth Needs – 10GB fiber – Brockton High School and Crosby Administration Building
  - Medium Bandwidth Needs – 1GB fiber to all remaining schools including Paine, Gilmore, Goddard, and Keith
  - Create a 2nd "leg" for a redundant Fiber Backbone to create stability and fault tolerance in case of an outage
  -
- **Internet Access**
  - Three completely independent MEC/Verizon/Comcast fault-tolerant and load-balanced internet connections.
    - Brockton High School - SES 100MB fiber
    - Crosby Administration Building - T3 45MB
    - Baker School – Comcast 100MB fiber
- **Backup with total capacity of 24 terabytes**
  - E-mail backup nightly with two-week retention policy
    - Archive in real-time every e-mail in/out for 7 years with 5 TB storage capacity
    - E-discovery capable, full compliance of federal mandate
  - Data backup
    - Nightly backup of all staff and student data with 2-week retention policy and archive with 9TB storage
  - Disaster Recovery
    - Full auxiliary copies of all data to recover from a true disaster with 9TB capacity
    - Two locations - Brockton High School and Crosby Administration Building
- **Security & Monitoring**
  - Anti-virus protection
    - Sophos centralized server with two relays and desktop, e-mail and server coverage
    - Barracuda E-mail gateway with dual appliances that are fault-tolerant and load-balanced
  - Anti-Spam protection
    - Barracuda E-mail gateway with dual appliances that are fault-tolerant and load-balanced

Appendix B – Technology Overview

INFRASTRUCTURE AND SUPPORT

- **Security & Monitoring (continued)**
  - Network Access Control (NAC)
    - Sophos with DHCP control
    - Sophos Web Filter
      - Content filter and bandwidth monitor with full suite of reports for web usage and dual appliances that are fault-tolerant and load-balanced
  - HP Systems Insight Manager (SIM) monitors all SNMP traffic of our servers and manages server updates
  - HP Procurve monitors all SNMP traffic of our switching infrastructure and manages switch updates and configuration
  - Solarwinds Orion acts as global SNMP traffic monitor with a full suite of reports to identify network traffic flow and issues
  - Track-It inventories all networked computers, manages work flow and helpdesk activity
- **Wireless coverage**
  - All schools have full wireless coverage
    - Ensuring high availability - ongoing
    - Ensuring strong signal strength in all areas - ongoing
    - Investigating AC wireless protocols currently in development for high speed wireless
  - FY15 E-rate proposal to upgrade and expand existing wireless to make sure we can accommodate substantial increases in wireless usage in the foreseen future
- **Computer repair and maintenance**
  - Approximate inventory
    - 7000+ computers, 1200+ printers
  - Turnaround time
    - 4 hour average response time; 24 hour maximum response time; 12 replacement PC systems on standby for critical situations or if repairs exceed maximum response time
  - Helpdesks
    - For all PC issues: *phone support managed by dedicated individual, web-based request form, e-mail direct to Technology Services*
    - For MUNIS issues: *phone and e-mail support directly by Accounts Payable Department*

Appendix B – Technology Overview

INFRASTRUCTURE AND SUPPORT

- **Computer repair and maintenance (continued)**
    - For Infinite Campus student information issues: *phone and e-mail support directly by School Data Services*
    - For Edusoft/TestWiz issues: *phone and e-mail support directly by Accountability, Planning & Technology office*
  - Imaging – ghost method
  - Certifications of in-house staff
    - 5 possessing A+, 3 N+, 2 Microsoft Certified System Engineer certifications
  - Outsource significant portions of our IT organization – network 20%, PC repair 30%, PC deployment 40%, AV repair and deployment 80%
  - Computer life-cycle currently at 7 years; goal is a 5-year life-cycle
  - All technical staff communicate with iPhone smartphones – moving to paperless work orders
- **Virtualization** BPS has begun vitalizing its servers and desktops. Virtualization reduces the administrative overhead of deploying, maintaining and configuring physical machines, and acts as part of our "green" initiative by utilizing less energy for power and cooling
  - Virtual Desktops using N-Computing systems
    - Green, Red, Azure, Yellow teacher cafeterias at Brockton High School; B.B. Russell computer lab
  - Virtual Servers
    - HP Blade server – C7000 Chassis – BL460 Blades
    - EMC Clarion CX500 SAN – 8TB capacity; Brocade Sphereon Fiber Channel Switch
    - 5 ESX hosts running EMC VMWare(VShpere) with VMotion functioning as 40+ virtual Servers
- **Network Infrastructure**
  - HP Procurve Switches with GB backbone and 10GB backbone at BHS
  - Cisco Switches to support the Cisco wireless system - fully independent Cisco LAN backbone at BHS
  - Cisco WAN routers running OSPF for fault-tolerance
- **Internships**
  - Subject to available funding, Brockton High School A+ program students are hired for assist in various technology initiatives

Appendix B – Technology Overview

INSTRUCTIONAL TECHNOLOGY

- **Task Force** – LTI (Linking Technology and Instruction) serves as the district's school technology steering group with stakeholders from across the K-12 grade level and curriculum span and meets regularly. LTI group includes –
  - Executive Directors of Teaching and Learning
  - Director of Technology Services
  - Instructional Technology/Technology Professional Development staff
  - Brockton High School staff
  - Department heads and coordinators from SPED, Math, Bilingual, IRC, ELA
- **Projection equipment** Along with the computer, projection is the cornerstone of many of the current and future technology initiatives including interactive whiteboards, document cameras, streaming video and student response systems
  - The goal is a permanent projector in every classroom. Currently all schools are approximately 75% covered for projection in every classroom. We are in hopes of having 99% coverage by the end of FY13.
- **Interactive whiteboards** BPS has standardized on the Promethean platform, an interactive whiteboard with ActiveStudio(ActivInspire) software and Web 2.0 collaboration space for instructors. On-going PD throughout the year ensures effective use and increased integration in the classroom. We've begun to switch over to Epson Brightlink interactive projectors while still using the Promethean ActiveStudio in order to ensure a consistent platform for the teaching staff
- **Document cameras** Document cameras have begun to replace overhead projectors and incorporate additional functionality that is proving very valuable in the classroom. There are 400+ document cameras district-wide.
- **Video content delivery** Centrally located and distributed content throughout the district using existing data network
  - Discovery Education offers 4,000 full-length videos segmented into 40,000 content-specific video clips that you can use to illustrate concepts or ideas in every subject area, as well as still images and audio clips. Through the Discovery Educator Network, you have free access to a wide range of technology training, as well as a resource library of teacher generated projects and tools that you can use to enhance learning in your classroom every day.
  - Brockton hosts its own Discovery Education server

Appendix B – Technology Overview
INSTRUCTIONAL TECHNOLOGY

- **Video content delivery (continued)**
  - Snapstream cable TV live-streaming and pre-recorded content delivery system with 10 tuners and 2TB capacity
- **Student Response systems for real-time assessment**
  - 95 sets of Renaissance 2Know student response systems in the district, which each set containing 30 student responders
- **Audio amplification** Permanent and portable audio systems consisting of a receiver, multiple speakers, and a wireless microphone.
  - The district has several Frontrow-to-Go portable systems. George and Baker schools have permanent Frontrow systems installed in every classroom and function rooms.
- **Library/IRC**
  - New web-based library system in all schools – Follett's Destiny
- **Web 2.0** teacher collaboration sites such as del.icio.us, Google groups, Promethean Planet
  - Moodle with in-house staff server, in-house student server, in-house "sandbox" server
  - Blogs & Wikis with in-house Apple server
- **Courseware**
  - Read 180 – Reading Intervention
  - FastMath – Math Skill reinforcement
  - Lexia – Early reading skills intervention
  - PLATO – Full electronic curriculum of ELA and Science – Brockton High School
  - SME – Full electronic curriculum – K-8
  - Symphony Math – Early math skills reinforcement
  - Imagine Learning – Language intervention for bilingual students

Appendix B – Technology Overview
INSTRUCTIONAL TECHNOLOGY

- **Courseware (continued)**
  - Type To Learn – Keyboarding skills – all middle schools
  - Apangea – Math Skill reinforcement – Brockton High School / middle schools
  - Study Island – Elementary curriculum

- RM EasyTeach – Math curriculum – all middle schools

INFORMATION TECHNOLOGY

- **Student Information System** 2009 migration to Infinite Campus from Century Consulting StarBase
  - Attendance, scheduling, behavior, assessment, grades and gradebook, portals
- **Assessment Management Systems**
  - Edusoft, TestWiz
- **Data Warehouses**
  - Exploiting BPS' e-Scholar, BPS' Infinite Campus, DESE's Cognos EDW
- **Website use partitioning**
  - Public internet access; student Intranet with internet access; staff Intranet with internet access
- **SubFinder** Absentee management system
- **Higgins Photo ID** system for staff and student identification badges
- **SchoolDude** facilities workflow management system
- **SNAP** student medical records
- **EasyIEP** SPED web-based IEP system
- **ConnectED** district wide call notification system
- **Food Services** new electronic POS system installed in all schools – Horizon
- **Tyler VersaTrans** bus routing and scheduling; boundary planning (GIS system)
- **SIF (Schools Interoperability Framework)**
  - Integrates the student information system with Microsoft AD for all Student network accounts, folders, and permissions creation, modification, and deletion; integrates student information system with EasyIEP
  - Pending projects: MUNIS integration, SNAP medical records system integration, VersaTrans transportation system integration, DW exchanges
- **Tyler MUNIS** financial and human resources system – only system managed and supported by the City of Brockton Information Technology Department