



Canton Public Schools District Technology Plan 2012-2015



2011-2012 District Administration

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Ken Leon	Business Administrator
Debra Bromfield	Director of Student Services
Mike Wentland	Network Administrator
April Goran	Technology Integration Administrator

2011-2012 School Committee

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Cindy Thomas	Vice Chair
Elisabeth Salisbury	Secretary
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2011-2012 District Technology Integration Committee/Professional Learning Community (PLC)

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Executive Summary

May, 2012

The District Technology Plan continues to serve as an important road map for technology growth and development in the Canton Public Schools and strives to align with the District Strategic Plan. The integration of technology to support teaching and learning across the curriculum has been a stated goal in the District Strategic Plan since 2002. Over the years, Canton Public Schools has worked with several technology plans that guided decisions about teaching and learning, professional development, instructional setting design, infrastructure, budget, staffing, and information systems.

Since 2007 the infrastructure in the Canton Public Schools has made considerable progress; upgraded server capabilities, improved telecommunications, redesigned classrooms to provide equitable access to curriculum resources, and retooled instructional settings with new productivity, communications and multimedia tools for students and teachers. The structure of our day to day communication within administration, staff, students, parents and the community has changed throughout the period of infrastructure transition.

Our district and school administrators have developed updated methods of communication using our current or new information systems to manage the day to day activities with a focus on safe and healthy learning environments. Despite budget cuts over the years, the community remains committed to supporting technology in our schools. Technology is now viewed as an integral part of the educational process. The technology staff is fully invested in providing the support necessary to successfully integrate technology into all aspects of the district and school operations.

During the infrastructure changes, our students' technology endeavors have drastically changed. For the first time, students enter our schools with pre-existing technology skills. Students are connected to a multitude of technology through keyboards, voice recognition, touch screens and wireless capabilities to access resources of knowledge through educational tools, games and learning opportunities. They have never known a world without the Internet or the ability to connect to anyone at anytime. National and local surveys indicate that students at young ages routinely multi-task using several devices simultaneously. Our learners have changed and the technology within our district and schools must change to meet or exceed the students' learning capacities. The Canton Public School District has begun to take the steps necessary to reach all students with technology including updates to the standards-based curriculum, professional development and connections to the Massachusetts Technology Standards and Expectations (Appendix I). We are guided by the Massachusetts School Technology and Readiness Chart (STAR Chart, Appendix J) to promote best practices with the use of technology and continue the improvement of teaching, learning and the educational management.

This technology plan will be the first step in aligning our infrastructure with our learning outcomes. Connecting our curriculum to the state standards and beyond will allow our students to become 21st Century Learners with adaptable technology skills that will be transparent with any college or career choice. Our belief is that by adhering to this technology plan, a consistent understanding of what is expected of our administrators, staff, students and community will be established.

April M. Goran

April M. Goran
Technology Integration Administrator

Acknowledgements

The committee that created this document would like to acknowledge their colleagues throughout the district. Without the help of fellow administrators, teachers, librarians and students this document would not be possible.

We would also like to acknowledge that the developments of this plan were influenced by:

- *Massachusetts DESE Technology Literacy Standards and Expectations*
- *National Technology Plan 2010*
- *Massachusetts School Technology and Readiness Chart (STAR Chart)*
- *Standards for the 21st Century Learner, AASL*
- *Partnership for 21st Century Skills, The Road to 21st Century Learning*
- *Our community, our staff and the world around us.*

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Saving Paper and Continuing Canton's Going Green Initiative:

All appendix documentation are posted on the Canton Public Schools Technology Webpage.

<http://www.cantonma.org/pages/CantonPublicSchools/Departments/Curriculum/Technology/TechnologyPlans>

Benchmark 1: Commitment to a Clear Vision and Mission Statement

<p><i>State Local Plan Benchmark According to Massachusetts Department of Guidelines</i></p>	<p><i>Current Status</i> <i>DTP 08-11=2008-2011 District Technology Plan</i> <i>or</i> <i>Added to Technology Plan Guideline</i></p>	<p><i>Recommendations/ Actions to Reach Benchmark</i></p>
<p>A. The district's technology plan contains a clearly stated and reasonable set of goals and implementation strategies that align with the district-wide school improvement plan. The district is committed to achieving its vision by the end of the school year 2014-2015.</p>	<p><u>Mission Statement:</u> We strive to integrate technology into the classroom to enhance teaching and learning, to promote independence and confidence among our users, and to prepare students for success with technology beyond the classroom.</p> <p><u>Goal Areas for FY 2008-2011</u> Technology Integration & Literacy (Staffing) Technology Professional Development for all staff Accessibility of Technology Hardware/Software Internet Access Networking Staffing Security Systems Technology Funding E-Learning and Communications</p>	<p>Update district mission statement to include 21st Century Standards for staff and students by the end of the school year of 2012-2013.</p> <p>Prioritize goals with infrastructure and instructional needs.</p> <p>Update technology needs assessment.</p> <p>Update instructional technology inventory.</p> <p>Develop proactive ways to include all staff needs with technology. May include individual surveys or MASSOne TSAT.</p> <p>Develop District Technology Plan Goals that include:</p> <ul style="list-style-type: none"> • Align Technology Plan with District Strategic Plan • Curriculum alignment with state standards from Grades K-12.

Benchmark 1: Commitment to a Clear Vision and Mission Statement

<p>B. The district has a technology team with representatives from a variety of stakeholder groups, including school committee members, administrators, and teachers. The technology team has the full support of the school superintendent to implement the plan.</p>	<p>District Committee/Professional Learning Community (PLC) started in 2011-2012 and consists of: 2 District Administrators 1 Building Administrator 4 Teachers 1 HS, 1 MS, 2 Elementary</p>	<p>Superintendent will continue to support the technology team and plan by reading the minutes, asking the committee chair to present at the administrative cabinet and school committee.</p> <p>Provide PDP's for District Technology Integration PLC with additional representatives from Hansen Elementary School, School Committee, Community, Parents and Students from MS and HS</p> <p>Expand the committee to an instructional or evaluative professional learning community at each school in order to implement the MA DESE technology standards.</p>
<p>C. Needs Assessment</p> <ol style="list-style-type: none"> 1. The district assesses the technology products and services that will be needed to improve teaching and learning. 2. The technology plan includes an assessment of the services and products that are currently being used and that the district plans to acquire. 	<p>Current infrastructure inventory is held by the Network Administrator and Technology Specialists and reported to the state each year.</p> <p>Instructional technology is reported to the state each year, but specific classroom location is not reported.</p> <p>Technology Committee surveyed principals to develop a realistic list of goals for the next school year (2012-2013). It is our long term goal that teacher input will be provided.</p>	<p>See Appendix C for results of district needs assessment. Priorities were made with the Network Administrator, Integration Administrator, Director of Curriculum and Instruction, Building Principals and the Technology Committee Members.</p> <p>Items listed may include operating budget and capital budget requests.</p> <p>The goal of the district is to update this needs assessment on a yearly basis with an emphasis on student achievement and appropriate classroom instruction.</p>

Benchmark 1: Commitment to a Clear Vision and Mission Statement

<p>D. Budget</p> <ol style="list-style-type: none"> 1. The district recognizes that technology plays a critical role in achieving its goals. The district has a budget that will ensure the implementation of its long-range technology plan. 2. The budget includes staffing, infrastructure, hardware, software applications, professional development, support, and contracted services. 3. The district seeks funding for technology programs from federal, state, and private resources, as well as from academic departments that are supported by technology. The district explores ways that technology can reduce costs and create efficiencies in other areas of the district budget. 4. For districts that plan to apply for E-rate reimbursement, the technology plan specifies how the district will pay for the non-discounted portion of their costs for the services procured through E-rate. 	<p><i>See Recommendations/ Actions to Reach Benchmark Column for Budget</i></p>	<p>Continue communication with all stakeholders in the district to emphasize the critical role technology holds in our daily operations for staff, students and community. Provide concrete examples of the uses of technology throughout the district.</p> <p>Maintain line items in the Operating and Capital Budget for technology staffing, hardware, software, professional development, contracted services, and support.</p> <p>Develop essential baseline non-negotiable technology items including: minimal computer requirements, filtering software (CIPA Complaint), virus protection, operating systems that need to be funded each year to support the staff, students and parents. Continue to review all operating systems for the productivity and costs.</p> <p>Seek grants, state and federal, e-rate compliant that Canton Public Schools can benefit from. Utilize a grant writer to seek out and produce awarded grants for district.</p>
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Benchmark 1: Commitment to a Clear Vision and Mission Statement

<p>E. Evaluation</p> <ol style="list-style-type: none"> 1. The district routinely consults with technology staff before purchasing technologies items, to ensure that the items are appropriate, cost-effective, and sustainable. 2. The district's technology plan includes an evaluation process that enables it to monitor its progress in achieving its goals and to make mid-course corrections in response to new developments and opportunities as they arise. 	<p>The Network Administrator has established protocols for any evaluation or purchase of technology to ensure that technology meets the districts vision.</p> <p>The district utilizes a team approach to evaluate the effectiveness of technology resources toward attainment of educational goals on an ongoing basis throughout the year. An annual review of the Technology Plan by the Technology Committee takes place to review goals and accomplishments and to revise the plan as needed.</p>	<p>Expand team approach with additional technology team members (additional staff from each school) and review surveys and TSAT from MASSOne. Surveys and data need to include technology standards by grade and report card standards. Develop the surveys that will measure the progress of this technology plan.</p> <p>Routinely evaluate student progress through MCAS data analysis, standardized tests, in-house and teacher assessments.</p> <p>Evaluate educational software based on current research and current practices. Evaluators could include administrators, teachers and students.</p> <p>Implement a plan to assess student technology competencies at each grade level.</p> <p>Continue to review costs of programs that are utilized for the day-to-day management and the student outcomes. When possible adjust programs throughout the school year.</p>
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Benchmark 2: Technology Integration

*2011-2012 Infrastructure and Staffing Current Status
All numbers (students, staff and computers) from 2-22-12*

Canton High School (9-12): 893 Students, 121 Staff,
425 number of computers

10 computer labs: 5 with minimum 24 machines, 1 with 18 machines, 1 with 10 computers, 1 laptop cart with 14, 2 laptop carts with 18

.4 Computer Teacher

1.0 Full time Technology Specialist to work on the IT Direct Computer Problems—Local and Network Connections

- See Appendix D for Instructional Technology Inventory
- Through capital finds we have made drastic changes in 2011 to the internal infrastructure for storing and distributing CPS data and applications. In 2011 we replaced 21 district wide physical servers with 4 centralized CISCO USC servers, added a NETAPP 24 disk shelf, and two CISCO 3750X Core Switching Units. Utilizing the new array of virtualized servers we created one centralized CPS.ORG domain, collapsing five local location domains.

Galvin Middle School (6-8): 759 Students, 95 Staff

288 number of computers

5 computer labs: 5 with minimum 24 machines, 1 laptop cart with 20

.2 Computer Science with STEM initiative teacher

- See Appendix D for Instructional Technology Inventory
- The current 10/100 switching infrastructure is in need of replacement, though the 2GB WAN connectivity is surely adequate for data and application distribution as well as internet connectivity. We have begun the process of reporting and monitoring the internal switching usage to compile data to be used to help determine the proper resources and monetary aspects for replacement for how we deliver the resources to the classrooms and computer labs.

Benchmark 2: Technology Integration

Luce Elementary School (K-5): 627 Students, 93 Staff

102 number of computers

1 computer lab with 25 computers

.5 Technology Specialist to work on the IT Direct Computer Problems—Local and Network Connections

0 computer teacher or instructional support

- See Appendix D for Instructional Technology Inventory
 - In 2011 we connected all 102 to the new centralized CPS.ORG domain, and collapsed LUCE.ORG domain.
 - The current 10/100 switching infrastructure is in need of replacement, though the 2GB WAN connectivity is surely adequate for data and application distribution as well as internet connectivity. We have begun the process of reporting and monitoring the internal switching usage to compile data to be used to help determine the proper resources and monetary aspects for replacement for how we deliver the resources to the classrooms and computer labs.
 - During the 2011 summer with a combination of donation funds support by CAPE, CAPT, school funds and technology money 7 document cameras (visualizers) and projectors were purchased to achieve our goal of each 1st through 5th grade teacher having their own equipment in their classroom.
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Hansen Elementary School (K-5): 471 Students, 81 Staff

125 number of computers

1 computer lab with 25 computers (laptops)

.5 Technology Specialist to work on the IT Direct Computer Problems—Local and Network Connections

0 computer teacher or instructional support

- See Appendix D for Instructional Technology Inventory
- In 2011 we connected all 125 to the new centralized CPS.ORG domain, and collapsed HANSEN.ORG domain.
- The current 10/100 switching infrastructure is in need of replacement, though the 2GB WAN connectivity is surely adequate for data and application distribution as well as internet connectivity. We have begun the process of reporting and monitoring the internal switching usage to compile data to be used to help determine the proper resources and monetary aspects for replacement for how we deliver the resources to the classrooms and computer labs.
- During the 2011 summer with a combination of donation funds support by CAPE, CAPT, school funds and technology money 16 document cameras (visualizers) and projectors were purchased to achieve our goal of each 1st through 5th grade teacher having their own equipment in their classroom.

Benchmark 2: Technology Integration

Kennedy Elementary School (1-5): 416 Students, 64 Staff

74 number of computers

1 computer lab with 25 computers

.5 Technology Specialist to work on the IT Direct Computer Problems—Local and Network Connections

0 computer teacher or instructional support

- See Appendix D for Instructional Technology Inventory
- In 2011 we connected all 74 to the new centralized CPS.ORG domain, and collapsed JFK.ORG domain.
- The current 10/100 switching infrastructure is in need of replacement, though the 2GB WAN connectivity is surely adequate for data and application distribution as well as internet connectivity. We have begun the process of reporting and monitoring the internal switching usage to compile data to be used to help determine the proper resources and monetary aspects for replacement for how we deliver the resources to the classrooms and computer labs.
- During the 2011 summer with a combination of donation funds support by CAPE, CAPT, school funds and technology money 10 document cameras (visualizers) and projectors were purchased to achieve our goal of each 1st through 5th grade teacher having their own equipment in their classroom.

Rodman Early Childhood Program (Pre-School): 106 Students, 25 Staff

16 number of computers

0 computer labs

0 computer teacher or instructional support

- See Appendix D for Instructional Technology Inventory
- In 2010 FY we replaced the internal 10/100 switching with HP 10/100/100 gigabyte switching and connected all 16 computers to the new CPS.ORG domain.

Canton Public Schools—Rodman Administrative Building: 17 Staff (including Administrators, Admin Assistants and Secretaries)

17 number of computers

0 computer labs

Network Administrator—District Network Infrastructure

Technology Integration Administrator—Instructional Technology

- See Appendix D for Instructional Technology Inventory
- In 2010 FY we replaced the internal 10/100 switching with HP 10/100/100 gigabyte switching and connected all 17 computers to the new CPS.ORG domain.

Benchmark 2: Technology Integration

<i>State Local Plan Benchmark According to Massachusetts Department of Guidelines</i>	<i>Current Status</i>	<i>Recommendations/ Actions to Reach Benchmark</i>
<p>A. Technology Integration</p> <ol style="list-style-type: none"> 1. Outside Teaching Time - At least 90% of teachers use technology every day, including some of the following areas: research, lesson planning, organization, administrative tasks, communications, and collaboration. Teachers explore evolving technologies and share information about technology uses with their colleagues. 2. For Teaching and Learning - At least 90% of teachers use technology appropriately with students every day to improve student learning of the curriculum. Activities include some of the following: research, multimedia, simulations, data analysis, communications, and collaboration. Teachers integrate evolving technologies that enhance student interest, inquiry, analysis, collaboration, and creativity. 	<p>It is estimated that 90% of the staff use technology everyday for professional activities. Many of our current practices are technology based: e-mail, secondary level attendance and grading, communication with parents via web, phone system, printed copies or email. This is the first year that all of our 1st through 5th grade teachers were provided with a document camera and projector for each classroom.</p> <p>It is estimated that 40% of our staff use technology on a daily basis for student learning. We have recently put in a data program to see what our exact usage is for our computer labs. Our internal bandwidth consistently spikes throughout the school day with staff and students accessing our network. We do not have a way to extract the data on the projects that students are working on.</p> <p>Continue to utilize and load the SMART Sync program with all computer labs in the district to collaborate with the students on technology projects and to guide them with time management while working with the computers.</p>	<p>Create a culture in each school where the use of technology becomes part of the everyday routine to enhance or improve the curriculum.</p> <p>Expand access to technology in labs, classrooms, and schools that focus on best practices in technology integration.</p> <p>Provide additional communication opportunities for the sharing of technology uses that will enhance teacher’s productivity, instruction and communication. Create time for technology conversations and collaboration on how to embed the MA Technology Standards in our K-12 curriculum.</p> <p>Introduce and identify all STEM activities and include them in our curriculum maps.</p> <p>Use technology as an educational tool for our curriculum maps and not as a standalone lesson.</p> <p>Continue moving toward a paperless, electronic system of communication throughout the district.</p> <p><i>See Benchmark 3 Technology Professional Development for additional recommendations for Technology Integration.</i></p>

Benchmark 2: Technology Integration

<p>B. Technology Literacy</p> <ol style="list-style-type: none"> 1. At least 90% of eighth grade students show proficiency in all the <i>Massachusetts Technology Literacy Standards and Expectations</i> for grade eight. 2. 100% of teachers are working to meet the proficiency level in technology, and by the school year 2014-2015, 90% of teachers will have mastered 90% of the skills in the Massachusetts Technology Self-Assessment Tool (TSAT). 	<p>We have no formal assessment of student technology proficiencies taught at each grade. The elementary schools have one computer lab at each school, with no technology staff to assist with instruction. The MS and HS have multiple labs available within their schools that the content teacher can use with students to work on subject area content. There is no required computer class in grades 6-8. There is no required computer class for our HS graduation requirement in grades 9-12.</p> <p>We have no formal assessment of staff technology proficiencies taught at each school or grade level. Teachers have varied technology skills they integrate into their curriculum.</p>	<p>Develop an assessment tool for Grades 1-5, 6-8, 9-12 that will measure the proficiency levels of students in comparison with the MA Technology Standards.</p> <p>Develop a high school graduation requirement to ensure all of our students are technology proficient prior to leaving for college or career.</p> <p>Provide professional development for all teachers on the MA Technology Standards and create a scope and sequence of technology skills taught and assessed at each grade level.</p> <p>Administer the TSAT, review the results to guide our technology professional development choices.</p> <p>Survey prospective colleges and employers for specific technology skills needed after high school graduation.</p>
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Benchmark 2: Technology Integration

<p>C. Staffing</p> <ol style="list-style-type: none"> 1. The district has a district-level technology director/coordinator. 2. The district provides one FTE instructional technology teacher per 60-120 instructional staff to coach and model. 3. The district has staff specifically dedicated to data management and assessment. 	<p>The district currently has a Technology Integration Administrator.</p> <p>Currently, the district has no instructional staff or coaches in the district.</p> <p>The district currently has 1.0 FTE computer teachers: .6 High School Technology Electives .2 CAD High School .2 STEM Teacher (sees 6th Grade students only once during a 6 day rotation)</p> <p>Data management (SIMS, EPIMS) for the district is coordinated by a school secretary who is paid through a stipend. During the 2010-2011 school year, the EPIMS report was removed from the Business Office responsibilities. Better utilization of our student/staff management system is being implemented for our state reports. The district entrance and exit process needs to be consistent with required state report information.</p>	<p>Continue to support the District Technology Integration Administrator.</p> <p>See Benchmark 4, Part D for Network Administrator and Technology Support Staff.</p> <p>Develop a plan that over the next three years assesses staffing needs. Additional faculty is needed in the following areas:</p> <ul style="list-style-type: none"> • 3-Elementary Technology Teachers • 3-Elementary Instructional Support • 3-Middle School Technology Teachers • 3-Middle School Technology Instructional Support • 2-High School Technology Teachers • 2-High School Technology Instructional Support • Faculty dedicated to data management and assessment. <p>Allocate weekly time for all elementary school teachers to incorporate technology within their curriculum.</p> <p>Hire technology competent educators to move our students forward.</p>
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Benchmark 3: Technology Professional Development

<i>State Local Plan Benchmark According to Massachusetts Department of Guidelines</i>	<i>Current Status</i>	<i>Recommendations/ Actions to Reach Benchmark</i>
<p>A. At the end of five years, at least 90% of district staff will have participated in high-quality, ongoing professional development that includes emerging technology issues, technology skills, universal design, and research-based models of technology integration.</p>	<p>Current District Professional Development Handbook includes the following for PD:</p> <ul style="list-style-type: none"> • Strategic Plan • PD Goals and Schedule • Opportunities <ul style="list-style-type: none"> ○ PD Postings ○ District Memberships ○ Canton-Sponsored After-School Workshops and Courses ○ Curriculum Development and Review ○ Technology Training ○ Sheltered English Immersion Training ○ New Teacher Induction & Mentor Program • Policies • Procedures • Forms <p>Started in 2011-2012 Monthly Technology Common Planning elementary meeting times <i>(See Appendix H for Agenda)</i></p> <p>Provided independent sessions on various technology topics as requested by teachers.</p>	<p>Continue to connect all PD to the Canton Public Schools Strategic Plan with the Vision and District Goals.</p> <p>Update the District Professional Development Handbook contents and table of contents with specific technology PD opportunities</p> <p>Create an annual PD calendar for all opportunities for staff including built in PD days, early release days, common planning and after-school opportunities.</p> <p>Create an on-line system to sign up for all PD offerings and PDP Certificates.</p> <p>Expand our New Teacher Orientation technology training with additional PD times or days throughout the school year.</p> <p>Administer the TSAT, review the results to guide our technology professional development choices.</p> <p>Use district staff and the expertise of surrounding districts as resources.</p>

<p>Benchmark 3: Technology Professional Development</p>	<p>A small percentage of teachers have taken the MA TSAT through course work or on a volunteer basis.</p> <p>Independent and District Assessments and surveys were given for staff input.</p> <p>Review all MA DESE Data for PD opportunities within district and available through other district and state.</p> <p style="text-align: center;">PROFESSIONAL DEVELOPMENT GOALS</p> <ul style="list-style-type: none"> • To provide ongoing support for standards-based (Understanding by Design) curriculum, instruction and assessment. • To continually expand teachers' repertoire of effective strategies in order to maximize their ability to meet the needs of diverse learners. • To increase instructional practices which enhance student thinking and engagement. • To expand the integration of technology to advance teaching and learning across the curriculum. • To provide ongoing staff development for all faculty and staff around diversity issues. • To provide teachers with Sheltered English Immersion training as required by the MA Department of Elementary and Secondary Education. • To support Professional Learning Communities (PLC) or Think Tanks as vehicles for professional development. 	<p>Explore Web 2.0 opportunities and continue to expand our professional development opportunities for collaboration projects using Web 2.0 tools including, but not limited to: blogs, on-line sharing, podcasts, videos access, wikis, research, multi-media projects, video streaming, United Streaming.</p> <p>Provide training opportunities for computer based programs throughout the district: MS Office, Munis, Document Cameras, Projectors, Email, GradeQuick, Administrator's Plus, School Dude, School Spring, Connect Ed, SMART Software and Boards, Response Systems.</p> <p>Expand our technology to our web pages and database portal (Edline) to communicate with the students and parents about the activities for the district, school and classrooms. Continue to move forward with our on-line student information and grades and the utilization of our current grading system (Gradequick) at the MS and HS.</p> <p>Continue using on-line programs (Journeys Think Central and Study Island) to connect the curriculum to the MA Common Core.</p> <p>Provide professional development for all teachers on the MA Technology Standards and create a scope and sequence of technology skills taught and accessed at each grade level. Provide administrators and teachers time to revise MS and HS course offerings as needed in order to address MA Standards.</p>
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<p>Benchmark 3: Technology Professional Development</p>		<p>Provide training for existing multimedia devices around district: projectors, document cameras, visualizers, mimeos, interactive pens</p> <p>Create an assistive and adaptive technology plan and provide PD for all equipment that is utilized in our pupil services department throughout the district to provide greater access to our curriculum.</p>
<p>B. Technology professional development is sustained and ongoing and includes coaching, modeling best practices, district-based mentoring, study groups, and online professional development.</p>	<p><i>See Benchmark 3, Part A</i></p>	<p>Develop our PD program to include a train the trainer model, cohort, study groups, courses, think tanks, mentoring and coaching. Using different models will increase the capacity for technology integration throughout the district and increase our Personal Learning Communities.</p>
<p>C. Professional development planning includes an assessment of district and teachers' needs. The assessment is based on the competencies listed in the Massachusetts Technology Self-Assessment Tool.</p>	<p>The Director of Curriculum and Instruction annually surveys staff needs and evaluates for PD opportunities related to technology.</p>	<p>After administering the TSAT, review the results to guide our technology professional development choices for the future.</p>
<p>D. Administrators and teachers consider their own needs for technology professional development.</p>	<p><i>See Benchmark 3, Part A</i></p>	<p>Consider technology content when developing Individual Professional Development Plans (IPDP).</p> <p>Create summer institute for administrators for 21st Century Learning and all programs used for community outreach and internet student management system.</p> <p>Administrators should attend the MASSCue Leadership Conference or the Building Learning Communities to learn the 21st Century Education endeavors.</p>

Benchmark 4: Accessibility of Technology

<i>State Local Plan Benchmark According to Massachusetts Department of Guidelines</i>	<i>Current Status</i>	<i>Recommendations/ Actions to Reach Benchmark</i>
<p>A. Hardware Access</p> <ol style="list-style-type: none"> 1. By 2014-2015, the district has an average ratio of one high-capacity, Internet-connected computer for each student. (The Department will work with stakeholders on a regular basis to review and define high-capacity computers.) 2. The district provides students with emerging technologies appropriate to their grade level. 3. The district maximizes access to the general education curriculum for all students, including students with disabilities, using universal design principles and assistive technology devices. 4. The district has procurement policies for information and instructional technologies that ensure usability, equivalent access, interoperability and SIF compliance. 5. The district provides technology-rich classrooms, with access to devices such as digital projectors, electronic whiteboards, and student response systems. 	<p>Each year the District reports to the MA DESE on the ratio of high capacity (Type A) computers to students.</p> <p>The 2010-2011 numbers are: Preschool: 78.00 Students to 1 Computer Hansen: 8.70 Students to 1 Computer JFK: 85.40 Students to 1 Computer Luce: 8.06 Students to 1 Computer GMS: 6.59 Students to 1 Computer CHS: 2.21 Students to 1 Computer</p> <p><i>See Appendix D for Instructional Technology for status of emerging technologies at each school. Our list is provided by school, not students, abilities, or grade to utilize all the tools for each student.</i></p> <p>All technology purchases are authorized by the Network Administrator who closely monitors quality and interoperability.</p>	<p>Maintain an inventory of the quantity and quality of computers and other hardware in the district by school. From the inventory, identify by school how many computers and other hardware would be needed to reach the one-to-one ratio per the state guidelines.</p> <p>After the needs are identified, develop a budget that would maintain acceptable levels for technology in each school and replenish computers on a 5 year cycle.</p> <p>Budget restrictions may be limited and may not be possible to reach this goal by 2014-2015.</p> <p>Update the Instructional Technology and Needs Inventory annually. Increase the Instructional Technology when required in order to reach the MA DESE Technology Standards by grade.</p> <p>Develop a committee to administer the Assistive Technology Instructional Inventory and assess needs of all students. Special Education Team Chairs can review IEP's and 504 and determine our status of assistive and adaptive technology available throughout the district.</p>

<p>Benchmark 4 Accessibility of Technology</p> <p>6. The district has established a computer replacement cycle of five years or less.</p>	<p>Remove outdated computers in classrooms and start replacement plan.</p> <p>4th Grade Pilot started with Thin Client project throughout the district (12 total). Review teacher feedback at end of year to expand project to 3rd and 5th Grades and elementary computer labs for 2012-21013. Original 12 paid through 2011 CAPT, CAPE and Capital Money.</p> <p><i>See Appendix E for 5 Year Infrastructure Plan for established computer replacement.</i></p>	<p>During the replacement cycle, determine which equipment can be restored or recycled throughout the district and which equipment needs to be removed from our inventory and sold or properly recycled.</p> <p>Keep our computer labs safe, with outdated equipment removed or recycled, and create engaging learning environments for our students in each lab.</p> <p>Investigate or pilot (if applicable) the following new hardware throughout the district:</p> <ul style="list-style-type: none"> • Wireless Opportunities • Interactive Technologies at all levels • Mobile technology to increase access: tablets, iPads, Nooks, all internet ready devices. • Video Conference Capabilities On-Line testing capabilities in each computer lab. • Digital Video Capabilities for student projects • Technology that addresses multiple modalities, provides feedback and aligns with the MA DESE Technology Standards.
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Benchmark 4: Accessibility of Technology

<p>B. Internet Access</p> <ol style="list-style-type: none"> 1. The district provides connectivity to the Internet for all computers in all classrooms in all schools, including wireless connectivity. 2. The district provides an external Internet connection to the Internet Service Provider (ISP) of 100 Mbps per 1,000 students/staff. 3. The district provides bandwidth of at least 10/100/1 Gb to each classroom. At peak, the bandwidth at each computer is at least 100 kbps. The network card for each computer is at least 10/100/1 Gb. 	<p>The district provides connectivity to the Internet in all classrooms in all schools with portable wireless access on a limited basis. <i>See Appendix D: Instructional Technology with Wireless Locations</i></p> <p>The district currently provides the recommended Internet connection to the ISP of 100 Mbps per 1,000 students/staff.</p> <p>The district currently provides the recommended bandwidth of at least 10/100/1 Gb to each classroom computer.</p>	<p><i>See Appendix E for 5 Year Infrastructure Plan for additional Thin Client Access to the Internet and Wireless Infrastructure needs.</i></p>
<p>C. Networking (LAN/WAN)</p> <ol style="list-style-type: none"> 1. The district provides internal wide area network (WAN) connections from the district to each school between schools of at least 1 Gbps per 1,000 students/staff. 2. The district provides access to servers for secure file sharing, backups, scheduling, email, and web publishing, either internally or through contracted services. 	<p>The district provides the recommended WAN connections from the district to the schools of at least 1 Gbps per 1,000 students/staff.</p> <p>The district provides access to servers for secure file sharing, backups, scheduling, email and web publishing.</p>	<p><i>See Appendix E for 5 Year Infrastructure Plan for additional Thin Client Access to the Internet and Wireless Infrastructure needs.</i></p>

Benchmark 4: Accessibility of Technology

<p>D. Access to the Internet Outside the School Day</p> <ol style="list-style-type: none"> 1. The district provides access to its computer labs before and after school to ensure that students and staff have adequate access to the Internet outside of the school day. 2. The district disseminates a list of up-to-date list of places where students and staff can access the Internet after school hours. 	<p>Staff members have Internet access before or after the school day within their classrooms, labs and media centers computers.</p> <p>Students do not utilize the district computers or computer labs before or after school without prior notification from the teacher or school personnel.</p>	<p>Continue the district wide “Going Green” initiative by providing all information on our website.</p> <p>Keep a list of students or homes without computer access and provide hard copies of district or school related material.</p> <p>Add to the district websites available locations for students to access the Internet outside of the schools. Include all Public Library information in regards to available technology.</p>
<p>E. Staffing</p> <ol style="list-style-type: none"> 1. The district provides staff or contracted services to ensure that its network is functioning at all times. 2. The district provides resolves technical problems within 24 hours, so that they do not cause major disruptions to curriculum delivery. The district provides clear information about how to access technical support, which can be provided in person or remotely. 3. The district provides at least one FTE person to support 400 computers. Technical support can be provided by dedicated staff or contracted services. 	<p><i>See Benchmark 2, Part 3 for Instructional Staffing</i></p> <p>The district provides 1 FTE Network Administrator who supervises the technology support staff.</p> <p>Currently, the Technology Support Staff consists of 1 FTE staff per two schools: 1 FTE split for CHS and Rodman Preschool 1 FTE split for GMS and Hansen Elementary 1 FTE split for JFK and Luce Elementary</p> <p>The district provides timely in-classroom technical support using a web-based help desk program (IT Direct through School Dude), as well as through personal contact, email, and phone contact with the Technology Support Staff.</p> <p>New staff members receive training on how to access the support.</p> <p>The ratio is approximately 1:640 computers.</p>	<p><i>See Benchmark 2, Part 3 for Instructional Staffing</i></p> <p>Continue to support the Network Administrator.</p> <p>Review the web-based help desk program for usage and cost effectiveness.</p> <p>Increase the Technology Support Staff by expanding their contract to full year contracts.</p>

Benchmark 5: Virtual Learning and Communications

<i>State Local Plan Benchmark According to Massachusetts Department of Guidelines</i>	<i>Current Status</i>	<i>Recommendations/ Actions to Reach Benchmark</i>
<p>A. The district encourages the development and use of innovative strategies for delivering high-quality courses through the use of technology.</p>	<p>A small number of teachers and students use the district existing technology or personal technology to use the Internet for innovative strategies with their students.</p> <p>Informal observations have been the use of Skype, Facetime, video cameras, webinars, Vimeo, blogs and smartphone technologies.</p>	<p>Determine existing distance related opportunities given to current students and equipment used for audience and participants.</p> <p>Investigate initiatives to provide long distance opportunities in district.</p> <p><i>Refer to Benchmark 4 for reviewing hardware options for Video Conference Capabilities</i></p>
<p>B. The district deploys IP-based connections for access to web-based and/or interactive video learning on the local, state, regional, national, and international level.</p>	<p>Currently, the district deploys IP-based connections for access to web-based and/in interactive video learning.</p> <p>The district Internet traffic fluctuates and spikes throughout the school day with the heaviest of traffic from 6:30-9:00 a.m. and 11:00 -1:00 p.m.</p>	<p><i>Refer to Appendix E for 5 Year Infrastructure Plan for additional Internet and Wireless Infrastructure needs.</i></p> <p>Increase current bandwidth if our teachers and students increase their access to interactive videos and streaming.</p>
<p>C. Classroom applications of virtual learning include courses, collaborative projects, field trips, and discussions.</p>	<p><i>Refer to Benchmark 5, Part A for current classroom applications.</i></p>	<p><i>Refer to Benchmark C for Professional Development for opportunities for teachers to work with Web 2.0 and virtual applications within their curriculum.</i></p>

Benchmark 5: Virtual Learning and Communications

<p>D. The district maintains an up-to-date website that includes information for parents and community members.</p>	<p>The district and school maintain an up-to-date website that includes information for parents and community members.</p> <p>During the 2011-2012 the district and school sites were transferred from our current FTP site to the application of Edline. This allowed webmasters to create a uniform template design for CPS. Webmasters were trained and implementation started during the Summer 2011. The old site will be transferred by the end of the 2011-2012 school year. Minimal training was provided to the teachers who wanted websites; informal observations are that 30% of staff currently updates a class website.</p>	<p>Develop a posting protocol for webmasters and office personnel.</p> <p>Provide training for webmasters and office personnel on an ongoing basis.</p> <p>Work with Business Office and Superintendent to add annual stipends for school and district webmasters.</p> <p>Continue to upgrade the Edline websites with the enhanced features:</p> <ul style="list-style-type: none"> • Providing Activation Codes for students and parents. • Sending information to parents and sending through their logins: unofficial transcripts, attendance, surveys, forms, grades, demographic information, schedules • Distributing Email Lists <p><i>Refer to Benchmark C for Professional Development for website training.</i></p>
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Benchmark 6: Safety, Security, and Data Retention

<i>State Local Plan Benchmark According to Massachusetts Department of Guidelines</i>	<i>Current Status</i>	<i>Recommendations/ Actions to Reach Benchmark</i>
<p>A. The district has a CIPA-compliant Acceptable Use Policy (AUP) regarding Internet and network use. The policy is updated as needed to help ensure safe and ethical use of resources by teachers and students.</p>	<p>The district has AUP's for Staff and Students. AUP's are sent out (hard copies) during the summer and are recorded in our student management system.</p>	<p>Revise for appropriate grade level.</p> <p>Create lessons for AUP instruction and review the AUP to student during the first visit to the district computer labs.</p>
<p>B. The district educates teachers and students about appropriate online behavior. Topics include cyberbullying, potential risks related to social networking sites and chat rooms, and strategies for dealing with these issues.</p>	<p>These topics are included in professional development for staff.</p> <p>Cyberbullying is part of our district's newly adopted Bullying Intervention Plan.</p> <p>Our in-house School Resource Office (SRO) provides an annual meeting for parents and visits the schools.</p>	<p>Provide concrete lesson for students in all grades on these topics and incorporate them into our curriculum lessons that include Internet access.</p> <p>Investigate Internet Safety curriculum for grades K-12.</p>
<p>C. The district has a plan to protect the security and confidentiality of personal information of its students and staff.</p>	<p>CPS provides many district-wide security protocols for our safe environment initiatives:</p> <ul style="list-style-type: none"> • Staff required ID Badges for building access with keycard security • School front doors equipped with cameras and locking mechanisms • Security cameras at each building • CIPA compliant for Internet Access • AUP's Signed and Returned • Limited access to student and staff data. 	<p>Evaluate our security systems for the safety of our students and staff.</p> <p>Determine responsibility chart for the district regarding maintenance, update and replacement systems.</p> <p>Increase security cameras where needed.</p> <p>Establish system for exiting staff to return IP Badges.</p>
<p>D. The district complies with federal and state law, and local policies for archiving electronic communications produced by its staff and students. The district informs staff and students that any information distributed over the district or school network may be a public record.</p>	<p>The district complies with all federal and state law, and local policies for archiving electronic communications produced by its staff and students.</p> <p>The district informs staff and students that any information distributed over the district or school network is a public record.</p>	<p>Review all federal, state and local polices for any changes and continue to adapt those changes to be compliant.</p> <p>Review during any technology professional development that any information distributed over the district network is a public record.</p>

Glossary

504	The purpose of Section 504, a federal civil rights law, is to protect persons with disabilities against discrimination for reasons related to their disabilities. Eligibility for protections under Section 504 depends on the child in question having a physical or mental impairment which must substantially limit at least one major life activity.
AASL	American Association of School Librarians
AECT	Association for Educational Communications and Technology
AUP	Acceptable Use Policy
Benchmark	A reference point in the implementation of the local technology plan.
Big6 Information Literacy Model	Focuses on problem-solving across the curriculum and improves the quality of student research using Internet
CAPE	Canton Alliance for Public Education
CAPT	Canton Association of Parents and Teachers
CIPA	Children's Internet Protection Act
EPIMS	Education Personnel Information Management System
E-Rate Reimbursement	Provides discounts to assist most schools and libraries in the United States obtain affordable telecommunications and Internet access.
ETAC	MA DESE Educational Technology Advisory Council
FTE	Full Time Employment
IEP	Individualized Education Plan
LAN	Local Area Network
MA DESE	Massachusetts Department of Elementary and Secondary Education
MassONE	Massachusetts Online Network for Education
MCAS	Massachusetts Comprehensive Assessment System
MSLA	Massachusetts School Library Association
NETS	National Educational Technology Standards
PD	Professional Development
PDP	Professional Development Plan
SIF	Schools Interoperability Framework: The SIF Association's vision within this context is that schools will be enabled to better utilize technology in a manner that leverages the promise and capabilities of interoperability between disparate applications.
SIMS	Student Information Management System
Smart Sync	Computer Lab observation system that guide students' collaboration in a group setting while still communicating with your entire class
STAR Chart	School Technology and Readiness Chart
STEM	Science Technology Engineering and Mathematics
TSAT	Technology Standards and Performance Indicators for all Teachers, developed by the National Educational Technology Standards
Universal Design	Universal design refers to broad-spectrum ideas meant to produce buildings, products and environments that are inherently accessible to both people without disabilities and people with disabilities.
VES	Virtual Education Space
WAN	Wide Area Network – A computer network that spans a relatively large geographical area. Typically a WAN consist of two or more local-area Networks (LANs).

Hyperlink Resources

Canton Public Schools Technology	http://www.cantonma.org/pages/CantonPublicSchools/Departments/Curriculum/Technology
Massachusetts DESE Education Technology	http://www.doe.mass.edu/edtech/
Massachusetts DESE Education Technology Self-Assessment Tool (TSAT)	http://www.doe.mass.edu/edtech/standards/sa_tool.html
Massachusetts DESE School Technology and Readiness Chart (STAR Chart)	http://www.doe.mass.edu/boe/sac/edtech/?section=star
Massachusetts DESE Technology Standards and Expectations	http://www.doe.mass.edu/edtech/standards/itstand.pdf
Massachusetts School Library Association Standards	http://maschoolibraries.org/dmdocuments/MSLAStandards2.pdf
National Education Technology Plan 2010	http://www.ed.gov/technology/netp-2010
Schools Interoperability Framework SIF	http://www.sifinfo.org/us/index.asp
State Educational Technology Directors Association (SETDA)	http://www.setda.org/
The International Society for Technology in Education (ISTE)	http://www.iste.org/welcome.aspx