Wellesley
Tech Plan 2020

2016-2020
Wellesley Public Schools

Wellesley's Vision for Technology

Technology is changing the way we live and work, and will continue to evolve. As digital citizens with a global focus, students and staff should understand and be comfortable using technology in today's world. We will prepare students and staff to utilize technology as a catalyst to: enhance the teaching and learning process; stimulate creativity and innovation; foster more effective communications and collaboration; develop executive functioning; enable access and analysis of information; and promote critical thinking and problem-solving.

Wellesley Public Schools
Technology Plan Committee

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Introduction

The following plan provides strategic direction and establishes specific action steps to implement instructional technology in order to enhance learning and teaching in the Wellesley Public Schools over the next four school years. This Technology Plan is designed to provide a blueprint for district technology efforts, and is based on the belief that technology should be embedded within practice, used for critical thinking, and be considered as a tool to support all learners including students, staff, and community members. Additionally, our technology program should ensure equity for all of our students and provide the professional development needed for learning and teaching in a school district that prepares students for the technology-rich world in which they live and work.

The Wellesley Story

Wellesley is a suburban town of approximately 28,000 located 13 miles west of Boston. A large proportion of the population is comprised of academic, business, and professional families. The home of three colleges, Wellesley is a community where academic excellence and cultural traditions are highly valued. Wellesley's reputation for having a superior educational system attracts many families to the town and its schools. Students of color from Boston and New York as well as students from more than 20 countries add to the diversity of the school population. Ninety-six percent of our students go on to pursue post-secondary education.

Children are learning to swipe before they learn to walk or talk. Technology is used as a source of entertainment at a very young age. Parents and educators in Wellesley remain concerned about the issue of screen time and using digital media to replace traditional means of communicating and interacting with the world. In 2014, we surveyed our students and found that students access a variety of technologies for gaming, and watching videos. Also noted in the survey, approximately 60% of our students have an Internet enabled personal device, one that is not shared with the family. The goal of the Wellesley Technology program is to teach our students how to use their personal technology as a tool versus a toy throughout their educational journey in Wellesley and as we prepare them for college, career and life beyond. Technology will be a part of everybody's lives increasingly. We believe technology used as a tool in education adds new dimensions to teaching and learning. At the same time we realize we have to teach our students how to make good choices with regards to technology, how to self-regulate, and how to make sure technology does not replace all the other great resources we have access to. To this end, our plan includes curriculum to help students use their personal device to be ethical, responsible, self-monitoring, and balanced users of technology.

Equity in technology integration across schools and among our students in Wellesley continues to be a challenge. The Wellesley Public Schools (WPS) is a district of 10 schools including a preschool, seven elementary schools, one middle school and one high school. We are fortunate to have very involved community partners including Parent Teacher Organizations and the Wellesley Education Foundation. These organizations partner with our schools to provide funding for new and emerging technologies beyond what we support in our annual operating budget. Because this supplemental funding may vary among schools, it has created some equity gaps that we are continuing to manage. Another area of inequity that we are continuing to monitor and manage is among our students. Wellesley is an affluent suburb of Boston but not all students are from affluent households. Some of our students lack wireless Internet at home and are not able to watch the video lesson their teacher posted for homework. This disparity between the relatively advantaged students and their disadvantaged peers presents a continuing challenge for our program.

Teachers continue to feel the pressures of state mandates, testing, and new curricula that can impede the progress of integrating technology into the classroom. This pressure can limit teacher creativity, innovative uses, and time to explore and experiment with technology.

Wellesley developed key goals for the plan to address the aforementioned challenges:

- The creation and articulation of the districts' vision for technology aligned with student development.

- The promotion, implementation, and assessment of an educational technology curricula that aligns to the national technology standards for students and staff.

- A robust network infrastructure across the district that provides high performance wireless connectivity as well as high density coverage in all of our schools.

- The creation and implementation of policies, procedures, and practices to support the vision.

- The design and implementation of a wide array of professional development programs to support the vision.

- The purchase/partnership plan for deploying equipment that is equitable across the district, aligned with student development, and has a defined a lifecycle plan.

- The analysis and revision of a technology staffing plan that is flexible and maximizes classroom resources to support the vision.

We realize that we have an aggressive plan for achieving our overall goal of utilizing technology tools to enrich and advance teaching and learning in a 1:1 environment for all students. Thus, in the Fall of 2015, the superintendent called together a Superintendent's Advisory Committee for reviewing the current status of technology in Wellesley Public Schools and developing a technology plan to guide the decision-making process as we move forward from 2016-2020. The Technology Plan will be presented to the School Committee for implementation beginning in September, 2016.

Wellesley Public Schools Mission

The Wellesley Public Schools (WPS) exists to provide a high quality, comprehensive educational experience that supports each student's academic, social, and emotional development and prepares them to be global citizens who are college, career, and life ready.

Technology Objectives

The Technology committee established objectives grounded in student and staff experiences for our community. These objectives drive the technology planning process. Once the experiences were defined, the planning to support these can continue to outline devices, infrastructure, and resources needed to create the educational environment where students and staff have technology rich experiences to match the world around them..

Student Experience - Objectives	Staff Experience - Objectives
1. **Provide** equitable access to technology for all students	1. **Develop** information technology skills as a consumer and creator, as well as **gain** a better understanding of the power and ethical use of technology and data
2. **Inspire** students to learn through the use of technology - Harness the passion that students have for technology and tie into how they learn - Inspire - Engage - Learn; enable natural flow between school life and home life and use of technology in both	2. **Assess** performance to standards using the power of data analytics to allow for greater collaboration, differentiated learning opportunities, and sharing of best practices (i.e. analytics at the personal level)
3. **Emphasize** active creating over passive consuming	3. **Participate in a virtual educational ecosystem** to complement classroom learning **Integrating** local, regional and global learning resources worldwide.
4. **Extend** learning opportunities outside the four walls of the classroom enabled by technology / delivered digitally	4. **Showcase** your professional accomplishments. Share best practices. (value add of opportunity for staff)
5. **Promote** collaboration with peers who come from diverse backgrounds, experiences and cultures	
6. **Connect** seamlessly with educational ecosystem, gain better access to assets and resources, e.g., museums, libraries	
7. **Foster** problem-solving through evolution of digital use	
8. **Enable** students to build, showcase and share their learning and accomplishments through their digital portfolio	

Technology Plan aligned with Student Development

Our technology program offers students a 1:1 experience from grades K-12 that is aligned with stages of student development and learner independence.
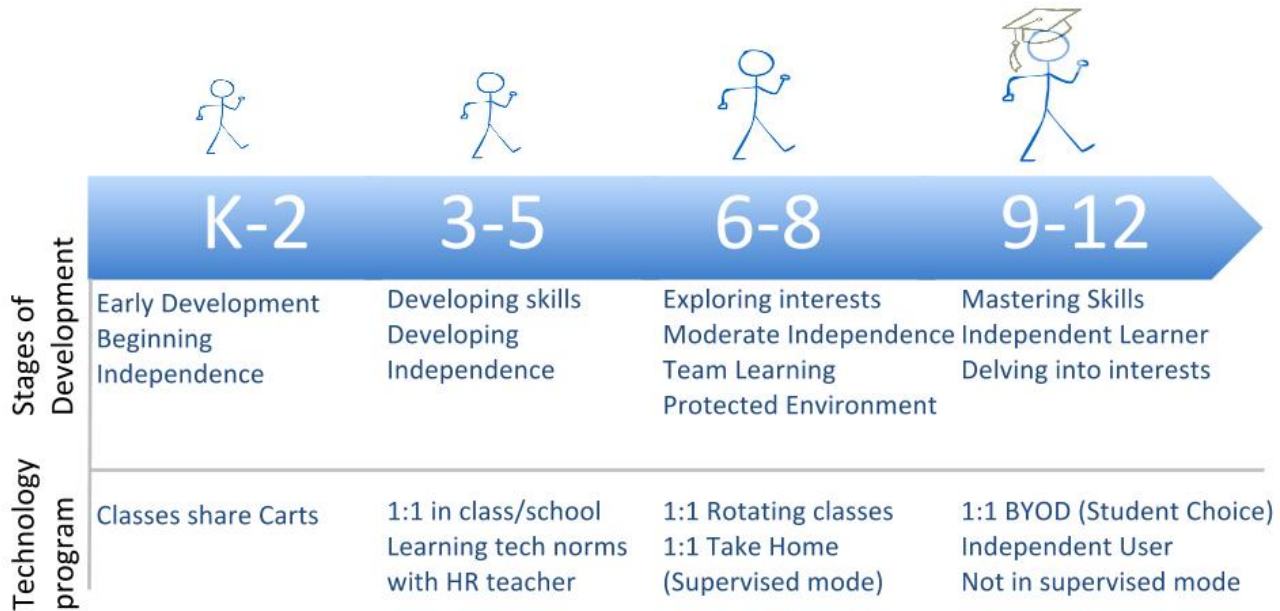
Early Elementary Grades PK-2:

In the early elementary grades of K-2, our earliest learners share carts of iPads. These students are dependent learners and often working in small groups in the classroom learning to read, solve math problems and investigate science and social studies. iPads are primarily used as learning centers in the classroom but could be scheduled with grade level teachers for whole class use in a 1:1 environment for special projects. The devices are purchased by the school district.

Primary Elementary Grades 3-5:

In elementary grades 3-5, students begin reading to learn, have more independence in the classroom, and are developing skills in different subject areas. During this time while they still spend most of their time in their one classroom they have a class set of iPads that are accessible at any point in time. The data is always available to them on their designated device and they are learning technology norms through their classroom teacher. Devices stay in school and are managed and protected by the Firewall and filters in place within the school. The devices are purchased by the school district with assistance from PTOs..

Wellesley Middle School Grades 6-8:

In Wellesley Middle School grades 6-8, our students come up from all the elementary schools to a larger middle school environment. They are less dependent on the teacher for delivering the curriculum and are uncovering or even discovering the curriculum. They often work in small groups or teams on projects as they conduct this discovery. For the first time they switch classes for each subject and have a choice of electives to add to their core course schedule. While they are exploring interests and working in teams, they are still protected by the small sub-group settings of

Teams, Clusters, and Houses designed in our middle school structure. Managing and organizing this schedule requires students to keep track of due dates across many subject classes, organize and track assignments from class to class, etc.

The technology program aligns to the Middle School structure by providing personal technology for students to use to keep track of their schedules, due dates and assignments in a digital binder along with or in place of the traditional binder. The device, currently an iPad, travels with the student from class to class and home each day. Google classroom is used as the organizational tool and students are sent reminders when their homework is due. The homework and assignments are passed out and submitted digitally which helps with organization. The iPad video tools provide an additional dimension to teaching and learning. Students have freedom to explore within a supervised environment. Management control systems are applied to the devices so Internet filtering and other settings travel with the device. The control settings are discussed with parent groups and applied to be sure to minimize classroom distractions and maximize effective use of the educational tool at home as well as in school. The funding at this stage is a partnership program with families. The district covers the cost of the infrastructure, staff devices, training, staffing, and a percentage of student devices to cover financial needs and school owned devices. Parents pay the cost of their students device by selecting one of 3 options: 1) purchase/lease option where families can buy or lease to own the iPad, 2) Bring your own iPad where students can bring in their iPad to be set up with the tools used in class, or 3) if neither of these options work for the individual student or meet the needs of the family, There is a school use option where families can have a school owned device assigned to their student for the school day and not have the responsibility of bringing it home each day. In this option the student will be responsible for transferring any local data needed to the cloud for homework, and/or obtaining special permission to take it home.

Wellesley High School Grades 9-12:

Our high schools students are independent learners. Students complete the core curriculum and begin to explore deeper experiences within the areas they want to pursue in college and career. . Students are offered many electives across all subject areas while mastering their skills in the core curriculum. At this point in their development students have selected their preferences in technology and are allowed to bring in the device of choice. With the comprehensive writing and research program offered at Wellesley High the laptop with a full keyboard and operating system is the baseline requirement with an option of a PC or MAC based laptop. The funding at this stage is also a partnership program with families where the district covers the cost of the infrastructure, staff devices, training, staffing, and a percentage of student devices to cover financial needs and school owned devices. Parents pay the cost of their students device by selecting one of 3 options: 1) purchase/lease option where families can buy or lease to own the laptop, 2) Bring your own laptop where students can bring in their laptop to be set up with the tools used in class, or 3) if neither of these options work for the individual student or meet the needs of the family, there is a school use option where families can have a school owned laptop assigned to their student for the school day. In this option the student will be responsible for transferring any local data needed to the cloud for homework, and/or obtaining special permission to take it home.

Canvas Learning Management System, a learning management system used by many colleges, is the foundational system for teachers to use for their course sites to hand out and collect assignments, post classroom materials, conduct class discussions, offer self-paced practice materials and even give a test or exam. Students in preparation for college and career need to be able to support themselves in technology use initially by reaching out to support centers and eventually understanding the steps in troubleshooting technology to help themselves. As part of our high school plan we will be establishing a help desk curriculum and electives where students will be in a position to help troubleshoot for other students and teachers. This will provide a valuable skill for students, and will help support the 1:1 environment in the high school.

Wellesley's Technology Organization – Roles and Responsibilities

In order to implement its Technology Plan and move forward, the district has created a high performance team to provide seamless access to ubiquitous technology, curriculum, instruction, and assessment.

The Wellesley Technology Committee

The district will create a permanent District Technology Committee comprised of district stakeholders, which will meet regularly to provide guidance on the implementation of technology throughout the district. This committee, comprised of technology personnel, teachers, Instructional Technology Specialists, parents, community members, local foundation/organizations representatives, and administration will:

- Outline the experiences for both students and staff members from the technology program
- Give feedback on design plans for implementation of long-term major projects involving the purchase and use of educational technology.
- Make recommendations on funding procedures through the operational budget, and outside organizations such as parent associations, grant foundations, etc.
- Bring forth new programs, innovations and emerging technologies used in higher education and the workplace.
- Discuss and make recommendations for equity.

Wellesley Technology Team

The current Strategic Technology Plan specifies the structure related to technology management and staffing to provide high performing and seamless access to our educational programs. This structure is shown below and described in the following brief position descriptions.

Educational Technology Department
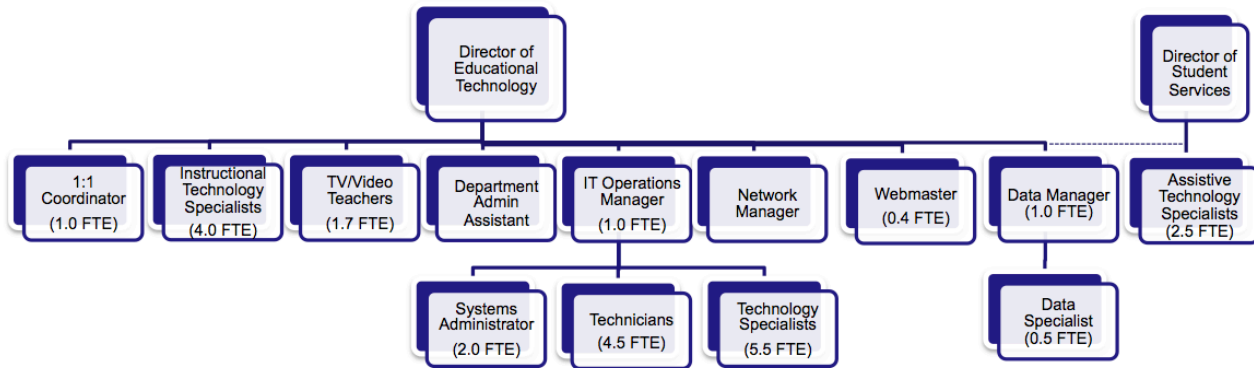
Director of Educational Technology - The Director is responsible for administering educational technology programs as an integral part of the instructional and administrative program, supporting the curriculum with appropriate equipment, materials and services. The Director is accountable for creating and implementing a vision which encourages all others in the Wellesley Public Schools to confidently and critically use technologies to extend student and adult learning. The director coordinates and oversees the integration of technology into all of the system's classrooms, oversees the use and updating of the computer, video and telephone networks in the different buildings and between the buildings; provides appropriate training activities for classroom teachers, support staff, and administrators in technology use; educates Wellesley educators on future directions of technology; establishes program priorities in conjunction with the Director of Curriculum; delegates responsibilities to appropriate personnel to address program priorities and to maintain ongoing program commitments; develops and manages the budget to support programs; and provides for staff development opportunities, supervision, and evaluation.

1:1 Coordinator - The 1:1 Coordinator supports teachers and Technology Integration Specialists with implementing the 1:1 Program in classrooms and schools, with a primary focus on the launch year. Coordinating duties include: managing program logistics, organizing device distribution, creating policies for safe and effective use, arranging app evaluation and purchasing, and coordinating program evaluation. Instructional duties include: coaching, modeling and mentoring in classrooms with teachers and integration specialists, providing professional development for staff, students, and parents.

Instructional Technology Specialist – The primary role of this position is to support teachers in understanding the vision for technology and the integration of technology in student-centered learning in a variety of ways such as coaching, modeling, mentoring, co-planning, and support for instructional programs. Professional development is a key part of the systemic change brought by technology in a 1:1 environment. This role provides varied forms of professional development in for teachers. The secondary focus is to support teachers and administrators in other technology areas such as: using technology for parent communication, submitting grades, and other technology applications.

TV/Video Teacher - The primary role of the TV/Video teacher is to provide direct instruction to

high school students on video production and associated courses. The secondary focus is to assist with special projects in and around the district.

Department Administrative Assistant - This position works with the technology department and library/media department to provide phone support, is the primary contact for the purchasing of district hardware and software once it is approved, and coordinates curriculum and library software and online subscriptions.

Webmaster - The primary role of this position is to maintain current and updated content and manage the web server software. The webmaster debugs issues that arise with the performance of the website and is the liaison between IT partners and schools and departments. The webmaster troubleshoots areas including content, links, and other irregularities on the web pages. The web master assists with the design of the public "Splash" pages for other web-based services offered through the district such as adding graphics for new programs, editing the navigation menus and editing text in the alert boxes. The webmaster reviews statistics, monitors analytics, and maintains responsive design. The webmaster plans for future changes to the website and stays up to date on the web's latest technologies to ensure our site and its products are always mobile-friendly and multi-platform ready.

Data Manager – Manages district data in a timely and accurate fashion, is responsible for submitting required district reports to the ESE (Massachusetts Elementary and Secondary Education) and overseeing the numerous databases used by the district. This position is responsible for extracting data from numerous district databases for analysis and distribution in the district and community. Key resource person to contact to obtain necessary data for students, staff and other resources within the district. The Data Manager supervises the data assistant.

Data Assistant – assists the data manager with district data collection, reporting and analysis. The data assistant participates in scheduling activities and training of school secretaries.

Network Manager –The Network Manager is responsible for the configuration, administration, management, and security of the district's wired and wireless networks. The Network Manager works with the technology team to integrate systems and deliver network services to students and staff. This position troubleshoots and repairs all aspects of the wide area and local area networks including wired and wireless equipment, VoIP, wiring, etc.

IT Operations Manager –The IT Operations Manager is responsible for IT Operations in the district, including procurement, configuration, administration, management and support for all IT systems, including client devices, servers, network equipment, audio visual systems, telephone systems, applications and services. The IT Operations Manager manages a team of Technology Specialists, Technicians, and Systems Administrators and ensures efficient and reliable delivery of services to students and staff.

Systems Administrator- The Systems Administrator is responsible for configuration, administration, management and support for IT systems including client devices, servers, applications and services. The Systems Administrator works with the district's technology operations team to ensure efficient and reliable delivery of services to students and staff.

Technician - The technician is responsible for providing day-to- day support and maintenance of district wide technology including software, hardware, printing, network and audio-visual equipment. Evaluate, troubleshoot, and resolve to the satisfaction of the user all software and hardware problems in a timely and accurate fashion. Maintain appropriate inventory and documentation of items being worked on. Analyze trends in hardware repairs and replacements and recommends procedures for improvement. Provides second level escalation to Technical

Specialists due to workload or problem area.

Tech Specialist – The Technical Specialists provide first tier software, hardware, printing, network and audio-visual support to teachers, staff, students, librarians and administrators. Work involves maintaining asset inventory, evaluating, troubleshooting, documenting, and resolving to the satisfaction of the user all support issues in a timely and accurate fashion. If issues cannot be resolved at this level the Technical Specialist escalates issues in a timely fashion to the appropriate member of the technology department for further evaluation and response.

Assistive Technology Specialist – This position reports to the Director of Student Services and works collaboratively with the technology department to ensure alignment to the technology program and to leverage technology expertise and assistance. The primary role of this position is to provide training and technical assistance to students, teachers, and specialists in the effective use and integration of Assistive Technology (AT) Devices. The Assistive Technology Specialist provides services that are designed to assist students with disabilities to choose, acquire, and use Assistive Technology (AT) devices to maximize independence in accessing the curriculum. They provide evaluation of AT needs, help in acquiring AT devices, guidance in selecting, customizing, adapting, maintaining, repairing, or replacing AT devices, and coordinating and using necessary interventions (for example, low vision services) with the use of AT devices

Staffing plan FY 16- FY 20

Moving to a 1:1 environment requires more support staff. Presently our staff is supporting the technical needs of the organization with a 1 device for every 2 students. The 1:1 program will essentially double the devices to support with our staff. The key areas of increase are highlighted in blue and will be:

- Add an Instructional Technology Specialist to cover the grades 1:1 program expansion for staff
- Bring the second TV/Production teacher to satisfy student course selections
- Add .2 FTE to webmaster schedule to cover the increased content and integration of other web-based applications
- Expand the technicians to a full year, 12 month schedule from their current 10 month schedule.
- Add 2 tech specialists to cover increased number of devices and tech needs

Role	FY16	FY17	FY18	FY19	FY20
Director	1	1	1	1	1
1:1 Coordinator	1	1	**1**	1	1
Instructional Tech Specialist	4	4	**5**	5	5
TV Production Teachers	1.15	1.7	**2.0**	2.0	2.0
Admin Assistant (Shared with Library)	1	1	1	1	1
Webmaster	.4	.4	**.6**	.6	.6
Data Manager	1	1	1	1	1
Data Assistant	.5	.5	.5	.5	.5
Network Manager	1	1	1	1	1
IT Operations Manager	1	1	1	1	1
System Administrators	2	2	2	2	2
Technician	4.5	4.5	4.5	4.5	4.5
Tech Specialist	5.5	5.5	**6.5**	**7.5**	7.5
Total New			2.5	1.0	

Professional Development

As part of the successful migration to 1:1 classrooms, professional development in technology is paramount. Varied opportunities and delivery methods is the most effective approach for maximizing teacher participation. A multitude of professional development opportunities are provided to our staff. These opportunities include courses for graduate credit offered both face to face and online, smaller workshops during the year delivered face-to-face and online, and also job embedded professional development in one-on-one settings and in teams. All of our professional development offerings target several learning needs, styles, and interests and model an environment of Universal Design for Learning.

Courses:
Courses are in depth professional development often used to launch new programs. An example is the 1:1 Boot camp that is a 2-day course by grade levels in integrating a 1:1 environment into the classroom. The focus is on developing lessons that incorporate technology. Part of the time is spent learning skills and the other part is spent developing lessons for use during the next school year. During the development, teachers focus on the goals of the lesson when integrating the technology. Teachers share their lessons with each other during the training to further the development of ideas for classroom instruction.

Workshops:
Workshops are designed to cover specific topic areas whether it is a tool or pedagogy. Example workshops include using Google Classroom or using formative assessment tools to inform your instruction. These smaller modules are scheduled during lunches, during the school day, or offered online.

Job Embedded:
The Instructional Technology Specialists have established a culture professional inquiry in which teachers seek assistance from ITS to improve their instructional skills. ITS spend time one-on-one with teachers in a consulting mode or in grade level or subject area teams to help teachers plan lessons integrating technology. Teacher independence is promoted through coaching followed by a gradual release of responsibility for technology-enhanced learning experiences.

Infrastructure

The goal of the Wellesley Public Schools network infrastructure is to provide a reliable, cost effective, high speed infrastructure to make information available to properly authenticated students, staff, and parents at any time, at any place, and on any appropriate device.

The infrastructure must meet these goals:
- Provide high speed bandwidth to each facility, campus and classroom within the District
- Ensure that Wellesley Public Schools network resources are available via wired or wireless connections.
- Support BYOD access to needed resources at Wellesley High School.
- Provide a secure transmission path for all sensitive data.
- Provide data standards to support interoperability and accessibility for all users.
- Provide equitable access to e-learning technologies for all users.
- Provide reliable access to all computers and systems
- Coordination of information resources across departments and buildings, and providing seamless, transparent access to users provides significant design challenges.

Additionally, as technology continues to rapidly evolve, and since there is no way to predict the products available three or four years from now, hardware, software, and network architectures must be flexibly designed and follow commonly accepted standards. This chapter outlines our current architecture and the proposed evolution over the next few years.

Infrastructure state includes:
- Utilization of a high speed, high capacity Wellesley Municipal Light Plant (MLP) fiber optic network for connections to all District Schools and administrative facilities
- Multiple redundant 10 GB network connections between all Data Centers at Wellesley Middle School and Wellesley High School
- Multiple high capacity fiber paths between all schools
- 1G or 10Gbps redundant fiber backbone to all buildings.
- Multiple 1Gbps Ethernet network connections per classroom
- Fixed Wireless 802.11 a/b/g/n/ac network access at all campuses. 75% of all classrooms have dedicated 802.11n dual radio or better access points to facilitate 1:1 testing, BYOD and other high density wireless connections.
- Air-conditioned wiring closets for main data frame (MDF) closets.
- Dual Internet connections to dual ISP's offer high speed Internet capacity with redundancy
- District- wide Google Apps for Education email, secure instant messaging and collaboration software
- One telephone (VOIP) per classroom (for a total of 720 handsets District-wide)
- IP based voice trunks connecting each PBX across the WPS Fiber Optic network
- Server-based and IP-manageable voicemail
- Networked Printing
- PA/Intercom in each classroom
- IP based Security Video capabilities at Fiske, Schofield and Wellesley High School
- 900 Mbps Internet connection via dual Internet Service Providers connected at dual locations within the District.
- 1Gbps Ethernet connections to classroom computers.
- District based and cloud based web servers in place providing district and campus web sites.
- Written policies in place on Acceptable Use of the Internet, Use of Social Media/Networking,
- District-wide Internet filtering software is in place.

- District based and cloud based file storage space available for every student and employee.

Classroom Technology

Every classroom in the District is wired with a minimum of three 1Gbps Ethernet drops. One is used for classroom wireless access points, one is used for computers or a printer, one is used for a telephone. Additionally, each classroom has a PA drop, a coaxial video drop, and multimedia presentation system including projector, interactive whiteboard, computer, document camera, speakers, microphones. The District has a student to computer ratio of approximately 1.9 students per computer/iPad.

District-Wide
- Email accounts for all staff and grade 7-12 students.
- Interactive video conferencing equipment available to campuses.
- Wireless network for mobile computing available at every campus.
- Mobile computer carts at every Elementary, Middle School and High School
- Classroom multimedia presentation system - Projector, computer, document camera, speakers, microphones.
- Digital tools such as video and still cameras available at each building.
- Digital media delivery to every classroom (digital video).
- 870 student computers
- 1850 student iPads
- 1100 teacher laptop computers
- 510 teacher iPads

Computer Labs

There are multiple labs in the secondary schools. All elementary campuses have at least two computer carts. Each computer lab has a minimum of one wireless access point and multiple network Ethernet connections.

Mobile Laptop Carts

All Elementary Schools, Middle School and High School have mobile computer laptop carts. Wellesley Public Schools is shifting its investment from desktop computers to mobile computers especially laptop / tablet type devices.

Campus Network FY16- FY20

Each School has a Local Area Network that interconnects the classroom drops, wireless access points (AP), VOIP ports, security cameras, etc. with a multi-switch stack via dual 1 Gbps or 10 Gbps Ethernet connections back to the MDF. Each School is connected to the WAN via either 1 Gbps or 10 Gbps Fiber Optic connections. Additionally, every campus has a telephone switch and a public address system.

Network Items	FY16 (current)	FY17 (planned)	FY18 (planned)	FY19 (planned)	FY20 (planned)
WHS APs	1 AP per Classroom	1 AP per Classroom	1 AP per Classroom	1 AP per Classroom	1 AP per Classroom
WHS AP Type	Mix AC & N	Mix AC & N	Mix AC & N	802.11 N & ac wave 1/3	802.11 N & ac wave 1/3
WMS APs	1 AP per 2 Classrooms or 1 per 1:1 Classroom	1 AP per Classroom	1 AP per Classroom	1 AP per Classroom	1 AP per Classroom
WMS AP Type	Mix AC & N	Mix AC & N	Mix AC & N	Mix AC & N	802.11 N & ac wave 1/3
Elem APs	1 AP per 2 Classrooms or 1 per 1:1 Classroom	1 AP per 2 Classrooms or 1 per 1:1 Classroom	1 AP per 2 Classrooms or 1 per 1:1 Classroom	1 AP per Classroom	1 AP per Classroom
Elem AP Type	Mix AC & N	Mix AC & N	Mix AC & N	Mix AC & N	Mix AC & N

Wide Area Network FY 16-FY20

Wellesley Municipal Light Plant (MLP) owns the Wellesley Public Schools District WAN. It uses a high capacity town fiber optic network providing 10 Gbps or 1 Gbps connections. Other upgraded features include providing 1Gbs Power over Ethernet (POE) network drops to support VOIP and other applications. All schools have wireless networks that have been upgraded to offer 802.11 a/b/g/n/ac and plans are being finalized to support upgrades to 50% 802.11ac technology to support the future 1:1 and BYOD initiatives.

Items	FY16 (current)	FY17 (planned)	FY18 (planned)	FY19 (planned)	FY20 (planned)
WPS Internet Connectivity	900 Mbps	1.2 Gbps	4.6 Gbps	5.2 Gbps	5.2 Gbps
WHS-WMS Network Connectivity	20 Gbps	20 Gbps	20 Gbps	20 Gbps	20 Gbps
WHS-WMS Network Type	Spliced	Spliced	Spliced	Spliced	Spliced
Elem-WMS Network Connectivity	1 Gbps	1 or 2 Gbps	2 Gbps	2 Gbps	10 Gbps
Elem-WMS Network Type	Patched	Patched	Patched	Patched	Spliced

Instructional Software

Instructional software is generally identified and vetted by staff in curricular positions as well as by academic need. At the point that the software is identified, staff in the technology department performs a detailed analysis to determine if the identified software will function properly within our network environment and available or identified hardware. District standard software titles are published and updated periodically.

As software vendors make their applications more available via the web, it has become our preferred method of accessing the vendor's content. As students and teachers are able to access many of our technology resources via the cloud, we encourage this secure method to be utilized with new and/or updates to current software. This allows our staff to access their resources via a single sign-on format and from anywhere, anytime, and using any device.

Student Software tool set

The software available to students includes tools for document creation and publication, expression and visualization, communication and collaboration, online research, and taking online/virtual courses or blended learning portions of their courses. The tool set selected contains a framework of applications that focus on creation rather than consumption to be used across all subject areas. There is an abundance of tools available so we felt it was important to select a manageable set of multi-purpose tools to focus our program on, and provide an avenue for teachers to recommend additional tools to add to the tool set. Additional tools can be suggested over time and our Instructional Technology Specialists vet them for widespread use. The table below represents the main tools used.

Software/Web Applications	IOS apps
Google Apps for Education (Sheets, slides, docs, classroom, forms) Discovery Education Inspiration/Kidspiration Web Browser (IE, FireFox, Safari, and Chrome) iLife Suite(Mac: iPhoto, iMovie, iDVD, GarageBand) Adobe Photoshop Elements (Middle School Only) Adobe Creative Cloud Suite - (High School Only) Operating Systems: Mac OS X and Windows 7 Microsoft Office Online Library Databases	Google Apps for Education (Sheets, slides, docs, classroom, forms) Dreambox Math Explain Everything Book Creator Discovery Education HopScoth, Scratch Jr Padlet Socrative iLife (iPhoto, iMovie, GarageBand) Online Library Databases Notability

Many of these tools are available in a "single-sign on" cloud for students to access. Additionally, High School students can utilize our School Information System to access their grades, and our Learning Management System to collaborate with other classmates and communicate with their teachers.

Teacher Software tool set

In addition to the applications listed above, teachers use:
- PowerTeacher Gradebook - Web based gradebook
- Teacher Web Site - Hosted on District Google Apps for Education Sites website.
- PowerSchool - Student Information System
- AimsWeb – Student intervention system
- Google Apps for Education - Gmail Email/Calendaring
- Solarwinds Web Help Desk - Online Technology Trouble Ticket System
- SmartEDU - Online Professional Development catalog, registration and delivery.
- Telephone/Voice Mail (Primarily VoIP systems, some analog for Power-Failure redundancy)

Network Storage and Security

Currently there is 10 TB of storage available for students and staff on two SAN devices. Access to stored information is regulated according to the user identity and role. In addition, each staff and student has unlimited cloud based storage via Google Drive.

The district security architecture is a tiered system providing many levels of protection including but not limited to, unauthorized access, virus and malware detected and prevention, user authentication and authorization, and logging of security events. Users are the key to Wellesley Public Schools technology security. The specific security technologies in place include Sophos Anti-Virus software that allows for virus control and spyware management, network firewalls and access control lists, and segmented networks for data protection; however, users must be aware of security, and protect their individual user IDs. Additionally, Internet filtering is implemented to eliminate access to inappropriate content on the Internet. The District is planning on the implementation of next generation firewalls, deep-packet inspection, intrusion detection and prevention systems, security information and event management and vulnerability scanning tools to further enhance data security within the District.

Privacy

Wellesley Public Schools complies with the Family Educational Rights and Privacy Act (FERPA) as well as the Children's Internet Protection Act (CIPA) to protect student privacy and to teach our students how to protect personal information online. With the growth of online tools and applications, WPS has joined the Massachusetts Student Privacy Alliance (MSPA), which is a collaboration of Massachusetts school districts that share common concerns around student privacy. The goal of the MSPA is to set standards of both practice and expectations around student privacy such that all parties involved have a common understanding of expectations.

Identity

The District uses the Microsoft Active Directory Identity Management System to provision and manage user accounts. The district is planning on this system being connected to the HR and student databases and allows for automatic provisioning and de-provisioning of any and all users.

Additionally, most users' roles are created and constantly updated via this system. All of our new systems are required to connect to the identity system for authenticating and authorizing users

through either OAuth 2.0, Secure LDAP or SAML connections. We have been able to reach a point where we have nearly all systems using this identity system for authentication and authorization.

Disaster Recovery

The district has contingency processes in place; for example, the wide-area backbone network is built to withstand fiber cuts, power loss, and most equipment failures. In addition, district Data Centers have both battery and generator backup systems in place. The district has a disk based backup and de-duplication system for the backup of all critical application and file server data.

Server Infrastructure

Due to the constraints of our facilities, Wellesley Public Schools has made a very large investment in VMware for our server environment. This has allowed WPS to continue to expand its technology offerings while managing our physical constraints. This has also allowed for rapid provisioning of servers, reduced the costs for server, a/c, space, and power. WPS plans to increase our investment in VMware, and to provide more a secure and flexible environment and a more resilient disaster recovery option.

Green Computing Initiatives

Due to our data center constraints, WPS continues to evaluate energy efficiency in all of its Data Center purchases, and will continue to do so. Our investment in VMware, blade servers and a Fibre Channel based SAN, have provided significant saving to the District in energy use while improving our service offerings.

Goals and Action Plans

<u>**Goals**</u>

In support of Wellesley's vision for technology the district has established the following strategic instructional technology goals. Research tells us that real change takes 3-5 years. We have built a 4-year plan with the realistic approach that we may very well take 5 years to implement it.

Action Plans

1. Student Outcomes

GOALS:
1. Establish clear expectations of student technology skills connected to the academic curriculum and aligned with the new ISTE 2016 standards for students.
2. All students will incorporate technology to support the development of skills in the 4C's (collaboration, communication, critical thinking and creativity)
3. All students will have opportunities to develop and apply digital citizenship practices across the curriculum that demonstrate they are safe, ethical and self-aware.
4. Students will apply technology skills across the curriculum in new and innovative ways

Year	Action Item	Start Date	Completion Date	Lead Person
1	1.1 Work with the STEAM Superintendent's Advisory Committee and the Technology Committee to develop a K-12 student technology curriculum map by grade level and aligned with the new ISTE 2016 standards for students.	October, 2016	October, 2017	Assistant Superintendent, Tech Director, STEAM SAC
1	1.2 Gather and compile a list of existing curriculum maps or scope and sequence.	October, 2016	August, 2017	Technology Director, ITS, Library Director, Library Media Specialists
1	1.3 Develop, examine, and evaluate current digital citizenship curriculum, instruction, and delivery.	October, 2016	August, 2017	Technology Director, ITS, Library Director, Library Media Specialists
1	1.4 Establish expectations around how the curriculum map will be used. Post on the web for the community to view.	October, 2016	November, 2017	ITS, Principals and teachers
1-4	1.5 The Technology Curriculum Committee will highlight tools that support the 4C's and identify, develop, and share curriculum integration exemplars through web postings, did you know videos, and sharing at team meetings.	October, 2016	On-going	Tech. Dept. ITS
1-4	1.6 Investigate, analyze, develop equitable procurement plans to obtain software/hardware to meet the needs of all learners including low income, struggling learners, ELL, etc.	June, 2016	On-going	Technology Committee

1. Student Outcomes Continued

2-4	1.7 Teachers, departments, and specialists will work together on cross-curricular projects that incorporate the 4 C's, collaboration, communication, creativity and critical thinking.	July, 2017	On-going	Teachers, ITS, Curriculum Specialists
2-4	1.8 Teachers, with the support of ITS (Instructional Technology) staff will establish a variety of assessment tools for technology-based learning. (Eg. rubrics, student portfolios, observation, student interviews, online assessments and other online tools for ongoing feedback).	October, 2017	On-going	ITS staff and teachers
2-4	1.9 Library Media Specialists, ITS, core teachers and specialists will collaborate to create and/or identify authentic projects that utilize technology as a catalyst and tool for communication, creation, critical thinking, collaboration, and problem-solving skills, that assess student media literacy and information literacy skills.	October, 2017	Ongoing	LMS, ITS, Teachers
2-4	1.10 Teachers with the support of ITS and/or LMS (Library Media Specialists) showcase student work online.	July, 2017	on-going	ITS and teachers
2-4	1.11 Explore various computer science and other technology courses to be offered at the various grade levels throughout the district, in particular at the secondary level	Summer 2017	On-going	STEAM SAC, Administration and Teachers

2. Educator Skills

GOALS:
1. Teachers will continuously improve their practice by participating in professional development and promoting and demonstrating the effective use of digital tools and resources.
2. Teachers will establish a student-centered atmosphere in which students learn to think critically, problem-solve, communicate, and collaborate about real world experiences.
3. Teachers will use their knowledge of subject matter, teaching and learning, and technology to facilitate differentiated experiences that advance student learning, creativity and innovation.
4. Teachers will develop and implement opportunities for students to apply digital citizenship practices.
5. Teachers will share best practices in digital age learning through staff meetings, team meetings, video releases, and/or web postings
6. Administrators will participate in and provide professional development throughout the school year in order to learn and provide 21st century classroom support and guidance
7. Teachers will continuously improve their practice by participating in professional development which focuses on developing student centered learning, differentiated instruction and digital citizenship.
8. Teachers collaborate on curriculum, best practice, technology use, and student centered learning.

Year	Action Item	Start Date	Completion Date	Lead Person
1	2.1 Develop and conduct survey aligned with ISTE-standards for teachers to gather baseline data on the specific technology staff is currently using and the level at which they are using it.	Fall 2016	Winter 2016	Tech Director, ITS
1	2.2 Introduce ISTE standards for teachers and students to teachers of all grade levels and department heads.	Fall 2016	Spring 2017	Tech Director, ITS, Asst Superintendent, Department Heads, Curriculum Coordinators
1-4	2.2 Based on surveys, create and implement an ongoing PD (professional development) plan to ensure all educators have baseline knowledge of digital age learning in a 1:1 classroom and offer PD based on interests and needs.	Summer 2016	Ongoing	Tech Committee with PD Committee
1-4	2.3 Administrators follow up on tech PD by making time during district meetings for exemplars and attending professional development	Fall 2016	Ongoing	Administration
1-4	2.4 Teachers and administrators meet during District Meeting time, PD days, and other opportunities to collaborate with colleagues (cross curricular and grade/dept) for curriculum integration	Fall 2016	On-going	Directors, Administrators, Teachers
1-4	2.5 Teachers, teacher teams will meet with ITS in order to create lesson plans incorporating technology they are interested in using.	Fall 2016	On-going	ITS Staff, teachers
1-4	2.6 Teachers share best practices in digital age learning during meetings and/or PD days in order to provide support and coach each other for successful implementation in the classroom.	Winter 2016	On-going	Tech Committee, PD Committee, Administration, Teachers

2-4	2.7 Teachers and administrators self evaluate growth and utilization in alignment with ISTE NETS standards	Fall 2017	On-going	Teachers, Administration
2-4	2.8 Administer follow up surveys and analyze data to determine additional follow up PD based on needs and interests.	Fall 2017	Ongoing	ITS, PD Coordinator
2-4	2.9 Administrators will make connections between the new evaluation rubrics, teachers' goals, and tech integration in the classroom aligned with ISTE Standards	Fall 2017	On-going	Administrators

3. Technology Infrastructure and Support

GOALS:
1. Create systems that make the management of teaching and learning more efficient.
2. Ensure the equitable access to all technology resources and infrastructure.
3. Upgrade infrastructure to support teaching and learning
4. Everyone will have high-performance, reliable Internet access throughout our schools.

Year	Action Item	Start Date	Completion Date	Lead Person
1	3.1 Clarify Roles in the technology department for internal department staff and external staff (all users)	Fall 2016	Spring 2017	Tech Director, Tech Department staff
1	3.2 Improve Web Page by providing a mobile responsive site that views well on phones, tablets, and computers and implements feedback from parents, students, and staff.	Fall 2016	Winter 2016	Webmaster, IT Operations Manager, Director of Technology, Systems Administrators
1-4	3.3 Determine the efficiency of technical services provided to teachers and classrooms through surveys and helpdesk data	Fall 2016	On-going	Tech Director, IT Operations Manager
1-4	3.4 Adjust/adapt/train staff as necessary to provide the most effective and efficient technical, instructional, and network support to all users.	Spring 2016	On-Going	Assistant Superintendent, Director of Finance and leadership team, Technology Director, IT Operations Manager
1-4	3.5 Implement a user-centered, user-friendly helpdesk that is accessible by phone and through a web portal to empower users to enter help tickets and get quicker and more efficient response time. Advertise the Helpdesk with Posters and ongoing promotions to boost use of helpdesk.	Fall 2016	Ongoing	Tech Director, IT Operations Manager
1-2	3.6 Investigate and improve **staff** information flow between HR and other information-based applications such as Teachpoint, Munis, Powerschool, Google Apps, Web Page, and School Messenger to reduce errors and duplication of data entry.	Fall 2016	Summer 2018	District Leadership, Director of HR,Systems Administrators, Webmaster
1-4	3.7 Ongoing inventory analysis of equipment	2016	Ongoing	Tech Director, IT Operations Manager, Tech Dept Staff

1-4	3.8 Create a scalable high performance infrastructure that can support a multi-platform 1:1 environment:
	
	  A. Create redundancy to reduce the possibility of down network time as well as double the bandwidth to the district.
	  B. Create an ongoing replacement plan for switches, access points, cabling, and other associated needs.
	  C. Pursue E-Rate funds for Category 2 components including network gear as listed above.
	  D. Replace networking components above according to plan and leveraging Erate funds.
	  E. Implement platform Software management to manage security issues, efficient and effective monitoring, and provide a totally "managed" networked through a single interface.
	  F. Implement Wireless network access and control provisioning software for management and security of the wireless network.
		2016	Ongoing	Tech Director, IT Operations Manager, Network Manager, System Admins Technicians

1-4	3.9 Develop a plan to solve the inequities at the elementary schools.	2016	Ongoing	Superintendent, Technology Director, Principals, PTOs
1-4	3.10 Develop a funding plan to bring a 1:1 environment to classes from grades 3-12 (including a plan for on-going rotation of equipment)	2016	Ongoing	Superintendent, Asst Superintendent for Finance and Operations Technology Director, Principals
1-4	3.11 Increase the use of electronic texts and digital materials and decrease the weight of the backpack.	2016	Ongoing	Superintendent, Asst Superintendent for T&L, Director of Student Services, Department Heads, Curriculum Coordinators, ITS, Teachers,
2	3.12 Investigate and improve **student** information flow between Enrollment Process and other information-based applications such as Webtrac, Powerschool, Google Apps, School Messenger to reduce errors and duplication of data entry.	Fall 2017	Spring 2018	Assistant Superintendent for Finance, Director of Student Services, Director of Technology, Systems Administrators

4. District Procedures and Community Engagement

GOALS:
1. The (students and staff of the) Wellesley Public Schools educational community has (have) equal access to technology to support teaching, learning and administrative functions
2. The Wellesley Public Schools educational community has the necessary and sustainable professional development to utilize technology to support differentiated teaching and learning.
3. The Wellesley Public Schools educational community provides staffing that fully supports the integration of digital resources into (teaching and learning) the classroom.
4. The Wellesley Public Schools will continue to have a strong partnership with the greater community to foster support for Wellesley Public School's technology initiative and innovation
5. The Wellesley School Department will have an established Technology Committee to support the implementation of the Technology Plan and the integration within the district.
6. The Technology Team will make recommendations for district wide policies and procedures that will support technology.

Year	Action Item	Start Date	Completion Date	Lead Person
1	4.1 Create a Technology Committee that will include representation of staff members, administrators, and community members.	Fall 2016	2020	Superintendent, Technology Director
1	4.2 Define roles of the members of the Committee, meeting schedules, and Leadership structure.	Fall 2016	Spring 2017	Superintendent, Technology Director
1-4	4.3 Host Technology events that will engage key stakeholders and community committee members on a timely basis.	Fall 2016	Ongoing	Director of Technology, Technology Committee
1-4	4.4 Form a public relations sub-group of the technology committee that will focus on communication and connection with the community at large. This communication will focus on multi-modalities (EX: print media, electronic, cable, face-to-face, etc.)	Fall 2016	Ongoing	Director of Technology, Technology Committee
1-4	4.5 Host Technology Outreach programs that are geared to student levels (ie-elementary, middle school, high school) that focus on appropriate digital citizenship	2016-2017	Ongoing	Director of Technology, Teachers, Technology Committee
1-4	4.6 Review technology policies and make recommendations for edits as necessary, publish to staff, and include in mandatory training.	Fall 2016	Ongoing	Technology Director, School Committee
1-4	4.7 Create operating procedures for technology within the district.	Fall 2016	Ongoing	Technology Department staff
1-4	4.8 Work with individual schools to support implementation of technology to meet the school, district, and technology goals.	Fall 2016	Ongoing	Principals, Technology Department staff
1-4	4.9 Work with local Housing Authority and Metco groups to identify vendors who provide low-no cost Internet solutions and low cost devices for high needs families.	Fall 2016	Ongoing	Technology Director, Superintendent, Housing Authorities, ISP Vendors

Funding

This multi-year living plan will be implemented from September 2016 through June 2020. It is Wellesley's intent to begin the implementation of the goals and actions of this Strategic Technology Plan as soon as possible, in service of the district's mission and overall vision of the plan. Given that several of the action items identified in the plan require funding, the implementation of these items will be contingent on available funds. The district plans to utilize the following funding sources in order to support implementation of these action items: Allocation of funds within the capital budget; operating budget; E-Rate funding; grants and private funding; and establishment of community partnerships.

Source	FY16	FY17	FY18	FY19	FY20
Operating Budget	$435,845	$434,009	$442,689	$451,543	$460,574
Capital Budget	$ 727,685	$ 741,391	$ 1,852,819	$ 1,012,693	$ 950,439
Salaries	$1,755,500	$1,870,300	$2,025,300	$2,074,000	$2,115,480
E-Rate Offset	$86,121	$20,000	$20,000	$20,000	$20,000
Total	$2,832,909	$3,025,700	$4,300,808	$3,518,236	$3,506,493
Grants and Private Funding	$55,000	TBD	TBD	TBD	TBD

Assumptions:

- Salaries include estimated COLA

- E-Rate program continues to offset our budget

- Grants and private funding to cover piloting emerging technologies

Evaluation and Assessment for Technology

Evaluation Design

Wellesley is committed to conducting a regular and on-going evaluation process that aims to measure the level of implementation of technology in the classroom for students and support for faculty and staff. This evaluation goes beyond accounting for technology infrastructure and reporting quantitative data on students, teachers, and administrators achieving basic technology literacy benchmarks. The district's technology plan evaluation effort will report on the qualitative impact of technology on teaching and learning. Data will be gathered through: surveys of all stakeholders, observations of practices, and qualitative feedback from educators, students, and parents. This data will be used to inform practices of the district in terms of professional development, technology integration, and communication.

Appendix I: Policies

Click the links below for applicable Technology and digital media related policies for the Wellesley Public Schools The policies align with an environment utilizing emerging technologies and personal technologies in schools.

[CURRICULUM AND INSTRUCTION Access to Electronic Media IJND](#)

[ACCEPTABLE USE POLICY – TECHNOLOGY - IJNDB](#)

[SCHOOL AND DISTRICT WEB PAGES – IJNDC](#)

[POLICY ON ELECTRONIC COMMUNICATION/SOCIAL NETWORKING - IJNDD](#)

Appendix II: ISTE Standards

Click the link below for the new draft International Society for Technology in Education (ISTE) Nets Standards for Students, Teachers, and Administrators. The student draft is to be finalized and announced at the ISTE conference in June, 2016. The draft is updated to match a 1:1 environment and the use of personal technologies in schools. Once the student version is finalized an update of the teacher and administrator versions will follow.

ISTE **NETS-S (Students)**

ISTE NETS-T (Teachers)

ISTE NETS-A (Administrators)