Education Technology Plan: Supporting Teaching and Learning

July 2015-June 2018

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1. <u>Executive Summary – Background and Context</u>

In order for us to know where we're going we need to know where we've been. This section provides some of the background and context in support of the Education Technology Learning Plan.

Mission/Goals/Strategic Initiatives For All Students [(Vision 2020 Strategic Plan)](#)

Vision
All Dublin students will become lifelong learners

Core Values
We Believe...
- Our most important goal is to maximize learning for every student.
- Every student deserves the best possible educational experience.
- Wellness and character development are critical components of student learning.
- Professional learning communities are essential for continuous improvement of student learning.
- Our most valuable resource is the skills, knowledge, and experience of our teachers, support staff, administrators, and parent community.

[Mission](#)
Our mission is to ensure that every student becomes a lifelong learner by providing a rigorous and relevant 21st century education that prepares him/her for college and career or service to our country and for success in the global economy.

Goals For All Students

Every Student Will...
- Demonstrate college and career readiness.
- Meet the District's rigorous and relevant 21st century standards for   graduation.
- Be proficient in Algebra 11.
- Read at grade level by the end of 3rd grade.
- Improve his/her academic performance each year.

Strategic Initiatives

STUDENT LEARNING: We will maximize student learning and achievement.

LEARNING ENVIRONMENT: We will provide an environment that enhances student learning.

RESOURCE ALIGNMENT: We will align resources in order to support student learning.

PARTNERSHIPS: We will establish and maintain productive partnerships that support student learning.

Vision 20/20 Strategic Plan - Technology
Strategic Goal & Indicators

Technology Goal	Indicators
• To enhance and support the integration of technology as a tool for learning in every classroom in the district.	• Technology Plan Year I • Professional Development • IT Department Procedures implemented at all schools and the District Office • Work Orders • Teacher / Staff Survey • Collaboration between Educational Services and Information Technology • Business Services Support • Human Resources Support

2 Instructional Technology and the Common Core State Standards

A partnership between Educational Services and Technology Services is research based and a best practice for Professional Leaning Communities. In Dublin, the following departments are working toward similar goals to increase student achievement at all sites for all students.
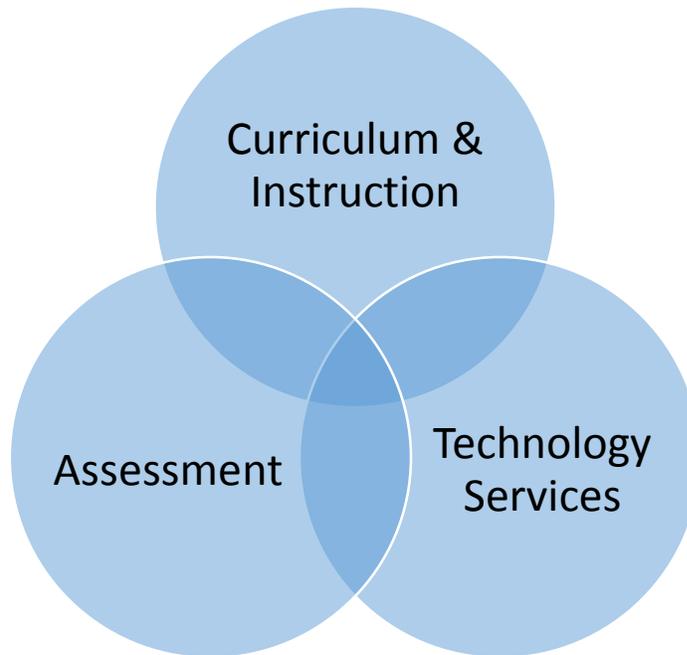
Essential Technology Competencies for the Common Core State Standards

The Common Core State Standards (CCSS) include specific competencies and skills related to the use of technology. For example, the English Language Arts (ELA) standards require students to use technology to gather, evaluate, and analyze information presented in a digital format, to collaborate with others, and to produce and publish their own writing. Similarly, the mathematics standards require students to select appropriate tools—including technology—to solve mathematical problems, as well as require students to use technology to model and display mathematical concepts and functions.

Technology and the CCSS Research Standards

In addition to the specific technology skills enumerated, the CCSS also require students to develop research skills that depend on various technological competencies. More specifically, the CCSS require students to use technology to conduct research, properly cite sources, and analyze the content and quality of digital sources.

These standards represent a shift from traditional approaches to research in K-12 education, which tend to emphasize long-term research projects over short-term research projects. According to Beth Ann Burke, a National Board Certified Reading Teacher who presents on the CCSS and literacy topics, teachers can prepare for short-term research projects in Grades 2-5 by providing opportunities for students to generate questions, research a small number of sources, and formally or informally share what they have learned. Because students in these grades often do not know how to paraphrase sources and avoid plagiarism, lessons should also explicitly teach paraphrasing skills. Students can also use online tools such as webcasts or Prezi, an online multimedia presentation tool, to present long research reports as an alternative to the traditional written report.

Many teachers incorporate CCSS research skills into project based learning (PBL) activities. The application of knowledge over factual recall in the CCSS align with PBL's emphasis on student demonstration of learning through performance assessments. Moreover, PBL aligns directly with several CCSS technology standards.

Technology can also support more innovative ways of pursuing traditional research activities. Importantly, students pursuing independent research projects often lack the skills needed to conduct efficient online searches or evaluate online information for quality and accuracy. Many teachers have begun to explicitly include research skills, such as identifying key words for internet searches and online source evaluation, in their daily lessons.

Appendix A: Technology Skills and the Common Core State Standards

Appendix A. displays references to technology within the Common Core State Standards. The CCSS reference technology explicitly in several areas, particularly in the ELA standards. In addition, the mathematics standards include the ability to select

appropriate tools, including technology, to solve math problems and the use of technology to create mathematical models and visualize mathematical concepts.

[Appendix B: The Fresno Digital Literacy & Technology Skills](#)

Appendix B shows the technology skills and knowledge recommended by the Fresno County Office of Education to support alignment with the technology skills required by the CCSS.

[Appendix C: Long Beach Scope and Sequence for Digital Literacy and Technology Skills](#)

To supplement academic standards, the Fresno County Office of Education recommended school districts adopt a set of Digital Literacy and Technology Skills that work in support of the Common Core State Standards for student technological competencies. These skills include basic computer operations, the ability to work with databases, spreadsheets and word processing software, use of the Internet to communicate and conduct research, and gain an understanding of the social, ethical, and legal issues surrounding computer use. Long Beach then adapted this into a K-12 Technology Scope and Sequence.

[Appendix D: Amador Plan](#)

As Dublin Unified open its newest elementary school. An opportunity exists to create the "model" for technology integration across the district. This plan reflects the current research based thinking about what this might look like. The Amador Plan outlines an upgraded classroom configuration allowing more mobility for the teacher. Students will use technology as an extension of their classroom experience. A one to one take home model in grades three through five will be part of an overall strategy to integrate technology into the campus experience for students, teachers, and community.

Big question: What problem are we trying to solve? How can we infuse the use of technology to support learning?   More specifically, how can we use technology to help students effectively interact with new knowledge? Research shows utilizing a variety of strategies in the classroom is more impactful for student learning. We need students to demonstrate the same flexibility in applying technology in order to apply deeper thinking skills and problem solving strategies. We are ready to support staff and students in taking the next step toward full technology integration. Our vision is that the use of technology be just as supportive to learning for a student as all other academic tools.

Vision of Instructional Implications: Teacher **Lesson Design** will be approached in a **Project Based Learning** format. Project-based learning is a dynamic approach to teaching in which students explore real-world problems and challenges. With this type of active and engaged learning, students are inspired to obtain a deeper knowledge of the subjects they're studying. Teachers know that they must cover the 4'C's of teaching Best Practices: **Creativity, Collaboration, Critical Thinking, and Communication,** to support student learning. In this Project-based Learning format teachers and students "Define Problems" that need to be solved. Students are involved in "Project Planning" to discover solutions for said problems. Students work to find "Project Based Solutions" where they analyze, synthesize, and interpret data. This **Instructional Best Practice** of Project-based Learning supports all learners in their proficiency of the Common Core English Language Arts, Math and Next Generation Science standards. **Critical Thinking Skills** are used and **Technology** is incorporated as a tool to support learning in this **Project Based Learning** environment.

[Appendix E: Dublin Unified School District Common Core State Standards K-12 Digital Literacy and Technology Skills Scope and Sequence Guide](#)

As a result of the district's examination of exemplary models for technology integration, Dublin will use this guide for the Common Core State Standards K-12 Technology and Literacy Skills Scope and Sequence as the main resource for translating lessons with technology. This is the guide that will be shared and made available to staff districtwide.

The intended use of this guide will compliment adopted curriculum and district initiatives that allow teachers a deeper understanding of common core and the infusion of technology. Teachers are encouraged to refer to this guide when planning lessons and projects.

In response to Vision 20/20 and based on research (as outline above), the Technology Services Department will use the following action items to outline technology integration goals for the next three years. *In Year One, the following goals specifically address programmatic, technology integration, and network support in classrooms/departments across Dublin Unified:*

Technology Services Integration in response to Vision 20/20 Goals will consist of the following integration indicators in the 2015-2016 school year:

Strategic Initiative: Student Learning: We will maximize student learning and achievement.
Goal 2a. Achievement: To improve the achievement of all students as we transition toward the California State Standards and Smarter Balanced Assessments (Common Core and Next Generation Science)

Vision 20/20 Indicator	Technology Integration	Timeframe	Who is responsible
K- 8 teachers will participate in the K-12 Alliance program promoting STEM education	Refresh laptops at DHS, FMS. (Budget section outlines totals), set update system to occur monthly via Zen, load all applications at all sites in summer/fall. Enroll all laptops in Active Directory for monitoring	Summer 2015	Chief Technology Officer, Network Analyst, Network Technician
K-5 and 6-12 science content teachers participate in professional development as we transition to the Next Generation Science Standards and CASPP.	Provide access, training, and support on Google Sites for students/staff via the Google Admin console, web-based digital content support and access	Fall 2015-2016	Chief Technology Officer, IT Supervisor, Director of Assessment/Education Technology, Academic Coaches
K-12 teachers will integrate technology into their Common Core unit plans as we transition to CC and SBAC	Assist in technology support as needed, refresh hardware on a multi - year cycle, insure access to Internet resources	Summer 2015-ongoing	Chief Technology Officer, Director of Assessment/Education Technology
Sequenced courses are identified for each pathway. Each CTE course is aligned to California Standards and the California CTE Model Curriculum Standards and Frameworks.	Assist in exploration of best instructional technology venues by grade span/department and technology support as needed to meet robust needs	Summer 2015-ongoing	Chief Technology Officer, Director of Assessment/Education Technology, Academic Coaches
There is a clear pipeline from elementary through high school for STEAM (Science, Technology, Engineering, Arts & Mathematics)	Continue procurement of student devices and a refresh cycle budget (budget section outlines totals). Create images that are inclusive of all PLTW needs across all sites.	2015-2016	Chief Technology Officer, Chief Business Officer

Strategic Initiative: Student Learning: We will maximize student learning and achievement.
Goal: 1. Wellness: To implement the Vision 20/20 Wellness Plan so that all students are engaged and supported with their social, emotional, behavioral and physical needs in a safe learning environment.

Vision 20/20 Indicator	Technology Integration	Timeframe	Who is responsible
Students will demonstrate social and emotional competence	Attend mandatory Digital Citizenship training with follow up targeted workshops offered quarterly	Ongoing	Educational Services/ Chief Technology Officer

Learning Environment: We will provide an environment that maximizes student learning.
Goal 2. Technology: To enhance and support the integration of technology as a tool for learning in every classroom in the district.

Vision 20/20 Indicator	Technology Integration	Timeframe	Who is responsible
Collaboration between Educational Services and Information Technology	Support all departments in software approval form process, procurement, and management of licenses. WIFI deployment and maintenance, Create BGP for security industry standards at EDGE	Summer 2015- ongoing	Chief Technology Officer, Executive Cabinet
Business Services Support	Business Services automation plan developed	2015-2016	Chief Technology Officer/, Executive Cabinet
Business Services Support	Human Resources automation plan developed	2015-2016	Chief Technology Officer/, Executive Cabinet

3. Professional Development

Technology in the Classroom and Professional Development

Many schools integrate technology through a blended learning approach which combines in-person instruction with technology-supported activities. One type of blended learning model that is growing in popularity is the flipped classroom. A traditional flipped classroom provides instruction at home through the use of teacher-created online lessons, while assigned work is done in class. Although some believe that this model would replace teachers with videos and may isolate students, others argue that students would receive more interactive and personalized attention from teachers during school, if executed well. APPs and other programs, such as Celly, can support the flipped classroom model by providing features such as a comment section for teachers and students to interact, or the ability for students to run polls without the teacher being involved.

Beyond using technology as a teaching tool, teachers can more readily share digital learning tools and resources with others outside of their school walls. A number of online platforms-such as [The Literacy Design Collaborative](#), [LearnZillion](#), and [Google Classroom](#) —allow teachers to share lesson plans, videos, and other resources with fellow educators. Other platforms, like [Khan Academy](#) and [Gooru](#), also offer internally developed CCSS-aligned content.

Professional Development and Technology Integration Frameworks

Developing the necessary technology competencies for teachers may require extensive professional development related to both the use of technology itself and changes in teaching practice associated with technology. [The National Association of Secondary School Principals](#) (NASSP) recommends the following four-step process for exposing teachers and school leaders to new technology:

- **Step One**: Teachers need support when using a site or tool for the first time. **Provide self-paced resources, lab settings and relevant practice on a new technology skill, tool, or site.**
- **Step Two: Teachers need time to practice and to create a product during the training.** This will allow them to see issues and troubleshoot problems that a student might encounter.
- **Step Three: Teachers of like subjects are provided time to collaborate and develop new lessons that are based on the standards and use the new technology.**
- **Step Four: Teachers should be expected to produce lessons designed for the CCSS and post or share them for district use.**

[The International Society for Technology in Education](#) (ISTE) recommends a coaching model for professional development related to technology. The ISTE finds that coaching allows teachers to develop technology-related skills in a low-risk environment with frequent opportunities for feedback and collaborative work with other teachers. They identify three research-supported models for instructional coaching: cognitive coaching, peer coaching, and instructional coaching. These models share an emphasis on leveraging technology to support professional development and collaboration among teachers, including the use of online learning communities to allow teachers to share ideas. In the instructional coaching and peer coaching models, teachers within the district provide coaching to their colleagues, while the cognitive coaching model uses instructional specialists and district staff trained through a "train-the-trainer" model. The US Department of Education's National Education Technology plan recommends that schools use technology to replace episodic professional development activities with ongoing

professional development that blends in-person courses and workshops with online resources and collaborative activities.

Professional Development Model:

Dublin Unified Backwards Map Sample: Three years forward to 2018: CCCS, SBAC, perception with department and school and community. Scenario: Sample grade 4 classroom: students proficient in presentation skills, slideshows, graphics, word processing. In a 1:1 blended learning environment with video chat on Google with district level schools participating in peer-to-peer discussions connected to the Fresno County Office of Educational Technology standards grid by subject in grade 4.

Dublin Unified Rollout Model:

1:1 Teacher Leaders (2)

1:1 Teacher Leaders (2)
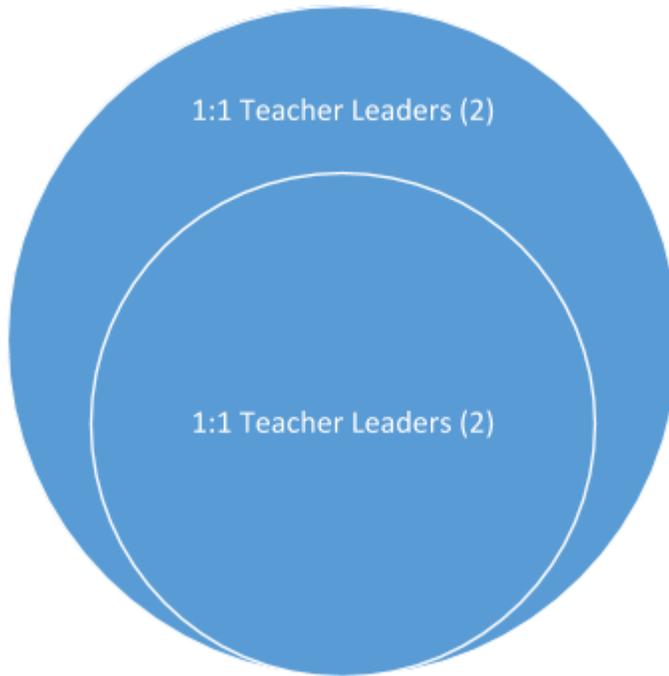
Dublin Unified 1:1 Distributed Leadership Rollout Plan

Technology Lead Teacher (two initially) receive a check out model class set of devices – Teacher works with 2 other teachers and sign off when they are ready to receive their check out model class sets. Evaluation includes curriculum integration and technology skills readiness. This model will continue until all teachers are trained. During the initial rollout of the 1:1 student check out model, teachers will have exposure to research based blended learning strategies led by district technology coaches from the Educational Services department and the Chief Technology Officer. The initial 1:1 teacher lead team will then modify any rollout documentation based on their discovery of best practices within Dublin Unified School District. This follows the logic of the distributed leadership professional development model.

Delivery: Under the umbrella of PBL (Project Based Learning) models in partnering with Napa Digital Initiative, the roadmap will be as follows: Instructional Methods are defined utilizing Google Apps for Education (GAFE), Blended Learning Rotation project based monthly tasks led by Ed Tech/Academic coaches, and portfolios creation with frequency and depth by grade level/department.

The following Professional Development Tracks will meet teachers where they are on the spectrum of technology mastery by item. As an example, if teachers have mastered Google with a certification as a Google Teacher, they can purse professional development in Blended Learning for their grade span/department based on need. The delivery of all professional development will augment Educational Services topic & subject trainings. There will be no trainings that will occur in isolation, rather it will be an infused model. Such as, if teachers attend training in writing, real time training will occur in collaboration time, staff meetings, and voluntary after school session on Google Docs and/or Google Classroom. As teachers master Google suite tools with certifications, they will become "Tech Fellows" and be recognized by the Board of Education for their commitment to excellence. They will also be encouraged to teach peers their best practices. This is the Distributed Leadership model in practice.

Years One-Three Professional Development Tracks:

Years 1-3	**Pedagogy**	**Description**	**Resources**
	Blended Learning: Model-Rotation Delivery K-5, Flipped 6-12	GAFE Basics Online Certified	Online video/digital textbooks portal: Discovery EDU, Pearson Realize, Ed1Stop, etc.
	Blended Learning: Model-Rotation Delivery K-2, Flipped 3-12	GAFE Adv. Educator by tool: Docs, Search, Classroom LMS, YouTube	Online video/digital textbooks portal: Discovery EDU, Pearson Realize, Ed1Stop, etc.
	Blended Learning: Model-Rotation Delivery K-2, Self-Blended 3-12	Portfolio Creation	Online video/digital textbooks portal: Discovery EDU, Pearson Realize, Ed1Stop, etc.

Classroom

Save time, keep classes organized, and improve communication with students.

> Introduction

> Basics

Docs Suite

Store everything, create and share anything.

> Introduction

> Basics

> Advanced

Professional Development Topics Fall 2015 / 2016:

Month	Theme	Description	Resources
August	Google Classroom	Set up your Google Classroom for the new school year.	*August 25, 2015*
August	Google Forms	Back to School- Create forms to gather information from your students and parents.	*Late August*
September	Google Slides	Collaborative Slides- Build presentations as a class to share information and get to know one another.	*TBD by Ed Tech Team in 2015/2016*
October	Google Forms	Create Formative Assessments using Google Forms.	*TBD by Ed Tech Team in 2015/2016*
November	Hyper Docs	Create a Google Hyper Doc to differentiate instruction.	*TBD by Ed Tech Team in 2015/2016*

Parents/Student Requirements for 1:1 Checkout Model Professional Development:

Item	Timeframe	Who is responsible	Evidence
Attend mandatory training in device care/management. Sign agreements for use, checkout, and insurance form	Annually	Educational Services/ Technology Services Teachers	Sign out forms, agendas, AUP's on file
Attend mandatory Digital Citizenship training with follow up targeted workshops offered quarterly	Ongoing	Educational Services/ Technology Services	Homepage established and Google Analytics data reviewed for usage metrics

In addition to a three year commitment to the concepts and online tools for classrooms, The Technology Committee will meet monthly with an eye on the horizon. The goal of the committee will be to learn and share with others the cutting edge technology integration concepts, tools, and pedagogy that are on the horizon. During the 2015-2016; the Dublin Unified Technology Committee will explore concepts such as:

2. Social Media Use in Classrooms/Community Best Practices with 2-way communication
3. MakerED and Makerspaces for libraries, classrooms, and summer camps
4. Learning Management System exploration for online courses that can be offered in grades 3-12 (where applicable)
5. Wearable technologies infused in instruction
6. Gaming delivery with tools like MinecraftEDU platform

4. Effective, Research-based Methods & Strategies

Research Summary

District Support for Technology Integration

According to a survey of 997 schools conducted by Project RED, an advocacy organization supported by educational technology companies, effective technology integration programs are characterized by nine implementation practices:

- *Technology is integrated into every intervention class period;*
- *Principals engage in change management and provide time for teacher professional learning and collaboration at least monthly;*
- *Students use technology daily for online collaboration, including games or simulations and social media;*
- *Students use technology in core curriculum subjects at least once a week;*
- *Students complete online formative assessments at least once a week;*
- *Schools engage in virtual field trips at least once a month;*
- *Students use search engines on a daily basis; and*
- *Principals receive training in teacher buy-in, best practices, and the use of technology to transform learning.*

However, Project RED reports that the majority of schools surveyed did not implement the majority of these practices, with most schools implementing fewer than three factors. **Many schools indicated that they were either unaware of best practices in technology integration or could not to implement them for non-pedagogical reasons.** As such, school districts should provide the necessary support, training, and technical capacity to fulfill these practices.

To aid in this process, the ISTE provides an online diagnostic tool to measure school and district progress towards the following "Essential Conditions" for leveraging technology integration to support student learning:

- **Shared Vision:** Proactive leadership in developing a shared vision for educational technology among all education stakeholders, including teachers and support staff, school and district administrators, teacher educators, students, parents, and the community;
- **Empowered Leaders:** Stakeholders at every level empowered to be leaders in effecting change;
- **Implementation Planning**: A systemic plan aligned with a shared vision for school effectiveness and student learning through the infusion of information and communication technology (ICT) and digital learning resources;
- **Consistent and Adequate Funding:** Ongoing funding to support technology infrastructure, personnel, digital resources, and staff development;
- **Equitable Access:** Robust and reliable access to current and emerging technologies and digital resources, with connectivity for all students, teachers, staff, and school leaders;
- **Skilled Personnel:** Educators, support staff, and other leaders skilled in the selection and effective use of appropriate ICT resources;

- **Ongoing Professional Learning:** Technology-related professional learning plans and opportunities with dedicated time to practice and share ideas;
- **Technical Support**: Consistent and reliable assistance for maintaining, renewing, and using ICT and digital learning resources;
- **Curriculum Framework:** Content standards and related digital curriculum resources that are aligned with and support digital age learning and work;
- **Student-Centered Learning:** Planning, teaching, and assessment centered around the needs and abilities of students;
- **Assessment and Evaluation:** Continuous assessment of teaching, learning, and leadership, and evaluation of the use of ICT and digital resources;
- **Engaged Communities**: Partnerships and collaboration within communities to support and fund the use of ICT and digital learning resources;
- **Support Policies**: Policies, financial plans, accountability measures, and incentive structures to support the use of ICT and other digital resources for learning and in district school operations; and
- **Supportive External Context**: Policies and initiatives at the national, regional, and local levels to support schools and teacher preparation programs in the effective implementation of technology for achieving curriculum and learning technology (ICT) standards.

Although some school districts launch technology initiatives on a system-wide basis, **the [US Department of Education](#) recommends that school districts begin technology integration with pilot programs and phase in implementation over time.** This strategy allows districts to adjust plans to meet unexpected needs or issues, and to adapt programs to meet the needs of different schools or groups within the district.

5. <u>Technology Infrastructure</u>

Backbone connections are 10Gbps between the sites, a 40Gb connection from Dublin High School to the District Office data center, and 10Gbps connection for the leased fiber connections. These leased connections are reliable, but can be expensive, depending on the negotiated terms of the lease. The wide area network (WAN) connection to the Alameda County Office of Education is 1Gbps.

Common Core testing, via the Smarter Balanced Assessment Consortium browser, is network intensive, and hundreds of simultaneous connections will result in slow Internet connection speeds if the district is not at 1Gbps. The Smarter Balanced Assessment Consortium browser Specifications for bandwidth consumption of simultaneous users can be found at:

Specifications are related to bandwidth consumption of the Smarter Balanced Assessment Consortium browser, this does not consider other items such as media streaming in the classroom or the financial management system used by the business office. If the average bandwidth consumption is 8-15Kbps per browser instance, realistic estimations are double those averages to account for peak usage. It is safer to overestimate instead of underestimating the necessary bandwidth. With thousands of students, this will put an enormous burden on the district during the testing window, which should be considered so that maximum bandwidth is devoted towards student testing.

Wireless Connectivity

The district uses Ruckus for enterprise-class wireless connectivity. Throughout the district, 420 Ruckus model 7982 access points are used. These access points are the highest-density products, allowing up to 500 simultaneous connections per access point. Wireless connections are handled either via WPA2 or via FreeRADIUS.

Software:
Electronic Learning Resources: Schools now use a wide range of electronic learning resources, including stand-alone software, server-based resources and web-based resources. Reliance on instructional resources will continue to increase, especially with the new textbook adoptions that include full motion and interactive electronic resources as an integral part of the new curriculum. The District also utilizes a range of programs to manage instructional services, such as online textbook and library management systems, IXL, Renaissance Place, & Odysseyware. The District's basic operations are dependent on a wide range of electronic business applications that include modules for finance, human resources, payroll, accounts payable, accounts receivable, purchasing, warehouse operations, student information systems, food services, substitute system, email, phones, and calling system. Software decisions are made in concert with Educational Services department. Requests for instructional software must be submitted via the Instructional Software Approval Form.
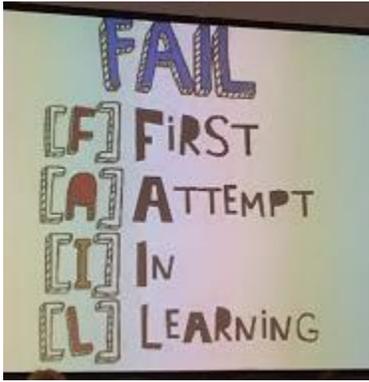
Student Information System: Administrators, teachers, counselors, and other support staff will have access to the student information database at the level they require to perform their jobs and support the education and learning of the students in DUSD. The Infinite Campus student database program is accessible at all sites. The district has implemented training in Infinite Campus, on an as-needed basis, conducted by the company, for all staff members. Each year, Infinite Campus training sessions will be offered in August and throughout the year for Administrators, Teachers, Administrative Assistants and other support staff.

Library Information Systems: Beginning on the first week of each school year, all school library media centers will be open for teacher and student use. The Destiny System will be operating to improve student access to information and for the circulation, inventory, statistical analysis and acquisition of library books and materials. All staff and students will have access to information about their school library collections from any school computer workstation including classroom computers. Access to the Destiny Online Catalog is available in all classrooms at all school sites. Ongoing training in Destiny for both library media specialists and classroom teachers will be scheduled as needed.

Hardware: There are approximately 9,200 instructional and 700 support staff computers. Currently, the funding of computer replacement and upgrades is left to the District, through the use of Bond funds, and the individual schools. The entire computer inventory can be found online in the Technology Services department accessible in Destiny internally only.

Infrastructure: Within the geographically diverse District, all schools are connected to the wide area network for Internet access and District network services with a fiber connection to the District Office. ACOE provides a 1Gbps connection to the Internet. In 2015, the District completed a redesign of the District's infrastructure and technology management systems.

INFRASTRUCTURE STANDARDS
Switches – as the core switch at each site's MDF
Switches – as IDF switches for each site – POE+
Cabling:
- All copper network cable must be Category 6A or better and support 10Gbps.
- Fiber single-mode from all IDF's to MDF's – Capable of 100 Gbps (certified)
- All fiber network cable must be single mode 50/125 or better and support 100Gbps.
- 30% free space in all conduits at all times.
- Bend radius not to exceed 3 times the diameter of the cable
- Cable and installation warranty with signed certificate of no less than 20 years. All cable installations must be accompanied by certification reports
- Service loops at MDF / IDF locations 3 meters
- Service loops at end points 1 meter (exceptions will be authorized in writing)

- Cat6a plenum patch cables which fit into cable management system
- Appropriately sized cable management system if not already installed
- Cables tied with Velcro or cable management manufacturer recommended solution
UPS – Minimum running-time of ½ hour at the sites, but preference would be at least 2 hours
HVAC – All IDF's and MDF's should have adequate air-flow/conditioning to keep the temperature at a constant 70 degrees
Fire Suppression – All MDF's and IDF's should have adequate protection
Servers – HP DL360P G8
Storage – Nimble
Wireless Controllers – Ruckus
Wireless Access Points – Ruckus
Network Management – Brocade Network Advisor (BNA)
Firewall – Checkpoint GAIA platform
All deployments are based upon 10 Gbps backbones.

Hardware: To ensure equitable access to the District's adopted curriculum and to support daily student and teacher use of resources, computers must be both robust and reliable. The technology plan calls for the following:
Computer Replacement: The district is in the process of the budgeting for a policy to replace instructional computers on a minimum cycle of five years.

Standards and Baseline Technology: The District should continue to set standards for all hardware and identify a baseline technology that should be deployed in each classroom, library media center and school as a whole. Curriculum and Professional Development components and would define the minimum set of tools that each student and teacher needs to access. The concept of a baseline instructional technology package supports the standards-based curriculum, ensures equity of access for all students, promotes more effective professional development and reduces total cost of ownership, including technical support needs.

Student devices vary and include; Chromebooks, MAC laptops/computers, Windows laptops, iPads, iPod touch, and assistive devices for students in Special Education as outlined by their IEP. Teacher Devices include a laptop and a tiny in every classroom and are configured with Microsoft Office, Adobe Acrobat Reader, and Chrome. Administrator Devices and support staff workstations and laptops are configured with Microsoft Office, Adobe Acrobat, and Chrome.

Technical Support: The Technology Department currently consists of ten staff under a Chief Technology Officer, who reports directly to the Superintendent. District-wide technical support is provided as follows:
One FTE Supervisor managing daily operations of department
Two FTE's manage network, systems, all MDF, IDF's, VOIP, WIFI, Systems

● Six FTEs provide Site Operations technical support, desktop technical support to more than (how many) instructional and administrative computers
● One FTE supports office clerical, inventory, ordering, budget, and operational support

Technology Purchasing

Technology Services manages the purchase of technology related items in collaboration with the District Business Office, which has final authority for vendor selection and for all purchasing decisions. Technology Services is the sole authority for placing orders for technology on behalf of the District *regardless of the source of funding*. All technology related purchases require authorization by full Technology Services prior to requisitioning.
All requests for technology purchases, whether as individual items or as part of a larger project, must be sent to Technology Services for processing, as per the procurement process, defined below. The Technology Procurement Procedure is located on the district website.

6. District Practices That Ensure Equitable Technology Access for All Students

All students, including Special Education students, English Language Learners, and GATE students will have equal access to technology to support achievement of the academic standards in the classroom, district curricular goals, and ultimately for success in the workplace. The technology goals and objectives for these student subgroups are the same as for all other students, although the programs and methods for achieving the objective may be adapted to best meet their needs. Students with an active Individualized Education Program will have appropriate access to technology hardware, peripherals, and software including assistive technology as deemed appropriate and as defined by the IEP site team and the students' IEP goals. English Language Learners will have appropriate access to technology hardware, peripherals, and software needed to support their English language acquisition as well as their achievement of the academic standards. Students identified as Gifted and Talented (GATE) will have appropriate access to technology hardware, peripherals, and software needed to support their advanced curriculum.

Technology Services Action plan in response to Educational Services will consist of the following items:

Item	Action	Timeframe	Who is responsible
Purchase hardware/ chat headphones	Maintain Rosetta Stone, chat headphones and technology hardware is being purchased (Budget section outlines totals)	Summer 2015	Chief Technology Officer, EL Coach
PBL	Assist in technology support as needed	Summer 2015	Chief Technology Officer, Director of Assessment/Education Technology

7. __Appropriate and Ethical Use of Technology__

Students and teachers will understand the ethical and legal issues surrounding the use of technology and apply these principles as they relate to copyrighted works, downloading, and file sharing digital information, and plagiarism.
By spring of 2016, and annually thereafter, students and teachers grade K-12 will be instructed in digital citizenship and internet safety skills as specified in the National Educational Technology Standards for Students and Teachers *(samples).*

Year 1 Benchmark: By June 2016, 100% of DUSD students grade K-12 will receive instruction in the introduction to ethical use of technology.

Year 2 Benchmark: By June 2017, 100% of DUSD students grade K-12 will progress with instruction in the ethical use of technology including an emphasis on copyright and fair use.

Year 3 Benchmark: By June 2018, 100% of DUSD students grade K-12 will progress with instruction in the ethical use of technology, copyright fair use and any changes in digital citizenship best practices for new technologies.

Beginning in summer of 2015 and ongoing:		
Goal	**Who is responsible**	**Evidence**
District provides professional development to all teachers K-12 regarding the appropriate and ethical use of technology using CommonSensemedia.org beginning in summer of 2015.	Chief Technology Officer, Coord. of Student Services	Signed AUP on file, sign-in forms, completion of certificate program
Students grades K-12 participate in Common Sense Media lessons at appropriate times throughout the school year. Refer to Common Sense Media Scope & Sequence site.	Chief Technology Officer, Coord. of Student Services	Completion badges, certificates, shared with staff. Dublin High School Freshman program sign in's

8. <u>Assessment and Data Management</u>

Dublin Unified School District actively pursues opportunities to improve student record keeping, curriculum development and assessment benchmarks more efficient and supportive of teacher's efforts to meet individual student needs. The District has purchased systems such as Infinite Campus (Student Information System), OARS, formative assessments via cloud based solutions like Renaissance Place (STAR reading/STAR Math), Odysseyware amongst others and made them available to all teachers, administrators and staff to meet that need. We strive to enhance our already rich selection of tools to provide our teachers, administrators and students with what they need be more efficient and productive in their roles.

To make student record keeping, curriculum development and assessment more efficient, Dublin Unified is posting and hiring a Director of Assessment and Educational Technology. This will occur in the late spring/early summer. This much needed role will explore internal procedures related to best practices for data management. Using data to inform instruction is already a best practice, and this new role will continue to explore research and best practices related to the newly adopted summative assessment system (SBAC).

Regularly scheduled district level meetings with data stewards at each site will ensure data is correctly managed in the student information system. Established procedures for the data as it relates to the CALPADS longitudinal data system will insure the best data practices contribute to ongoing data requirements as outlined by the California Department of Education.

9. <u>Communication</u>

Dublin Unified School District feels that communication between staff and parents is an important part of a strong and successful academic program and critical to the success of its students. For this reason, a goal of the District is to make two-way communication between staff and parents as efficient and easy as possible. All teachers and staff are currently accessible to parents and community members through a district supported email and telephone system. Every teacher in the school district has a classroom website available and the tools to maintain it. All middle school and high school teachers have classroom websites that shares information about the classroom as well as pertinent information about assignments and upcoming events. At the middle and high schools, the secure Infinite Campus Parent Portal allows parents and students a direct link to the teacher's gradebook allowing instant feedback about grades, absences and teacher comments, as well as, information about upcoming assignments. The Dublin Unified School District Board of Trustees uses a full e-packet solution for all board meetings. The comprehensive e-packet agenda is available to the public on the district website and includes all pertinent information, as well as, presentation materials. The DUSD Administration has a secure portal for viewing and responding to all board meeting agendas.

Whenever possible and practical all school sites in DUSD have begun efforts to go green! Wednesday e-packets are available online for the parents and community and approximately 85% of our parents have migrated to epackets and no longer require hard copy on school information. Hard copies continue to be available through the front office and classrooms for families not subscribing to the e-packet. All teachers have classroom websites and use Schoolwires and/or Google Sites to keep content up-to-date such as curriculum expectations, upcoming events and student assignments. Parents can easily download handouts and email the teacher when necessary. A newly adopted web-based newsletter system (Peachjar) is now available for flyers, which furthers our commitment to becoming a paperless workplace.

10. <u>Technology Funding & Budget</u>

The Dublin Unified School District has a commitment to support the use of technology for the benefit of our students, staff, parents and community. In these times of limited financial resources it becomes even more important to utilize all available sources of funding. The district is committed to securing ongoing, stable funding to support the curriculum resources, staff development, technology tools, infrastructure and technical support which are necessary to implement the District Technology and Learning Plan. Parents in the Dublin Unified School District strongly support technology as evidenced by on-going Bond funds, supporting technology integration across the district.

List of established and potential funding sources:
- ERATE Provides a 40% discount/reimbursement for Internet Service and Telecommunications Grants support programs such as [Project Lead The Way (PLTW)](#)
- School site funds (unrestricted)
- Lottery funds that support technology
- General Funds (District) pay for the salaries of Technology Services Department and for ongoing hardware and software maintenance agreements and refresh needs.

Each spring, the Chief Technology Officer will work with the Chief Business Officer to develop the annual technology budget using above listed funds to support both site and district-wide technology needs.

Based on student enrollment projections for the 2015-16 school year, the Dublin Unified School District Student Enrollment Projections and Device Refresh Inventory provides information on the current number of devices currently present at each school site along with the projected need at sites and the costs associated with their purchase in order to meet district goals for respective grade levels. This information is considered annually in budget planning.

Budget to support Educational Services Multi Year Goals Department Budget:
(by secondary site)

Site	Location	Item	QTY	Unit Cost
DHS	Hub/Library	STEM Laptops	6	$1,294.00
DHS	Hub/Library	"Box" lockers to store laptops	1	$750.00
DHS	Hub/Library	Flat screen TVs (size tbd)	3	
DHS	N, L & M bldgs	80" TV's	46	$3,000.00
DHS	N, L & M bldgs	HDTV wall mount	5	$465.00
DHS	unknown	rolling tv stand	41	$250.00
DHS	Unknown	bluetooth/wireless printers	10	$200.00
DHS	unknown	long HDMI cables	52	$93.00
DHS	unknown	Chrome Box Lockers	7	$202.00
DHS	J/K	HD document camera (J/K)	26	$510.00
DHS	all other classrooms	iPevo doc cams (rest of campus)	66	$94.00
DHS	unknown	headphones	220	$5.00
DHS	unknown	mice	220	$3.30
DHS	Sci wing	Projectors	12	
DHS	PE	iPad Cart	1	$1,300.00
DHS	PE	iPad mini	30	$279.00
DHS	Art Dept	Digital Camera	1	$1,900.00
DHS	Digital Arts	Macs for lab	30	
DHS	Digital Arts	software for Video Production	1	
DHS	PLTW	Engineering laptops	70	$1,294.00
DHS	BioMed	BioMed laptops	35	$1,294.00

Site	Location	Item	QTY	Unit Cost
FMS	PE	iPod Touch	45	$230.00
FMS	PE	Cart for iPod	1	
FMS	PLTW	Windows cart	1	$1,300.00
FMS	Gen Ed	Windows cart	1	$1,300.00
FMS	Gen Ed	Student WIN laptops	32	$599.00
FMS	PLTW	Student WIN laptops	32	$1,300.00
FMS	Various	80" TV's	18	$3,000.00
FMS	Various	HDTV wall mount	18	$465.00
FMS	Various	HDTV cabling (HD cables)	18	$101.60
FMS	Science/math	iPads	10	$299.00
Site	**Location**	**Item**	**QTY**	**Unit Cost**
FMS	Math/Sci	WACOM tablets	12	$100.00
Wells	Science labs: H-4, H-7, H-28, Industrial Tech Room: H-9	80" HDTV	4	$3,000.00
Wells	Lunch Pavilion	80" HDTV	4	$3,000.00
Wells	Locations above	HDTV's Mounts	8	$465.00
Wells	Locations above	HD Cable	8	$93.00
Wells	Shop Class H-10	70" TV	1	$1,500.00
Wells	Shop Class H-11	70" TV wheel stand	1	$1,500.00
Wells	Shop Class H-12	small DVD player	1	$99.00

Total Hardware Budget: **$509,738.80**
Software Budget (in progress)

Sample Classroom Costs:

Classroom/Site Budget	Unit Costs
Student Chromebook Computers	$300.00
iPad Mini 2 (Kinders)	$279.00
Long throw projectors for MPL/Media Center/HUB	$5,000.00
Cart (12-36 Chromebooks)	$1,300.00
Storage/Charging Locker	$750.00
Purchase Assistive Technology (Based on need)	TBD
DVD player	$100.00
Wireless Access Points	$715.00
Outdoor Antenna	$2,274.00
BW Purchase/lease Printers	$230.00
Color Purchase/lease Printers	$300.00
HDTV	$3,000.00
HDTV wall mount	$465.00
HDTV cabling (HD cables)	$101.60
Fax Equipment	$800.00
Copiers and Scanners (varies based on need)	TBD
DVD/VCR (1-2 per site for checkout)	$100.00
Document Camera (two supported models)	$94.00/$535.00
Scanners Handheld	$190.00
Teacher Podium	$599.0

Addendum:
COMPONENTS INVENTORY/STANDARDS

1. Switches – Brocade as the core switch at each site's MDF

2. Switches – Brocade as IDF switches for each site – POE+

3. - All copper network cable must be Category 6A or better and support 10Gbps.

4. - Fiber single-mode from all IDF's to MDF's – Capable of 100 Gbps (certified)

5. - All fiber network cable must be single mode 50/125 or better and support 100Gbps. - at least om3

6. - 30% free space in all conduits at all times.

7. - Bend radius not to exceed 3 times the diameter of the cable

8. - Cable and installation warranty with signed certificate of no less than 20 years. All cable installations must be accompanied by certification reports

9. - Service loops at MDF / IDF locations 3 meters

10. - Service loops at end points 1 meter (exceptions will be authorized in writing)

11. - Cat6a plenum patch cables which fit into cable management system

12. - Appropriately sized cable management system if not already installed

13. - Cables tied with Velcro or cable management manufacturer recommended solution

14. UPS – Minimum running-time of ½ hour at the sites

15. HVAC – All MDF's have adequate air-flow/conditioning to keep the temperature at a constant 70 degrees

16. Fire Suppression – All MDF's and IDF's should have adequate protection

17. Servers – HP DL360P Latest Gen

18. Storage – Nimble

19. Wireless Controllers – Ruckus

Sample Elementary Site Student/Staff Devices Configuration:

Grade Spans	Student Enrollment	Total Chromebook Devices 2016	Total Classrooms
DKA	26	TBD	1
Grade K	104	TBD	4
Grade 1	104	52	4
Grade 2	104	52	4
Grade 3	104	104	4
Grade 4	84	84	3
Grade 5	84	84	3
Library	N/A	1 cart of 36 (student library searches/homework/projects)	N/A
SDC	45	TBD	3
Specialists	N/A	N/A	N/A
Support Staff	N/A	N/A	N/A
Administrators	N/A	N/A	N/A
Total enrollment 2015	**655**	N/A	N/A
Total	N/A	412	26

Totals	COWS:	Storage/Charging Station:
Grade DKA/K/SDC	1	10
Grade 1	1	4
Grade 2	1	4
Grade 3	4	0
Grade 4	0	3
Grade 5	0	3
Science/Art rooms	0	1
Library	1	0
Total	14	18