Berryessa Union School District

1376 Piedmont Road, San Jose, CA 95132

Pathway to the Future

District Technology Plan
July 1, 2016 – June 30, 2021

Will H. Ector, Jr., Superintendent

Table of Contents

District Summary

Berryessa Union School District is located in the heart of Silicon Valley, nestled against the northeast foothills in San Jose, California. The K-8 School District is comprised of ten elementary schools and three middle schools with a total enrollment of 7,500 students. Middle school graduates attend high school in the neighboring East Side Union High School District. Representing a beautiful spectrum of ethnic and cultural backgrounds, Berryessa pupils experience a well-coordinated curriculum that reflects the commitment to helping each student achieve her/his potential and interests. Challenging educational programs, standards based curriculum, and a strong commitment to excellence produce high pupil achievement. Our students master relevant skills and consistently score above average on state and national tests. Support for all of our students gives each student the opportunity to be a successful learner. We also provide specialized programs in instrumental and choral music, the arts, and physical education and sports.

The Berryessa Education Foundation raises funds and supports programs in the Berryessa Union School District. The Foundation has made technology grants to individual teachers for classroom equipment. The Silicon Valley Education Foundation also provides classroom grants for teachers through its Center of Innovation Program which bridges the gap between the limited technology and information that is accessible to students, parents and educators, and the greater resources available to the technology world at large. They have funded purchase of iPads, Chromebooks, computers and LCD projectors for individual teachers at various school sites within the district. Parent participation in our school district is essential to our success, and we have a number of avenues through which parents can participate. Our Parent, Teacher, School Association (PTSA) meets on a scheduled basis, raises funds through donations and activities, and works on school-wide projects. Elected parents and school staff serve on our School Site Councils and meet monthly to review the academic program and budget and annually approve the use of all categorical funds tied to the Single School Plan. The site councils oversee the school plan for student achievement, and the categorical funds tied to those improvements. The English Language Acquisition Committee (ELAC) meets with the SSC to discuss the needs of English Language Learners. Informal meetings and coffees with site administrators are scheduled to assist families. Parents are also encouraged to volunteer in classrooms, help with lunch yard duty, and volunteer at school dances and field trips, after-school clubs and in special events like our annual "Career Day".

Mission Statement

Berryessa Union School District provides all students the skills to become lifelong learners and successful 21st century global citizens.

Vision Statement

Berryessa Union School District will be recognized for educational excellence in a safe, innovative and inclusive student-centered learning environment, inspiring students, staff and the community.

Core Values

The Berryessa Union School District values:

- Honest and Integrity
- Being Student Centered
- Equity
- Diversity
- Collaboration
- Accountability
- Commitment to Excellence in Education
- Reflective and Visionary Thinking

District Goals

- Ensure a safe learning environment
- Enhance student achievement
- Enhance technology
- Provide professional development for all staff
- Increase parent and community involvement and education

Executive Summary

Technology is constantly changing. In 1965, Intel co-founder Gordon Moore noticed that the number of transistors per square inch on integrated circuits doubled approximately every 18 months. This observation, now called Moore's Law has continued to hold true. Evidence of this progress can be seen in devices such as the smartphone, tablets, smart watches and a myriad of other devices many take for granted today. The latest prediction is that Moore's law will hold until sometime in the 2020s when the physical limits of our ability to create more dense chips will be reached. Other technologies such as nanotechnology and quantum computing likely hold the solution to breaking that expected barrier.

Former US Secretary of Education Richard Riley said, "We are currently preparing students for jobs that don't yet exist, using technologies that haven't been invented, in order to solve problems we don't even know are problems yet." This is the challenge that educators face in the 21st century. Our students have grown up in the world of technology. It is a fundamental and essential part of their lives. Educators face the challenge of utilizing that same technology to provide our students with the skills and knowledge they will need to be productive citizens and life-long learners. That isn't a simple task. It requires educators to change the way that they teach in order to make the most use of these technology resources. It can be difficult to describe how technology can change instruction so teachers are not simply replacing one medium such as paper and pencil with a computer version of the same assignments.

Dr. Ruben Puentedura developed the "Substitution Augmentation Modification Redefinition" (SAMR) model to help educators understand how technology can change instruction by moving to higher levels of technology use.
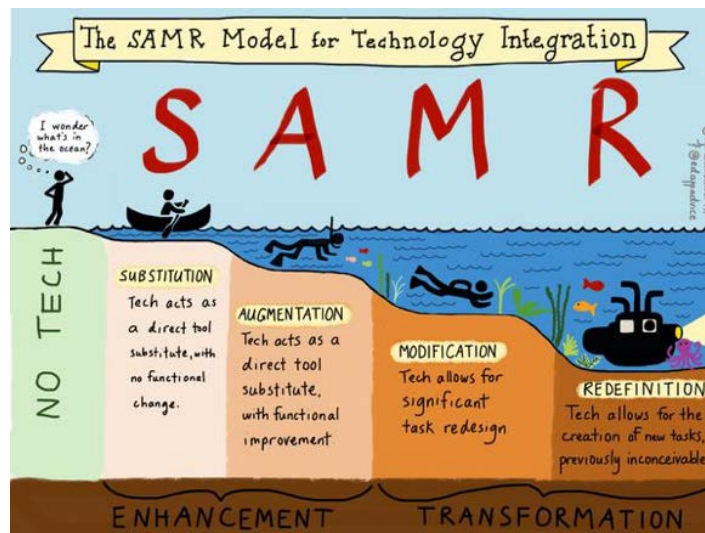
This technology plan has been created to help guide the Berryessa Union School District in its efforts to move from mere substitution towards redefinition along the SAMR model's progression in order to provide the greatest impact on changing teaching and learning in our classrooms. The plan has been developed with input from multiple stakeholder groups over nearly a year of work. The plan will be updated annually to meet the changing needs of the district and changes in technology.

This plan is aligned with the district's Strategic Plan, Local Control and Accountability Plan (LCAP) and other district planning documents and strategies. The plan's five goals directly support and align with those existing goals. The plan's goals are:

- Parent and Student classes in Digital Citizenship are taught annually in all schools.
- Districtwide student technology literacy standards and matching curriculum taught at every school, in every grade.
- Students and teachers have access to the technology tools and technical support when and where they need it.
- Develop teacher technology literacy standards and the professional development to support them.
- Utilize technology tools to increase parent and student engagement and communications.

This plan includes objectives aligned with those goals and a timeline with specific dates and the district staff responsible for ensuring the goals and objectives are reached.

Technology Planning Process

Like many school districts in California, the Berryessa Union School District created technology plans to meet the specific requirements of state and federal technology grant programs. While those requirements have all expired, with a district goal of enhancing technology, the Superintendent and Board of Trustees felt it was important to refocus the district's technology use and adopt a new plan aligned to the district's strategic plan, with a common vision, shared goals, specific objectives and timeline to reach those goals.

At the March 8, 2016 Board of Trustees meeting, the Director of Technology Services presented a 5-step process for the creation of a District Technology Plan.

The District Technology Committee, which includes principals, teachers, classified staff, administrators and a board member, worked through the spring to accomplish the first 4 steps of the planning process. This draft technology plan includes the results of those steps and was shared with the Board of Trustees at their June 21, 2016 meeting. During the fall of 2016, the committee completed the final step, creating a detailed set of objectives covering a 5-year period to guide the district's efforts to reach the district's strategic goals and technology goals.

The completed plan will be shared in draft form with Board of Trustees in March 2017 and brought to the board for adoption at the following meeting. Once adopted, the plan will be shared as widely as possible in the Berryessa community.

This District Technology Plan represents the beginning of an annual process. The Director of Technology Services and the District Technology Committee will update the plan annually in the fall to report progress from the previous year, reviewing goals and objectives for the next five years. The updated plan will be shared with the Board of Trustees and the community each January beginning in the 2017-18 school year.

This District Technology Plan serves as a framework for the District's technology planning efforts and supports the District's existing strategic planning process. The two most recent strategic planning sessions included objectives that prompted the creation of separate documents for a Technology Support Plan and a Technology Maintenance and Replacement Plan. Those separate plans and subsequent documents that result from the strategic planning process will become an integral part of this District Technology Plan as it evolves over time.

Step 1: Look to the Past

During November 2015 through January 2016, the Director of Technology Services met with district leadership and staff to gather information about previous district technology initiatives, needs, strategies and strengths. Those interviews and discussions, along with a review of documents including previous technology plans, board meeting minutes, District Technology Committee minutes, and fixed asset inventory records provided the basis for this plan section.

What is the EdTech history at Berryessa?

As personal computers started to appear in businesses and homes in the 1980s, they also found their way into classrooms across the country. Teachers and administrators saw the potential for those first generation tools to dramatically change the way content was presented in classrooms. Although schools tend to keep technology much longer than anyone else, those first generation machines have long disappeared from the district. In scanning the District's Fixed Assets database, we still have networking equipment in our inventory from 1990, so clearly Berryessa had a substantial network infrastructure as far back as the early 1990s which predates the World Wide Web of the Internet as we know it today. One feels like an archeologist examining the evidence of the various technology projects in that database as the brands of the network equipment changed from Netgear and Allied Telesyn to 3Com, Cisco and then to Brocade or as computers moved from Compaq and Zenith to Dell and Apple.

In those early days, there were likely teachers in every school in the district who saw the potential for technology in education and they used their own money or school budgets, begged, borrowed and wrote grants to bring computers into their classrooms for their students. They were the "cool" teachers that gave many students their first introduction to these basic tools. These pioneers were quick to show their colleagues what they had found. These evangelists were excited about helping their neighbors to join in the fun. Some teachers embraced the change and jumped on board while others were more reluctant or fearful and stuck to their tried and proven strategies. Some saw technology as yet another passing fad of education which could simply be outlasted.

How quickly does the district embrace new technology?

Those working in education technology sometimes suggest that there are three types of teachers when it comes to embracing technology. First, there are the teachers who will use technology no matter whether their principal or the district gives them any assistance. They'll use it no matter what because they see its value. They're the early adopters. Second there are teachers who for some reason are reticent to use technology in the classroom. They might be frightened by not being as technology savvy as their students or concerned that the technology

won't work when they need it in the classroom. Whatever the reason, these teachers look to the tools they've been using for their whole career. Finally, there are teachers who are open to technology but may not quite yet know how to use it or how it can change instruction in their classroom. All three of these groups are evident here at Berryessa although the pool of reticent teachers is shrinking over time.

If one examines the district's various technology projects, there is substantial evidence that the district is quick to embrace new technologies. Here are some examples:

Virtual Desktop Infrastructure (VDI): The district did a widespread adoption of VDI in 2009. The term VDI wasn't even coined until 2006 and Citrix, the leader in that technology, didn't ship their first product until 2007. Clearly the district was an early adopter of VDI technology in education.

Chromebook Deployment: The first Chromebooks, sold by Acer and Samsung began shipping in June 2011. Berryessa bought its first 30 Samsung Chromebooks in March of 2012. The district started experimenting with Chromebooks very early in their history and has gone on to embrace them as many other districts across the country have done since with more than 4,000 deployed districtwide.

Hosted Voice over Internet Protocol (VoIP): Berryessa was one of the first districts in Santa Clara county to move to a fully hosted VoIP solution in late 2012. Many districts followed Berryessa's example.

The term "bleeding edge" is a play on "leading edge" and is frequently used to describe early technology implementations that occur before a solution is mature. The bleeding part of the term is an illusion to the negative impact an early adoption can cause. The decision to be an early adopter of a technology solution can be a difficult one. By adopting early, the district gets earlier access to the benefits of the new technology. Staff and students' use of the technology can improve teaching and learning. Support staff's use of the technology can better serve the district's goals and can result in cost savings. Conversely, some early adoptions can have a bad result, either through problems in implementation or reliability because the products aren't really mature enough for the marketplace or because of an extended learning curve for users and support staff as they work to understand the new technology.

The district has seen mixed results from being an early adopter. In some cases the benefits far outweighed the costs and in other cases it was the reverse.

__Does the district fully embrace all aspects of technology?__

In discussions regarding the district's previous use of technology, some suggested that at times technology initiatives occurred where the technology items themselves were acquired with insufficient planning for the requisite software, professional development, infrastructure or

support. Berryessa is not unique in this way as the technology acquisition piece is typically the easiest part of the project. Providing these less flashy but necessary components for a successful technology project is frequently much more difficult to achieve. It is these non-equipment aspects that can make the difference between whether a technology project is successful changing classroom practices.

The degree to which students, teachers and staff fully embrace a technology is dependent on many factors, including its availability, reliability, their opportunity to experiment, familiarity with using the tool and a clear understanding of the benefits the tool provides. While they may initially embrace the new technology, once the "newness" wears off and they find themselves back in their day-to-day work, the use of the new technology falls away as the daily demands of life get in the way.

What challenges were faced and how were they handled?

Each new technology has brought fantastic new abilities to change teaching and learning as well as both recurring and unique challenges. Many of the challenges are consistent from one technology to another. Some of the consistent and ongoing challenges the district faces in embracing technology are:

- Scheduling high-quality professional development
- Giving teachers sufficient time to experiment with new tools
- Providing adequate and timely technology support
- Providing professional development for support staff
- Developing a regular cycle and funding source for equipment replacement
- Avoiding the use of technology for technology's sake
- Measuring the progress of a technology implementation
- Creating policies and procedures to deal with issues arising from new implementation
- Evaluating the technology from a student's perspective
- Failing to involve stakeholders in planning
- Overcoming resistance to the new technology

Many of these challenges are not unique to technology initiatives. For example, providing professional development and time for teacher experimentation are also a challenge for non-technology resources such as new textbooks, curricula or standards.

One of the district's strengths is its people. As they identified these challenges and others, those leading the district's technology efforts did what the district asked them to do, they innovated. They brainstormed ideas about how to overcome the challenge and selected the best response with what they knew at the time. Some of those first solutions worked and some didn't. When their solutions didn't work, they consulted with their peers and colleagues and tried different approaches until they found something that worked. None of the solutions were

perfect and none of them completely resolved the challenges, but they moved the district forward towards its goals.

What have you learned through past changes?

From a review of the district's past technology projects, a few common lessons arise which are in line with the experiences of other school districts as they have gone through similar projects.

- Implement technology based on a clear understanding and vision of how it will be utilized to improve teaching and learning and not simply a desire to have technology for technology's stake.
- Technology should support, not replace existing district initiatives for instructional improvement.
- Technology projects should be planned with the necessary professional development, support and procedures present in the beginning or at least with recognition of the shortfalls and how they can be mitigated.
- Technology projects should include a process for evaluating the progress in their implementation and the impact or effectiveness.
- Successful technology implementations will involve stakeholders in the planning process.

In our current technology process we should build upon the lessons of the past and utilize them to help make our current and future projects successful in having a positive impact on our students, staff and community. The well-known George Stantayana quote, "Those who cannot remember the past are condemned to repeat it" is just as applicable in technology planning as it is in other aspects of life. As educators, we must endeavor to avoid repeating our past mistakes and create a plan for technology in the district that reflects our past experiences.

Step 2: Look at Now

At their March 7, 2016 meeting, the District Technology Committee performed a Strengths, Weaknesses, Opportunities and Threats (SWOT) analysis of the district's technology efforts. The initial analysis was shared electronically for feedback and reviewed again at their April 18, 2016 meeting. The completed SWOT analysis is included below.

SWOT Analysis Template for Technology Planning Needs Assessment
What is the current reality in our district?

ESSENTIAL CONDITION ONE: EFFECTIVE INSTRUCTIONAL USES OF TECHNOLOGY EMBEDDED IN STANDARDS-BASED, STUDENT-CENTERED LEARNING
ISTE Definition: Use of information and communication technology (ICT) to facilitate engaging approaches to learning.

Guiding Questions:
- *How is technology being used in the district? How frequently is it being used? By whom? For what purposes?*
- *To what extent is student technology use targeted towards student achievement on the California Standards?*
- *To what extent is student technology use aligned to research-based, best practices that are most likely to support student engagement, deep understanding of content and transfer of knowledge? Is day-to-day instruction aligned to research-based best practices?*

Strengths	*Weaknesses*	*Opportunities*	*Threats*
Some teachers are doing really cool things with their technology. Staff and students have Google Accounts which helps with classroom instruction & staff collaboration. Collaboration within classroom and beyond being done in some classrooms. Students have access to iPads, Chromebooks, and Chrome base 1:1 at least 2-3 times per week. Each classroom has an Apple TV, HDMI projector, and doc camera.	While most of what is provided primarily being accessed by teachers, support staff is mostly unaware of what is available and how it's being used. They need this information as well to better support our teachers in supporting our students. Inconsistent WiFi connections.	With bond funding we have the opportunity to update our libraries to be 21st century spaces w/technology Due to our ability to access shared information digitally, besides having PD sessions, teachers can share online. We have the platform; It's time we used it. Integrate technology into curriculum with Pearson Math program (3rd - 5th grade), as well as Think Central for our grades K-2.	Helping our students meet the Common Core State Standards requires us to integrate technology skills into classroom instruction.

Teachers are learning to use Hapara- this helps with digital citizenship. Teachers are using more digital resources (Pearson, Think Central, BrainPop, Scholastic, etc). Students have 1:1 access at school at least 2-3 times per week. Students use Jiji and RazKids online to help with math and reading. Teachers can monitor progress. Robotics enrichment class offered after school. Teachers use Apple TV and iPads/Macbook to make lessons more visually engaging. Technology and online programs used for intervention.			

Summary/Gap Analysis: To a significant degree, teachers and students have access to the technology tools they need. A teacher computer and presentation tools are in almost every classroom. Chromebooks and iPads are available on a shared basis but not generally assigned to individual classrooms. Many teachers are utilizing a variety of resources, but some do not know what is available. Teachers do not typically share technology-based instructional resources. Most school libraries are not a technology hub for their school.

ESSENTIAL CONDITION TWO: SHARED VISION

ISTE Definition: Proactive leadership in developing a shared vision for educational technology among school personnel, students, parents, and the community.

Guiding Questions:
- *Is there an official vision for technology use in the district? Is it aligned to research-based best practices? Is it aligned to state and national visions? Are teachers, administrators, parents, students, and other community members aware of the vision?*
- *To what extent do teachers, administrators, parents, students, and other community members have a vision for how technology can be used to enhance student learning? What do they <u>believe</u> about technology and what types of technology uses we should encourage in the future? Are their visions similar or different? To what extent are their beliefs about these idea, preferred technology uses in the future aligned to research and best practice?*
- *To what extent do educators see technology as critical for improving student achievement on the California Standards? To preparing tomorrow's workforce? For motivating digital-age learners?*
- *What strategies have been deployed to date to create a research-based shared vision?*
- *What needs to be done to achieve broad-scale adoption of a research-based vision for technology use that is likely to lead to improved student achievement?*

Strengths	*Weaknesses*	*Opportunities*	*Threats*
Administrative support to use technology. Parents support and demand technology use in our schools. Brightbytes results showed that a majority of parents, students and educators believed that "technology use in class can enhance student learning." Teachers-84%, Students-67%, Parents-91%	BUSD does not have a shared technology vision.	Silicon Valley is at our fingertips, we should tap into the resources that may be available.	Competing priorities and demands as well as funding volatility can make it difficult for the district to create and implement a shared vision.

Summary/Gap Analysis: There is good support for technology use, but the district lacks a shared vision that has been created and shared widely. The district is not effectively utilizing the resources available in our community to support our technology use.

ESSENTIAL CONDITION THREE: PLANNING FOR TECHNOLOGY

ISTE Definition: A systematic plan aligned with a shared vision for school effectiveness and student learning through the infusion of ICT and digital learning resources.

Guiding Questions:
- *Is there an adequate plan to guide technology use in the district? (either at the district or school level? Integrated into other school plans?)*
- *What should be done to strengthen planning?*

Strengths	*Weaknesses*	*Opportunities*	*Threats*
We have technology in our schools and are working toward a focused plan. We have a District Technology Committee whose members represent a variety of district employees and schools. We have a District Strategic Plan in place that is working towards strengthening our Technology Goals. Sites can develop their tech plan based on the BrightBytes survey results.	Previous technology plans were written to meet specific compliance requirements and were not typically used to focus or guide multi-year efforts.	With our Strategic Plan in place and because it is a 'work-in-progress,' we will need to continue to re-evaluate the Technology goals and objectives to reflect a direction towards meeting our Digital Literacy Standards. Our technology plan can be crafted to support and augment the strategic plan and other initiatives such as LCAP. Technology should be a component of all of our planning, not just for a separate technology plan. The tech plan should focus on the objectives that will help us to reach our overall district goals.	The lack of specific technology plan requirements by external entities could mean that it drops as a priority and doesn't get done.

Summary/Gap Analysis: Past technology planning was primarily externally generated. We have an active District Technology Committee, existing District Strategic Goals and a supportive administration so the environment is good for a technology planning process. It is a good time to tie technology initiatives to district educational initiatives.

ESSENTIAL CONDITION FOUR: EQUITABLE ACCESS

ISTE Definition: Robust and reliable access to current and emerging technologies and digital resources.

Guiding Questions:
- *To what extent do students, teachers, administrators, and parents have access to computers and digital resources to support engaging, standards-based, student-centered learning?*
- *To what extent is technology arranged/distributed to maximize access for engaging, standards-based, student-centered learning?*
- *What tools are needed and why?*
- *Do students/parents/community need/have beyond school access to support the vision for learning?*

Strengths	*Weaknesses*	*Opportunities*	*Threats*
Access exists at home for many students. Access is improving overall for our families. Device access for students and adults. BUSD provided teachers w/ MacBook laptops 2013-14. We have technology and devices across the district. Working on 1 chromebook device for every 2 students.	There are still families who don't have up-to-date technology in the home nor do they have access to the Internet. Hence, there is no equity. Teachers still have to consider that when assigning homework. Students in poverty tend to be limited to mobile devices for their Internet access. No current system to allow students to check out Chromebooks to use at home. By the time the trimester summative report card conference is scheduled, parents feel the communication about their child's progress is too late. Parents need weekly communication. Infinite Campus is not user friendly for parents to keep track of their child's grades or progress. Schoolloop was easier. Both tools are/were not mandated for all teachers to use.	BUSD could open school libraries for extended days to provide access to all students Integrate technology into curriculum with Pearson Math program (3rd - 5th grade), as well as Think Central for our grades K-2. To have equity, some technology for students/families who do not own or who do not have access is needed. An opportunity to have a scheduled after school program offering supervised open time for use by our students to do homework online. Move away from report cards to an online formative communication tool such as Fresh Grade. Students and teachers post students' goals and work weekly, parents receive weekly progress, parents can give their kids feedback, teachers provide students feedback, etc. Provide kiosks at district office and/or schools so parents and students can access online resources.	Changes in technology require regular updates to infrastructure and devices.

Summary/Gap Analysis: Internet access has improved, but it is not yet universal. Not all students have access to technology outside the school day, which limits teacher ability to utilize strategies such as flipped classroom or to include technology components in homework assignments. Parent communication using technology could be improved and existing tools are not easy for teachers or parents to use.

ESSENTIAL CONDITION FIVE: SKILLED PERSONNEL

ISTE Definition: Educators and support staff skilled in the use of ICT appropriate for their job responsibilities.

Guiding Questions:
- *To what extent are educators and support staff skilled in the use of technology appropriate to their job responsibilities?*
- *What do they currently know and are able to do?*
- *What are knowledge and skills they need to acquire?*

(Note: This is about current skills. Essential Condition Six relates to professional development)

Strengths	*Weaknesses*	*Opportunities*	*Threats*
Teachers use Google Drive to share and collaborate. Some teachers are knowledgeable and experienced in utilizing technology and are making good use of the resources available.	Due to either the lack of time, interest or comfort, there are still staff who aren't using technology. The weakness would be in having it, but not using it. Teachers and staff are not widely educated in the use of their technology. Many teachers don't understand what is possible with technology. They don't have a vision of what a technology-infused classroom looks like.	The percentages of teachers who are uninterested in technology is decreasing. Most see the value even if they are not sure how to use it.	Increasing demand for teachers in our area could lead to a difficulty in getting technology-savvy teachers to fill empty positions.

Summary/Gap Analysis: Teacher, administrator and staff technology skills vary widely. Some teachers and administrators do not have a good picture of how classroom instruction can change using technology. Many teachers have good skills in using technology for their own work, but not in instructional use.

ESSENTIAL CONDITION SIX: ONGOING PROFESSIONAL LEARNING

ISTE Definition: Technology-related professional learning plans and opportunities with dedicated time to practice and share ideas.

Guiding Questions:
- *What professional learning opportunities are available to educators? Are they well-attended? Why or why not?*
- *Are the current professional learning opportunities matched to the knowledge and skills educators need to acquire? (See Essential Condition Five)*
- *Do professional learning opportunities reflect the national standards for professional learning (NSDC)?*
- *Do educators have both formal and informal opportunities to learn?*
- *Is technology-related professional learning integrated into all professional learning opportunities or isolated as a separate topic?*
- *How must professional learning improve/change in order to achieve the shared vision?*

Strengths	*Weaknesses*	*Opportunities*	*Threats*
Our existing PD program, Berryessa University Tech PD provided to teachers during release-time collaboration on site or during teacher prep as voluntary. Tech PD on computer basics 101 provided to classified staff on a Thursday on a voluntary basis.	Not having enough personnel or interest to keep the Berryessa University going. We have so much going on that people can't attend Berryessa University. PD on tech is only provided on teachers' own time at some sites. PD to give staff training in what we have and how to utilize it. Coordinating time in schedule and in line with each Negotiated Contract, to offer workshops and PD's on use of technology appropriate to employees. A lot of PD is one-shot rather than a coordinated series, so it can be difficult for teachers to take the new skills back to their classroom and do something new right away.	Increase interest and thereby increasing participation in our own Berryessa University as well as what the SCCOE has to offer. Use webinar for those who could not attend Berryessa University. Have teachers share what they are doing with colleagues in PD sessions. Continued courses and workshops offered by the District will be key in meeting the needs. Allow sites to schedule or design their own Tech PD on Thursdays. Allow for EdTech camps. Partner with SCCOE for EdTech PD such as Leading Edge. New Technology Leads could help	Changing times means new technology that students and staff need to be taught how to use. Lack of tech PD

		provide and support PD at their sites, as well as give current technology trainer a cadre of experienced teachers to work with across the district.	

Summary/Gap Analysis: Technology professional development is available, but at many sites only on an optional basis and many teachers do not avail themselves of what is available. The technology itself needs to be leveraged to deliver professional development in new ways to reach more teachers. The Site Technology Leads could be a great resource to move our professional development forward. The district is not regularly utilizing a platform for teachers to share lessons and other instructional resources.

ESSENTIAL CONDITION SEVEN: TECHNICAL SUPPORT

ISTE Definition: Consistent and reliable assistance for maintaining, renewing, and using ICT and digital resources.

Guiding Questions:
- *To what extent is available equipment operable and reliable for instruction?*
- *Is there technology assistance available for technical issues when they arise? How responsive is technical support? Are current "down time" averages acceptable?*
- *Is technology support knowledgeable? What training might they need?*
- *In addition to break/fix issues, are support staff available to help with instructional issues when teachers try to use technology in the classroom?*

Strengths	*Weaknesses*	*Opportunities*	*Threats*
Our tech support people are friendly and supportive (albeit, stretched too thin) Current staff is talented and helpful. Good protocols at site to keep track of inventory. Current IT dept has talented staff.	We need more Tech Support bodies at the District. Communication from Tech support on repairs needs improvement. Macs are not sufficiently supported. No current plan for replacement of technology. Inventory needs to be managed at site level. Need for point person at each site to be the link between tech support and site No inventory control of devices or proper tracking of devices at most schools. Lots of tech devices at site but inventory takes a long time between all the other things we need to do	Help desk communication and update status. There is a general understanding across the district that more technology support staff are needed.	Length of life for various devices. Day to day management of inventory on sites and knowing what is under warranty and what needs to come to our district support team. Maintaining equipment - Replacement costs for parts and maintenance, due to increased volume.

	everyday. District does not have enough IT staff to complete all the help tickets that have not been closed.		

Summary/Gap Analysis: Our technology support team is talented, willing and able, but there are simply too few of them for the devices we have now, let alone for all of the devices we're adding. The district needs to create a technology replacement/refresh plan. Maintaining the district inventory places a burden on site staff. Communications between sites and technology support staff is inconsistent and sometimes difficult. A single point of contact at each site could improve communications.

ESSENTIAL CONDITION EIGHT: CURRICULUM FRAMEWORK

ISTE Definition: Content standards and related digital curriculum resources.

Guiding Questions:
- *To what extent are educators, students, and parents aware of student technology standards?*
- *Are technology standards aligned to content standards to help teachers integrate technology skills into day-to-day instruction and not teach technology as a separate subject?*
- *To what extent are there digital curriculum resources available to teachers so they can integrate technology in the California content standards as appropriate?*
- *How is student technology literacy assessed?*
- *How is student digital citizenship knowledge assessed?*

Strengths	Weaknesses	Opportunities	Threats
Schools are exploring Digital Literacy Standards Good digital literacy standards are available as a starting basis, Long Beach Unified or Fresno COE EdTech Trainer doing digital citizenship training for students and parents at some school sites.	No assessment of teacher or student technology skills beyond self-reported BrightBytes data. Technology standards are/have not been covered. We don't have academic databases available for students to do their research. Digital textbook resources are being underutilized. Learning resources are selected and acquired on a school by school basis rather being selected and supported through a district wide process. Knowing which tools are most	Digital resources are available for SBAC testing at CAASPP website. Creation of District Digital Literacy Standards would help teachers and students know which technology skills are needed at each grade level and whether students have mastered the skills they need.	Using Google programs only, limits our connectivity with other entities. Doesn't expose our students to software they will use in the real world. (IE: MS Office) Future changes in technology will require updates to the framework to reflect the tools students are using.

effective and give us the biggest impact.		

Summary/Gap Analysis: Learning resources such as the digital resources included with the textbook adoptions are under-utilized and the district lacks access to academic databases for student or teacher research. Each school selects and funds its own online resources eliminating possible cost savings through economies of scale. Not all sites are fully utilizing the digital citizenship resources available.

Step 3: Look Toward the Future

At their April 2016, meeting the District Technology Committee reviewed the results of the SWOT analysis and identified potential areas of focus for technology goals. Over the remainder of April 2016, members of the District Technology Committee completed a Google Form providing feedback on their recommended priorities. The Director of Technology Services tabulated the results of the forms and provided the following summary. The potential areas of focus were aligned to the District Strategic Goals and LCAP goals.

District Strategic Goal: Ensure a Safe Learning Environment
LCAP Goal: Ensure a Safe and Productive Learning Environment for All Students

Parent classes on Digital Citizenship taught annually throughout the district in all schools. 58%

Standardize technology instructional materials on a district-wide basis with an approval process and district-wide purchases. 42%

Create a district-wide effort to adopt standards-based openly licensed digital curriculum resources. 42%

We are in need of an Education Technology Coordinator.

District Strategic Goal: Enhance Communication, Collaboration, Critical Thinking and Creativity
LCAP Goal: Provide CCSS Instruction with Strategic Use of Technology for Proficiency in the 4C's.

Districtwide student technology literacy standards and curriculum including typing taught at every school in every grade. 83%

Migration towards Everywhere, All the Time Learning 42%

Technology supports district educational initiatives. 50%

Implement a user-friendly method for teachers to share and locate technology-based instructional resources aligned to the CCSS. 58%

Increase district emphasis on STEAM using technology resources. 25%

Implement technology-infused instructional strategies such as STEAM, flipped classroom, PBL, blended learning and personalized learning throughout the district. 50%

Provide best practices for technology per content area.

District Strategic Goal: Enhance Technology
LCAP Goal: Provide CCSS Instruction with Strategic Use of Technology for Proficiency in the 4C's.

Increased technical support staff and capabilities needed to support increased use and reliance upon technology in daily instruction. 92%

Students and teachers have the technology tools and support they need. 83%

Implement a district-wide 1:1 Chromebook model. 33%

Implemented a Bring Your Own Device (BYOD) Chromebook model. 25%

Develop a process for regularly replacement of technology devices, including funding. 50%

Make it a district-wide goal with strategies to close the digital divide for BUSD students and families. 33%

We need more support from the district on technology issues. As students and teachers use technology more and more, there needs to be a quicker turnaround on resolving problems.

Increased technology use requires additional technical staff, infrastructure capabilities, hardware/software (technology tools) and web site remodel to support district educational initiatives.

Apple and Microsoft technology for older students should be supported.

District Strategic Goal: Provide Professional Development for All Staff
LCAP Goal: Provide Professional Development for All Staff

Professional development promotes classroom instruction moving to a more active use to allow technology to transform instruction. 100%

Technology Professional Development integrated into all district professional development offerings. They cannot be standalone, volunteer sessions only. 67%

Develop teacher technology literacy standards and professional development supporting them. 100%

Model how to use technology in the classroom as an instructional tool.

Professional development on how to use technology for ongoing assessment and to monitor student progress.

Technology professional development must align to current district initiative: SEAL, PBL, writing units, etc.

Tech Ed Teacher workshops during the summer held at Toyon.

District Strategic Goal: Increase Parent and Community Education and Involvement
LCAP Goal: Increase Parent and Community Involvement and Education

<u>Utilize technology tools to increase parent and student engagement and communications.</u>

Create enrichment programs after school in coding, robotics, etc.

Develop district-wide technology literacy standards and curriculum for students, parents, teachers and staff that would include digital citizenship, keyboarding, basic computer & Internet application, educational software, academic databases, etc.

Step 4: Define Your Goals

At their May 16, 2016 meeting the District Technology Committee reviewed the potential areas of focus from step 3, identified 1-2 areas of focus from each of the 5 strategic plan areas, reviewed the 5/10 Strategic Plan activities and brainstormed potential future objectives. The draft goals were shared electronically for additional feedback through the remainder of May.

District Strategic Goal: Ensure a Safe Learning Environment
LCAP Goal: Ensure a Safe and Productive Learning Environment for All Students

Technology Goal: <u>Parent and Student classes in Digital Citizenship are taught annually in all schools.</u>

5/10 Strategic Plan Objective: By October 1, 2016, the Assistant Superintendent of Educational Services, working with the Director of Technology Services will develop and distribute to the school sites a list of resources to assist staff in educating students and parents about responsible social media.

Discussion:
Video resources
Required completion for students and parents (print certificate to turn in when picking up schedule at MS or in first day packet at elem) before students get access to online resources through district devices.
Self-paced modules for parents.
Lesson/Unit materials packaged by grade level for teachers i.e. Common Sense Media
Lessons available in other languages for parents.
Certificates of Completion for Teachers and Students
Grade Level Digital Contracts

District Strategic Goal: Enhance Student Achievement
LCAP Goal: Provide CCSS Instruction with Strategic Use of Technology for Proficiency in the 4C's.

Technology Goal: <u>Districtwide student technology literacy standards and matching curriculum taught at every school in every grade.</u>

5/10 Strategic Plan Objective: None

Discussion:
Lesson/Unit materials packaged by grade level for teachers to use.
Possible video materials.
Formal training of WORKSPACE in HAPARA
Formal EdTech Professional Development Plan that includes digital literacy standards.

District Strategic Goal: Enhance Technology
LCAP Goal: Provide CCSS Instruction with Strategic Use of Technology for Proficiency in the 4C's.

Technology Goal: <u>Students and teachers have access to the technology tools and technical support when and where they need it.</u>

5/10 Strategic Plan Objectives:
- *By November 1, 2016, the Director of Technology Services with input from each school site, will assess the sites' technology support needs and develop and present to the Cabinet, a Technology Support Plan.*
- *By November 1, 2016, the Director of Technology Services, working with the Instructional Technology Coach and the principals, will develop a process for evaluating tech-based instructional resources.*

Discussion:
Combined two areas of focus.
Includes access to devices, appropriate learning resources, infrastructure, technical support so that staff and students can utilize technology to improve teaching and learning.
Need for equipment replacement plan.

District Strategic Goal: Provide Professional Development for All Staff
LCAP Goal: Provide Professional Development for All Staff

Technology Goal: <u>Professional development that promotes technology in the classroom moving to more active use to allow technology to transform instruction.</u>

Technology Goal: <u>Develop teacher technology literacy standards and the professional development to support them.</u>

5/10 Strategic Plan Objective:
- *By November 1, 2016, the Assistant Superintendent of Educational Services and the Director of Technology Services will provide training on District Information Systems for classified and certificated staff.*
- *By November 1, 2016, the Director of Technology Services, working with the Instructional Technology Coach will update and implement a training schedule available for all staff in utilizing technology.*

Discussion:
Greater use of online professional development, i.e. locally developed videos, videoconference PD sessions, etc.

District Strategic Goal: Increase Parent and Community Education and Involvement
LCAP Goal: Increase Parent and Community Involvement and Education

Technology Goal: <u>Utilize technology tools to increase parent and student engagement and communications.</u>

5/10 Strategic Plan Objectives:

- *Beginning in September 2016 and monthly hereafter, the Assistant Superintendent of Educational Services, working with the Director of Technology Services will utilize the District calendar, school newsletters and District newsletter to promote District workshops and events for parents, including Parent University.*
- *By November 1, 2016, the Instructional Technology Coach, working with the Director of Technology Services and the District Technology Committee, will develop and present to the Board a plan for communicating technology information to parents to increase parent awareness.*
- *In September 2016, Site principals will designate and inform the Superintendent of a trained person (staff or student) who will updated the school's website at least monthly with the school's events and their upcoming dates.*

Discussion:
Related to Strategic Plan objectives in safety section.

Step 5: Identify Objectives

At their meetings on August 29th, September 19th, October 10th, and November 14th, 2016 the District Technology Committee reviewed and discussed the plan objectives. Additional discussion and collaboration took place electronically during that period.

On November 15th, 2016, there was a District Strategic Planning meeting where new district objectives were identified for the following 6 months. Those new objectives were incorporated in these District Technology Plan Objectives.

The Superintendent's Cabinet reviewed these objectives on February 24, 2017 in preparation for discussion at the March 14, 2017 board meeting and submission to the board at the April 11, 2017 meeting.

District Strategic Goal: Ensure a Safe Learning Environment
LCAP Goal: Ensure a Safe and Productive Learning Environment for All Students

Goal 1: Parent and Student classes in Digital Citizenship are taught annually in all schools.	
Year 1: 16-17	*By October 1, 2016, the Assistant Superintendent of Education Services, working with the Director of Technology Services will develop and distribute to the school sites a list of resources to assist staff in educating students and parents about responsible social media.* *By March 15, 2017, the Assistant Superintendent of Education Services, working with the Director of Technology Services, Education Technology Instructional Coach and Social Workers/Counselors will develop and design a district-wide Digital Citizenship Curriculum and Instruction Program (including social media) for parents, staff and students, and present to the Superintendent and School Board.* By May 15, 2017, the Assistant Superintendent of Education Services, working with the Director of Curriculum and Instruction, and the Director of Technology Services will disseminate professional development resources to prepare selected teachers to utilize the district-wide Digital Citizenship Curriculum and Instruction Program with students during the 2017-2018 school year.
Year 2: 17-18	By October 1, 2017, the Director of Curriculum and Instruction, working with the Director of Technology Services will disseminate professional development resources to selected teachers at each school on the district-wide Digital Citizenship Curriculum and Instruction Program so they can utilize it with parents during the 2017-2018 school year. By May 15, 2018, the Assistant Superintendent of Education Services working with principals will ensure that parent and student classes in digital citizenship are taught at all district schools. By May 15, 2018, the Director of Technology Services will create an online training for parents on using the Infinite Campus Parent Portal.
Year 3: 18-19	By October 1, 2018, the Director of Curriculum and Instruction, working with the Director of Technology Services will disseminate professional development resources to selected teachers on the district-wide Digital Citizenship Curriculum

	and Instruction Program for students. By October 1, 2018, the Director of Curriculum and , working with the Director of Technology Services will disseminate professional development resources to selected teachers at each school on the district-wide Digital Citizenship Curriculum and Instruction Program for parents. By December 15, 2018, the Assistant Superintendent of Education Services working with principals will ensure that parent and student classes in digital citizenship are taught at all district schools. By August 1, 2018, the online training for parents on using the Infinite Campus Parent Portal will be available and announced on the district website, district app and the district newsletter.
Year 4: 19-20	By October 1, 2019, the Director of Curriculum and Instruction working with the Director of Technology Services will disseminate professional development resources to selected teachers on the district-wide Digital Citizenship Curriculum and Instruction Program for students. By October 1, 2019, the Director of Curriculum, working with the Director of Technology Services will disseminate professional development resources to selected teachers at each school on the district-wide Digital Citizenship Curriculum and Instruction Program for parents. By December 15, 2019, the Assistant Superintendent of Education Services working with principals will ensure that parent and student classes in digital citizenship are taught at all district schools.
Year 5: 20-21	By October 1, 2020, the Director of Curriculum and Instruction, working with the Director of Technology Services will disseminate professional development resources to selected teachers on the district-wide Digital Citizenship Curriculum and Instruction Program for students. By October 1, 2020, the Director of Curriculum and Instruction, working with the Director of Technology Services will disseminate professional development resources to selected teachers at each school on the district-wide Digital Citizenship Curriculum and Instruction Program for parents.

	By December 15, 2020, the Assistant Superintendent of Education Services working with principals will ensure that parent and student classes in digital citizenship are taught at all district schools.

District Strategic Goal: Enhance Student Achievement
LCAP Goal: Provide CCSS Instruction with Strategic Use of Technology for Proficiency in the 4C's.

Goal 2: District-wide student technology literacy standards and matching curriculum taught at every school in every grade.	
Year 1: 16-17	By May 15, 2017, the Director of Technology Services, working with the Director of Curriculum and Instruction, and the District Technology Committee will recommend to the Superintendent and Board appropriate student technology standards by grade-level.
Year 2: 17-18	By October 1, 2017, the Director of Technology Services, working with the Director of Curriculum and Instruction will share the District student technology standards by grade-level with certificated staff, administrators and parents. By May 15, 2018, the Director of Curriculum and Instruction, working with the Director of Technology Services, District Technology Committee, and the District Technology Curriculum Leadership Team will create and/or identify curricula and appropriate resources including assessments at each grade level to allow teachers to prepare students to meet the student technology literacy standards.
Year 3: 18-19	By September 15, 2018, the Director of Curriculum and Instruction, working with the Director of Technology Services, will provide professional development and collaboration time for teachers piloting the student technology literacy curricula. By March, 2019, the Director of Curriculum and Instruction, working with the Director of Technology Services will ensure that the selected teachers complete the pilot and coordinate sessions for feedback and revisions to the curricula.
Year 4: 19-20	By September 15, 2019, the Director of Curriculum and Instruction, working with the Director of Technology Services, will provide professional development and collaboration time for selected teachers using the student technology literacy curricula.

	By May 15, 2020, the Assistant Superintendent of Education Services working with principals will ensure that the student technology literacy curricula have been taught at every school in every grade.
Year 5: 20-21	By September 15, 2020, the Director of Curriculum and Instruction, working with the Director of Technology Services, will provide professional development and collaboration time for selected teachers using the student technology literacy curricula. By May 15, 2021, the Assistant Superintendent of Education Services working with principals will ensure that the student technology literacy curricula have been taught at every school in every grade.

District Strategic Goal: Enhance Technology
LCAP Goal: Provide CCSS Instruction with Strategic Use of Technology for Proficiency in the 4C's.

Goal 3: Students and teachers have access to the technology tools and technical support when and where they need it.	
Year 1: 16-17	*By November 1, 2016, the Director of Technology Services with input from each school site, will assess the sites' technology support needs and develop and present to the Cabinet, a Technology Support Plan.* *By May 17, 2017, the Director of Technology Services will implement the Technology Support Plan.* *By November 1, 2016, the Director of Technology Services, working with the Instructional Technology Coach and the principals, will develop a process for evaluating tech-based instructional resources.* *By May 15, 2017, the Director of Technology Services, working with the Deputy Superintendent, will present to Cabinet a Maintenance and Replacement Plan for all district technology devices.* By March 31, 2017, the Director of Technology Services will ensure the process for evaluating technology instructional resources is functional and resources have begun to be evaluated.

	By May 15, 2017, the Director of Technology Services working with site principals will identify how to use the school's equipment replacement allocation to replace aging technology devices.
Year 2: 17-18	By November 1, 2017, the Director of Technology Services, working with the Purchasing Manager and the District Technology Committee will investigate and present a recommendation to Cabinet regarding the creation of a program where staff members that are leaving the district may purchase their district technology device.

By November 1, 2017, the Director of Technology Services with input from each school site, will assess the sites' technology support needs and present to the Cabinet, an updated Technology Support Plan.

By November 1, 2017, the Director of Technology Services, working with the Purchasing Manager will begin refreshing technology devices in accordance with the Technology Maintenance and Replacement Plan.

By January 30, 2018, the Director of Technology Services, working with the District Technology Committee will present the board the annual update of the District Technology Plan.

By May 15, 2018, the Director of Technology Services working with principals will ensure that Measure L Bond funds allocated to classroom technology will have been expended. |
| Year 3: 18-19 | By November 1, 2018, the Director of Technology Services with input from each school site, will assess the sites' technology support needs and present to the Cabinet, an updated Technology Support Plan.

During the 18-19 school year, the Director of Technology Services will continue implementation of the technology refresh plan.

By November 1, 2017, the Director of Technology Services with input from each school site, will assess the sites' technology support needs and present to the Cabinet, an updated Technology Support Plan.

By December 15, 2018, the Director of Technology Services, working with the District Technology Committee will present the board the annual update of the District Technology Plan. |

Year 4: 19-20	By November 1, 2019, the Director of Technology Services with input from each school site, will assess the sites' technology support needs and present to the Cabinet, an updated Technology Support Plan. During the 19-20 school year, the Director of Technology Services will continue implementation of the technology refresh plan. By November 1, 2018, the Director of Technology Services with input from each school site, will assess the sites' technology support needs and present to the Cabinet, an updated Technology Support Plan. By December 15, 2019, the Director of Technology Services, working with the District Technology Committee will present the board the annual update of the District Technology Plan.
Year 5: 20-21	By November 1, 2020, the Director of Technology Services with input from each school site, will assess the sites' technology support needs and present to the Cabinet, an updated Technology Support Plan. During the 20-21 school year, the Director of Technology Services will continue implementation of the technology refresh plan. By November 1, 2020, the Director of Technology Services with input from each school site, will assess the sites' technology support needs and present to the Cabinet, an updated Technology Support Plan. By December 15, 2020, the Director of Technology Services, working with the District Technology Committee will present the board the annual update of the District Technology Plan.

District Strategic Goal: Provide Professional Development for All Staff
LCAP Goal: Provide Professional Development for All Staff

Goal 4: Professional development that promotes technology in the classroom moving to more active use to allow technology to transform instruction.	
Year 1: 16-17	*By November 1, 2016, the Director of Technology Services, working with the Instructional Technology Coach will update and implement a training schedule available for all staff in utilizing technology.* *By January 1, 2017, the Director of Technology Services, working with the Assistant Superintendent of Education Services and the Assistant Superintendent of Human Resources will update and share the Google Professional Development 2016-2017 school year calendar with all staff.*
Year 2: 17-18	By April 15, 2018, the Director of Curriculum and Instruction, working with the Director of Technology and the District Technology Committee will develop a plan for integrating instruction in technology into the district's professional development for the 17-18 school year. By May 15, 2018, the Director of Technology Services, working with the Director of Curriculum and Instruction and the District Technology Committee will provide cabinet feedback on the effectiveness of the Site Technology Lead position and make recommendations for the 18-19 school year.
Year 3: 18-19	During the 18-19 school year, the Director of Curriculum and Instruction, working with the Director of Technology will ensure that effective technology use is integrated in the district's professional development.
Year 4: 19-20	During the 19-20 school year, the Director of Curriculum and Instruction, working with the Director of Technology will ensure that effective technology use is integrated in the district's professional development.
Year 5: 20-21	During the 20-21 school year, the Director of Curriculum and Instruction, working with the Director of Technology will ensure that effective technology use is integrated in the district's professional development.

Goal 5: Develop teacher technology literacy standards and the professional development to support them.	
Year 1: 16-17	*By November 1, 2016, the Assistant Superintendent of Education Services and the Director of Technology Services will provide training on District Information Systems for classified and certificated staff.* *By April 15, 2017, the Assistant Superintendent of Education Services, working with the Director of Technology Services will provide mandatory and elective training on District Information Systems for classified and certificated staff in a variety of modes of dissemination (e.g. videos, websites).* From October 2016 through May 2017, the Director of Technology Services will provide monthly professional development sessions in utilizing district technology applications and basic device use.
Year 2: 17-18	By May 2018, the Director of Technology Services working with the Director of Curriculum and Instruction and the District Technology Committee will recommend teacher technology literacy standards to cabinet. During the 17-18 school year, the Director of Technology Services will provide monthly professional development sessions in utilizing district technology applications and basic device use.
Year 3: 18-19	During the 18-19 school year, the Director of Technology Services will provide monthly professional development sessions in utilizing district technology applications and basic device use. During the 18-19 school year, the Director of Curriculum and Instruction, working with the Director of Technology will ensure that effective technology use is integrated in the district's professional development.
Year 4: 19-20	During the 19-20 school year, the Director of Technology Services will provide monthly professional development sessions in utilizing district technology applications and basic device use. During the 19-20 school year, the Director of Curriculum and Instruction, working with the Director of Technology will ensure that effective technology use is integrated in the district's professional development.
Year 5:	During the 20-21 school year, the Director of Technology Services will provide monthly professional development sessions

20-21	in utilizing district technology applications and basic device use.
	During the 20-21 school year, the Director of Curriculum and Instruction, working with the Director of Technology will ensure that effective technology use is integrated in the district's professional development.

District Strategic Goal: Increase Parent and Community Education and Involvement
LCAP Goal: Increase Parent and Community Involvement and Education

Goal 6: Utilize technology tools to increase parent and student engagement.	
Year 1: 16-17	*Beginning in September 2016 and monthly thereafter, the Assistant Superintendent of Educational Services, working with the Director of Technology Services will utilize the District calendar, school newsletters and District newsletter to promote District workshops and events for parents, including Parent University.* *By November 1, 2016, the Instructional Technology Coach, working with the Director of Technology Services and the District Technology Committee, will develop and present to the Board a plan for communicating technology information to parents to increase parent awareness.* *In September 2016, Site principals will designate and inform the Superintendent of a trained person (staff or student) who will update the school's website at least monthly with the school's events and their upcoming dates.* *By January 15, 2017, the Director of Technology Services will launch a new District Parent App to increase parent and District communication.*
Year 2: 17-18	By January 15, 2018, the Director of Technology Services, working with the Purchasing Manager and the District Technology Committee will make a recommendation to cabinet regarding a program to make technology devices and high-speed Internet access available to socioeconomically disadvantaged students whose families cannot afford it. During the 17-18 school year, the Director of Technology Services, working with principals will ensure that the district

	website and school websites are updated at least monthly with events and important information.
Year 3: 18-19	During the 18-19 school year, the Director of Technology Services, working with principals will ensure that the district website and school websites are updated at least monthly with events and important information.
Year 4: 19-20	During the 19-20 school year, the Director of Technology Services, working with principals will ensure that the district website and school websites are updated at least monthly with events and important information.
Year 5: 20-21	During the 20-21 school year, the Director of Technology Services, working with principals will ensure that the district website and school websites are updated at least monthly with events and important information.

Next Steps

The District Technology Plan, like other planning documents, will be updated annually as the district accomplishes the plan's objectives and as the district's needs and technology changes over time. Annually, the Director of Technology Services will work with the District Technology Committee to review progress in meeting the goals and objectives of the plan and to review and refine the plan's goals and objectives to align with the District's Strategic Plan, Local Control and Accountability Plan (LCAP), and other district planning documents and strategies. This review will take place in the fall of each school year with an updated plan, including a report on progress and updated goals and objectives shared with the board in January or February so they can monitor the implementation of the plan.

Through the Strategic Planning process, the district identifies other technology related documents and plans needed to guide the district's efforts to utilize technology to the benefit of students and staff. These related plans will be incorporated into the District Technology Plan as they are created and updated.

Reference Documents

Jenkins, William A., Ed.D., ed. "District Technology Plan 2013-2016." Berryessa Union School District (2013): n. pag. District Technology Plan 2013-2016. Berryessa Union School District, 2013. Web. 06 Feb. 2016. <http://www.berryessa.k12.ca.us/documents/Technology%20Services/BerryessaTechPlan_2013-2016vX.pdf>.

"ISTE Essential Conditions." Essential Conditions. International Society for Technology in Education, n.d. Web. 06 Feb. 2016. <http://www.iste.org/standards/essential-conditions>.

"National Education Technology Plan." Office of Educational Technology. United States Department of Education, Jan. 2016. Web. 06 Feb. 2016. <http://tech.ed.gov/files/2015/12/NETP16.pdf>.

Appendix A: Technical Support Plan

David A. Johnston
Director of Technology Services

1376 Piedmont Road
San Jose, CA 95132-2427

Phone: (408) 923-1884
Fax: (408) 923-0623

Pathway to the Future

Technology Support Plan
November 2016

Background:

During the May 2016 Strategic Planning session, the topic of technical support was discussed by the "Enhance Technology" working group. An objective was created to address the topic:

By November 1, 2016, the Director of Technology Services, with input from each site, will assess the sites' technology support needs and develop and present to the Cabinet a Technology Support Plan.

This is the document described in that objective.

Needs Assessment:

A variety of strategies were used for the needs assessment.

Principal Meetings:

The Director of Technology Services meets with each site principal three times per year to discuss the technology needs of their site. The most recent meetings were held in September and October of 2016. Each principal was asked during the meeting to share how well the Technology Services department was meeting their school's technology support needs and for recommendations on how their school's needs could be better met.

The consensus of principal feedback was that while they felt Technology Services' staff members were capable, they expressed frustration about the amount of time required to resolve issues. They also indicated their feeling that many times they did not receive sufficient feedback from Technology Services regarding the status of their request between the time they submitted it and when it was resolved. They sometimes felt as if the Help Desk ticket dropped into a black hole and that they had to follow up with Technology Services multiple times before the problem was resolved.

BrightBytes Survey data:

In the fall of 2015, the district asked parents, staff and students to complete the BrightBytes Teaching & Learning survey. A portion of the survey covered technology support. Half of teachers reported the quality of technology support was below average or poor. Forty-three percent of teachers reported that support took longer than one week or was unattainable.
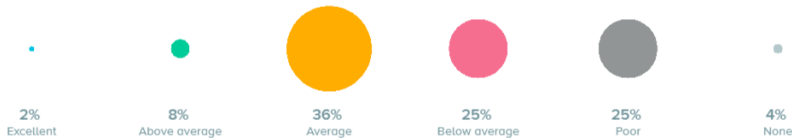
⚠ Teachers report that the quality of support for problems disrupting instruction is

Berryessa Union School District

FRAMEWORK: Technology & Learning
DOMAIN: Environment
SUCCESS INDICATOR: Support
VARIABLE: Quality Of Technology Support Services At School

DATA FROM: Jul 1, 2015 To Dec 31, 2015
FILTERED TO:

2%	8%	36%	25%	25%	4%
Excellent	Above average	Average	Below average	Poor	None

Why This Matters

Teachers are more likely to integrate technology if they perceive tech support quality to be high; it increases confidence that someone will help if problems arise (LEAD Commission Report, 2013).

Citation
LEAD Commission Report. (2013). *Paving a path forward for digital learning in the United States*. Retrieved from
http://leadcommission.org/sites/default/files/FINAL%20LEADComm_PavingPath_Report_091713a.pdf

⚠ Teachers report that the speed of support for problems disrupting instruction is

Berryessa Union School District

FRAMEWORK: Technology & Learning
DOMAIN: Environment
SUCCESS INDICATOR: Support
VARIABLE: Speed Of Technology Support Services At School

DATA FROM: Jul 1, 2015 To Dec 31, 2015
FILTERED TO:

1%	8%	13%	28%	33%	10%	7%
Within one hour	Same day	Within 24 hours	Within 1 week	Longer than one week	Help is unobtainable	Not needed

Why This Matters

'Just in time' tech support builds teachers' confidence and can transform instruction because teachers worry less about loss of instructional time (Burns, 2012).

Citation
Burns, M. (2010, September). How to help teachers use technology in the classroom: The 5J approach. *eLearn Magazine*. Retrieved from
http://elearnmag.acm.org/featured.cfm?aid=1865476

Schools are currently administering the BrightBytes Teaching and Learning survey and another data collection is planned for the spring. The results of those surveys will be reviewed for additional insights regarding technology support.

Technology Services Client Survey:
The Technology Services department distributed a survey to the District Leadership Team and the District Technology Committee in early October 2016. The responses received included administrators, confidentials, teachers, other certificated and classified staff. Of the respondents, 63.2% work primarily at school sites and 36.8% work at the District Office.

Seventy-four percent of those responding reported being satisfied or very satisfied with tech support overall.

4. How satisfied are you with Technology Services' tech support overall?
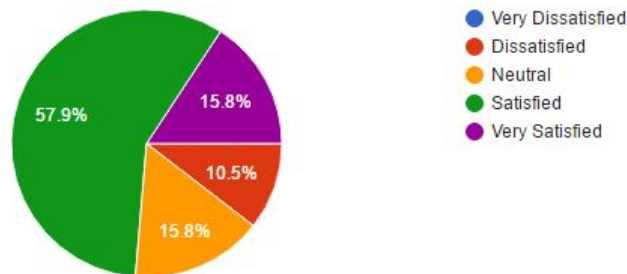
Respondents were asked to describe what would increase their satisfaction with technology support. The common themes were:

- Faster turnaround time
- Make it easier to determine the status of their request through the help desk system
- More frequent and better communications about the status of their request
- More self-help resources

With the exception of the phone system, the majority of respondents were satisfied with other services provided by Technology Services. The percentages responding they were satisfied or very satisfied were:

- Network performance - 68.4%
- Network reliability - 63.1%
- Availability of wireless connectivity - 68.4%
- Email reliability - 89.5%
- Email ease of use - 78.9%
- Infinite Campus ease of use - 68.8%
- Google Apps ease of use - 81.8%, however 72.8% of users reported not using GAFE
- Catapult ease of use - 63.6%
- District website ease of use - 68.4% (before update)
- The Insider ease of use - 72.2%
- Communications from Technology Services to keep you informed - 84.2%
- Amount of communication from Technology Services - About right - 89.5%

While the response to the survey was generally positive, it received a relatively small number of responses. In reviewing the results in light of other information received from stakeholders, we suspect respondents are giving the department credit for their efforts in many of their responses. We are planning another administration of the survey in the spring and we will make an effort to get a wider audience.

<u>Individual Interactions with Staff:</u>
The Director of Technology Services and the Manager of Technology Services frequently receive phones or emails from staff who are frustrated with the lack of response to their help desk tickets. They often report that they feel their requests go unread unless they call someone to complain. In some cases it is a matter of poor prioritization on the part of Technology Services staff, but many times it is simply a matter of a significant backlog of work and poor communication by Technology Services staff with the staff reporting the issues. At present the department has 201 open help desk tickets, some stretching as far back as the 2015-16 school year.

Technology Services staff report that they have difficulty allocating time to preventative maintenance or exploring methods for improving frequently performed tasks such as re-imaging computers, creating student accounts, etc., because of the number of help desk tickets pending.

Summary of Needs Assessment:
After reviewing the various needs assessment results, several common threads appear:

- Staff appreciate the efforts of the Technology Services department
- Staff believe it takes too long for Technology Services to resolve their technology problems
- Staff believe Technology Services does not go a good job communicating with those reporting problems on the status of their requests

Our current level of support discourages some teachers from utilizing technology in the classroom because they believe if there is a technology issue while they are working with their students, they do not have the ability to get just in time support. Unless a teacher is confident in their own ability to deal with technology issues, many are unwilling to risk a technology failure. Many teachers are less open to technology use because of bad experiences where the technology did not work as expected with students and so they fall back to familiar paper and pencil methods of instruction where the risk is lessened.

Technology Services Improvement Plan:
The Technology Services department is making an effort to improve the support it provides to district staff. It has identified three focus areas for the 2016-2017 school year that address the issues identified in the needs assessment.

Focusing on the Big Issues:
Focusing on the big issues refers to making a greater effort to address problems that occur frequently and are affecting multiple users or sites. Too often technology services staff get caught up in responding to individual user requests to the point where they are unable to recognize common problems. The department's leadership, by reviewing service requests, are able to recognize trends and will assign staff to address these recurring issues. Examples include Insider/Catapult password issues, AppleTV connection problems, and student Google account creation and maintenance.

Improving Customer Service:
Technology Services will strive to improve customer services by providing better and more frequent communication with those reporting issues as well as using the systems and tools that we have to better track those issues. The department utilizes the Service Desk help desk software to allow users to request service via a web form or via sending email to support@busd.net. The requests are automatically assigned to a TSS II based on their reporting location. The user receives an automated email informing them their ticket has been received and assigned to a technician. Users frequently do not hear again from technology services until the issue is resolved, when they receive an automated email.

Technology Services has established customer service goals for communicating with users reporting issues. The are:
- Respond to each ticket within 48 hours providing the user with an estimated completion time.
- Except in extreme circumstances, tickets should be closed within 1 week.
- If a ticket is taking longer than 1 week, email the user weekly with an update of the status.
- Staff are to keep tickets updated with the latest information so that the requester and other department staff can easily determine the status of the ticket.

The Manager of Technology Services is reviewing open ticket reports weekly with each Technology Support Specialist to identify instances where customer services goals are not met.

Technology Services is working with the help desk software vendor to modify the system's configuration to make it more user friendly for users to check on the status of their tickets. Depending on the results of those changes, the department may investigate alternative help desk software for the 17-18 school year.

Providing More Self-Help Resources:
By making resources available to district staff to search for and locate solutions to their problems without requiring the intervention of Technology Services staff, users receive a quicker resolution to their problem and the limited technical staff can focus their efforts on issues that can't be addressed by the user alone. The department has created a "Self-Help Resources" page on the Insider which contains documents addressing frequently asked questions and problems. Those users who have utilized the resources have provided positive feedback. Department staff needs to dedicate the time to add resources to the page and make certain more district staff are aware of the resource..

The department is also investigating the knowledge base feature in our help desk system which would allow the creation of a database of solutions that district staff could search to find the answer to their problem.
Technology Services is now offering monthly training on the applications supported by the department in order to help district staff become more familiar with their use and potentially eliminate some help desk contacts that are related to using the system.

Potential Human Resources:

There seems to be a general consensus in the district that with the growing number of technology devices and increasing technology use, our current human resources for technology support are not sufficient. With the addition of about 1,500 Chromebooks this summer to bring us to over 4,000 Chrome devices districtwide, in addition to 900+ iPads, 450 MacBook Pros and 150 desktop PCs along with a large number of peripherals such as printers, telephones, displays and projectors, our district has a large number of technology devices to support and maintain. Districts use a variety of structures to meet their technology support needs. In our district, we have several components we could consider to help better meet our needs.

Site Technology Leads:

Each of our schools has a Site Technology Lead. The job description for the Site Technology Leads includes both technology support and education technology support components. In working with the Site Technology Leads since last year, it quickly became apparent that it would be very difficult for them to provide basic technology support given their assignment is in addition to a full class load. They aren't available during class time, which is typically when staff are using technology with students and need assistance. The level of technology skills of most of the Site Technology Leads are better suited for helping their colleagues effectively utilize technology for instruction than helping them install a printer or troubleshoot a MacBook Pro that doesn't boot. Both types of support are essential, but the Site Technology Leads are better suited for that instructional support than for traditional IT support.

In order for the Site Technology Leads to be able to effectively provide more traditional IT support, we could investigate potentially releasing them from 1 or 2 periods a day so they would have the ability to respond to teacher technology issues during class time. There would also be a need for significant professional development for at least some of them to augment their technology troubleshooting skills.

Library Media Technician (LMT):

Some districts, such as Union Elementary, utilize their LMTs for tier 1 technical support. Our district has a few LMTs whose hours have been augmented by their principal to perform those basic troubleshooting tasks. We may wish to consider something similar on a districtwide basis. Besides the cost of their time, there would be significant professional development required for many of them to augment their technology troubleshooting skills. One potential benefit of using LMTs is that perhaps some of the fixed asset tracking tasks could be incorporated into their responsibilities since they are already familiar with tracking textbooks and other instructional materials.

Technology Services Staffing:

Current Staffing:

The Technology Services department currently has two Technology Support Specialist II positions who are primarily responsible for school technology issues and one Technology Support Specialist III position who supports the TSS IIs and has a primary focus on administering district applications and servers. The three positions report to the Manager of Technology Services who also serves the function of a network manager. The Manager of Technology Services, Director of Technology Services and the District Student Information Services Specialist provide additional technical support as the need for support frequently exceeds the staff available to provide it.

The department's goal is to develop a three-tier support structure over time in order to meet the district needs. That structure would contain the following positions.

Technology Support Specialist I:

The Technology Support Specialist I position would provide first tier support to school sites and district departments.

Technology Support Specialist II:
The Technology Support Specialist II position would provide second tier support, backing up the TSS I staff and to take on larger projects that require additional technical ability.

Technology Support Specialist III:
This position would provide third tier support, backing up the TSS I and TSS II staff and to handle application and server administration for systems such as Google, Infinite Campus, etc., and network support.

Help Desk Technician
This position would primarily provides telephone, email and remote support although they could also visit schools for support occasionally. They would handle routine account creation, password resets and ensure efficient operation of the help desk system by assessing issues reported, communicating with users and resolving other routine issues quickly. This lower level position could allow the TSS I/II/III positions to be more effective in meeting the needs of schools. It could also aid the Director of Technology Services and the Manager of Technology Services who regularly receive phone calls regarding routine issues or following up on help desk tickets that this position could address more cost effectively.

Technology Services Staffing Priority
If a single position could be added, the first priority for Technology Services would be the creation of a Help Desk Technician position. There are three primary reasons. First, it is a lower cost position as it could be at or just under the TSS I position on the salary schedule. Second, this position would support all of the other technical positions in the department. Third, the focus on phone support and quick turnaround items, would provide district staff with an improved impression of the response time for many of their help desk requests.

The next priority would be TSS I positions to increase the number of staff focused on direct school support. Currently the two TSS II positions are assigned to be the primary support for 6 or 7 schools and they share the District Office with the TSS III position. Adding a single TSS I position would change the sites/tech load to 4 or 5 schools and two additional positions would get the load down to 3 or 4 schools per position. It would not yet be an ideal support level, but allowing the TSS I/II positions to support 3 or 4 schools vs. 6 or 7 would have a significant impact on their ability to provide timely support, particularly when teachers are trying to increase their use of the technology resources the district has provided.

Recommendations
- Technology Services will continue to be more efficient and make better use of the resources it has, both in staff and in technology strategies for being more effective.
- Consider the duties of the Site Technology Leads and whether there is potential to free them up from some of their teaching assignment in order to provide more Tier 1 technology support.
- Consider whether the LMT positions could be augmented to allow them to provide Tier 1 support.
- Consider augmenting the Technology Services staff with a Help Desk Technician and potentially 1 or 2 Technology Support Specialist I positions to reduce the number of schools each TSS I/II positions support.
- Over time, through attrition or additional hiring, we should establish a structure of:
  a. TSS I positions supporting sites with Tier I support
  b. TSS II positions providing Tier 2 support and supporting the District Office
  c. TSS III positions providing Tier 3 support and providing Server, Application or Network Support.

FCMAT Sample Job Description

Help Desk Technician

DEFINITION

Under supervision of the support services manager, provides first-level hardware and software technical support to school site and administrative personnel including classroom teachers and aides; query staff on various technological problems, analyze the responses and assist with the solution.

EXAMPLES OF DUTIES

The following duties are typical for this classification. Incumbents may not perform all of the listed duties and/or may be required to perform additional or different duties from those set forth below to address business needs and changing business practices.
• Provides hardware and software support to school site and administrative personnel in a professional manner; effectively communicate step by step instructions via the telephone and site visits.
• Provides basic computer and tablet support services to maintain optimum system operations including preventative maintenance.
• Operates computers utilizing a variety of software applications to prepare documents incorporating text, graphs, and charts.
• Maintains and updates various training, hardware, employee and customer databases.
• Utilizes spreadsheets, database information, scanned objects, and graphics for word processing applications.
• Maintains and updates a customer support (Help Desk) database.
• Provides telephone technical support to customers, including instructional and administrative personnel in a high volume help desk.
• Assists with the computer and tablet installation process.
• Assists with the receiving, inventory and asset database process
• Organizes and prepares software application documentation.
• Creates training certificates and surveys for personnel completing classes.
• May train district personnel in the use of hardware and software.
• Prepares training manuals and orders supplies.
• Screens and schedules personnel into training classes.
• Troubleshoots computer, tablet and printer problems via the phone, site visit, and remotely.
• Maintains records on all technology service requests.
• Maintains confidentiality in preparing privileged and sensitive materials.
• Works with vendors on software and hardware troubleshooting, administration and maintenance.
• Prioritizes and completes work within required deadlines.
• Provides assistance with District technology initiatives as needed.
• Performs other related duties as required.

QUALIFICATIONS

Knowledge of: Methods, tools and equipment used in the support and service of hardware and software; various computer and tablet operating systems, Microsoft Office suite or other word processing, spreadsheet, desktop publishing and database management software; correct English usage,

spelling, grammar, and punctuation; modern office methods, practices, and procedures; current computer technology; basic industry-standard networking principles; current help desk principles.

Ability to: Operate a computer and tablet operating systems; type or enter data at a speed necessary for successful job performance; communicate clearly and concisely both oral and written; demonstrate good interpersonal skills to work with students, teachers, administrators, supervisors, co-workers and vendors; learn new skills to keep current with technology changes; troubleshoot basic network problems; instruct others in the use and care of computer technology and software; adapt to changing technologies and learn functionality of new equipment and systems; work with limited supervision; multi-task while maintaining patience and flexibility; understand and carry out oral and written instructions; establish and maintain cooperative working relationships; comply with the District's customer service standards, as outlined in Board policy.

Education/Experience: Any combination equivalent to: Completion of the twelfth grade, supplemented by training and/or coursework in computer and network operations; and one year computer related experience or any combination of experience and coursework in such areas as installation, configuration, troubleshooting, and repair of computer hardware, software, and peripheral devices preferably in a networked environment.

License/Certificate Requirement: Possession of a valid California Driver's License.

PHYSICAL DEMANDS AND WORKING ENVIRONMENT
The conditions herein are representative of those that must be met by an employee to successfully perform the essential functions of this job. Reasonable accommodations may be made to enable individuals with disabilities to perform the essential job functions.

Environment: Work is performed primarily in a standard office setting.

Physical: Primary functions require sufficient physical ability and mobility to work in an office setting; to stand or sit for prolonged periods of time; to occasionally stoop, bend, kneel, crouch, reach, and twist; to lift, carry, push, and/or pull light to moderate amounts of weight; to operate office equipment requiring repetitive hand movement and fine coordination including use of a computer keyboard; and to verbally communicate to exchange information.

Vision: See in the normal visual range with or without correction. Hearing: Hear in the normal audio range with or without correction.

Appendix B: Technology Maintenance/Replacement Plan

Technology Replacement Plan
March 2017

Background:
During the November 2016 Strategic Planning session, the topic of technology device replacement was discussed by the "Enhance Technology" working group. An objective was created to address the topic:

By May 15, 2017, the Director of Technology Services, working with the Deputy Superintendent, will present to Cabinet, a Maintenance and Replacement Plan for all tech devices.

The plan was shared and discussed with cabinet in February 2017.

Plan Overview:
The Technology Services department reviewed the district's existing equipment inventory and identified five projects that would be the highest priority for equipment replacement. The equipment replacement projects were prioritized based on the age of the existing equipment, current frequency of failure and potential for negative impact on district operations. The projects were placed into one of three priority levels.

1. Immediate Replacement Needed
2. Replacement Needed in 1-3 Years
3. Replacement Needed in 4+ Years

Given the limited resources available for equipment replacement, the focus of this process is on projects in priority levels 1 and 2.

The five projects identified were:
1. District Server Upgrade
2. School Administrative PC Replacement
3. Student Chromebook Refresh
4. Administrator/Teacher Laptop Replacement
5. Disaster Recovery Infrastructure

1 - District Server Upgrade – Priority Level 1
The District acquired two Dell PowerEdge 1000E servers in 2009 to support the technology infrastructure with basic network, file, print and web services as well as the Virtual Desktop Infrastructure (VDI) and server virtualization for applications such as Nutrikids, Insignia, and Read 180. Since they have reached 8 years of age, support is no longer available from Dell. third-party support is quite costly as replacement parts are becoming difficult to obtain. Presently the servers are oversized and underpowered to meet the district's needs. Replacing the servers would provide a warranty and the opportunity for reasonably priced manufacturer maintenance for their support. Additionally, the new servers would provide additional capacity and the ability to retire other physical servers still in use that could be migrated to the server virtualization infrastructure on the new servers. The estimated project cost to replace the servers is $75,000 and the goal would be to acquire the hardware in 16-17 and complete the migration over the summer.

2 - School Administrative PC Refresh – Priority Level 1
When the district moved away from the Virtual Desktop Infrastructure (VDI) solution in 2013, the Wyse clients in use at school sites were replaced with used Dell computers acquired from a third-party company. The machines were 4 years old at the time, so now they are 8 years old and showing their age. At best the machines are slow and unreliable. Two to three of these machines fail each month. Currently Technology Services is replacing them with other similar machines that have been replaced by District Office departments or by utilizing parts from machines that have already failed to keep the existing machines running. These machines are in use by principals, vice-principals, secretaries, clerks, counselors, psychologists and Library Media Technicians (LMTs). The estimated cost to replace the PCs is $56,000 and the goal would be to acquire the hardware in 16-17 and complete the migration over the summer.

3 - Student Chromebook Refresh – Priority Level 2
For each model of ChromeOS device, such as our Chromebooks, Chromeboxes and Chromebases, Google publishes a date for the end of automatic ChromeOS updates. The date isn't the date that the updates will end, but it is the earliest possible date when the updates could end. The date is based on when the device was first available for sale. For BUSD, that could potentially become an issue for the Smarter Balanced Assessment Consortium (SBAC) browser used to administer the state assessment. The browser will only run on a limited subset of ChromeOS versions at any time. If Google were to stop auto-updates for one of the models we use, at some point the supported versions for the SBAC browser would move past the version on those devices. At that time, those devices would no longer be useful for testing. They would still be useful for other classroom use. For the Chromebook models the district currently uses, those dates are:
- Acer C720 – November 2018
- Acer C740 – February 2020
- Acer C738T – January 2021

Unfortunately, since Google does not provide an actual date, but only the earliest possible date, it is impossible to know if and when the testing issue would arise for us. To date, Google has only ended auto-updates for three models of all the Chrome devices ever manufactured. In the worst case scenario, if Google were to stop auto-updates on the listed dates, the district would need to replace all of the Acer C720 Chromebooks during the 2018/2019 school year and the C740 Chromebooks in the 2019/2020 school year. Since those are the bulk of our Chromebook inventory the total cost of replacing them would be in excess of $2M over that two-year period. Since the existing devices would still be useful for regular classroom use, the new machines acquired would further reduce the student to Chromebook ratio below our current 2:1 level.

The district needs to plan for the worst case scenario and identify funds that could be used to complete the replacement during those school years, if necessary. Ideally, Google will delay the end of auto-update until the machines have been in use for a period of 5 years or longer so the replacement can be done over a longer period. Potentially the district could purchase a smaller number of machines to ensure there are sufficient machines available for testing instead of replacing all of the affected Chromebooks.The old machines would still need to be replaced, but could be replaced over a longer period of time.

4 - Administrator/Teacher Laptop Replacement – Priority Level 2
The existing MacBook Pro machines utilized by administrators and certificated staff are in the final year of a 4-year lease. When they were purchased, a 3-year AppleCare maintenance contract was included. The maintenance contract ended in November 2016. Since that date, Technology Services staff members have been repairing minor component problems such as hard drives, displays, etc., on the machines. Some machines need motherboard or other major component replacement that would exceed the value of the machine, so they are not repaired. The lease for the machines expires in November 2017.

The cost to replace all of the MacBook Pro machines with new models would be approximately $800,000. Given the cost and limited resources, staff reviewed how teachers and administrators generally use the MacBook Pros. Typical use is for email, word processing, spreadsheets, presentations, attendance, web browsing, showing videos or other instructional resources in class, etc. The vast majority of this use does not require a MacBook Pro level of machine.

Staff recommends replacing the MacBook Pro machines with business class Chromebooks. These machines are not the Chromebooks currently in use by students. They have larger screens, more powerful processors, more memory and more flash storage. Staff recommends the Acer Chromebook R13 CB5, 13" display, touchscreen, flippable screen that can also function as tablet, 4GB of memory, and 32 GB flash storage.

The cost to replace the MacBook Pros with business class Chromebooks would be approximately $280,000.

The Director of Technology Services met with the District Technology Committee, Cabinet and each principal to discuss this option. The groups all expressed a willingness to consider the Chromebook option and felt that it could potentially meet staff needs. As word of this option spread throughout the district, some teachers have expressed concerns, including:

Concern	Additional Information
Teachers expressed the desire to utilize their devices when they are not connected to a network.	Google apps such as Docs, Sheets, etc., have an off-line mode so staff can continue to work on their files even when not connected and once a connection is re-established the files synchronize.
Teachers expressed the desire for Microsoft Office to be compatible with others outside the district.	Google apps have the ability to read and write common file formats including those utilized by Microsoft Office.
Teachers expressed the desire for Apple TV like screen sharing.	Google Chromecast provides a less expensive solution than AppleTV that allows sharing screens from MacBook Pros, iPads and ChromeOS devices.
Teachers expressed the desire to keep using their existing MacBook Pro.	Teachers could continue to utilize their MacBook Pro as long as the device continues to operate. Technology Services would need to stop repairing the machines due to their age.
Teachers expressed the desire to be able to use specific applications that were not available on Chromebooks.	If a school had teachers who needed to use specific applications not available for the Chromebook, they could purchase one or two MacBook Pros for general school use that could be used as needed. To date, no one has identified a specific application.
Teachers expressed concern that they did not know how to use the Chromebooks.	From talking to staff who were in the district when the MacBook Pros were adopted, there were similar concerns when teachers gave up desktop PCs in order to utilize the MacBook Pros. Professional development would be necessary to help teachers make good use of the new devices.

Beyond the cost savings, there are other benefits from a migration to a Chromebook as the standard administrator and teacher device.

- Teachers would be become more comfortable assisting students in their use of the Chromebooks.
- Teachers would become more familiar with using the G Suite applications and would be more likely to be able to incorporate their use into classroom instruction.
- Google is bringing Android Tablet applications to the Chrome OS platform, so all of those applications would be available for teacher use.
- Chromebooks are easily managed by staff in the Google Management Console to make support easier.

The replacement of these devices should begin in the 2017-2018 school year. The replacement would likely need to occur over a 2 year period. We would need to allow adequate time to transition users to the new platform and to provide appropriate professional development.

5 - Disaster Recovery Infrastructure – Priority Level 2
The district currently backs up files from our Storage Area Network (SAN) which includes our servers that support our district applications to the Santa Clara County Office of Education (SCCOE). In the event of a disaster where our District Office data center became unavailable, the backups from SCCOE could be placed on new hardware obtained after the disaster to move the district towards normal operations. This is a good first step, but more preparation is needed.

SCCOE is currently developing a Disaster Recovery solution for districts that could aid us in the event of a localized disaster that affected our district, but not SCCOE's facilities. Given the potential for disasters to affect a wider area, staff will evaluate SCCOE's new service offering compared to a third-party Disaster Recovery as a Service (DRaaS) provider, who would be able to maintain backups of district data in a geographically diverse location and be able to provide virtualized servers on demand that could be used to replace those damaged by the disaster. By using a DRaaS provider, once the district was able to restore Internet connectivity to the locations where staff members were working, they could utilize the DRaaS provider's servers to begin the return to normal operations. The budget for a basic DRaaS service providing regular backup of important district files and the ability to bring up virtualized servers as needed during a disaster would be approximately $18,000 per year. Staff recommends identifying a Disaster Recovery solution and implementing it during the 2017-2018 school year.

Potential Resources Available:
Potential resources for the equipment replacement projects include E-Rate funds, Microsoft Lawsuit funds, Equipment Replacement Auction Fun, and Measure L Bond Equipment Replacement funds. The resources needed just for these five projects would exceed those currently available. Projects need to be prioritized and alternates considered where available. The Director of Technology Services will continue to work with the Deputy Superintendent to identify additional resources available to implement the technology replacement plan and to determine the most cost effective and beneficial way to utilize the limited resources to meet the needs of the district.

Next Steps:
Updates to the Technology Replacement Plan will be made annually and continue to be part of the Technology Plan update process. Technology Services staff will continue to monitor the status of Google's end of auto-update process and evaluate potential cost-savings opportunities for replacement devices.

Technology Services Technology Replacement Budget

Project	Description	Cost Per Unit	16/17	17/18	18/19	19/20
1 - Server Upgrade - Priority Level 1	Dell Servers housed at District Office data center purchased in 2009 no longer meet the district's needs and must be replaced.	$75,000.00	$75,000.00			
2 - School Administrative PC Refresh - Priority Level 1	Dell PCs purchased used from Partstock Computers in 2013, were already 4-year old machines built in 2009. The machines are slow and unreliable for current use.	$965.35	$55,990.30			
					C720 Replacement	C740 Replacement
3 - Student Chromebook Refresh - Priority Level 2	Google limits how long they will provide software updates to each type of Chrome OS device. To use Chromebooks for SBAC testing, there are a limited number of Chrome OS versions on which the testing software can be run. The dates listed below are the earliest the devices will no longer receive updates.Expiration Dates by Chromebook Model: C720 - November 2018, C740 - February 2020, C738T - January 2021	$475.00			$1,303,875.00	$776,625.00
4 - Administrator/ Teacher Laptop Replacement - Priority Level 2	The existing MacBook Pros are in the final year of their lease. Now that the AppleCare warranty has expired, the load on staff to repair the failing machines has increased with 6-7 machines failing per month. Some failures can be repaired by replacing minor components such as hard drives, batteries, screens, etc.	$630.00		$140,175.00	$140,175.00	
5 - Disaster Recovery Infrastructure - Priority Level 2	In the event of a major disaster where the district's data center is destroyed or severely damaged, the backups of our data would be useful, but cloud servers would be required in order to return to normal operations.	$17500.00 / year		$17,500.00	$17,500.00	$17,500.00
	Total Cost		**$130,990.30**	**$157,675.00**	**$1,461,550.00**	**$794,125.00**