

# CUSD Technology Replacement Update and Overview

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Philosophy adopted by the Governing Board in 2012; regulations revised in 2015

## CUSD Replacement Policy

Efficient productivity for staff and students requires a well-organized computer replacement strategy. The CUSD School Board in 2012 adopted a four year replacement plan (CUSD, 2012) mandating the upgrading or replacement of all computers every four years. This plan follows research and best practices from other educational institutions, such as Stanford University (Stanford University Information Technology Services, 2014). The plan ensures that computer devices will have enough memory and speed to operate current applications and access information as expected by the user.

“[The] three main reasons for PC replacement: **Cost, Productivity and Maintenance.** Studies have shown that replacing a three year old PC with a current system improves a user’s productivity by at least 10% and usually more than 30%.... A new PC will be four times more powerful than the system it is replacing in every case. That equates to faster operation and improved productivity.” (Alvarez, 2015)

Replacing student and staff computers is of utmost importance to support the learning environment. Students must have access to current tools and software for content creation. A four year replacement cycle provides necessary learning devices for students as well as an appropriate total cost of ownership formula.

“When your computer repair costs exceed the value of the computer, it is time to cut your losses. If you are spending more time repairing old computers than using them, a new computer will provide significant ROI [Return on Investment]. ...Faster and newer computers lead to greater...productivity.” (ACE IT Solutions, 2011)

## Staggered Replacement Cycle and Single Enterprise-wide Deployment

CUSD has adopted two strategies for replacement of devices: Staggered Replacement Cycle and Single Enterprise-wide Deployment. The appropriate replacement strategy for district devices is determined based on the device use, purpose, and unique characteristics to ensure that all systems are operating at an efficient level for student and staff use.

## CUSD Staggered Replacement Cycle:

- Replace approximately 25% of computers annually.
- This strategy is appropriate for CUSD Windows OS and Chrome OS upgrades.
- *Why this strategy works for these devices:*
  - The operating systems on Windows machines can accommodate a variety of computer models across users as well as allow the use of legacy software.
  - Chrome machines update regularly and are internet-based devices.

## CUSD Single Enterprise-wide Deployment

- Replace all machines and storage at one time.
- Replacement occurs every four years.
- This strategy is appropriate for CUSD Apple Macintosh operating system and storage.
- *Why this strategy works for these devices:*
  - Apple OS upgrades require large amounts of computer memory in order to perform at appropriate speeds and to avoid crashing machines.
  - Apple operating system upgrades vary greatly from former versions and are often required to use current software programs.

## Current Status of Replacement Cycle as of December 2015

CUSD currently plans for the **four year** replacement cycle of the following devices:

Device	Users	Status
Windows OS PCs	Students and Staff	Staggered Replacement Cycle is current
Macintosh OS Apple Computers	Students	Single Enterprise-wide Replacement is current
Chromebooks	Students	Staggered Replacement Cycle is current
Windows OS Netbooks	Students	Staggered Replacement Cycle is current

ACE IT Solutions. (2011). PC Replacement Cycle: Is it Time for a New Computer? *IT Consulting NJ*, <http://goo.gl/QB5yti>.

Alvarez, L. (2015). Computer Replacement Best Practices. *Alvarez Technology Group, Inc.*, <http://goo.gl/1CAZ6Y>.

CUSD. (2012). CUSD Technology Plan. <http://goo.gl/F4ZPC4>.

Information Week. (2005). The PC Replacement Decision. *Information Week*, <http://goo.gl/GbSQAI>.

Stanford University Information Technology Services. (2014). IT Services Recommendations on When to Replace Aging Computers. <https://goo.gl/krLbtA>.

## **5B Infrastructure Needed to Support Curriculum and Professional Development**

The continued and on-going demand for new technology instructional enhancements will continue to drive the need for a) increased access, b) greater security for students and system c) integrated systems and d) highly-skilled technology staff.

A few examples of currently planned technology advancements that will drive this demand include:

1. Increase focus on data analysis and Testing and Assessment with tools such as NWEA Map and Compass Learning, where multimedia must be delivered in a wireless environment. These increased assessments also include the individualized needs of special populations (Special Education, English Learners, etc.)
2. The adoption of Digital Textbooks for more and more classes
3. The development of a “virtual” school without classroom walls
4. More students bringing their own devices with latest-version operating system and applications
5. On-going communication and collaboration between home and school
6. An increase in web-hosted and cloud-based applications and software delivery
7. The pending roll-out of the new California assessment system which promises full multimedia involvement of the learner
8. Expansion of the television and visual arts programs within the District
9. Continued 1:1 expectations both at home and at school
10. Improved and integrated systems for Business Services (payroll, calendars, personnel systems, etc.)
11. Continued need and focus on security (facility access, security cameras, etc.)

### **Hardware and Learning Resources Needed to Support Curriculum and Professional Development**

Of critical importance is the overarching Coronado “standard of excellence” expectation within the District’s surrounding community that demands that students be offered an outstanding educational experience. Technology resources are assumed to be a part of that expectation. To that end, the District network must “expand-on-demand” and this technology plan includes this expectation based on the availability of funding and long-term District goals. The curriculum and professional development components of the plan will increase the use of computers and the Internet. Computers must be upgraded or replaced every four years in order to have enough memory and speed to access information in a timely manner. Mobile technology, including carts and tablets, will be acquired to support the district’s planned implementation of 1:1 learning environments. Learning Management System accounts will be acquired to aide in online curriculum development, assessment and communication.

### **Technical Support Needed**

Professional development for District technology staff must be built-in with every new technological advance. As time passes, the skills included in Level One support will become more and more advanced. Technology staff must be trained and appropriately compensated for accepting and actively seeking the responsibility and training needed for both the depth and breadth that will grow exponentially as technology increases.

If additional funding were made available, an increase in IT and TRT support positions would benefit the district. TRT positions are currently part time at each school site. With a growing amount of technology integration, the district students and staff would benefit from full time TRT positions for each school site, organized under a district Technology Support Department.

## **5C - 5D- Infrastructure Benchmarks, Monitoring and Evaluation**

All eight curriculum objectives discussed thoroughly in Sections 3 as well as the professional development objectives in Section 4 of this plan require continued progress in providing all technology users with:

1. Increased access to technology
2. Greater security for students and systems
3. Seamless/integrated systems

The clear annual benchmarks, timeline and monitoring/evaluation plan is presented below for each of these three areas.

## 5C - 5D Benchmarks and Monitoring and Evaluation

Goal 5c1: Increased access to technology				
Objective 5c1 By June 2015, students and staff will have ubiquitous access to District technology resources				
<b>Year 1 Benchmark (June 2013):</b>				
<ul style="list-style-type: none"> <li>• Create a “Manufacturers End of Life” replacement schedule for all Network Core and end-user equipment. Replace items at EOF.</li> <li>• STEPS Grant provides additional funding for netbooks and select learning software</li> <li>• Secure adequate Level One, Two and Three service and maintenance agreements</li> <li>• New Authorized Use Policy (AUP) for Student Safety, Ethical Technology Use</li> <li>• Online registration materials and resources are available and online registration is piloted</li> <li>• Online/hosted storage for hosting curriculum, LMS, assessment data and student files is analyzed</li> <li>• Parent/home notification system is selected and implemented for a pilot population</li> <li>• Wireless and wired access from every classroom and student-space is re-assessed using sophisticated technology tools and user surveys</li> <li>• Community hot-spots are identified (Navy base, libraries, community centers, parks, etc.)</li> </ul>				
<b>Year 2 Benchmark (June 2014):</b>				
<ul style="list-style-type: none"> <li>• Replace EOF Core Equipment and continue service and maintenance agreements</li> <li>• STEPS Grant provides additional funding for netbooks and select learning software</li> <li>• AUP is delivered and managed online</li> <li>• Online registration is secure and expanded to all sites</li> <li>• Online/hosted storage both hosted and on-site is planned, acquired and implanted as a pilot</li> <li>• Parent/home notification system is modified as needed and expanded district-wide</li> <li>• Wireless and wired access from every classroom is functioning at a transparent level of efficiency</li> <li>• Community hot-spots are piloted for anytime-anywhere access to District learning resources</li> </ul>				
<b>Year 3 Benchmark (June 2015)</b>				
<ul style="list-style-type: none"> <li>• Replace EOF Core Equipment and continue service and maintenance agreements</li> <li>• STEPS Grant provides additional funding for netbooks and select learning software</li> <li>• Online registration includes all forms management</li> <li>• Online storage is expanded, secure and easily accessed</li> </ul>				
<b>Year 4 Benchmark (June 2016):</b>				
<ul style="list-style-type: none"> <li>• Replace EOF Core Equipment and continue service and maintenance agreements</li> <li>• AUP infraction handling is managed and consistent</li> <li>• Parent/home notification system includes roll-out of additional features (forms, surveys, etc.)</li> <li>• Wireless and wired access from every classroom is improved as needs change</li> <li>• Community hot-spots are expanded</li> </ul>				
5D Monitoring and Evaluation				
Goal	Activities	Time Frame	Staff Responsible	5d Monitoring and Evaluation Action
5c1	Identify end of life equipment via inventory process and procedures.	2012-2013 School Years	Technology Coordinator IT Clerk IT Staff	Current inventory available via GoogleDoc file
5c1	Interview and select tech support providers for leveled support	2013-2014 School Years	Technology Coordinator IT Clerk IT Staff	Provider selected, contract signed
5c1	AUP revised	2014-2016 School Years	Curriculum Director Technology Coordinator TRT Staff	Revised AUP posted <a href="http://www.coronadousd.net">www.coronadousd.net</a>
5c1	Online registration product researched, selected, implemented	2012-2016 School Years	Curriculum Director Technology Coordinator Site Registrars Site staff leaders TRT Staff	Online registration website available for student registration
5c1	Online storage host product researched, selected, implemented	2012-2016 School Years	Technology Coordinator IT Clerk IT Staff	Online storage available, link posted <a href="http://www.coronadousd.net">www.coronadousd.net</a>
5c1	Wireless hotspots identified and mapped, growth needs identified	2012-2016 School Years	Superintendent Technology Coordinator IT Staff	Map available and growth needs charted

## 5C - 5D Benchmarks and Monitoring and Evaluation

Goal 5c2: Greater Security for Students and Systems				
<b>Objective 5c2</b> By June 2016, students and systems will have improved security measures in place				
<b>Year 1 Benchmark (June 2013):</b>				
<ul style="list-style-type: none"> <li>Analyze current state of “physical access” to students and systems</li> <li>Analyze current state of “electronic access” to students and systems</li> </ul>				
<b>Year 2 Benchmark (June 2014):</b>				
<ul style="list-style-type: none"> <li>Develop a plan to reduce inappropriate “physical access” to students and systems</li> <li>Develop a plan to reduce inappropriate “electronic access” to students and systems</li> </ul>				
<b>Year 3 Benchmark (June 2015):</b>				
<ul style="list-style-type: none"> <li>Implement the plan to improve security for the “physical access” to students and systems</li> <li>Implement the plan to improve security for the “electronic access” to students and systems</li> </ul>				
<b>Year 4 Benchmark (June 2016):</b>				
<ul style="list-style-type: none"> <li>Evaluate the plan to improve security for the “physical access” to students and systems, make appropriate adjustments</li> <li>Evaluate the plan to improve security for the “electronic access” to students and systems, make appropriate adjustments</li> </ul>				
5D Monitoring and Evaluation				
Goal	Activities	Time Frame	Staff Responsible	5d Monitoring and Evaluation Action
5c2	Intrusion Detection: Assess the physical access and monitoring at all MDF and IDF locations, key file servers (locks/cameras, alarms, system alerts)	2012-2014 School Years	Technology Coordinator District Safety Rep	Current report available via Googledoc file
5c2	Intrusion Detection: Assess the ability to hack or otherwise breach or use electronic systems for harmful purposes (student, staff information, web content, bullying, threats, etc.)	2012-2014 School Years	Technology Coordinator District Safety Rep	Current report available via Googledoc file
5c2	Facility Failure: Assess the status of electrical, fire and water, earthquake alarms in all MDF, IDF and key server locations	2012-2014 School Years	Curriculum Director District Safety Rep	Current report available via Googledoc file
5c2	Regularly test the backup-restore functionality of key systems	2012-2016 School Years	Technology Coordinator	Tests scheduled Tests reviewed Corrections made
5c2	Plan and implement security plans as specified	2014-2016 School Years	Technology Coordinator District Safety Rep Consulting Engineers	Written plans included in District Safety Report
5c2	Review and revise plans as needed	2014-2016	Technology Coordinator District Safety Rep Consulting Engineers	Annual review meeting help with revisions noted.

**5C - 5D Benchmarks and Monitoring and Evaluation**

<b>Goal 5c3: Seamless / Integrated Systems</b>				
<b>Objective 5c3</b> By June 2016, students and systems will use “seamless and integrated” systems				
<b>Year 1 Benchmark (June 2013):</b>				
<ul style="list-style-type: none"> <li>Identify and prioritize systems to “seamless integrate” evidenced by a “single-logon”</li> </ul>				
<b>Year 2 Benchmark (June 2014):</b>				
<ul style="list-style-type: none"> <li>Integrate systems per priority</li> </ul>				
<b>Year 3 Benchmark (June 2015):</b>				
<ul style="list-style-type: none"> <li>Integrate systems per priority</li> </ul>				
<b>Year 4 Benchmark (June 2016):</b>				
<ul style="list-style-type: none"> <li>Integrate systems per priority</li> </ul>				
<b>5D Monitoring and Evaluation</b>				
<b>Goal</b>	<b>Activities</b>	<b>Time Frame</b>	<b>Staff Responsible</b>	<b>5d Monitoring and Evaluation Action</b>
<b>5c3</b>	Identify/Prioritize: MS Exchange, Active Directory, Phone System (CM), Voice Mail (Unity), Genesis sub-systems (Accelerated Reader, etc.), web-subsystems (Google, etc.)	2012-2016 School Years	Technology Coordinator District Safety Rep	Current report available via Googledoc file

**5 D Description of Monitoring Process**

The Benchmarks and Timeline for the Infrastructure section are laid out above. Each chart describes goals, objectives, and benchmarks for its section. Additionally targets are defined, evaluation tools and data to be collected to determine attainment levels are specified, and who is in charge when the evaluation is performed is stated. Using the timeline section of each goal and objective, it is discernible as to what steps will be taken, by whom, and when. The Technology Coordinator, along with other designated district and site administrators will be responsible at least twice yearly to initiate the appropriate evaluation sequence for each goal and objective of this section of the plan. Data collection and assessment of objectives achieved will be shared with and overviewed by appropriate stakeholders. A “feedback loop” will be used to decide if adjustments to the plan goals and/or timeline need to be made.

## 6 BUDGET COMPONENT

### 6A Established Funding Sources and Cost Savings

#### Existing and Potential Funding Sources

The table below indicates available revenue resources available for technology projects.

Funding Source	Established	Potential	Description
E-RATE	Yes	Yes	CUSD currently has an E-Rate Discount that can be used against telecommunication and Internet services.
EETT	Yes	Yes	Helps the district pay for technology related staff development.
Coronado Schools Foundation	Yes	Yes	CUSD schools have gained valuable hardware, software, and program support from contributions provided by CSF. Technology Resource Teachers and STEAM programs have been supported by CSF.
General Fund/Fund 40	Yes	Yes	Pays for the salaries of Technology Department and for hardware and software, including replacement hardware.
School Site Improvement Funds	Yes	Yes	Helps schools purchase hardware and software.
School Site PATT/PTO	Yes	Yes	Helps schools purchase hardware and software. Also supports printer toner and projector bulb replacement.
FF&E	Yes	Yes	Helps the district pay for staff development.
Title II Funds	Yes	Yes	Helps Silver Strand Elementary pay for hardware and software.
STEPS Grant	Yes	Yes	Helps pay for netbooks and educational software.

Between the 2007 and 2012 school years, funding to support the on-going maintenance and improvement goals for technology use have included the following budget resources: General Fund, Coronado Schools Foundation grants, lottery funds, Title II funds, pass-thru funding, supplemental grant funds, state block grant funds, and SATT 21Grant (now STEPS Grant). School sites have further supported technology goals with School Improvement Funds, and parent/teacher organization fundraising events. The leadership of the superintendent, school site administrators, and school tech team members, and funding for staff development sessions during the regular school day provide in-kind support.

In the 2011-2012 school year we received approximately \$62,339 in E-Rate related discounts. Whenever possible, we purchase equipment and licenses in volume which usually means a cost savings. Equipment is acquired using the pricing in purchasing consortiums such as the North County Bid list or through state contracts like California Multiple Awards Schedules (CMAS). When required by District policy or California state law, the District conducts a process of obtaining a minimum of three price quotes or opens up a bidding process.

The level of support from the general fund will continue in the future. The Coronado Schools Foundation as well as fundraising done by the parent-teacher organizations at each school site will also continue to support improvements. E-Rate applications are completed each year, however, funding for internal connections is not expected due to our high socio-economic status. In-kind services will support the leadership to implement the plan, staff development time to continue ongoing staff development opportunities, and guidance from the San Diego County Office of Education.

The District staff is on listserv email notification regarding grants and other monies as part of the process to look for new funding sources. Applications are made throughout the year for grants and corporate partnerships. The District was recently awarded the STEPS Grant to provide additional funding for netbooks and select learning software. This grant will span a three year time period, from the 2012-2013 through the 2014-2015 school years.



**6 B Estimate of Implementation Costs**

<b>Budget</b>	<b>Year 1 2012-2013</b>	<b>Year 2 2013-2014</b>	<b>Year 3 2014-2015</b>	<b>Year 4 2015-2016</b>	<b>Justification for Expense</b>
Certificated Employees	\$144,257	\$146,820	\$149,820	\$152,870	Salary FTE Technology Coordinator Salary Part Time CHS TRT (3 periods per day) Salary Part Time CMS TRT (3 periods per day)
Classified Employees	\$210,953	\$213,062	\$215,193	\$218,287	Network Supervisor Network Support Technician Computer Technician – FTE Computer Technician – Part Time IT Clerk – Part Time Part Time Silver Strand TRT (15 hours/week) Part Time Village TRT (19.5 hours/week)
Employee Benefits	\$39,073	\$39,587	\$40,151	\$40,827	Estimated 11% of the amount listed in budget for all employee benefits.
Desktop Replacement	\$191,000	\$116,450	\$5,000	\$50,000	4 year desktop computer replacement cycle
Netbook Replacement	\$117,000	\$117,000	\$117,000	\$117,000	3 year netbook replacement cycle
Projector Replacement	\$90,000	\$90,000	\$90,000	\$90,000	Projector Replacement Cycle
New Netbook Cart Purchase	\$130,000	\$130,000	\$130,000	0	Additional netbook carts, \$130,000 per year for three years using STEPS Grant funds
Apple Replacement	0	0	0	\$320,000	Desktop and Server Replacement
Hardware Maintenance	\$1300 \$10,000 \$22,000 \$9,950	\$1300 \$10,000 \$22,000 \$9,950	\$1300 \$10,000 \$22,000 \$9,950	\$1300 \$10,000 \$22,000 \$9,950	iOS Device Repair Projector Bulb Replacements Computer repair parts and printer cartridges Support for repair and maintenance of routers, hubs, data lines, and electrical
Software Licenses and Maintenance	\$97,150	\$97,150	\$97,150	\$97,150	Annual licenses and one time purchases of software such as Microsoft Office, BrainPop, Digital Content Portal and others. Web Filter Lightspeed, Sophos Antivirus Cisco SmartNet
Telecom Maintenance	\$10,000	\$10,000	\$10,000	\$10,000	Increase Bandwidth
Application Support (Synergy/FIS)	\$57,000	\$57,000	\$57,000	\$57,000	Support from San Diego County Office of Education for Synergy Student Information System and FIS System.
Server Infrastructure Equipment	\$210,000	\$239,057	\$210,000	\$210,000	Maintain, repair, replace infrastructure equipment 10% maintain 20% amortized cost to replace (5 year cycle) Current Equipment cost includes – Cisco Gear, ESX Farm, ESX Licenses, APC UPSs, VM Ware, SmartNet \$38,000/year, UPS Equipment Expand Virtual server and software upgrades Virtualize print server, existing domain controllers
Website Management	\$20,000	\$20,000	\$20,000	\$20,000	Annual license for Website management, hosting, and LMS license.
Staff Development	\$15,000	\$15,000	\$15,000	\$15,000	Staff development for IT Dept. personnel and CUSD staff for use of various software programs
Data Cabling and Infrastructure Equipment	\$70,000	\$70,000	\$70,000	\$70,000	Annual costs for maintenance and upgrades of infrastructure and cabling
Vendor Contracts	\$70,000	\$70,000	\$70,000	\$70,000	Vector, etc.
Tech Expansion, Growth, New Projects	\$90,000	\$149,861	\$90,000	\$90,000	Additional technologies, such as tablet devices and software systems. Informacast Upgrade AD for Unified Messaging Increase size backup system

A district wide budget committee is convened each spring to analyze the Strategic Plan's projected expenses, consider all ongoing operational expenses, and understand the projections on the state budget. A proposed new budget plan is presented to the Board of Education each June for approval. This is a dynamic process which is thoroughly conducted with stakeholders' involvement of staff and community members. Budgets for each ensuing year will be prepared in this manner.

### **6 C Replacement Policy**

The curriculum and professional development components of the plan will increase the use of computers and the Internet. Computers must be upgraded or replaced every four years in order to have enough memory and speed to access information in a timely manner.

Budgeted costs for Desktop Replacement and Netbook Replacement are included in the chart in Section 6B.

### **6 D Monitoring Process**

The superintendent is responsible for recommending and monitoring the funding and budget decisions. Specific tasks include developing a proposed budget during the district budget planning cycle each year (February to May) and monthly monitoring of expenditures. The technology staff and each school site technology committee are responsible to provide input into the budget plan for the District expenditures as well as each school's site budget plan. Additionally, the school site technology staff maintains an updated inventory of hardware and software along with a schedule for upgrades and replacements.