FCMAT
FISCAL CRISIS & MANAGEMENT ASSISTANCE TEAM
CSIS California School Information Services

Saint Helena Unified School District

Technology Review

April 8, 2014

Joel D. Montero
Chief Executive Officer

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CSIS California School Information Services

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Bob Ferguson, Interim Superintendent
St. Helena Unified School District
465 Main Street
St. Helena, CA 94574

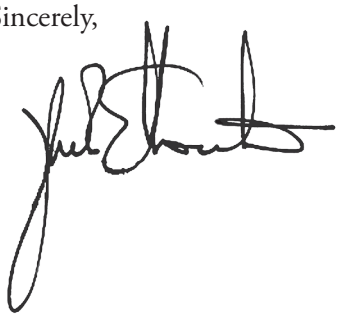
Dear Interim Superintendent Ferguson:

In December 2013, the St. Helena Unified School District and the Fiscal Crisis and Management Assistance Team (FCMAT) entered into an agreement for a review of the district's technology programs and services.

This report contains the study team's findings and recommendations.

We appreciate the opportunity to serve you and extend thanks to all the staff of the St. Helena Unified School District for their cooperation and assistance during fieldwork.

Sincerely,



Joel D. Montero
Chief Executive Officer

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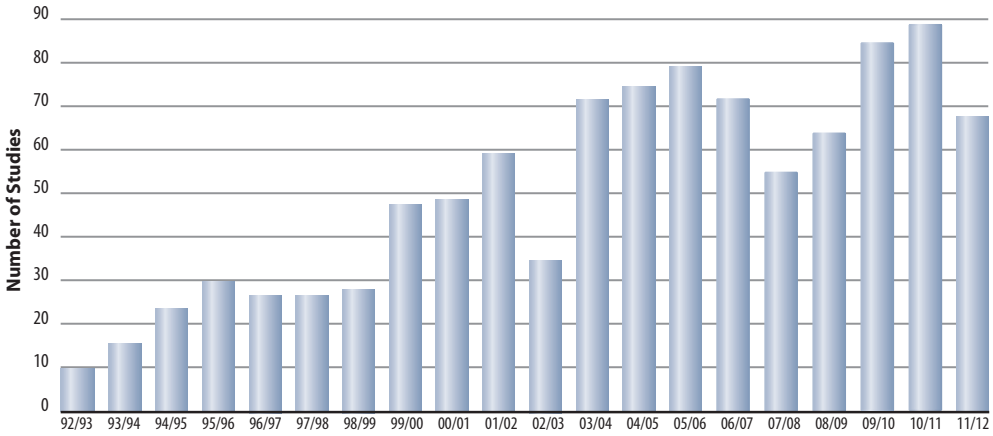
About FCMAT

FCMAT's primary mission is to assist California's local K-14 educational agencies to identify, prevent, and resolve financial and data management challenges. FCMAT provides fiscal and data management assistance, professional development training, product development and other related school business and data services. FCMAT's fiscal and management assistance services are used not just to help avert fiscal crisis, but to promote sound financial practices and efficient operations. FCMAT's data management services are used to help local educational agencies (LEAs) meet state reporting responsibilities, improve data quality, and share information.

FCMAT may be requested to provide fiscal crisis or management assistance by a school district, charter school, community college, county office of education, the state Superintendent of Public Instruction, or the Legislature.

When a request or assignment is received, FCMAT assembles a study team that works closely with the local education agency to define the scope of work, conduct on-site fieldwork and provide a written report with findings and recommendations to help resolve issues, overcome challenges and plan for the future.

Studies by Fiscal Year



FCMAT also develops and provides numerous publications, software tools, workshops and professional development opportunities to help local educational agencies operate more effectively and fulfill their fiscal oversight and data management responsibilities. The California School Information Services (CSIS) arm of FCMAT assists the California Department of Education with the implementation of the California Longitudinal Pupil Achievement Data System (CALPADS) and also maintains DataGate, the FCMAT/CSIS software LEAs use for CSIS services. FCMAT was created by Assembly Bill 1200 in 1992 to assist LEAs to meet and sustain their financial obligations. Assembly Bill 107 in 1997 charged FCMAT with responsibility for CSIS and its statewide data management work. Assembly Bill 1115 in 1999 codified CSIS' mission.

AB 1200 is also a statewide plan for county offices of education and school districts to work together locally to improve fiscal procedures and accountability standards. Assembly Bill 2756 (2004) provides specific responsibilities to FCMAT with regard to districts that have received emergency state loans.

In January 2006, SB 430 (charter schools) and AB 1366 (community colleges) became law and expanded FCMAT's services to those types of LEAs.

Since 1992, FCMAT has been engaged to perform nearly 850 reviews for LEAs, including school districts, county offices of education, charter schools and community colleges. The Kern County Superintendent of Schools is the administrative agent for FCMAT. The team is led by Joel D. Montero, Chief Executive Officer, with funding derived through appropriations in the state budget and a modest fee schedule for charges to requesting agencies.

Introduction

Background

The St. Helena Unified School District is located in Napa County and serves more than 1,200 students in kindergarten through grade 12 at four schools. Community groups provides additional funding and support to improve education for the district's students. In November 2012, the district also passed bond Measure C to upgrade classrooms and instructional technology.

In September 2013, the district requested that FCMAT review its technology programs and services. The study agreement specifies that FCMAT will perform the following:

> The district is requesting FCMAT to provide a comprehensive analysis of the state of the district's technology, including hardware, software, professional development, departmental staffing, student assessment and accountability requirements and technology use.

1. The team will review and analyze the district's technology and educational master plans, including an endowment for upgrading the district's technology needs over the next 10 years, and make recommendations. The technology review will include an analysis of the staffing levels and organizational support for the following:

   a) User, desktop and workstation support

   b) Network administration

   b) Website development and support

   c) Email support for district and site level staff

   d) Student attendance system

   e) Financial reporting system

   f) Hardware installation and setup

   g) Application software used at district and site levels

   h) Technology in the classrooms and student data assessment and accountability protocols

   i) E-Rate administration and support

   j) Wireless technologies

2. The team will evaluate the organizational structure, staffing, workflow, efficiency and duties of the Technology Department's personnel. This component will include a review of technology-related board policies, administrative procedures, and operational practices to provide data on current practices and procedures. The team will evaluate the workflow and distribution of the department's technology-related duties and make recommendations for improved efficiency, if any.

3. The team will review the job descriptions of all technology-related positions, interview staff, and make recommendations for staffing improvements. All recommendations will include the estimated values for any proposed position reductions or enhancements to the organizational structure. Additionally, the team may interview other staff, including but not limited to site principals, department directors, certificated and classified personnel to determine the efficiency and effectiveness of services to school sites or other departments.

4. The team will evaluate the department's ability to implement, use and support the technology used to provide remote training to staff and school sites. This component will include reviewing the district's preparedness for current and emerging technology trends. The team will make recommendations to improve implementation success and support.

5. The team will review the educational technology services to district classrooms, focusing on quality and suitability of infrastructure and educational technology software selection, implementation and support. This evaluation will be based on staff interviews and the network documentation provided by the district. The team will provide recommendations for improved quality and efficiency, if any.

6. The team will review the data safeguards that exist on the design network in case of a catastrophic event or security.

7. The team will review the processes or planning that exist to upgrade the hardware and software assets to remain current with today's technology, including an analysis of the district's endowment fund over the next 10 years.

8. The team will make recommendations on professional development training for departmental staff.

Study Team

The study team was composed of the following members:

Andrea Alvarado
FCMAT Management Analyst
Bakersfield, CA

Al Foytek*
Director, Business Information Systems
Visalia Unified School District
Visalia, CA

Susan Holliday*
Executive Director,
Technology/Information Services
Capistrano Unified School District
San Juan Capistrano, CA

Leonel Martinez
FCMAT Technical Writer
Bakersfield, CA

*As members of this study team, these consultants were not representing their respective employers but were working solely as independent contractors for FCMAT.

Study and Report Guidelines

FCMAT visited the district on December 9-10, 2013 to conduct interviews, collect data and review documents. This report is the result of those activities and is divided into the following sections:

- Executive Summary
- Technology Plan
- Board Policies and Administrative Procedures
- Instructional Technology
- Quality, Suitability, Security and Data Safeguards of Infrastructure
- Staffing and Organization
- Documentation and Procedures
- Appendices

In writing its reports, FCMAT uses the Associated Press Stylebook, a comprehensive guide to usage and accepted style that emphasizes conciseness and clarity. In addition, this guide emphasizes plain language, discourages the use of jargon and capitalizes relatively few terms.

Executive Summary

In the past few years, K-12 education classrooms have continued with a rapid transformation that includes some of the latest technology for learning. Many school districts have upgraded the educational curriculum from using the Internet in lesson planning to bring your own device (BYOD) initiatives to keep pace with the accelerated multimedia-generated learning environment that is needed for K-12 classrooms. Even the most progressive technology use plans could be considered obsolete in less than two years. Compounding the demand for technology, the state approved sweeping changes to the curriculum with the addition of the Common Core State Standards Initiative and the Smarter Balanced Assessment Consortium (SBAC). Technology will no longer be only for administrative use or optional use in the classroom. The Common Core State Standards are U.S. education initiative that defines a single set of educational standards for grades kindergarten through 12 in English language arts and mathematics to ensure students graduate with the skills to enter the workforce or college. The SBAC is a state-led consortium that is developing assessments to measure student progress towards college and career readiness. California adopted the standards in August 2010 with full implementation proposed for the 2013-14 school year. The SBAC seeks to develop an assessment system by the 2014-15 school year. School districts statewide have been assessing and upgrading technology to support the requirements of the new standards and testing. In recent years, the St. Helena Unified School District has upgraded technology infrastructure, software and end-user devices. In addition, it has increased the number of end-user devices in use by staff and students. Despite these significant investments in technology, the district continues to experience staff frustration. The following areas contribute to this issue.

Technology Use Plan

The technology use plan indicates the necessity of increased technology support staff and training; however, it does not provide details or a timeline. New technology should be adopted in conjunction with considering how it will be supported to ensure it will be available, useful and reliable for its intended purpose. The technology plan's "train the trainer" approach; which involves using teachers on special assignment, library media specialists, and technology support personnel for professional development; will likely not be successful because the trainers have not been taught to use the district's new equipment and software.

Instructional Technology

District testing and the implementation of student assessment system require the dedicated and experienced support of the Instructional and Technology departments. The district's assistant superintendent of instruction (?) manages all testing and works with the Aeries district consultant to complete the required data exports and imports for testing preparation and data analysis. The lack of internal district technical support and knowledge of information systems and data analysis will hinder progress. The district should choose the appropriate instructional and technical staff members to help administer the Smarter Balanced assessments, support Aeries and assume responsibility for CALPADs reporting. Failure to do so will result in a strained process, frustration with implementation, and delayed system adoption and transition to the new state testing mandates.

Infrastructure Security

Because the district uses one cable plant for all network traffic, it should provide for secure separation of traffic used by students and administrators. All network devices and servers should be separated from access via the networks used by students and any guests, which can be accomplished in several ways, including switch port configuration and use of virtual local area networks (VLAN). The district was unable to provide information on the use of VLANs. Revising the infrastructure and wireless configurations can provide better security for the district's technology resources and safeguard data.

Staffing and Organization

The single largest support obstacle is that the entire district has only one technician. The technician determines the priority of outstanding requests and attempts to respond to as many high priority issues as she can each day, but never completes all of them. Most district staff avoid contacting technology support unless it is absolutely necessary. Many indicate that routine tasks usually take weeks or months to complete. School sites and departments with substantial needs have developed alternate sources of technology support, primarily from misapplying other resources to do the work of technicians. Teachers, secretaries, media specialists, and teachers on special assignment are sometimes used to troubleshoot equipment, install software, and replace components. Although this approach resulted from necessity, it diverts resources from instruction and other work. The district should update its technology support, but adding technicians will not resolve these issues. It should clearly define the support needed and the priorities in using available resources. Schools typically make it their top priority to meet direct instructional needs without minimizing critical administrative support. Planning and oversight of technology and support resources, such as that provided by manager and supervisor positions, will help prioritize resources and decrease customer service problems. A new technology support structure and new or realigned technology support positions will help resolve the district's support issues. Increased staff, management and organization will allow the new department to decrease lead support times, improve the quality of technology services, and plan for technology needs and implementations. The new structure includes five full time equivalent (FTE), including two classified management positions, and would report to the assistance superintendent because a high percentage of the district's technology support needs are for instruction related activities. Additionally, a new computer and network systems supervisor position reduces the district's reliance on vendors for basic, everyday software, server and network support. Reliance on outside personnel puts the district at a disadvantage for technology resource planning, setting support priorities, and evaluating existing operations.

Documentation and Procedures

The work order process is inefficient and does not generate the information necessary to manage technology. The best practice is to channel all technical issues through a help desk system to automatically generate a log of issues. Emails, phone calls and text messages should be used only in an emergency. Help desk information can also be used to determine the need for professional development, equipment, and technology staffing. Under this system, all staff would submit technical support tickets that would be automatically or manually routed to the correct staff member for resolution. If that staff member could not resolve the issue, he or she would document the actions taken and communicate the problem to management. The requester should know the ticket's priority and receive a response indicating its status in a timely manner.

The district makes purchases without fully resolving compatibility, network resources, ongoing support costs or professional development needs with the technology leadership. When these factors are not considered and uniform procedures are not adopted, purchase and projects may not achieve the desired results. A technology procurement procedure that includes the review by the Technology Department director can support objectives and reduce costs by ensuring that purchases meet district standards and are compatible with other technologies.

Findings and Recommendations

Technology Plan

The St. Helena Unified School District's technology committee is composed of credentialed, classified, and administrative staff as well as technical experts, board members and parents. It met sporadically for many years, but began meeting regularly over the past six months to rewrite the district's technology plan. Under the direction of the assistant superintendent of education services and with support from the contracted educational technology director, the technology committee has drafted a 5-year plan addressing E-Rate and state requirements. The plan has been approved by the California Department of Education and serves as regularly updated document to guide the district in implementing new technologies in alignment with Measure C bond funds and the strategic plan. The district should continue to use this plan to guide the direction and adoption of technology for learning and operations.

Because of prior obligations and late scheduling notice, some committee members could not participate in the development of the technology plan. While new technology is being implemented, a committee of those affected should meet monthly or more frequently to review planning adequacy and progress. This will allow for any necessary change in direction or update to be incorporated into the plan. The committee should also meet to maintain and update the plan even when budget shortfalls prevent plan requirements from being fully funded. Maintaining the plan allows management to monitor and communicate needs and determine the difference between existing resources and requirements. This allows management to use funds as soon as they become available and apply for any available grants.

The technology plan covers almost all the necessary areas; however, some do not include the details necessary for planning.

Grade and School Level Technology Planning. The plan includes technology-related teaching goals and student competencies by grade level through referenced standards. However, there are no details on how technology is affected. The plan assumes that having one computing device for each student will meet all needs, but this does not answer questions about the environment such as the following:

- Are all the computing devices equal and adequate for all purposes needed?
- What is an adequate network for these computing devices?
- What backbone bandwidth is needed at each school, and what Internet access bandwidth do they require?

These answers are necessary for planning and supporting technology, but they are not included in the technology plan.

Following are specific examples of questions necessary to plan and support technology:

- The Common Core Standards incorporate suggested technology practices for students at each grade level. How do these translate into specific computer, peripheral equipment (scanners, printers, cameras, etc.), networks, network bandwidth, and Internet access bandwidth needs? How will the district know when it has adequate infrastructure for its instructional program now and in future years?

- One of the International Society for Technology in Education (ISTE) National Educational Technology Standards (NETS) digital literacy profile requirements for prekindergarteners to second graders is: "Engage in learning activities with learners from multiple cultures through e-mail and other electronic means." With what technology will this be satisfied? Do the needed capabilities exist with the present resources (email, list servers, blogging, or other conferencing means)?

The plan should have detail on the needs at each grade level, leading to a clearer understanding of what is needed at each school.

Common Core Standards Technology Needs. The technology plan should consider equity between schools and classes. Equipment and network performance issues such as response times, ease of use, and familiarity to students could be factors in assessment testing. These details can greatly affect results if not controlled to within a reasonable range. Specifically, the following factors should be considered to provide all students with the best possible equipment and software:

a. The location's comfort and noise level

b. The test station's effective bandwidth

c. Screen size, sharpness of images, and the child's ability to use the desktop presented on screen.

d. The computer system and operating system's ease of use features and reliability

e. Mouse features such as scroll, extra buttons, adaptability to handedness, child's desired movement speed, and mouse pointer skip settings

f. Touch screen capability

g. The child's familiarity with the particular device's use

h. Special station features for children with impairments such related to vision, hearing, coordination, etc.

No Emergency Provision. The district technology plan does not include disaster preparedness or emergencies. During a local disaster, all business and instructional capabilities could be nonexistent, with no plan for recovering information and instructional systems. Many records and other important data may never be recovered.

No Provision for Business Departments. The technology plan correctly anticipates instructional technology needs as the centerpiece of those for technology as a whole. However, it does not deal with what the administrative department needs to support instruction. Nutritional services, maintenance, technology department or other business needs are not considered in the plan, only the administrative needs of school site administrators. Business administration needs should be considered along with those for instruction when determining network bandwidth, labor, and other technology planning components.

Support Plans Missing. No new technology should be adopted without considering how it will be supported to ensure it will be available, useful and reliable for its intended purpose.

For example, paragraph 5b of the technology plan states, "Technical Support Needed: Increase the current level of technical support staff provided to each site to ensure that hardware, network, and peripherals function to meet the needs of students and staff." Further, paragraph 5c Year 1 through 5 Benchmark tables states, "Maintain current levels of support to District staff with respect to hardware, ELRs, Internet and communication services, and tech support."

These statements indicate the necessity of increased technology support. However, the plan includes no details on the timeline or increased level of support. A plan should be developed for each system to determine support needs, including help, installation, setup/configuration, troubleshooting, and repair. Including this information across systems, software and services will help the district develop baseline support levels. Additionally, this information will help the district determine whether the support can come from internal staff, external consultants, or whether additional internal staff are will be necessary.

Physical Plant Modifications Needed. A subparagraph under 5b. states, "No physical plant modifications are needed…". However, a number of problems related to the physical plant will contribute to a lack of availability and reliability if not corrected. The details are included in the section of this report titled "Quality and Suitability of Infrastructure."

Professional Development Plan Not Specified. The district technology plan states that professional development will be provided, but does not include guidelines for this purpose.

Shortly before fieldwork, the district held a conference to train all certificated staff in using recently procured technology hardware and software. This included the newly distributed technology toolkits; made up of a laptop, iPad, and peripherals; and software for implementing the two devices. The event was well received and effective in helping teachers begin to integrate this technology into instruction. Staff indicated they need similar ongoing training, but with more time to work with teams to process and build units based on the material learned in the sessions. With the adoption of the Common Core and the computer adaptive state testing with the Smarter Balance Assessment Consortium (SBAC), teachers need guidance on the testing and computer literacy to be required of students. Teachers on special assignment can train teachers to support the adoption of the Common Core standards and the implementation of the SBAC assessment.

Because classified staff members were not invited to this conference, it will be almost impossible for them to help teach or support the subjects taught. Teachers on special assignment or classified library media specialists provide ad hoc training when requested by teachers; however, support staff members are assumed to be proficient in using the equipment unless they request help.

The technology plan's "train the trainer" approach; which involves using teachers on special assignment, library media specialists, and technology support personnel for professional development; will likely not be successful because the trainers have not been taught to use the district's new equipment and software.

Recommendations

The district should:

1. Schedule regular technology committee meetings to maintain and update the technology plan for use in ongoing communication and planning and to encourage regular member participation.

2. Define specific technology requirements by grade level, school and site. Include details, such as software, hardware, infrastructure, licenses, and other technology necessary for integration into curricula and administration.

3. Develop a disaster recovery plan section for emergencies and local disasters. Include steps to ensure critical services and capabilities will be available and reliable to operate the district. This part of the plan could be included in an appendix or separate referenced document.

4. Update the technology plan to incorporate the needs of the business administration.

5. Develop a support plan for each system in service. Where support will be provided internally, specify the resources by department. Specify resources by department for support to be provided internally, and specify service, consultancy, or agency for support provided externally.

6. Update the technology plan to include the needs of the physical plant.

7. Update the technology plan to include specific training plans for all staff, including teachers on special assignment, library media specialists, technology personnel, teachers and administrators. These plans should cover the new technology and systems used and those soon to be used.

Board Policies and Administrative Procedures

Acceptable Use Policies

Effective July 1, 2012, the Federal Communications Commission (FCC) 11-125 requires all who apply for E-Rate discounts on anything more than telecommunications services to have Internet safety policies that "include monitoring the online activities of minors and must provide for educating minors about appropriate online behavior, including interacting with other individuals on social networking websites and in chat rooms and cyber bullying awareness and response." The district's technology plan complies with the new components of the Children's Internet Protection Act law. However, the district's acceptable use policy for district technology, last updated in May 2012, does not include the specific language required by the act and the new FCC requirements, including language on age-appropriate instruction in safe and appropriate behavior on social networking sites, chat rooms, and other Internet services. The acceptable use policy for district computer systems information for students and parents should also be updated to include language discussing cyberbullying and appropriate online behavior.

As part of a pilot program that may be expanded, employee- and student-owned devices are allowed on the network on a limited basis. However, the expectations, safeguards, and appropriate behavior for using personal devices on the district wireless network are not defined in the acceptable use policies for district technology or for district computer systems information for students and parents. Some actions and behavior that are acceptable in a personal, home network could harm the district network, instructional programs, or systems.

Specific concerns include the following:

- Harassing, cyberbullying or intimidating others.
- Students contacting strangers outside the district and arranging meetings.
- Texting explicit messages to other persons inside or outside the district.
- Accessing or transmitting explicit images.
- Accessing or transmitting software viruses or other malware to other devices.
- Initiating any intended or unintended action to interfere with someone else's or the district's use of the network, including using large amounts of bandwidth for personal reasons.
- Doing anything illegal.

While the district's Internet filtering makes it more difficult to access inappropriate Web sites, it is not infallible since new Web sites and proxy sites are created every day. To safeguarding district assets, it is important to communicate the expected behavior and consequences to staff, students, and any other individuals permitted on the district network. California Technology Assistance Project is developing best practice behavioral-based technology district policies, which would be help in updating district acceptable use policies.

Management of District Assets

The district did not provide FCMAT with a board policy on tracking assets or a technology inventory.

Governmental Accounting Standards Board Statement 34 (GASB 34) requirements made mandatory by the California Department of Education (CDE) and Education Code (EC) 35168 requires a threshold definition and explicit tracking of capital equipment apart from standard inventory items. The threshold typically used is $5,000, but may be higher depending on district policy. Different tracking requirements apply to capital assets than other inventory items, and these may be separately changed from year to year. Many computers and peripherals exceed the minimum inventory tracking cost of $500, while enterprise servers and some turnkey systems could exceed a capital equipment threshold of $5,000.

The district plans to implement the Follett Destiny library and asset tracking software system. The best practice is to consider security, accessibility, reporting and the ability to separate and track capital assets from other library resources. If the library tracking software system cannot provide adequate functionality to safeguard and track the district's assets, alternatives should be sought.

Recommendations

The district should:

1. Update the acceptable use policy for district technology to include specific language regarding student instruction on cyberbullying and Internet safety, using the following sample language:

   > The superintendent or designee shall provide age-appropriate instruction regarding safe and appropriate behavior on social networking sites, chat rooms, and other Internet services. Such instruction shall include, but not be limited to, the dangers of posting personal information online, misrepresentation by online predators, how to report inappropriate or offensive content or threats, behaviors that constitute cyberbullying, and how to respond when subjected to cyberbullying.

2. Update acceptable use policy for district computer systems information for students and parents to align to board policy and comply with FCC regulations addressing cyberbullying. The following sample language may be used:

   > Students must avoid inappropriate language in their electronic communications. Students will not harass or bully another person. Cyberbullying is prohibited by state law and district policy. Violations of the law or this regulation may also be addressed through the district's student conduct and anti-bullying policy.

3. Update the acceptable use policies for district technology and computer systems information for students and parents to include the expectations and consequences of violations involving personal devices used on the district's wireless networks.

4. Develop a district board policy requiring inventory tracking, including the tracking of technology assets.
5. Review and revise internal controls for purchasing assets, including technology assets, to ensure the location of all items is documented from purchase to end use and retirement.
6. Develop an inventory of all technology assets as soon as possible, starting with more recent purchases.

Instructional Technology

Student Assessment and Accountability Systems

Data and assessment management systems give teachers online access to current data they can use to align instructional practices to meet student needs. An effective system can allow teachers to easily and quickly move from analyzing data to making decisions. Online systems provide teachers with demographic, state testing, and formative assessment data to guide instruction and improve learning. An assessment system allows a district to monitor the progress of individual students, classes, grade levels, schools or the entire district. The data resulting from this type of system helps teachers identify students that may require additional instructional services and allows them to collaborate for improved instruction. For example, if students in one class show strong understanding of a particular standard, another teacher may be interested in the method used.

An assessment system typically has a bank of test questions that are aligned to the standards, the software builds online and bubble-sheet assessments, and provides teachers with simple and easy reports to analyze results. The district technology plan references the adoption and implementation of a data and assessment management system. The transition to Common Core standards and online assessments presents an appropriate opportunity to examine assessment methods and determine whether they align with the direction of state testing and to evaluate test item banks for Common Core alignment. The system should be evaluated to determine if it provides Common-Core-aligned questions and can create assessments that align to and mirror the structure and requirements of the Smarter Balanced assessments. A variety of assessment item types should include selected response, constructed response, technology enhanced items, and performance tasks, each type to be used to assess students across the full range of the Common Core State Standards.

District testing and the implementation of student assessment system require the dedicated and experienced support of the Instructional and Technology departments. The district's assistant superintendent of educational services manages all testing from the California High School Exit Exam, Smarter Balanced Assessments, California Alternate Performance Assessment, the California Modified Assessment and any additional district placement tests and benchmarks. The assistant superintendent works with the Aeries district consultant to complete the required data exports and imports for testing preparation and data analysis. The Technical and Assessment departments should work closely together in the preparation, practice, and delivery of online testing. The lack of internal district technical support and knowledge of information systems and data analysis will hinder progress. Adopting and implementing an assessment management system will require dedicated and ongoing technical expertise in this system and in synchronization with the district's student information system. Technical oversight and properly developed leadership will be essential. The district should choose the appropriate instructional and technical staff members to help evaluate and implement the district data warehouse and assessment system and help administer the Smarter Balanced assessments. Failure to do so may result in a strained process, frustration with implementation, and delayed system adoption and transition to the new testing mandates.

Recommendations

The district should:

1. Review the assessment system to determine whether it provides questions that are aligned to the Common Core and can create assessments that align to and mirror the structure and requirements of the Smarter Balanced assessments.
2. Select a Technology Department position to help the assistant superintendent prepare and implement online assessments, support the evaluation and implementation of an appropriate data warehousing and assessment system, and identify appropriate technical accommodations for qualifying students with special needs.
3. Choose a Technology Department position to support Aeries to assume responsibility for CALPADs reporting, system management and automation, and support SBA administration and test administrator access and permissions.

Professional Development

In November 2013, the district held a professional development workshop in which all certificated staff were invited to attend training on recently procured technology hardware and software. The event provided training on the technology toolkit made up of the laptop, iPad, appropriate peripherals, and software for implementing the two devices. It was well received and provided an opportunity for teachers to begin integrating this technology with instruction. Staff members indicated they need ongoing training similar to the professional development workshop, but with more time to work with teams to process and build units based on the material covered in the sessions. With the adoption of Common Core and the computer adaptive state testing with the Smarter Balance Assessment Consortium (SBAC), teachers need guidance on the testing and computer literacy students will require. Teachers on special assignment will help provide teachers with timely, individualized and relevant training in these areas.

Recommendations

The district should:

1. Assess professional development needs and ensure that this area is considered an essential component of any educational technology adoptions.
2. Use teachers on special assignment to provide training in using technology to meet the Common Core Standards and prepare for the SBAC assessment.

Educational Software Application Selection and Support

The district uses several electronic learning programs and software for student achievement. Schools have adopted programs such as Study Island, LEXIA, Scholastic Reading Inventory and Reading Counts, Read Live and Accelerated Reader at varying levels. Some applications have similar purposes although more than one is supported at a district level, which creates inefficiencies and the inability to evaluate student performance over a period of time.

Sites have general discretion on the applications they adopt and purchase, with little input from administration on meeting learning goals or from the Technology Department on support and capability. Primary school teachers want to use these adopted software applications on classroom computers, but they often do not because the hardware or software is incompatible or software setup is incomplete. The district's single technical support staff member is expected to understand application management and implementation as well as help teachers maintain student and staff accounts. There is little automation between the applications and the student information system, which causes staff to manually enter student and staff accounts.

The district should inventory and evaluate its learning software programs and their educational purpose. A matrix of approved software programs should be established to guide school site administration and staff in selecting and adopting applications that meet the specific learning goal and ensure the necessary support exists to train staff and sustain support for ongoing implementation. This will discourage staff from requesting the latest technology based on marketing and publicity and instead help implement properly evaluated and research-based applications. In addition, selecting district-standard software will allow daily synchronization of the software with student information system, reducing downtime and the instances of manual account creation.

Recommendations

The district should:

1. Develop software standards to provide the dedicated support to promote an improvement in student achievement.
2. Ensure all software purchases are approved by technology management for compatibility and support purposes.
3. Inventory existing, paid software applications, evaluate effectiveness and use, and determine ongoing implementation.
4. Automate the student information system process to upload and synchronize student account generation for compatible applications.
5. Develop a list of approved iPad apps as well as policy and/or process for purchasing and installing them.
6. Select and train district staff to help maintain and sustain these programs. The district may need to establish an application specialist position to facilitate this goal and the others outlined in the following sections.

Quality, Suitability, Security and Data Safeguards of Infrastructure

At many districts, technology was often not incorporated into school facilities, but added incrementally afterward. The added equipment was often arbitrarily placed in the space available, with no concern for basic safeguards. As a result, now-important infrastructure was located in broom closets, supply areas, crawlspaces, and other similar locations that were not designed for sensitive, expensive electronic equipment. It is important to establish a secure, quality infrastructure for this technology.

Datacenter Facilities. Properly constructed facilities for network and computer systems are crucial for reliable technology services. FCMAT visited the district's intermediate distribution frame (IDF), main distribution frame (MDF), and server equipment areas, and found following issues.

The equipment was placed unsecured on, beside, and in front of racks as well as on other equipment. Even a mild earthquake could damage loose and other equipment, causing a safety hazard to those in the area. This can result in loss of network access, server use, enterprise services, and data along with the loss of many labor hours spent setting up the equipment.

One school MDF was located in the same room as a water heater, and the room was vented to the outdoors, opening it to the elements. Dust and dirt covered all the equipment and cabling. An unclean environment causes more frequent failures and reduces the equipment's useful life. Exposure to humidity and varying outside temperatures allow moist air to condense in the units, which along with dirt, can cause shorts in the electronic equipment.

The MDF in the high school library is an active storage area and during FCMAT's visit, had a door open to the library, where children or others could obtain access to the equipment. Equipment was strewn about the room, providing no safe area to work. Because of the equipment's value and the instructional dependence on a reliable network, network equipment and servers should be secured to prevent unauthorized access. This can be achieved with a locked, vented equipment cabinet or in a dedicated space.

The cabling in most areas was in disarray, with incorrectly sized jumpers and extra cabling strewn about and hanging from racks and equipment. This complicates troubleshooting and contributes to downtime and failures, sometimes turning a routine issue into a major one. The best practice is to properly label and document cabling and organize and remove excess materials.

The district's new rack of servers and network equipment is located in the newly constructed shop building, which has several issues. Because this room directly opens to the outside, with no awning or roof over the door, the rack is close to the outdoors when the door is open. Since a wide range of individuals may pass through this room because it is the backdoor to the shop, the equipment could be exposed to rain, dirt, and windblown debris. This is unacceptable for such important equipment.

The room is small and full of electrical panels that surround the single rack installed. A large transformer is next to the rack. The electrical panels and equipment in the room do not appear to have adequate clearance for maintenance and repair. OSHA (CFR 29 1910.303) requires a safety clearance of at least three feet when working with live circuits containing voltages of even 110 V. Performing any work on the electrical panels or transformer may sometimes require the rack equipment to be shut down for safety reasons. Workers trying to gain access to other equipment and panels could inadvertently damage the racks' equipment or cabling.

The electrical panels, wiring around the room, and the 75,000 VA transformer next to the rack create substantial electromagnetic interference (EMI), which could adversely affect the rack's sensitive digital equipment. When wiring used to transmit digital signals is close to strong electromagnetic fields, unwanted current and voltage may be induced. With a high enough power level, the electrical "noise" can interfere with the voice and data applications transmitted. In data communication, excessive electromagnetic interference hinders the ability of signal receivers to accurately detect data bits. This kind of EMI causes unwanted errors in equipment and can affect server processing, network bandwidth (nonoptical units), and data storage reliability.

The electrical circuits used for servers and network equipment are not isolated from those used by the shop equipment. Therefore, the electrical spikes and sags caused when the shop equipment is turned on, off, and used are on the same line as the new servers and network equipment. Even with a unit to smooth the power, the surges, sags and spikes may affect the reliability of network equipment and servers.

Sprinklers are located over the servers and equipment in some areas, including the new rack of servers and network equipment in the shop building. The new equipment and rack containing the district's servers and network equipment could be damaged beyond repair by an inadvertent fire alarm or failure of the sprinkler system. It is not unusual for sprinklers to be located in ancillary equipment rooms as long as the system is dry (i.e. water is not present in the system until it operates), the heads are individually triggered, and the sprinklers are set to activate at a relatively high temperature. However, activation temperatures for sprinklers can be as low as 135 degrees Fahrenheit. Some of the district's rooms with running equipment have little or no cooling and may reach this temperature.

Sprinklers are not normally the main defense against fire in network and computer data centers such as the district server and network equipment areas. This equipment represents a significant investment in equipment, important data that may be irreplaceable, and labor hours in installation and setup. Data centers usually have a gas fire-suppression system that can extinguish fires without damaging equipment. With an adequate gas fire suppression system, the fire code normally does not require water sprinklers.

The equipment housed in the shop building is the district's latest investment in systems infrastructure. However, the reliability and availability necessary for district classrooms and administration require the equipment's environment to provide safe, easy access and help extend unit life. This is normally an office-type with extra sensors that monitor for any adverse conditions.

Data Center Monitoring. Data centers usually have an environmental monitoring system that senses temperature, moisture and power as well as emergency lighting so technicians can safely exit in case of a power outage. Such an environmental monitoring system can save equipment and data during a fire or other emergency and represents a fraction of the total cost for data center equipment replacement if there is an emergency.

Having a properly constructed data center for centralized location of servers and network equipment would allow for easier management of this equipment and related operations, more flexibility in establishing new system implementation, higher service and network availability and reliability.

Network Cable Plant - LAN. FCMAT observed the 450 Mbps wireless access points in almost every room. The local area network (LAN) cable plants at district sites are of star-type topology design, with buildings interconnected via fiber cable. The exceptions are temporary structures

and outlying building, which have been serially connected and fed to an IDF. The performing arts building is shown as not cabled for connection to St. Helena High School's LAN.

Intra-building connections should generally be run back to a switch that makes a single run to an IDF that is connected to the site's MDF in a single run. Because the district could not provide the requested information on intra-building connections, these connections were not reviewed.

Network Cable Plant – WAN. The district's wide-area network connectivity is provided by an AT&T OptiMAN network, and its connectivity with Napa County Office of Education and other district agencies is provided by the NapaLearns network. A vendor, One Interface, is working with all NapaLearns participating agencies to implement a redesigned network with peering arrangements between agencies for Internet and inter-district connectivity. The available details of the new network design are promising; however, there is no specific agreement specifying how the peering between agencies on the network will be handled. This raises two concerns. First, the agreement with several other agencies for Internet access and inter-district networking could result in undesirable dependencies and therefore potential failure. Second, other agencies in the peering arrangement may not provide a pro-rata share of bandwidth for inter-district traffic or Internet access or both.

Wireless Networking. The district has implemented a wireless network at all sites, with an access point available or soon available in every classroom. However some of these points were not secured. This network is reportedly working well when services are available other than some devices defaulting to the wrong configuration for access.

Since wireless networking is new to the district, some are concerned that this means of access could be misused. At some schools, the entire wireless network bandwidth has been used by people from outside the district accessing the guest network. This may occur from nearby homes, cars in the parking lot (or curbside), and illicit access points placed on the network by students or staff members. This is problematic in a number of ways, including the limited ability to protect network bandwidth and system security, but issues can be minimized by appropriate wireless network design strategies.

Internet Access. According to the district technology plan, the Internet has a capacity of 400 Mbps using separate connections at multiple physical sites. While access issues existed in the past, staff users now consider these district services adequate when the network is available.

The district has implemented a new pilot program allowing students to bring their own devices. If not properly configured, the wireless access for this program could easily usurp classroom and administrative uses. Additionally, the district has no policies to define appropriate behaviors when using personal devices on the district network. Children participating in the program may believe there are no restrictions and ignore district policies on technology use. Further discussion of this topic is included in the section of this report titled, "Board Policies and Administrative Procedures: Acceptable Use Policies."

Security. Because the district uses one cable plant for all network traffic, it should provide for secure separation of traffic used by students and administrators. Having separate login domains (active directory domains) is insufficient. All network devices and servers should be separated from access via the networks used by students and any guests, which can be accomplished in several ways, including switch port configuration and use of VLANs.

NapaLearns provides engineering and configuration of the peering network that will interconnect the district to other agencies and peer services. No information was provided on what active controls for security will be incorporated, but these should be included in planning efforts.

The district was unable to provide information on the use of VLANs, packet-traffic-type limits, quality of service configuration, network address translation, firewalling and other measures pertinent to evaluating this area of network establishment. Therefore, they are not part of this review. The new NapaLearns network documentation indicates peer networks have the autonomy to configure as needed for their VLANs, virtual private networks (VPNs), network address translating, and quality of service needs.

The district did not provide information on strategies for external attacks on district services. An example would be a distributed denial-of-service attack on primary NAT addresses used by the district for Internet access. Mitigation plans for network issues of all types including viruses, malware, internal denial of service, and etc. were not provided or evaluated in this review.

One option for added enterprise services safeguards is to move to high quality off-site services for data storage and access. The district has started transitioning to an email system meeting this guidelines, but other file servers can also be transitioned. Many large hosting services offer secure file access services, including Google, Amazon, and Rackspace.

Data Safeguards. All file server, network services (active directory, domain name system (DNS), etc.), telephone server, and others are locally provided. Interviews indicated that server data is backed up; however, no details were provided on how this is accomplished or the protocol used, e.g. the schedule, file types, etc. Therefore, the details are not included in this review. The district has made no specific efforts to back up data to off-site locations.

The student information system, Aeries, is Web hosted by Eagle Software, the system vendor. The district financial and human resources system is provided by Napa County Office of Education. Other off site services used are content and email filtering, website – Schoolwires, Google Apps (email, in process), and various instructional content vendor systems.

Disaster Recovery. Although the district contracts with Agility Recovery for disaster-recovery assistance, it has no disaster recovery plan and has not defined critical systems for recovery. A disaster such as fire or earthquake could destroy a major portion of the district's ability to provide important services, such as emergency contact information in the student information system or access to the financial system to process payroll and vendor payments.

In addition to ensuring that data is recoverable, an effective disaster recovery plan helps a district recover, resume, and maintain systems so it and the schools can continue operating. Developing a disaster recovery plan necessitates determining which systems are vital and developing a list that prioritizes recovery efforts. Disaster recovery plans should provide procedures for each system.

The district's prior network outages demonstrated that there is little planning for disaster recovery. No fallback plan or alternative system exist. The district simply functions ineffectively until the system becomes operational. This type of event can happen at any time.

Effective disaster recovery plans include the following items:

- Potential tangible threats that could endanger the daily operations of the district and schools.
- An outline of the district's technology infrastructure and crucial data storage.
- Support expectations and contingency policies. An effective plan includes clear expectations about which services and systems have highest priority until normal operations resume.

- A disaster contingency plan that considers support expectations and contingency policies, identifies key staff members' roles and responsibilities and what is needed to maintain the availability of key technology systems. This includes procedures for restoring systems during an emergency and initial notification and periodic updates for district personnel regarding the status of disaster recovery and normal operations.
- A plan to test the disaster recovery plan. The best practice is to conduct functional and full-scale testing that covers all portions of the disaster recovery plan at least once per year. This includes test objectives, scripts, schedules, and subsequent review of test results.

Regular testing and independent auditing of the recovery plan are important to any recovery and backup processes.

Recommendations

The district should:

1. Ensure that the sprinkler systems and heads in all equipment areas are appropriate for the equipment. Evaluate the risk to equipment and data from sprinkler systems in data center areas and take any appropriate actions needed.

2. Develop plans to provide a data center with gas fire suppression system and environmental monitoring built for present and future technology needs. Relocate all district in-house critical systems to this data center.

   Install in the new data center an environmental monitoring system that includes adequately sized dual, fail-over air conditioning units; moisture monitoring (depending on location and the risk of water damage); remote monitoring capability, power cutoff for high temperature conditions; high-temperature alarm outside the room; adequate emergency lighting and egress; power conditioning with separate isolated circuits for datacenter, and other protections suitable to the location and size of the area.

3. Improve school site LAN installation design as opportunities arise and temporary buildings are replaced by permanent ones. Considering how IDFs and some MDFs were installed, review cable plant installations in and between buildings for quality and workmanship flaws.

4. Revise infrastructure configuration to meet instructional needs, protecting important administrative systems/data, and security.

5. Review wireless configurations and consider the following strategies:

   a. Create a separate VLAN for all personal devices, i.e. the bring-your-own-device equipment. Configure connections to limit the network bandwidth for personal devices.

   b. Establish and require identifiers, password and encryption for each wireless VLAN used by students and administrators for district work.

   c. Design the network so that the students' instructional traffic and bring-your-own-device traffic are not logically on the same network as administrative and enterprise server traffic.

7. Determine whether the present bandwidth is sufficient for current and future district inter-site network requirements. This information was not provided for review.

8. Develop a plan for use of VLANs, VPNs, quality of service, network address translating, access lists and other networking strategies according to best practices for security and data safeguards. Include a plan to ward off denial of service and other network attacks from within, peer partner networks, and the Internet.

9. Ensure that all critical data is backed up every day to an offsite location. Develop plans to provide for critical services in the event of disaster. Send offsite backups to another district site via the district WAN or to commercial servers outside the district using encrypted files if suitable bandwidth is provided.

10. Verify the data safeguards used at the county office and Eagle Software for district data.

11. Make data safeguards and handling an important point of review with important cloud services used.

12. Examine all vendor-provided hosting and cloud services for adequacy of disaster recovery.

13. Develop a disaster recovery plan in case of data and/or equipment loss.

Support Staffing, Organization and Workflow

Even before the district implemented new technology initiatives and equipment, technology support did not meet its needs. The district plans to purchase more equipment to follow through on several instructional technology projects. Therefore, support may become even less sufficient without changes.

Most personnel interviewed indicated that technology support is deficient, unreliable, and often inaccessible. As long as this situation exists, teachers are reluctant to depend on technology and may avoid integrating technology into their instruction, which is contrary to district strategic goals.

Support Issues. The single largest support obstacle is that the entire district has only one technician. Instructional use of technology is aided by library media support specialists and two teachers on special assignment, all of whom help teachers and students use software and operate computer systems.

Support for interconnected systems comes from a combination of contracted services and district staff. Examples of centralized systems include file servers, substitute or attendance tracking software, inventory, email, textbook or asset management systems, student information systems, network security and monitoring applications. Each are interconnected, requiring knowledgeable system and application staff to understand the design, implementation and maintenance. Aeries, a student information system, is managed by district contracted support. A second, separate contractor provides support for file server migration, firewall configuration, Active Directory maintenance, voice over Internet protocol (VoIP) phone support, and network wireless configuration, some of which is beyond the initial approved scope of work for this report. The Google management suite is implemented at all schools and managed by a site-based media specialist. District and contracted support are used to support and maintain the district email system, which is in transition from Microsoft Exchange to Gmail. Since these systems are interconnected, a change to one may negatively affect others. With so many individuals supporting enterprise systems, effective communication is important in preventing issues that are difficult to track and resolve. The district cannot continue to contract services to multiple vendors and expect system performance to improve. Interconnected centralized systems are necessary for efficient district operations.

The student information system requires dedicated and knowledgeable support. The district has a consultant supporting basic Aeries maintenance as well as state-mandated CALPADS reporting. If a site has an Aeries question or a query request, the staff asks the assistant superintendent of educational services or contacts the vendor, but neither option is sufficient. Although the leadership tries to help staff in this area, it should not be their area of expertise. During interviews staff indicated that they want more local knowledge and support for a system that is essential to several areas, from attendance, discipline, and grades to parent communication.

It is difficult for the network technician position to meet the many demands for end user and infrastructure help, and this position cannot realistically address both areas. One option in responding to a large number of support requests with minimal staff is a help desk and remote access to end user desktops, servers, and network devices. Further, the network technician has no manager to provide technical oversight. The technician determines the priority of outstanding requests and attempts to respond to as many high priority issues as she can each day, but never completes all of them.

Support Delivery. The district should update its technology support, but adding technicians will not resolve these issues. It should clearly define the support needed and the priorities in using available resources. Schools typically make it their top priority to meet direct instructional needs without minimizing critical administrative support.

The district's approaches to implementing and supporting technology have not remained current with needs or staff resources. This deficiency has been demonstrated by failures in systems performance, availability, and reliability. Email and networking have often been nonfunctional, sometimes for days.

Effective technology support for systems and day-to-day work is critical. Providing telephone service for classrooms, campuses, and communication with parents is also crucial.

Lack of Management of Support Tasks. The district has no dedicated manager for technology support. Some staff members are frustrated every day because the single technician cannot find the time to fulfill their requests. Additionally, planning and oversight of technology and support resources are neglected because of a lack of personnel. These situations can lead to increasing customer service problems.

Lack of Help Desk Approach. Using a help desk can reduce the amount of staff time necessary to deal with simpler issues. A help desk includes a technician who uses remote access and phone communications to resolve as many support requests as possible from his or her desk. However, local troubleshooting and technology correction tasks are handled more quickly and effectively by on-site technology personnel. Using a help desk also provides a method to organize and prioritize requests, allowing tasks to be assigned according to resource efficiency, technician skill level, or local priorities.

Work Orders and Technology Staff Response Time. The district has created a substantial obstacle by allowing only a few district personnel to request support from technology staff through the work order system. Most staff members are required to make a request through another staff member, which often results in the technician being disrupted while she completes other jobs. Involving several people in requests for technology help is inefficient since the person entering the request does not know the details of the problem to answer questions from the technician. Requiring requests to go through a central entry point can reduce technology work orders, but it hampers effective and efficient technology support.

Most district staff avoid contacting technology support unless it is absolutely necessary. Many indicate that routine tasks usually take weeks or months to complete. Taking months to set up equipment results in a low rate of use and delayed the benefit of having the new resources.

Misapplied Resources. School sites and departments with substantial needs have developed alternate sources of technology support, primarily from misapplying other resources to do the work of technicians. Teachers, secretaries, media specialists, and teachers on special assignment are sometimes used to troubleshoot equipment, install software, and replace components. Although this approach resulted from necessity, it diverts resources from instruction and other work. Using a teacher to perform this type of technical work is expensive since these professionals earn more than technicians.

Staffing

Following is an analysis of technology support related titles and job descriptions. Only one position, the network systems technician, is dedicated to providing technology services. A second position, the network systems analyst, is used partly for technology services and partly for instruction. Library media specialists and teachers on special assignment also perform a substantial amount of technology tasks because of the lack of other available help. Additionally, the director of information and technology services position is vacant.

Network Systems Technician. The job title indicates this a network support position; however, its primary function is computer device help for end users. The job description does not appear to have been updated for current technologies and duties. For example, it does not include support of wireless networked devices, such as smartphones, tablets, specialized cloud access devices (Chromebooks, Nooks, Kindles, etc.), or IP phones. Additionally, support for installation of network devices does not necessarily include performance analysis and operational issues, which require higher skills and additional knowledge. A network systems technician would need these skills, but a technician helping end users with computing devices would not.

Network Systems Analyst. The job title indicates the position provides network systems support, but it is actually involved in video production, video broadcasting, and instructional support. No job description was provided.

Director of Information and Technology Services. This position is vacant, and no job description was provided.

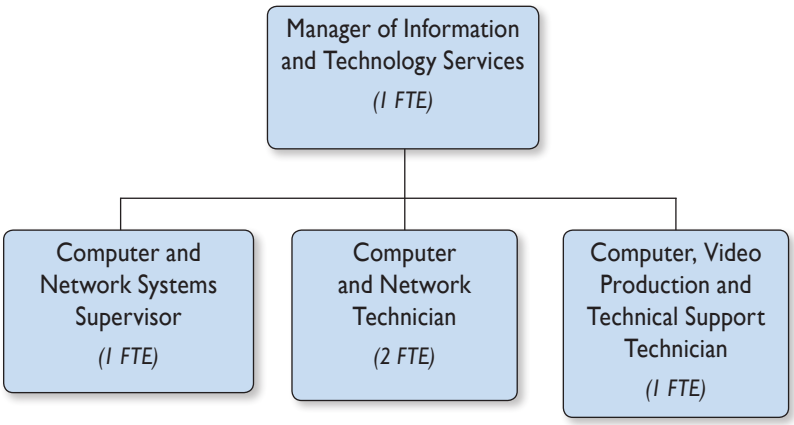
Library Media Specialists. These positions, which exist at each school site, provide direct technology support in the use and installation of software, configuration of systems, and other technology-related duties. The positions also unofficially provide first-level help to technology users at their assigned school sites. The district should have a sufficient number of technicians to limit the amount of help this position provides to an appropriate level for the classification.

These positions require skills allowing them to provide some technology help, but this can interfere with their primary purpose of supporting instruction. To the extent the position provides technology support, the job description should be updated to include assignments of their time, and they should receive the appropriate training. Further, the position should be prohibited from performing device repairs and component replacements.

Teachers on Special Assignment. These positions have performed some technology support functions from necessity and to satisfy the requests of other teachers. However, it is not cost efficient to use teachers on special assignment as technicians, giving a lower priority to their role in helping teachers integrate technology into instruction. These positions should provide limited technology support, so their time can be utilized helping with technology-related instruction and assisting with the integration of technology into the curriculum. Sufficient technician staff should be provided to limit the technology support required of this position.

A new technology support structure and new or realigned technology support positions will help resolve the district's support issues. Increased staff, management and organization will allow the new department to decrease lead support times, improve the quality of technology services, and plan for technology needs and implementations. The organizational chart on the following page depicts the recommended structure:

Recommended Organizational Structure



This structure includes two classified managers, three technicians, and continued contracted support for extraordinary tasks. The managers can support and fill in for each other as can the technicians. Additionally, the managers can fill in for technicians during peak workloads or absences. Technicians should perform all most hardware and software installation, configuration, network attachments, and related troubleshooting and repairs. Phone calls and messages will be handled by either the manager of information and technology services, computer and network systems supervisor, or computer, video production & technical support technician.

Because of the tight scheduling sometimes required to accomplish complex projects, the Technology Department should report to the assistant superintendent in the Education Department. Because a high percentage of the district's technology support needs are for instruction or related activities, the revised reporting arrangement establishes the most direct communication between support and supported efforts. Additionally, it provides the new department with proximity to the organization units supported.

Computer and Network Systems Technician. This position is an update of the network systems technician to more accurately reflect the duties performed and fit the new organizational structure. The position directly helps schools by regularly working at designated sites on assigned days. Task priorities will be established by the computer and network systems supervisor, but may be overridden by school site principals as needed for urgent tasks. The job description should be modified to include district needs, including cloud devices, phones, and systems, including network systems. Support on all network and server-related devices would be under the supervision of the district computer and networks systems supervisor (the description is included below). In addition, the district should increase the positions full-time equivalency (FTE) from one to two.

Computer, Video Production & Technical Support Technician. This position is an update of the network systems analyst. This technician provides services to broadcast school board meetings and other important events, oversees multimedia workstation development, and helps a teacher in instructing four classes a week. These duties do not include any general network or end-user computer support. The job description should be updated to reflect the revised title and incorporate duties in helping general end-users across the district, providing additional services for the help desk, district office administrative staff, and helping the computer and network systems supervisor. The position's instructional duties would be removed.

Computer and Network Systems Supervisor. The district has several vendors for software, server, and network support. Reliance on outside personnel puts the district at a disadvantage for technology resource planning, setting support priorities, and evaluating existing operations. The addition of a computer and network systems supervisor, under the supervision of the manager of information and technology services, would give the district an internal position to provide first-level response for installing, configuring, supporting, and repairing all network and enterprise services. It prioritizes requests for assistance and has primary responsibility for working with contractors to resolve network, phone and enterprise server issues as needed. The position helps technicians resolve issues beyond their skill level. Aside from desktop, network and enterprise service responsibilities, the position backs up the manager of information and technology services position as needed. It also helps direct computer and network systems technicians and the computer, video production and technical support technician positions as needed.

Manager of Information and Technology Services. The district lacks a position to assess existing technology, plan for future needs, and monitor and lead projects. Filling the director of information and technology services position could meet this need. However, the district also needs a manager who can assist in day-to-day tasks and help with hands-on support during peak periods. Revising the director of information and technology services position to a manager of information and technology services position could fulfill this requirement. This position will also lead efforts in planning acquisition and implementation and collaboration between all technology users including school sites and the education department. Under the direction of the assistant superintendent, this position will assist with the help desk, support district administrative staff, and back up the computer and network systems supervisor in tasks related to servers and network systems. This position would be required to be proficient in all the tasks required of the computer and network systems supervisor and must able to fill in to do any department work as needed.

The manager of information and technology services will monitor requests to resolve any problems in providing timely support. The position should also communicate with support staff, department heads and other technology users on the quality of support.

Recommendation

The district should:

1. Place the Technology Department under the assistant superintendent of instruction according to the following organizational structure and update job descriptions:

    a. Computer and network technician (2 FTE, revised position: network systems technician): Reports to the manager of information and technology services.

    b. Computer, video production and technical support technician (1 FTE, revised position: network systems analyst): Reports to manager of information and technology services.

    c. Computer and network systems supervisor (1 FTE, new position): Reports to manager of information and technology services. Because the district's structure and salary schedule have no comparable position, it should contact other districts of similar size and structure to develop a salary range for this position.

d. Manager of information and technology services (1 FTE, new position): Reports to assistant superintendent. Because the district's structure and salary schedule have no comparable position, it should contact other districts of similar size and structure to develop a salary range for this position.

e. Director of information and technology services: This position should be eliminated.

Documentation and Procedures

The Technology Department has limited documentation on policies, procedures, and practices for district assets and how they are supported and maintained. As a result, the practices for supporting and tracking these assets are inconsistent and nonexistent. Staff are unsure of the technology possessed by the district and its ongoing maintenance cost. The district will need to develop these documents and procedures as the Technology Department evolves. The goal is to provide the most functional, flexible technology at the lowest cost. A thorough record of the technology inventory is necessary to plan, support and help manage resources, comply with licensing requirements and other regulations, and manage security.

Documented procedures also help technology staff improve work quality and perform complex tasks quickly and effectively. They also protect technology resources and improve workflow.

Work Order Application and Support System

According to the figures outlined in the technology plan, the district has an estimated 1,000 computers, with one technician assigned to inventory, configure, sustain, maintain, and troubleshoot. The technology includes Windows 7 classroom desktops, teacher Windows 7 workstations, Lenovo Windows 8 Tablets, Surface RT tablets (which is a different operating system than the Lenovo tablet), teacher and student iPads, Chromebooks, Apple Desktops and laptops. In addition, district technical support responds to hardware and end user support requests on SMART Interactive Whiteboards, printers, scanners, and projectors.

Support is requested by site administration, secretaries, and library media specialists through a ticketing system called SchoolDude. However, some staff indicated that when they believe the situation is urgent, they email, call and text message technical support directly instead of using the ticketing system. Staff also reported that many requests are not resolved for months or receive no response despite several attempts. During interviews, staff indicated that they are often unclear about the status and priority of requests. The system and process do not provide notice that a work order has been completed. Most staff stated they are also unsure of the technical support schedule. A dedicated schedule and flexibility in dealing with emergencies along with leadership oversight would prepare and organize technical support requests more effectively, according to staff.

Because only one technician manages multiple school sites, applications and hardware, the work order process is inefficient and does not generate the information necessary to manage technology. The best practice is to channel all technical issues through a help desk system to automatically generate a log of issues. Emails, phone calls and text messages should be used only in an emergency. Help desk information can also be used to determine the need for professional development, equipment, and technology staffing. Under this system, all staff would submit technical support tickets that would be automatically or manually routed to the correct staff member for resolution. If that staff member could not resolve the issue, he or she would document the actions taken and communicate the problem to management. The requester should know the ticket's priority and receive a response indicating its status in a timely manner.

Recommendations

The district should:

1. Require all technical support requests to be made through the ticketing system, and enable features or establish processes that inform users about ticket status and/or resolution.
2. Develop a technical support repository of technical standards, configurations, policies, procedures, and practices for sustaining and maintaining technology.
3. Develop a schedule for technical support to be available on site.

Technology Deployment and Refreshment

The district has made a considerable commitment to technology with special endowment funds and general fund resources.

The recently approved district technology plan shows expenditures of $750,000 per year and indicates that one-third of technology assets will be replaced each year. This rate of replacement can be expected to result in a steady, constant expense after the first few years. The cost of the initial years of rebuilding capabilities can include higher ongoing expenses, especially when facilities, funds, and personnel resources devoted to technology were inadequate in prior years.

Paragraph 6.b of the district technology plan shows spending for technology is only slightly higher in the initial year than outlying years, and no expenditure breakdown is provided. This scenario is not likely or even desirable with the district's many initiatives. Facility and network infrastructure updates are needed immediately, and resolving these issues will probably increase technology spending. The first few years following new technology implementation should show a significant decline in spending followed by a constant amount as items are updated or replaced across the district.

Facilities. Staff have begun to experience the possibilities of recent technology acquisitions and the ways they can be used for administration and instruction. Optimizing equipment use, software, training, vendor expenses, and personnel time depend on adequate infrastructure, including facilities, and on sustaining technology through support and replacement.

Although facilities are critical in technology implementation and support, those belonging to the district are inadequate as discussed earlier in this report.

Technology Implementation. This begins after equipment or systems are acquired, but should be discussed when first defining needs and considering systems. Implementation of new equipment, software or new systems requires planning. The district process was deficient in several areas such as the following:

a. The new system for Nutritional Services – This system was not functional for weeks after the start of the new school year.

b. Network printers for classrooms – Printers are still not working in some classrooms and are incapable of providing the scanning and copying needed by teachers.

c. Wireless access devices – These are not secured in some areas, and some device settings were not configured to attach to the network correctly.

d. The "Teacher Toolbox" equipment – Support staff received insufficient Teacher Toolbox training to help teachers fully integrate technology into the classroom.

e. The present redesign, installation, and implementation of network infrastructure – Many network components are unclean, housed in improper facilities, haphazardly integrated, and unreliable after months of work with no well-defined plan for when it will be completed or district needs. Fixes have been piecemeal and depend on factors that are not under district control (e.g. the NapaLEARNS project).

The district's recent implementations have neglected many important tasks for several reasons. These include a lack of personnel with the skills and knowledge to perform the work and a history of not using implementation plans. In all implementations, the district should perform the following:

a. Develop an implementation plan that includes the required tasks, the time for each task, and a schedule for the entire effort. Major vendors usually have template plans for their products that may be used in planning.

b. Develop a support plan for the new systems' life cycle. This may be supplied by the vendor, developed by the internal staff, or a combination of these.

c. Define and provide the necessary facilities, tools, test equipment/diagnostics software, and monitoring devices.

d. Define and acquire any new staff or contractor services needed to operate, repair, and manage the system.

e. Define and establish the service contracts needed.

f. Define, develop/purchase, the training needed for staff and end users. Provide this training according to the professional development plan to ensure needs are met.

g. Define, schedule, and perform any data conversion and transfer.

h. Define accuracy, function, performance, and adequacy testing for the new system. Schedule and perform these at appropriate times.

The tasks listed above are considerable for major systems or equipment implementation/replacement efforts. Tasks should be defined and planned, and a schedule developed as early as possible after the system is selected.

Many of these tasks can coordinated with vendor input if the system is primarily acquired via a request for proposal (RFP) and can also be made a requirement of the RFP.

Technology Replacement. The technology plan includes a plan to replace 33% of the "old inventory" each year. The program for replacing obsolete technology is based on performance, age, compatibility with the network, and priority of the end user on a 3-year cycle. Obsolete technology is recycled or donated according to a district donation policy. This policy clearly states the specifications, which are annually updated through the technology committee.

Technology replacement involves assessing, updating and/or changing technology to meet district needs. In assessment, technology is compared to updated or newer versions to determine whether it would be beneficial to move to newer systems. Alternatively, new user requirements may drive the comparison. One way to make a comparison is through cost versus benefit studies. Some updates are needed for security and feature fixes that correct original flaws. Replacement may be accomplished either to improve present capabilities or gain advantages unavailable in prior systems. A cost to benefit study is a common approach for determining when this is advantageous. Similarly, a district may choose a replacement strategy that minimizes labor and support costs by changing equipment when warranty expires. The industry standard is to shorten the replacement cycle because of rapid improvements in technology and the lower cost of hardware.

Some equipment needs does not need to be replaced on the 3-year calendar cycle defined in the technology plan. Desktop systems have a longer useful life than laptop systems, and laptop systems a longer one than tablets. Many network components and some peripherals, such as printers, have useful lives in the range of four to eight years. Enterprise-level investments in hardware for servers and related software also have useful lives of from four to eight years or more.

A general strategy to replace all computing assets every three years is not advisable and could be disruptive to staff, instruction, and network and enterprise services, although a cycle of two years or less may benefit some tablet devices. The district should consider the needs and benefits of technology replacement to ensure an appropriate cycle for each area.

Support Role. Effective support is critical to implementation and replacement efforts. Replacement equipment should be coordinated with the Technology Department to ensure standards are met and equipment function effectively on the network. Replacing equipment that can still provide the needed service may unnecessarily deplete funding and labor resources.

The district's technology support is inadequate and lacks the expertise to provide the planning and support needed for new implementations and equipment replacement.

Recommendations

The district should:

1. Incorporate a semiannual technology replacement assessment in the district technology plan. At technology committee meetings, add a standing agenda item to discuss and identify upcoming equipment needs.
2. Plan for implementation needs as systems are defined and before they are acquired.
3. Minimize implementation and replacement of equipment and systems until the technology support deficiency is corrected.
4. Annually reevaluate the technology budget to analyze trends in breakage and replacement costs, and align the budget to meet technology needs and changes.
5. Allocate by site a fixed and ongoing technology replacement budget to help sites maintain essential technologies for instruction (such as projector bulbs replacements, screens, document cameras, etc.).

Technology Procurement and Disposal

The process of procuring technology is district-driven, with limited oversight by the Technology Department. Purchase requisitions are approved by district leadership, including the Fiscal Department, but not technology leadership. The Purchasing Department occasionally provides quotes for hardware or software if standards or bids are identified. Otherwise the site usually selects the specifications independently.

The district makes purchases without fully resolving compatibility, network resources, ongoing support costs or professional development needs with the technology leadership. When these factors are not considered and uniform procedures are not adopted, purchase and projects may not achieve the desired results. A technology procurement procedure that includes the review by the Technology Department director can support objectives and reduce costs by ensuring that purchases meet district standards and are compatible with other technologies.

Because of the rapid changes in technology in public education, it is important to ensure the technologies adopted are thoroughly evaluated, vetted and discussed with those affected. Failing to use the Technology Department's expertise in purchasing and planning increases the likelihood that the project will not be completed on time and within budget while meeting objectives. Involving the Technology Department results in a more complete analysis of the project. The department can provide information on how well new software or hardware will function with the technology, help determine any of the costs of necessary improvements, and the cost of training for technical staff and certificated staff. Technology staff can also research and analyze ongoing costs such as support, maintenance, and equipment replacement.

The district has made significant investments in hardware and network upgrades. Each site was upgraded with campuswide wireless access for mobile devices such as the Lenovo ThinkPad, the iPad, and Chromebook. Almost every classroom was equipped with a projector, document camera, voice amplification system, teacher instructional laptop computer and iPad, and wireless printer. This is far beyond what many comparable districts have accomplished. Students in grades five, six and nine received Chromebooks and Google accounts. One high school class was given Microsoft Surface RT Tablets as a pilot program, and the primary school has a cart of iPads with an average of seven per classroom. Each of these devices requires unique configuration, maintenance, and support, but the technical support staff received little training to prepare for the implementation. Each device also requires a different Web interface for management and collaboration from Office365 for the Surface RT and Tablet to Google Apps for Educators (GAFE) for the Chromebooks.

During interviews, staff indicated they are unclear about the instructional goal of adopting these individual technologies. High school staff provided input on the technologies purchased for their classrooms, resulting in the purchase of Surface RT tablets. IPads were implemented at the primary sites. These decisions were made without technical input, technical support staff training, and with few policies and procedures defined to guide users how to purchase and load apps through the Apple Volume Purchase Program (VPP). Each of these technologies depends heavily on a sound backbone infrastructure, but they were introduced before it was fully functional, prompting additional staff frustration. Because Active Directory is in process of being configured as well as the new domain, staff have several logins and file locations. This shows the importance of having instructional technology evaluated by the technology committee and Technology Department before procurement to ensure all aspects of the technology are considered and planned.

An industry best practice is to have the technology manager review all these purchases to help ensure equipment, software and other items meet the district's standards, with considering given to infrastructure capacity and professional development. Technology managers are expected to have a basic understanding of the instructional background as well as infrastructure. With the appropriate management, the instructional and operational facets of technology can be overseen by one department. Implementing educational technology requires collaboration between administrators, the Technology Department and instructional technology support staff. Collaboration between Technical Services and Instructional Technology Services appears to be poor since software and hardware purchases are approved at a technology committee meeting that lacks technical expertise. These purchases should be evaluated and approved through the Technology Department to ensure projects can be completed on time and within the budget while meeting educational objectives. Assigning a technology manager to review purchases and programs will result in a more complete analysis of the request and ensure training and support are available. With this collaborative analysis, the Technology Department can provide information on how well the software or hardware will function in the infrastructure, help determine the costs of improvements needed to support the additional technology, and the cost of training technical staff. The department can also estimate the ongoing support and maintenance cost for the equipment replacement.

Adding the technology manager position would allow the Technology Department to support and guide a collaborative group to evaluate current and future technologies that the district may adopt or discontinue using. This position will research and review all purchases to ensure they align with the district's best practices and strategic plan and would help ensure that equipment, software and other items are selected after considering the district's current technology resources. The position would also ensure the technical and certificated staff receive the necessary training. The manager can examine current professional development needs, survey for staff priorities, organize resources and opportunities to support technology, and plan for the introduction of technology and resources to be used in adopting the Common Core State Standards.

Having one assigned staff member manage all technology equipment implementations is unmanageable and inequitable between schools because of the volume of technology and the competing priorities. For example, some sites have additional staff that support and maintain new technology adoptions from integration and technical standpoints. The nontechnical staff at some sites provide a first tier of technical support, but others lack this resource. For example, library media specialists or a teacher on special assignment provide technical help at some sites because of the various pieces of technology purchased without aligning appropriate support. Teachers seek help from staff who may not have the necessary background, which sometimes compounds the problems and frustration.

The lack of technical oversight and leadership to select and purchase hardware has created confusion and frustration among staff. Recently procured devices were set up with new logins, but access to essential files and resources was delayed, with staff unable to use the new technology. Although the reason for making these changes was appropriate, timing, preparation and support were not understood. The procurement and implementation of the technology should have been accomplished incrementally or delayed until the infrastructure and network design were complete. The technology under consideration should always be vetted for compatibility and support while considering the district's staff and infrastructure. If staff and infrastructure are not prepared to support the procurement, a plan should be created to develop that capacity, and it should be implemented before adding new technologies. The district should also ensure it has sufficient cabling, connection and infrastructure.

The district implemented technology before establishing the necessary foundation. Although many components of the foundation and infrastructure are being completed, some should have been finished before the adoptions to minimize staff confusion and frustration.

For districts of any size, the best practice is to establish hardware standards and ensure staff is available to oversee them as technology evolves. These standards should be established with input from teachers, administration and technical staff, with mutually agreed goals. Technology that does not meet the standards would not be approved for purchase. Using these standards, the district can align the resources, training and finances necessary to keep the approved hardware functioning properly for as long as possible or until replacement funds are identified.

Recommendations

The district should:

1. Develop a hardware purchasing evaluation and approval process that includes technical management approval to ensure the technology purchased is compatible and can be maintained and supported.
2. Identify technology management to participate in evaluation, selection, training and support for all current and future classroom technology.
3. Develop computer hardware purchasing standards and approved quotes, and post these for staff access.

Inventory and Network Documentation

The district does not maintain a centralized inventory system for software or hardware purchases. This type of system tracks all licensed software including operating system, word processing, database and educational applications. An accurate inventory increases licensing compliance and improves the accuracy of budget forecasting. In addition, the technology committee can use the software inventory to make decisions on software use, changes or adoptions.

A hardware inventory system tracks computers and peripherals, and some can track networking equipment. This type of inventory typically tracks computers, iPads, tablets, workstations, printers, projectors, document cameras, access points, servers, and similar equipment and can also include computer specifications such as processor speed, memory, disk space, operation system (OS), location, funding source, etc. These records allow a district to assess operational capability. An accurate hardware inventory also helps a district plan for technology replacement and installation.

The district lacks an up-to-date record of networking equipment inventory. This inventory would include equipment such as wireless access points, switches, routers, and firewalls. An effective networking equipment inventory will include information such as make, model, vendor, location, and network configuration (Internet protocol address, and VLAN information).

The district also lacks a diagram that documents the layout of its network and equipment. This type of diagram allows technology staff to quickly determine which equipment to evaluate when a problem arises. In combination with the networking equipment inventory, this diagram helps technicians determine and resolve network issues faster, increasing efficiency and decreasing downtime. The network diagram can also help nontechnical staff and users understand the network design to aid in making decisions and planning equipment replacement.

Recommendations

The district should:

1. Create and maintain separate inventories of licensed software and computer and peripheral hardware.
2. Develop and maintain a network equipment inventory and a separate network diagram.

Appendices

Appendix A

Job Descriptions

Position: Computer and Network Systems Technician	Position Number:
Department/Site:	FLSA: Non-Exempt
Reports to/Evaluated by: Information and Technology Services Manager	Salary Grade: 117

Summary

Installs, configures, troubleshoots, and services computer systems including workstations, Smartphones, tablets, cloud access devices, IP Phones, and other Internet access devices. This includes work with video, telephony, and multimedia related equipment and software used in administrative offices, classrooms, and instructional lab environments. Assists with installation and maintenance of network equipment, servers, and all related software. Works with computer users to enhance skills and productivity through technical support, one-on-one instruction, and help functions.

Distinguishing Career Features

The Computer and Network Systems Technician supports networked and standalone computers, tablets, phones, and software. They report to the ITS Department but work at assigned sites. Task priorities for assigned sites may come from site principals or their designees for the time designated for their site. These technicians require the ability to use, troubleshoot, and repair a broad range of equipment. They must be able to perform administrative tasks for network and applications systems. They further need to understand, apply, and diagnose issues with computer and network security as defined by the ITS Manager and NCS Supervisor.

Essential Duties and Responsibilities

- Demonstrates and provides technical assistance to administrators, teachers, other classified staff, and students on using computers, the network, and software programs including remote access. This includes use of peripheral electronic equipment used to enhance presentations and viewing.

- Installs, configures, troubleshoots, and repairs computer and peripheral equipment and software. Duties may include but are not limited to identification and replacement of components. Reviews purchase requests and recommends standards for equipment and components.

- Installs and configures stand alone and networked computers, printers, modems, phones, tablets, smartphones, specialized cloud access devices (Nooks/ Chromebooks/Kindles) peripheral equipment, and software.

- Participates in installing and configuring upgrades to existing networks that enhance continuous operations, desired performance, and service.

- Participates in troubleshooting to resolve network hardware and operations problems, including but not limited to connectivity, internet access, electronic mail and file servers.

- Updates existing security and applications software on servers and workstations. Tests existing operating systems and personal computers for potential viruses and security problems.

- Implements protocols and procedural controls for operation of the network systems.

- Installs and configures workstations to learning laboratory networks. Installs and configures laboratory and classroom networks. Connects workstations to servers. Sets up student accounts onto local networks, both wired and wireless.

- Installs, configures, and maintains specialized software that supports courses offered by the schools. Tests software to ensure compatibility with the current operating environment and to equipment capability. Configures software to communicate with peripherals such as printers, modems, scanners, and screens.

- Administers active directory for student accounts. Adds, modifies, and deletes accounts.

- Receives and resolves user 'help desk' calls and tickets requesting assistance. Documents calls and tickets, forwarding some work order requests to the appropriate technology staff as per protocol established by ITS Manager.

- Provides troubleshooting of user problems with all desktop software, accessing databases, network and networked equipment, and e-mail.

- Monitors local area network usage and performance. Troubleshoots connectivity and reliability issues as per direction given by department managers.

- As assigned, schedules and sets up multimedia equipment for use in classrooms, meetings, and events. Advises staff and students on check-out procedures and use of equipment. Assures that audio-visual and sound system equipment functions properly.

- May provide guidance to student workers who provide basic technical support and are engaged in technology curriculum or assist in laboratories.

- Keeps up-to-date on trends associated with networked computer workstations and computing and provides input to technology planning, hardware and software purchases.

- Performs other duties as assigned that support the overall objective of the position.

Qualifications

- **Knowledge and Skills**

Requires working technical knowledge of computer hardware, software, and use for business, education, support, administration, and management purposes. This includes uses for video, telephony, and multimedia purposes. Knowledge must be sufficient to provide for ability to diagnostics and repair hardware and software failures as well as correct

use errors. Requires a basic knowledge of operating system, device driver, networking, administrative and other related software.. Must understand the protocols and procedures for setting up new equipment, troubleshooting and performing routine maintenance. Requires a basic understanding of local area networks. Requires a basic understanding of communication protocols, especially, TCP/IP as used with both wired and wireless Ethernet standards. Requires communication skills necessary to provide individual instruction and technical assistance on the use of computer devices and software for business, education, internet use, utility, and connectivity. Requires sufficient writing skill to document work done for requests, field procedures, and communicate with other department staff as needed.

- **Abilities**

Requires the ability to install, configure, and troubleshoot networked computer workstations, systems, and programs used in both instruction and administrative areas for Windows, OSX, Android, Linux and other popular platforms. Requires the ability to document technical procedures. Requires the ability to set up, configure, and tune video and multimedia equipment used for classroom, public meetings, and conferencing. Must be able to learn about new equipment and software and apply knowledge in areas needed for support.

JOB DESCRIPTION

FREMONT UNIFIED SCHOOL DISTRICT

JOB TITLE: Client Technology Technician
JOB SUMMARY: Under the general direction of the Technical Services Manager and the direct supervision of the Senior Client Technology Technician provides technical support and analysis for Fremont Unified School District (FUSD) staff on all variety of client technology equipment. Provides second and third echelon work for customers, including but not limited to, desktop maintenance support, compliance, systems and applications operations and maintenance. This position provides advice, guidance and hands-on technical support and assistance via telephone, two-way radio or in person.

ESSENTIAL DUTIES AND RESPONSIBILITIES:

- Provides technical assistance, installation, removal, preventive services and corrective maintenance to customers on a variety of client technology equipment including, but not limited to, desktop computers and peripherals, printers, plotters, projectors, networking equipment and fax machines.
- Provides technical support for, but not limited to, word processing, spreadsheet, email, financial, and other applications used in the District.
- Works on assigned trouble ticket and work orders from initiation through to completion of work, documentation and follow up with requestors.
- Arranges for warranty repair and maintenance of client technology equipment and computer hardware and peripheral devices with appropriate authorization.
- Performs LAN testing, termination, and installs cabling.
- Performs imaging of computer equipment.
- Maintains a variety of records and logs related to assigned duties including hardware/software problems and repairs.
- Applies department escalation procedures and ensures service levels are maintained.
- Ensures the quality of work by ensuring work is accomplished correctly and in a professional manner, with minimal disruption of classroom and customer activities, and that the area is left clean.
- Documents the use of consumable and non-consumable parts in the accomplishment of their work.
- Properly utilizes the unit's loaner equipment inventory (bench stock), including the documentation, obtaining authorization, and proper usage training for the end-user.
- Assists management in technical asset management including hardware equipment and software licenses.
- Keeps current on technical advances with potential application in the District.
- May initiate and perform research, compile data, and prepare recommendations of special projects.
- May organize and coordinate departmental functions with customers.
- Performs other duties as assigned.

QUALIFICATIONS: To perform this job successfully, an individual must be able to perform each essential duty satisfactorily. The requirements listed below are representative of the knowledge, skill, and/or ability required. Reasonable accommodations may be made to enable individuals with disabilities to perform the essential functions.

Client Technology Technician

ABILITY TO:

- Work with minimum supervision.
- Provide technical support on a variety of client technology equipment.
- Organize, prioritize and schedule work.
- Utilize a work order system.
- Work cooperatively with, support and motivate staff in the use of technology hardware and software.
- Learn and effectively apply the policies, procedures and practices associated with District technologies.
- Communicate effectively both in writing and orally.
- Analyze and resolve desktop and other client technology problems.
- Establish and maintain co-operative and effective relationships with those contacted in the course of work.
- Maintain efficient, effective LANs compliant with District standards.
- Manage multiple tasks with varying timelines.
- Train and provide feedback to others.
- Establish and meet schedules and time lines.
- Explain policies and procedures.
- Perform research, compile data and prepare recommendations.
- Explain and enforce departmental policies and regulations.
- Prepare and deliver oral presentations.
- Prepare and deliver written reports.
- Establish and maintain effective relationships with others.
- Train users in WAN and LAN applications.
- Communicate with users to effectively resolve problems with applications.
- Effectively operate a computer and related software.

SYSTEMS AND APPLICATION EXPERIENCE:

- The automated web-based work order systems currently deployed and used at the FUSD, or similar.
- Email systems such as Groupwise® and Microsoft Outlook®
- Computer operating systems currently deployed and used at FUSD, or similar.
- Computer desktop applications to include, but not limited to, word processing, spreadsheet, presentation, drawing and publishing applications currently deployed and used at FUSD, or similar.
- Educational software applications currently deployed and used at FUSD, or similar.
- Telecommunications systems and equipment (i.e., switches, handsets, desk sets) and voice over IP systems and equipment.

Client Technology Technician

KNOWLEDGE OF:

- Local schools and District procedures and operations.
- Diagnostic procedures, processes and service operations.
- Desktop Operating systems to include both Apple and Window platforms and updated versions.
- A variety of client technologies including, but not limited to, personal computers and peripherals, printers, LCD projectors, fax machines, servers, hubs, switches, cabling, copy machines, slide projectors, film strip projectors, overhead projectors, opaque projectors and movie projectors.
- Principles, topologies and applications of Local Area Networks.
- Principles and practical application of cabling systems including, but not limited to, category 3, category 5, category 6, coaxial, and twisted pair cables.
- Operational characteristics of personal computer hardware and related software systems used by the District.
- Ways to use technology in the classroom / worksite.
- IT service practices and procedures.
- Troubleshooting processes and technical problem analysis.
- Operation of personal computers and related software.
- Principles and practices of technical service delivery and support.
- Policies and objectives of assigned programs.
- Goals, policies, and objectives of the department.
- Outstanding interpersonal skills.
- Superior oral and written communication.
- Fluency in written and spoken English.
- Public contact techniques and telephone etiquette.
- Proper two-way radio etiquette and procedures.
- Proper email etiquette.
- Digital and analog telephony systems.
- Technical aspects of the functional operations of the division.

EDUCATION and/or EXPERIENCE:
Associate's degree in Computer Information Technology or equivalent, augmented by vocational or technical training classes. Minimum of four years of related experience with three years of experience with desktop solutions.

- ***Preferences:***
  - Previous work experiences in a school district or county office of education.
  - Bachelor's degree or equivalent in Computer Information Systems, Computer Science or Information Technology or a related field.

LANGUAGE SKILLS:
Ability to read, analyze, and interpret general business periodicals, professional journals, technical manuals and procedures, and governmental regulations. Ability to write reports, correspondence, and procedure manuals. Ability to effectively present information and respond to questions from users.

Client Technology Technician

MATHEMATICAL SKILLS:
Ability to calculate figures and amounts such as discounts, interest, commissions, proportions, percentages, area, circumference, and volume. Ability to interpret and understand financial mathematics related to assigned unit.

REASONING ABILITY:
Ability to put issues in context of the big picture for the overall departmental vision; and how said vision fits into the overall vision of the District. Ability to clearly and accurately define problems, collect data, establish facts, and draw valid conclusions. Ability to interpret an extensive variety of technical instructions in written or diagram form and deal with several abstract and concrete variables.

CERTIFICATES, LICENSES, REGISTRATIONS:

- Must possess a valid California class C driver's license and have a satisfactory driving record.
- ***Preferences:*** One or more of the following certifications.
  - Microsoft Certified Desktop Support Technician Certification (MCDST)
  - Microsoft Certified Technology Specialist (MCTS)
  - Apple Certified Desktop Technician (ACDT)

PHYSICAL DEMANDS: The physical demands described here 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 functions.

While performing the duties of this job, the employee is frequently required to stand; walk; crawl; crouch; kneel; sit; use hands to finger, handle, or feel; reach with hands and arms; talk and hear. The employee must frequently lift and/or move up to 40 pounds and occasionally lift and/or move up to 60 pounds. Specific vision abilities required by this job include close vision, and ability to adjust focus.

WORK ENVIRONMENT: The work environment characteristics described here are representative of those an employee encounters while performing the essential functions of this job. Reasonable accommodations may be made to enable individuals with disabilities to perform the essential functions.

While performing the duties of this job, the employee regularly works in inside environmental conditions. The employee will be required to travel to various facilities within the District. The employee frequently works with a video display terminal for prolonged periods. Employee may be exposed to dusty environments. The employee may be required to attend evening meetings, travel, and work evenings or weekends. The noise level in the work environment is usually quiet. Individual is subject to frequent interruptions.

OTHER CONDITIONS OF EMPLOYMENT: In accordance with California law and the Education Code, position incumbents must maintain a conviction free Dept. of Justice background record, which is relevant to the position.

CAPISTRANO UNIFIED SCHOOL DISTRICT
San Juan Capistrano, California

MANAGER V, INFORMATION SYSTEMS

DEFINITION

Under the direction of the Executive Director, Technology and Information Services, supervise and coordinate the daily operations of staff and system support for student information systems, financial and personnel systems; computer maintenance and installation; software installations and upgrades; and manage system performance and security.

EXAMPLES OF DUTIES

- Manage district data systems including, but not limited to, the Student Information System (Aeries), Integrated HR, Finance, Budget System (QSS), Substitute Management System, and systems related to educational needs.
- Supervise installation and maintenance of hardware and software for the District centralized and distributed computer operations.
- Acts as a liaison for the Education Division, attending instructional events and meetings with other district and site leaders.
- Prepare and implement goals and objectives for technological advances that will serve the needs of employees, students, school sites, and the public at large.
- Facilitate reporting processes and deadlines for CALPADS (CSIS/CBEDS) and other state and federal mandated reports.
- Provide leadership and direction in applications development, to increase access to information and facilitate productivity.
- Manage user account activity and security.
- Coordinate professional services for feasibility studies, systems analysis, designs, and programming.
- Recruit, evaluate and support assigned staff.
- Direct the professional development of the information systems staff to maintain pace with technological progress and district needs.
- Develop and maintain a thorough understanding of school site operations and data needs, including processes for scheduling, attendance taking, course development, home-school communication and reporting requirements.
- Prioritize requests for support and new projects, balancing district need and staff workload.
- Work with hardware and software vendors to maintain an optimal computing environment.
- Direct information specialists in the implementation and development of software programs to service District operations.
- Provide in-service training opportunities for District staff related to use of software programs and their periodic revisions.
- Troubleshoot hardware and software problems at the District office and school sites.
- Participate in software user group meetings to maintain open communication regarding services to schools.
- Maintain and enhance skills related to system and application software.
- Participate in short and long range planning for system operations District wide.

QUALIFICATIONS

Knowledge of:
Computer operating systems including Windows and Linux; SQL server knowledge; knowledge of QSS financial and personnel software; and Aeries student record keeping; knowledge of ETL (extract, transform, load) and automation; data communications, backup and recovery procedures.

Ability to:
Lead, organize, and support staff members; develop and maintain good interpersonal relations with District staff and site personnel; analyze problems and prepare written and oral reports; incorporate new technology into future district systems; exercise individual initiative; work systematically to accomplish goals; communicate effectively orally and in writing; comply with the District's customer service standards, as outlined in Board Policy.

Experience:
Prior experience in information technology and information retrieval environments; experience in supervising personnel and data processing.

Education:
Minimum of an Associates Degree in information technology, business administration, computer science, or any combination of professional training or experience equivalent to four years in technology, or in fields directly related to position requirements.

11/92
Revised 9/03; 3/04; 2/10; 3/13

Appendix B

Study Agreement

FCMAT
FISCAL CRISIS & MANAGEMENT ASSISTANCE TEAM
CSIS California School Information Services

FISCAL CRISIS & MANAGEMENT ASSISTANCE TEAM
STUDY AGREEMENT
August 1, 2013

The Fiscal Crisis and Management Assistance Team (FCMAT), hereinafter referred to as the team, and the St. Helena Unified School District, hereinafter referred to as the district, mutually agree as follows:

1. BASIS OF AGREEMENT

The team provides a variety of services to school districts and county offices of education upon request. The district has requested that the team assign professionals to study specific aspects of the St. Helena Unified School District's operations. These professionals may include staff of the team, county offices of education, the California State Department of Education, school districts, or private contractors. All work shall be performed in accordance with the terms and conditions of this agreement.

In keeping with the provisions of Assembly Bill 1200, the county superintendent will be notified of this agreement between the district and FCMAT and will receive a copy of the final report. The final report will also be published on the FCMAT website.

2. SCOPE OF THE WORK

A. Scope and Objectives of the Study

The scope and objectives of this study are to:

The district is requesting FCMAT to provide a comprehensive analysis of the state of the district's technology, including hardware, software, professional development, departmental staffing, student assessment and accountability requirements and technology use.

1. The team will review and analyze the district's technology and educational master plans, including an endowment for upgrading the district's technology needs over the next 10 years, and make recommendations. The technology review will include an analysis of the staffing levels and organizational support for the following:

a) User, desktop and workstation support
b) Network administration
b) Website development and support
c) Email support for district and site level staff
d) Student attendance system
e) Financial reporting system
f) Hardware installation and setup
g) Application software used at district and site levels
h) Technology in the classrooms and student data assessment and accountability protocols
i) E-Rate administration and support
j) Wireless technologies

2. The team will evaluate the organizational structure, staffing, workflow, efficiency and duties of the Technology Department's personnel. This component will include a review of technology-related board policies, administrative procedures, and operational practices to provide data on current practices and procedures. The team will evaluate the workflow and distribution of the department's technology-related duties and make recommendations for improved efficiency, if any.

3. The team will review the job descriptions of all technology-related positions, interview staff, and make recommendations for staffing improvements. All recommendations will include the estimated values for any proposed position reductions or enhancements to the organizational structure. Additionally, the team may interview other staff, including but not limited to site principals, department directors, certificated and classified personnel to determine the efficiency and effectiveness of services to school sites or other departments.

4. The team will evaluate the department's ability to implement, use and support the technology used to provide remote training to staff and school sites. This component will include reviewing the district's preparedness for current and emerging technology trends. The team will make recommendations to improve implementation success and support.

5. The team will review the educational technology services to district classrooms, focusing on quality and suitability of infrastructure and educational technology software selection, implementation and support. This evaluation will be based on staff interviews and the network documentation provided by the district. The team will provide recommendations for improved quality and efficiency, if any.

6. The team will review the data safeguards that exist on the design network in case of a catastrophic event or security.

7. The team will review the processes or planning that exist to upgrade the hardware and software assets to remain current with today's technology, including an analysis of the district's endowment fund over the next 10 years.

8. The team will make recommendations on professional development training for departmental staff.

B. Services and Products to be Provided

1. Orientation Meeting - The team will conduct an orientation session at the district to brief district management and supervisory personnel on the team's procedures and the purpose and schedule of the study.
2. On-site Review - The team will conduct an on-site review at the district office and at school sites if necessary.
3. Exit Report - The team will hold an exit meeting at the conclusion of the on-site review to inform the district of significant findings and recommendations to that point.
4. Exit Letter – Approximately 10 days after the exit meeting, the team will issue an exit letter briefly summarizing significant findings and recommendations to date and memorializing the topics discussed in the exit meeting.
5. Draft Reports - Electronic copies of a preliminary draft report will be delivered to the district's administration for review and comment.
6. Final Report - Electronic copies of the final report will be delivered to the district's administration and to the county superintendent following completion of the review. Printed copies are available from FCMAT upon request.
7. Follow-Up Support – If requested, FCMAT will return to the district at no cost six months after completion of the study to assess the district's progress in implementing the recommendations included in the report. Progress in implementing the recommendations will be documented to the district in a FCMAT management letter.

3. PROJECT PERSONNEL

The study team will be supervised by Anthony L. Bridges, CFE, Deputy Executive Officer, Fiscal Crisis and Management Assistance Team, Kern County Superintendent of Schools Office. The study team may also include:

A. Andrea Alvarado ***FCMAT Management Analyst***
B. Scott Sexsmith ***FCMAT Management Analyst***
C. To be determined ***FCMAT Consultant***

Other equally qualified staff or consultants will be substituted in the event one of the above individuals is unable to participate in the study.

4. PROJECT COSTS

The cost for studies requested pursuant to E.C. 42127.8(d)(1) shall be as follows:

A. $500 per day for each staff member while on site, conducting fieldwork at other locations, preparing and presenting reports, or participating in meetings. The cost of independent FCMAT consultants will be billed at their actual daily rate.

B. All out-of-pocket expenses, including travel, meals and lodging.

C. The district will be invoiced at actual costs, with 50% of the estimated cost due following the completion of the on-site review and the remaining amount due upon the district's acceptance of the final report.

Based on the elements noted in section 2 A, the total estimated cost of the study will be $12,000.

D. Any change to the scope will affect the estimate of total cost.

Payments for FCMAT's services are payable to Kern County Superintendent of Schools - Administrative Agent.

5. RESPONSIBILITIES OF THE DISTRICT

A. The district will provide office and conference room space during on-site reviews.

B. The district will provide the following if requested:

1. A map of the local area.
2. Existing policies, regulations and prior reports that address the study scope.
3. Current or proposed organizational charts.
4. Current and two prior years' audit reports.
5. Any documents requested on a supplemental list. Documents requested on the supplemental list should be provided to FCMAT only in electronic format; if only hard copies are available, they should be scanned by the district and sent to FCMAT in electronic format.
6. Documents should be provided in advance of field work; any delay in the receipt of the requested documents may affect the start date of the project. Upon approval of the signed study agreement, access will be provided to FCMAT's online SharePoint document repository, where the district will upload all requested documents.

C. The district's administration will review a preliminary draft copy of the report resulting from the study. Any comments regarding the accuracy of the data presented in the report or the practicability of the recommendations will be reviewed with the team prior to completion of the final report.

Pursuant to EC 45125.1(c), representatives of FCMAT will have limited contact with pupils. The district shall take appropriate steps to comply with EC 45125.1(c).

6. PROJECT SCHEDULE

The following schedule outlines the planned completion dates for different phases of the study:

Orientation:	August/September, 2013
Staff Interviews:	to be determined
Exit Meeting:	to be determined
Preliminary Report Submitted:	to be determined
Final Report Submitted:	to be determined
Board Presentation:	to be determined, if requested
Follow-Up Support:	if requested

7. CONTACT PERSON

Name: Bill McGuire, Superintendent
Telephone: (707) 967-2701
Fax:
E-mail: bmcguire@sthelena.k12.ca.us

August 9 2013

Bill McGuire, Superintendent — Date
St. Helena Unified School District

August 1, 2013

Anthony L. Bridges, CFE — Date
Deputy Executive Officer
Fiscal Crisis and Management Assistance Team

CHIEF MEDICAL
CHIEF BUSINESS OFFICIAL
ST. HELENA USD