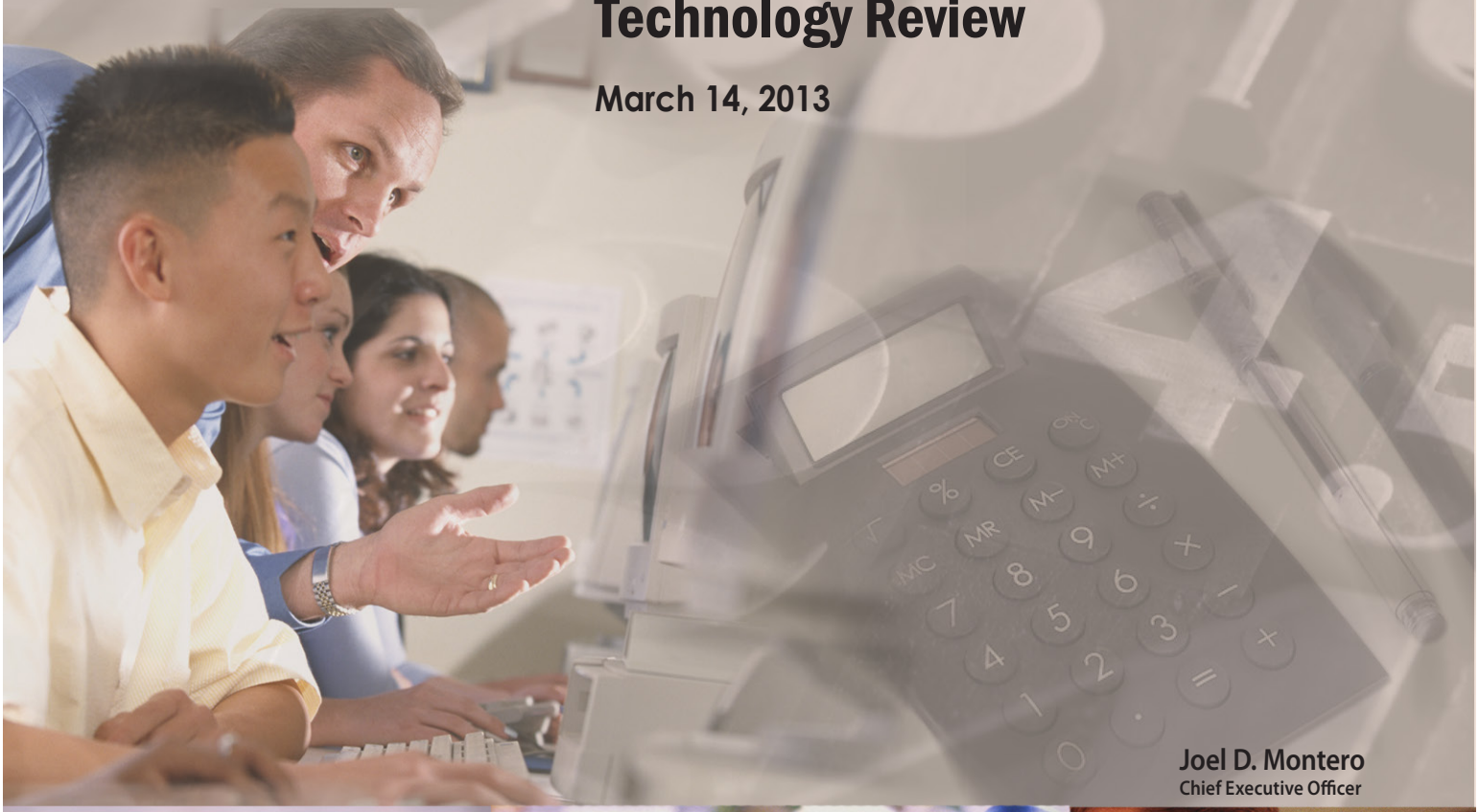
FCMAT
FISCAL CRISIS & MANAGEMENT ASSISTANCE TEAM
CSIS California School Information Services

Madera Unified School District

Technology Review

March 14, 2013



Joel D. Montero
Chief Executive Officer

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March 14, 2013

Anthony Monreal, Superintendent
Madera Unified School District
1902 Howard Road
Madera, CA 93637

Dear Superintendent Monreal:

In June 2012, the Madera Unified School District and the Fiscal Crisis and Management Assistance Team (FCMAT) entered into an agreement to provide a review of the district's human resources, personnel commission, risk management, and technology programs and services. Specifically, the agreement states that FCMAT will perform the following:

Human Resources/Risk Management Component:

1. Provide a detailed report that demonstrates the current state of services and provide recommendations regarding the organizational structure, staffing, interaction and division of duties between the human resources, personnel commission and risk management (including the workers compensation and property/liability programs) departments to support the District's needs.

    a. Review documentation, including policies and procedures, and interview staff from the human resources, personnel commission, business and risk management departments to gather data regarding current practices, procedures and separation of duties. Additionally, the FCMAT team may interview other staff to determine the efficiency and effectiveness of services delivered.

    b. Analyze the following items:

        i. Impact of responsibilities required as a merit system district

        ii. Status of relevant board policies

        iii. Status of relevant procedures, including those between the personnel commission and business office

        iv. Status of position control

        v. Separation of functions and distribution of workload between the departments

        vi. Adequacy of department staffing, including a review of job descriptions and a staffing comparison with districts of similar size and structure

        vii. The relationship and division of duties between the District and the California Risk Management Authority Joint Powers Association

viii. Organizational placement of the risk management departments within the District

ix. Efficiency and effectiveness of service to school sites, other departments and employees

Technology Component:

1. Provide a detailed report that demonstrates the District's current state of technology and use, including hardware, software, professional development, departmental staffing and the use of technology, and provide recommendations to support the district's needs.

    a. Interview site principals, instructional staff, department directors and classified staff to gather data regarding the type of applications and hardware utilized at the district. Review and analyze the technology master plan and make recommendations, if any.

    b. Analyze the level of support for the following:

        i. Network administration

        ii. Website development and support

        iii. E-mail support for district and site level staff

        iv. Student attendance system

        v. Financial reporting system

        vi. Hardware installation and setup

        vii. Application software used at district and site levels

        viii. Technology in the classrooms

    c. Review the job descriptions and staffing of the technology department, including any site level support and its impact on the technology department.

        i. Review the district board policies on the use and integration of technology for district level and site based instructional strategies. Include any obstacles or barriers that prevent the use of effective technology.

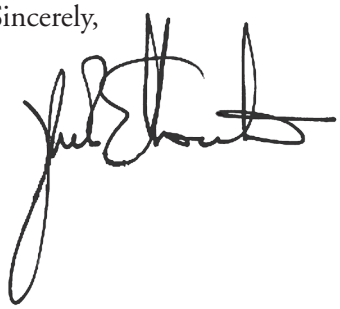
        ii. Based upon the support level required by the district's technology department, provide staffing of districts of similar size and structure.

    d. Review the network design regarding safeguards of the data residing on the systems in the event of a catastrophic event or security breach. Review the network design for sufficiency to meet district's short term and long term plans, including the district and instructional action plan (DIAP).

This report contains the study team's findings and recommendations for the technology component. Findings and recommendations for the human resources/risk management component were provided in a separate report.

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

Sincerely,



Joel D. Montero

Chief Executive Officer

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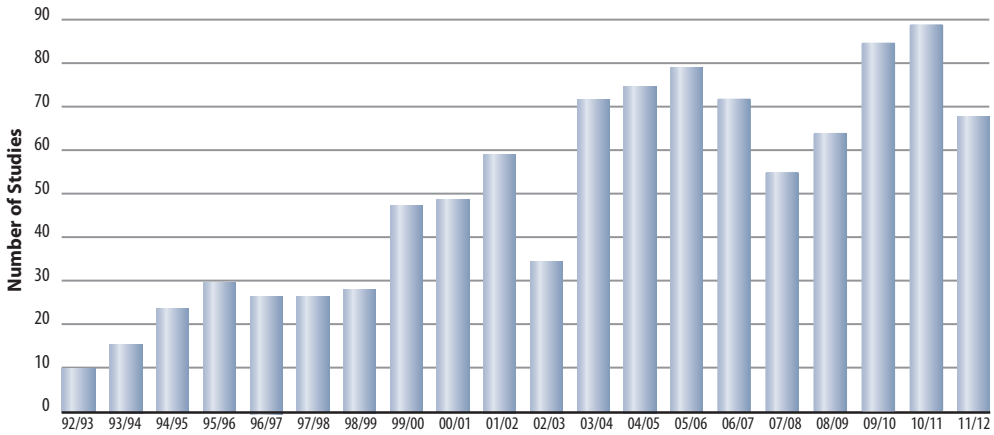
About FCMAT

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 office 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

Located in the central San Joaquin Valley and incorporated in 1907, the city of Madera in western Madera County has a population of 61,416. The Madera Unified School District serves 19,936 students in kindergarten through twelfth grade at 27 schools, including independent study and charter school sites.

In June 2012, the Madera Unified School District requested that FCMAT assist the district by reviewing the district's technology programs and services. The study agreement specifies that FCMAT will perform the following.

1. Provide a detailed report that demonstrates the District's current state of technology and use, including hardware, software, professional development, departmental staffing and the use of technology, and provide recommendations to support the district's needs.

    a. Interview site principals, instructional staff, department directors and classified staff to gather data regarding the type of applications and hardware utilized at the district. Review and analyze the technology master plan and make recommendations, if any.

    b. Analyze the level of support for the following:

        i. Network administration

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        i. Review the district board policies on the use and integration of technology for district level and site based instructional strategies. Include any obstacles or barriers that prevent the use of effective technology.

        ii. Based upon the support level required by the district's technology department, provide staffing of districts of similar size and structure.

    d. Review the network design regarding safeguards of the data residing on the systems in the event of a catastrophic event or security breach. Review the network design for sufficiency to meet district's short term and long term plans, including the district and instructional action plan (DIAP).

Findings and recommendations for the human resources/ risk management component were provided in a separate report.

Study Team

The study team was composed of the following members:

Andrea Alvarado
FCMAT Management Analyst
Bakersfield, CA

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

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Director of Information Technology
Paso Robles Joint Unified School District
Paso Robles, 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 Guidelines

FCMAT visited the district on September 10-11, 2012 to conduct interviews, collect data and review documents. This report is the result of those activities and is divided into the following sections:

I. Executive Summary
II. Technology Plan and Policies
III. Instructional Technology
IV. Applications
V. Server Administration
VI. Network infrastructure
VII. Documentation and Procedures
VIII. Staffing and Organization
IX. Appendices

Executive Summary

The Madera Unified School District's support for technology is divided into two departments: Technology Services and Instructional Technology. The Technology Services department reports to the Business and Operations division and employs classified staff to plan, support, and maintain server infrastructure, network infrastructure, and workstations. The Instructional Technology department reports to the Educational Services division and employs certificated staff to guide instructional technology and provide professional development to instructional staff. These two departments have historically worked closely, with combined staff meetings and informal sharing of support duties. Although collaboration between the two departments is valuable, it should be balanced. Each department should retain some independence to ensure that each fulfills its purpose. Many findings in this report can historically be traced to leadership issues resulting from an imbalance between the two departments. Recent changes in department management can help support realignment of the two departments, bringing an improved balance between instructional technology needs and the maintenance of technology.

Technology Plan

The district's technology plan (TUP) contains all of the elements and state approvals required for E-Rate funding. The plan is based on a shared vision of educators, administrators, and technology staff and contains language that supports integrating technology into the classroom and curriculum. However, the TUP is not being monitored by diverse representatives as outlined in the document but by Instructional Technology department staff. Convening regular meetings with key administrators and influential teachers would provide a breadth of working knowledge to further evaluate and update the plan, ultimately strengthening the curricula and supporting learning for all students.

Instructional Technology

The district has made significant investments in hardware and training to establish an instructional standard of a ceiling-mounted LCD projector and a computer for each teacher. In addition, requiring teachers to attend training before being issued a classroom Promethean Interactive Whiteboard has ensured that most teachers are effectively using this tool. This exceeds what many comparable districts have accomplished. However, there is a lack of standardized student access to technology among schools and classes. Schools manage technology equipment purchases independently, often relying on categorical funding, which has led to inequities between schools. Schools with more categorical funds purchase additional equipment and update existing equipment more frequently. In times of fiscal difficulty it may be necessary to examine a variety of computer purchasing options to provide students with equitable access to current technology. Cost-saving strategies such as desktop virtualization, leasing computers, or purchasing previously leased refurbished computers can help lower the cost to purchase or replace systems.

The district has a long-standing, effective staff development program delivered primarily through the Educational Services department for all K-12 teachers. During the school year, a teacher on special assignment (TSA) is paired with a school technician to provide professional development trainings for instructional staff, with the school technician serving as the primary trainer. Although the creativity, dedication, and extra effort are commendable, instructional staff prefer to receive training from peers who can apply the applications in a manner that models curriculum integration and furthers teachers' understanding and the value of the tool being learned.

Applications

The district is primarily using the Smarte financial system solution for financial applications except payroll transactions, which must be submitted to the county office of education using the Everest software. Smarte is licensed to the county office for five years, and the license is set to expire in one year. The district has not taken steps to continue use of Smarte through the county office or independently after the current license period, or transition to another system. It would benefit the district's operations and efficiency to convene a committee to review and evaluate the Smarte and Everest systems to help develop a plan that demonstrates continuity between the two software applications.

The district's help desk procedure is not efficient and does not generate information needed to manage technology.

The district's help desk procedure is not efficient and does not generate information needed to manage technology. All technical issues should go through the help desk system to help identify support trends and needs for additional staff development, equipment, or support staff.

Server Administration

The district has a mixed environment of Apple and Windows operating systems on its computer workstations. There is no standard for instructional staff and student network accounts, and these vary from accounts on local machines, to general accounts, to individual accounts. Wireless network access is provided through a generic account. Because students are accessing the wireless network with a generic account, it is not evident that the district is in compliance with the Children's Internet Protection Act (CIPA), which requires the ability to track, monitor and report student Internet activity. This can be resolved by standardizing the use of network accounts, eliminating generic accounts, and integrating a content filtering server with a directory server to identify individual students' Internet activity.

The district has more than 140 servers. An alternative to a large number of physical servers is to take advantage of virtualization technology, which uses software to convert one physical server into multiple virtual servers. Virtualizing servers usually results in savings; however, the district should review bandwidth usage and connection speeds at each school to identify constraints before transitioning to centralized virtualized servers.

Some staff are not familiar with how to access and use the file servers and instead save student data to their local workstation. If a workstation is stolen, the district could be in violation of the Family Educational Rights and Privacy Act (FERPA), a federal law that protects the privacy of student records and applies to all schools that receive applicable federal funds.

Network Infrastructure

Network speed and reliability are the biggest concerns shared by support and instructional staff. The school networks are flat, meaning that only one local area network (LAN) is configured. Devices on a flat network may experience poor network performance because of the competition for limited network resources such as bandwidth. In addition, the security of a flat network is poor because students and visitors have access to file servers and networking equipment. A more secure switched network would contain multiple virtual local area networks (VLANs). A proper VLAN design allows network traffic to be segmented and network policies to be applied to select VLANs. Separate VLANs for staff workstations, student workstations, equipment management, and personal electronic devices would improve security and network performance.

Documentation and Procedures

The district lacks documentation and strong procedures to effectively manage technology. For example, the district lacks a technology procurement procedure that requires all technology purchases to be approved by the director of technology services. This type of policy will ensure that software or equipment purchased is compatible with other software or the network infrastructure, and that appropriate resources are available to install, support and maintain the purchase.

The district lacks a network diagram and inventories for software licensing, computer and peripheral hardware, and network equipment. Among other benefits, developing and maintaining these items allows a district to manage equipment and develop a replacement schedule to minimize support costs.

The district lacks a disaster recovery plan to protect its data in the event of a natural or manmade disaster or other emergency that causes downtime. In addition to ensuring that data is recoverable, an effective plan helps staff maintain, recover and resume district and school operations. The district should develop a disaster recovery plan and test it at least annually.

Staffing and Organization

Although technology support staff are officially managed centrally by the technology services department, the support in practice is decentralized. School technicians arrange work schedules directly with school administrators, resulting in inequitable support. A support strategy driven by prioritizing help desk requests would use limited labor resources more efficiently and help decrease lead time for critical requests.

School technicians arrange work schedules directly with school administrators, resulting in inequitable support.

The Technology Services department lacks regular staff meetings. Meetings to collaborate with the Instructional Services department are beneficial, but Technology Services department staff need to meet independently to review projects and discuss developing skill sets and standardizing support practices and policies. The over-collaboration of the two departments has resulted in stunted innovation and communication within the Technology Services department and created an environment that is more complex than necessary to support. For example, at one meeting, technology service staff broached the idea of updating all Apple Macintosh computers to the same operating system to better provide backup and imaging services, automated updates and end user training. Staff from the instructional technology department did not support the update, and because the decision was not unanimously supported by both departments, the project did not move forward. In addition, it has led classified Technology Services department staff to perform duties assigned to another employee group.

Findings and Recommendations

Technology Plan and Policies

The district technology plan (technology use plan or TUP) contains all of the necessary elements required for E-Rate funding and was approved by the California Department of Education (CDE) in March 2010. The plan is based on a shared vision of educators, administrators and technology staff and contains language that supports integrating technology into the classroom and curriculum.

The TUP outlines an evaluation and modification process that requires three technology advisory council meetings a year to review the status of goals and benchmarks, evaluate implementation, and recommend budget and/or TUP revisions. The TUP specifies that there should be diverse representation on the technology advisory council, including but not limited to district staff, school administrators, and teaching staff.

Staff indicated that the technology advisory council is not monitoring, evaluating and revising the TUP; instead, Instructional Technology department staff are performing this task. The technology plan is not only an instrument to meet grant and regulatory requirements, but one to be followed, monitored, and updated to meet instructional needs. Successful school district technology programs regularly convene a diverse technology advisory committee to monitor and evaluate the district's technology plan. Convening regular meetings with key administrators and influential teachers provides a breadth of working knowledge to further evaluate and update the plan, ultimately strengthening curricula and supporting learning for all students.

The district has acceptable use, website, staff development, and sponsored social media technology policies to appropriately guide and address use of technology in the school district. The policies were reviewed and updated within the past school year.

Interviews indicated staff and students use personal electronic devices (PEDs) to connect and gain access to the Internet using the district's network. However, the district's Board Policy 4040, Employee Use of Technology, and Board Policy 6163.4, Student Use of Technology, do not include language regarding the use of PEDs.

With increasing frequency, school districts are embracing the idea of staff and/or students bringing PEDs on school campuses to connect to the district's wireless network, sometimes as part of a larger bring your own device (BYOD) instructional program. Staff and students can use PEDs to build collaboration in an online environment, develop independent learning skills, and increase communication and collaboration with teachers and peers.

Developing or prohibiting the use of PEDs is an important local decision. Allowing a PED environment to develop without guidance and forethought may put the district's resources and students at increased risk. Reviewing infrastructure, network administration and security, and district policies should be part of the implementation plan to create and support a PED environment. Infrastructure concerns are discussed in the Network Infrastructure section of this report.

Following is sample acceptable use language that permits staff and student to use PEDs on the district's network:

- Staff and students are expected to use PEDs for positive purposes: for learning and for legitimate communication.

- PEDs must not be used to harass or victimize other students or staff, or to abuse a person's right to privacy.
- PEDs must have all security patches for their respective operating systems installed and be running virus protection software with current virus definition files.
- The device is not permitted to run Internet or web hosting services while on the district's network and is not permitted to have Internet connection sharing services turned on.
- During school hours, PEDs may access the Internet only through the district's wireless network, not through any other Internet access.
- PEDs are subject to inspection if there is suspicion that they have been or may be used inappropriately. In addition, PEDs that have been used inappropriately may be subject to confiscation.

If the district's intent is to prohibit the use of PEDs on the district's network, language in the board policies regarding employee use of technology and student use of technology will need be updated to reflect this decision.

Recommendations

The district should:

1. Reconvene the technology advisory council, in accordance with the district technology plan, to monitor, evaluate, and revise the district technology plan to meet district goals.
2. Update its employee and student acceptable use policies to include the district's decision to allow or prohibit the use of PEDs.

Instructional Technology

Hardware and Software

The district has made significant investments in hardware and training to establish an instructional standard of a ceiling-mounted LCD projectors and instructional computers for teachers. In addition, the requirement that teachers attend training before being issued a classroom Promethean Interactive Whiteboard has ensured that most teachers are effectively using this tool. This classroom technology standard exceeds what many comparable districts have accomplished. Grants and categorical funds were used to fund the initial investment and ongoing staff development, though replacement of the ageing equipment is the responsibility of the individual schools. Many schools struggle with prioritizing technology expenditures to replace the classroom standard and antiquated computer labs.

There is a lack of standard student access to technology among various schools and classes. Schools manage technology equipment purchases independently, often relying on categorical funding. This has created inequities between schools; schools with more categorical funds purchase additional equipment and update existing equipment more frequently. The variance is significant, with some schools limited to a single stationary lab or computers five to six years old, and others having multiple newer mobile laptop carts.

The 2010-2015 district technology plan (technology use plan or TUP) notes adoption of the International Society for Technology in Education's National Educational Technology Standards (ISTE's NETS) for learning, teaching and leading. However, staff indicated that students have varying levels of technical competence depending on the school they attend and the teachers they had in prior years. For example, middle schools offer electives with a technology-rich curriculum, but not all students have an opportunity to enroll in these classes.

Districtwide consistency in students' technology skills requires equitable access to technology and the integration of technology skills into the curriculum. The lack of up-to-date technology resources at schools constrains the instructional program and teachers' ability to meet goals and objectives as stated in the technology plan.

Support for instructional technology is inconsistent among schools. For example, computers are maintained, imaged and configured differently by technicians with little management oversight. Varying computer models and core configurations can cause support delays due to lack of detailed knowledge of the wide breadth of hardware in use. Similarly, the support cost for troubleshooting and upgrading hardware after the warranty period is not monitored. It can cost as much to maintain an aging computer as to replace it. These inefficient practices have created inconsistent configurations, unreliable computer performance, and varying support needs among schools.

Hardware and image standardization provide a consistent foundation to successfully run educational applications. In addition, creating and adhering to a replacement policy and schedule would reduce the excessive time and funding spent on troubleshooting and updating out-of-date equipment.

In times of fiscal difficulty it may be necessary to examine a variety of computer purchasing options to provide equitable access to current technology. Many educational organizations are evaluating and implementing cost-saving strategies such as desktop virtualization, leasing computers, or purchasing previously leased refurbished computers to help lower the cost of replacing systems. In addition to making technology more financially accessible, these strategies

can provide a cost effective way to improve network performance and technical support by replacing old computers.

The district has effectively standardized the use of electronic learning programs and credit recovery solutions such as Pearson Successmaker, Plato, and Promethean ActivInspire. These are being adopted and implemented to some degree at almost every school, and these applications are used consistently to improve students' understanding of content. Barriers to using these tools include the age of hardware and the instructional staff's lack of knowledge regarding basic troubleshooting and use of the software.

Technical staff spend a significant amount of time maintaining student accounts in application databases and troubleshooting Promethean software. Improved data uploads and synchronization between the student information system (SIS) and the electronic learning programs would reduce software issues and increase staff productivity. Training teachers and holding them accountable for understanding and using basic troubleshooting skills, such as learning to reset Promethean Whiteboards, would reduce response time for technical support on other priorities. In addition, ensuring that the district's director of technology evaluates and approves all software purchase requisitions prior to ordering and installing would help ensure that all software applications are compatible and will perform properly on the desired computers.

Recommendations

The district should:

1. Assess all school technology inventories to determine if they meet the technology plan recommendations. Create a plan to support equitable student technology access through measures such as standardizing student equipment and creating a replacement plan for instructional equipment. Ensure that appropriate technology skills are taught to all students at each grade level.
2. With staff input and collaboration, develop standardized computer images, configurations and support models for all systems and schools.
3. Develop a technical support policy for maintaining and repairing equipment based on its age, model, security, and typical use.
4. Develop hardware purchasing plans that consider virtualization, leasing and refurbished options to ensure equitable access to technology for all students districtwide.
5. Centralize learning application servers such as Pearson's SuccessMaker to standardize and automate the creation of student accounts districtwide. Train teachers how to maintain and create student accounts for students who enroll after batch uploads are completed.
6. Provide teachers with training in basic troubleshooting, and hold staff accountable for performing basic troubleshooting before creating a help desk request.
7. Adjust the technology purchase process to include evaluation and feedback from the technology director when selecting software.

School-to-Home Communication

One of the benefits of advanced telecommunications in schools is the ability to improve communication between the school and students' households. Internet, e-mail and telephone systems have improved school-to-home communication beyond the traditional weekly newsletter or occasional attendance-related telephone call. The district uses a variety of electronic tools to communicate with students and parents including e-mail, website, an auto dialer, and social media accounts.

Recent implementation of the Aeries Student/Parent Portal has made grades K-12 attendance and grades 7-12 homework and report card information available to parents. The district plans to provide students with access in the future. The district has few guidelines or best practice procedures for implementing and using the Aeries Student/Parent Portal. This may affect the quality of information available to parents. For example, significantly delayed entry of homework grades can prevent a parent's awareness of an issue. Defining and communicating expectations using best practice procedures and guidelines can direct staff regarding appropriate use of the tool and improve school-to-home communication districtwide.

The district uses Blackboard Connect as a daily autodial solution to contact students' parents and guardians when their child is absent. Although the system has improved attendance, the telephone numbers in the system are not always accurate because data is uploaded from the Aeries SIS to Blackboard Connect infrequently. For best results, the Blackboard Connect system should update nightly based on information in the Aeries system. This would improve accuracy and reduce the staff time needed to maintain the Blackboard Connect database.

The district uses Schoolwires, a Web-based content management system, to maintain its website. Board policy usually defines the expectations and requirements for schools' and teachers' web pages. However, the district lacks board policy in this area and as a result there are no defined expectations. The district and school websites have a consistent layout, simplifying navigation and creating a unified web presence. However, not all teachers have web pages and those that exist do not provide similar information. Effective standards for website development encourage teachers to develop a classroom web page with a uniform appearance and to include information such as a teacher biography, classroom information, syllabi, calendar of events, classroom documents and useful links to resources such as online textbook materials or websites for practice. School districts' websites that are effective and often visited include classroom information and may reduce printing costs.

Recommendations

The district should:

1. Develop best practice guidelines and procedures and communicate expectations regarding information in the Aeries SIS that is made available to parents and students through Aeries Student/Parent Portal.
2. Work with Blackboard Connect to implement nightly Aeries uploads to keep telephone numbers in the system current.
3. Collaborate with teachers to develop guidelines for and examples of teachers' web pages.

Professional Development

The district has a longstanding, effective staff development program delivered primarily by its Educational Services department for all K-12 teachers. Staff development focuses on integrating Promethean interactive whiteboards and the virtual instructional program (VIP) in partnership with Fresno Pacific University to certify teachers in developing and delivering online instruction. Because of budget cuts and reduced opportunities for federal and state technology grants, the district's professional development offerings have been reduced and most opportunities are offered during summer or after school hours. For example, the district offered after-school trainings on developing classroom web pages with the new Schoolwires tool.

The district recently adopted the Aeries student information system (SIS). As part of the Aeries adoption, the district has implemented online attendance reporting through Aeries Browser Interface (ABI) for all schools; this is a best practice that most California districts implement. High school and middle school teachers have begun implementing the ABI grade book and report card this school year. These teachers received one hour of training at the beginning of the school year and were given access to training materials and videos on the teacher resources web page for additional support.

Training on the ABI grade book and report card was limited to a few sessions, and not all staff were able to attend. Because of the lack of available training, teachers and school administrators expressed frustration with using the tools to generate report cards, at which point school administrators required technical support staff to be available exclusively to assist teachers with report cards.

Staff indicated that they appreciate the learning opportunities presented but would like Aeries and Schoolwires trainings to be offered during the school day during their prep periods or during a professional learning minimum day. Teachers indicated that they prefer trainings from peers and will make time to attend when they know it will be delivered by someone who understands their perspective and needs. Technical support staff provide technical assistance through troubleshooting and repair services on software and hardware, but teachers can better provide support to their peers regarding applying, implementing and using the software solution for student learning.

With instructional applications such as grade book software, online learning programs, and electronic intervention software, it is best practice to have credentialed teachers provide support and training rather than technical support staff. Many districts accomplish effective teacher training by scheduling teachers on special assignment (TSAs) to provide on-site trainings. Staff are usually more receptive to TSAs, who can teach about integrating applications with the curriculum and increase both teachers' understanding and the value of the tool they are learning.

Recommendations

The district should:

1. Provide optional software training, such as training in using Schoolwires, during teachers' prep periods and on minimum days to encourage participation.
2. Provide vital software training, such as training regarding the ABI grade book and report card tools, before, during and after school hours, as best meets staff members' needs.
3. Have TSAs provide application training and support to instructional staff rather than school technicians.

Applications

Student Information System

The Aeries SIS is used to manage all of the district's student data including attendance, report cards, standardized test scores, and credentialing information reportable to the state through the California Longitudinal Pupil Achievement Data System (CALPADS). The district adopted Aeries last school year and has successfully transitioned fully to it. The implementation and adoption was smooth and well supported by both technical and school support staff. The district's CALPADS certifications are on schedule, and the statewide student identifiers (SSID) maintenance and student anomalies are processed in a timely manner.

Through the Aeries Parent/Student Portal, students and parents can view live daily attendance, assignments, grades and report cards online. The district's middle and high school teachers are using Aeries grade book and report card, while elementary teachers continue to use Standards Score grade book for their standards-based grade book and report card. The Standards Score application is isolated from the Aeries SIS; therefore, elementary student grade book and report cards are not available to parents and students through the Aeries Parent/Student Portal. However, elementary schools will transition from Standards Score to the Aeries ABI grade book and report card applications during the 2013-14 school year.

Student Assessment System

The primary purpose of classroom and district-level benchmark assessments and systems is to improve student learning. A student assessment system allows a district to monitor the progress of individual students, classes, grades, schools or the entire district toward its learning goals. This feedback helps teachers identify students who may require additional instructional services. It also allows teachers to collaborate to improve their craft. For example, if students in one class show strong understanding of a particular standard, another teacher may be interested in the method used to help his/her students.

The district uses Houghton Mifflin Company's EduSoft software for its assessment system and Intel-Assess to provide a bank of standards-aligned questions. EduSoft was adopted in 2002 for the district-required benchmark assessments. District administration is concerned about whether this tool continues to best meet district needs and will continue to be relevant with implementation of the common core state standards (CCSS) and Smarter Balance Assessment Consortium (SBAC) adaptive assessments.

The assessment system and the implementation of the benchmark assessments is well supported and adopted by the school administrators and teachers. All core subject area teachers administer the district assessments. Students complete the assessments using Scantron forms, which are filled in advance with each student's identifying data. Once the student assessment is complete the Scantron forms are turned in to the teacher or data technician to be scanned and uploaded into EduSoft. Once scanned, the data is immediately available for teachers to evaluate student performance. Teachers are using the assessment data to identify areas for re-teaching to improve student performance.

Creating the Scantron forms with student data printed in advance, scanning them to upload data into EduSoft and resolving anomalies is a detailed process and requires a trained individual. Because certificated staff teach multiple class periods and have more students each day, high

school and middle school teachers have a site data technician to help with this process. The data technician prints the Scantrons, scans them and runs reports for the teachers. Elementary school teachers do not have a schedule with multiple class periods so complete this process independently with occasional assistance from an administrator. Schools with a data technician have more opportunities to use the system to regularly monitor student progress than do schools that do not have the additional support.

The difficult, time-consuming process of preparing, administering and recording the assessments using EduSoft has created a barrier for schools or teachers that have less support. Shared scanning stations are set up in a central location, making it challenging for teachers to schedule time to process the Scantron forms. Additionally, the scanners run on the Microsoft Windows operating system, and some schools encountered difficulty running the equipment on Apple computers. Staff expressed interest in evaluating other systems that do not have scanning stations and that would allow them to administer assessments and collect data more efficiently.

Recent advances in technology assessment systems have provided alternative hardware solutions such as using a webcam instead of a specialized scanner to scan and upload data. Eliminating or minimizing use of specialized equipment has financial and educational advantages. For example, specialized scanners cost more to maintain, replace, and support, and having the ability to scan results in the classroom rather than a central location can provide more immediate feedback results for 1-to-1 and small group learning situations.

Recommendations

The district should:

1. Review the purchased item bank or meet with Intel-Assess to determine whether the existing items are aligned with CCSS. Additionally, contact EduSoft to request information on how their product is being updated to address CCSS and SBAC adaptive assessments.
2. Collect feedback from assessment system users on features they like and dislike. Develop a request for information (RFI) to learn about the systems available, and then develop a request for proposal (RFP) to evaluate whether to continue using the existing assessment system or pursue another solution.
3. Research options to provide scanning of assessment answer sheets using classroom webcams.

Financial Reporting System

For more than 20 years, the district hosted Digitronics locally to perform school financial tracking and reporting. In 2008, the district transitioned to the countywide Smarte financial system hosted by the Madera County Office of Education, investing in retraining staff and adjusting work processes for the new financial system. Some core financial system modules, such as human resources and position control, were not transitioned to Smarte until recently, and staff are still learning these modules. At the time of FCMAT's fieldwork, all modules except the maintenance work order system had transitioned, and the district planned to transition that system this year.

The county office holds a five-year license for Smarte, which will expire in approximately one year. However, the county office has discontinued its use of the Smarte system in favor of Everest,

a system used by Fresno County Office of Education, with which the Madera County Office of Education has contracted for use of its integrated financial system. Because the Madera County Office of Education performs some payroll functions on behalf of the district, the district's staff are required to enter payroll information into the Everest system. As a result, the district runs components of three different and independently operating financial systems.

The district is the only remaining district in the county that uses the Smarte system hosted by the county office. The district has not discussed plans for continued use of the Smarte system with county office staff beyond the five-year license. Because the hardware that runs Smarte is owned and maintained by the county office, additional delay in planning may adversely affect the district's financial system options and ability to migrate historical data.

The fiscal benefits of a comprehensive school financial system include decreased equipment purchase and maintenance costs and increased operational efficiencies. Additionally, operating one comprehensive financial system increases data integrity and productivity by reducing the amount of manual data entry in multiple systems. Entry into a single comprehensive system provides a complete, accurate and timely display of the distribution and use of resources. Further, it requires less labor to train and support staff on the intricacies of one comprehensive system than on multiple systems.

Although the county office requires the district to use the Everest system for payroll services, business staff do not feel confident that the Everest software is robust enough for comprehensive adoption in a district as large as Madera Unified. For example, Everest lacks a maintenance work order module, and the district believes that its fixed asset and warehouse inventory modules do not contain the elements required for local operations.

With support from the county office, the prior director supported Smarte system end users. Remaining staff have received little or no training on Smarte and struggle to provide adequate user support. In addition, new and remaining staff are unaware of the support elements performed by the county office. Administrators also indicated that they believe the system is not user-friendly and lacks reporting flexibility.

It would benefit the district's operations and increase its efficiencies to convene a committee to assess and document its financial system needs to help identify a solution with the fewest systems needed to manage operations. The analysis should consider the effects of migration costs, ongoing support, maintenance, and training of financial system users, operators, and support staff, as well as other relevant factors.

Recommendation

The district should:

1. Develop a committee to review and evaluate the functionality, deficiencies and use of the Smarte and Everest financial systems in light of the district's needs, with the intent to make a recommendation for either continuing independently on Smarte or converting to the county-hosted Everest system. The committee should consist of district administrators, relevant department administrators, school administrators, technology administrators, and fiscal services staff.

a. If the district chooses to continue using Smarte independently, it should contact the county office to develop an acquisition and transition strategy for the software and district data. It should also develop a training and technical support model and seek training for financial system users and technical support.

b. If the district chooses to convert to Everest, it should develop a migration and integration plan in conjunction with the county office.

E-mail Application

The district has historically used a combination of Microsoft Entourage and Outlook with Exchange on a locally hosted server because of the mix of Apple and Windows platforms in use. Because of the cost and training associated with continuing to maintain the Exchange servers and licenses, the district recently selected Google Gmail, an Internet cloud-based solution, as the new e-mail solution. Because staff use e-mail to share files, future plans include expanding the use of Google products to include Drive (formerly known as Google Docs), an Internet cloud-based file storage and sharing solution.

Google Gmail and Google Drive allow access across all platforms using an Internet browser and proper authentication. Outsourcing e-mail and/or file storage can reduce the need for equipment, licensing requirements, and administration. Reliability and uptime (the time during which services are available and functioning) increase because of the enterprise network, system redundancies, and corporate system engineers available to support and maintain large-scale products such as the Google's.

Security issues with Entourage prompted the district to accelerate the change to Gmail; however, appropriate training opportunities were not offered for Gmail, and staff were unprepared for the change. The district reversed the transition for the interim, allowing staff to continue using Exchange, and a transition schedule was created. The Technology Department transitioned to Gmail in September 2012 and had plans to transition district office users October 2012 and all remaining users by the end of the 2012-13 school year.

E-mail is an integral communication tool in business and education. Because of its vital role, it is important to develop and communicate a thorough migration plan that includes but is not limited to determining strategies to either migrate or archive old e-mail and scheduling training opportunities for e-mail users. In addition, the district needs to consider using templates and custom scripts to transfer names and passwords for a smooth transition between solutions. Attempts to transition to a new e-mail system without first considering these issues increase the chances of failure, lower productivity, and reduced communication.

Recommendations

The district should:

1. Develop and communicate an e-mail migration plan that includes a schedule of training opportunities and transition dates for e-mail users. Determine and communicate how old e-mail will be retained.

2. Research and develop templates or custom scripts to aid in transferring names and synchronizing passwords between the two systems.

Technology Help Desk Application

The district's technology help desk process is not efficient and does not generate information needed to manage technology. The district recently adopted the HelpSpot technology help desk system, but the process for requesting technical assistance using this system has not been consistently enforced. Teachers, staff and administrators continue to request support via phone calls, voice messages, e-mails, text messages and hand-written notes to technical staff. This makes it difficult to monitor, track, and report resolution trends and progress. Further, the lack of a standard help desk request process means managers are unable to help guide technical staff in prioritizing issues and identifying practices that are inefficient or that do not align with the district's policies or procedures.

It is best practice to require that all technical issues go through the help desk system so that a log of issues is automatically generated. The information in the system can be used to help identify support trends and needs for additional staff development, equipment, or staff support. Staff and teachers need to be given an overview of the help desk system and understand the value of using the system to streamline support and decrease time to resolution. It is more effective and efficient to use the help desk system to determine technician's workloads and assignments rather than allow personal choice to do this. Policies and practices regarding how help desk requests are tracked, assigned and monitored need to be agreed upon within the department so that practices are uniform from site to site. Teachers, staff and administrators should be able to log into the system to track the progress of their help desk request at any time.

Recommendations

The district should:

1. Require that all requests for technical support be submitted through the help desk system.
2. Form a technical committee to develop uniform practices and procedures for using the help desk system to track, assign, and monitor help desk requests so that these practices are uniform and consistent districtwide.
3. Use the information generated by the help desk system to better plan ongoing technology support.

Server Administration

The district has a mixed environment of Apple and Windows computers and operating systems. Generally, elementary schools use Apple workstations and secondary schools use Windows workstations. Both elementary and secondary staff access Aeries SIS through the remote desktop connection manager, which is on Windows servers at the district office.

Secondary school teachers have local administrative privileges on their workstations, allowing them to change security settings, install software and hardware, and access operating system files. Giving users the ability to install software is a security weakness and creates the potential for installation of unnecessary software that can slow a workstation down. One secondary school technician indicated that the most frequent support requests are due to user error. Modifying local workstation user accounts from administrator accounts to a more secure level such as standard user can minimize inadvertent system changes and reduce technical support calls.

The district lacks a standard for instructional staff members' and students' use of a network account. Users access the wireless network through a generic account that is controlled by a school-specific password that is weak and based on public information. Students at multiple schools connect to the staff wireless network. School technicians generate and maintain network accounts on multiple decentralized directory servers. Most instructional staff, middle schools, and high schools have unique network accounts, and most elementary students use generic classroom accounts. However, this practice varies depending on the time constraints, skills and preferences of the assigned school technician. School staff also indicated that help desk requests to add or change network accounts have taken up to a week to be processed. Having a network administrator manage network accounts centrally can increase standardization, decrease response times, and enable network accounts to be created and maintained using exports from the SIS and employee database to streamline the process.

There is no evidence that the district is in compliance with the requirements of the Children's Internet Protection Act (CIPA) to monitor individual students' Internet traffic because students do not have unique authentications for network access. To comply with CIPA, the district must be able to track, monitor, and report student Internet activity. This can be accomplished by integrating a content filtering server with a directory server to identify each individual's Internet activity.

The district does not have a strong password security policy. Such a policy establishes minimum guidelines for password procedures. For example, it may specify that a password must include at least one uppercase letter, one number, one symbol, and be at least eight characters long. It may also require each user to change their password periodically, such as every three months. Strengthening the password requirements and standardizing on individual network accounts can make a network more secure and less vulnerable to network attacks and security breaches. It is best practice to discourage the use of generic staff accounts to ensure that student data is not compromised.

Staff and students are subject to the same content filtering policy, and staff expressed frustration that the filtering is too restrictive to complete their work. Developing Internet content policies for each type of account, such as staff or student, provides a safe Internet environment without impeding productivity.

Some instructional staff are unfamiliar with how to save and retrieve documents from secure file servers and do not understand the importance of using a secure file server instead of the local hard drive. The Family Educational Rights and Privacy Act (FERPA) is a Federal law that protects the privacy of student education records and applies to all schools that receive applicable federal funds. Schools usually must have written permission from the parent to release any

information from a student's education record. Saving student data on a local hard drive of a workstation can result in a FERPA violation if the device is stolen.

Centralized data on systems at the district office data center, such as data for Aeries and Exchange, is backed up remotely using the Barracuda system. However, group and individual network file storage for school staff is located on decentralized file servers that are not backed up, and there is no recovery plan for this data.

The district has more than 140 servers at various locations that use various operating systems and platforms. Instead of locating servers at every school site, the district could use virtualization technology, which uses software to convert one physical server into multiple virtual servers. Each virtual server acts like a unique physical file server, with its own operating system and data structure. Virtualization requires less equipment, but the equipment is of a higher quality than non-virtualized servers. Server virtualization also uses virtual partition backup schemes, which allows for optimized backup and data recovery.

Virtualizing servers usually results in savings because it reduces labor and replacement costs and may reduce licensing and maintenance costs. It also requires less equipment and rack space in computer rooms, thus saving in cooling system and electricity costs. However, centralizing, consolidating and virtualizing servers at the district office may increase internet activity compared to accessing files on a local server; therefore, the district will need to review bandwidth use and connection speeds at each school to identify constraints and minimize the negative effects on school staff before transitioning to centralized virtualized servers at the district office.

Recommendations

The district should:

1. Change users Windows workstation accounts from administrator accounts to standard user accounts unless a higher level of access is required to run specialized software.
2. Develop a centralized enterprise domain structure scheme, and create unique username accounts and passwords to access the network, including the wireless network.
3. Develop and adopt a strong password security policy and a network security policy. Seek district board approval and incorporate the policy into the administrative regulations.
4. Develop and implement separate content filtering polices for staff and student Internet access.
5. Provide training on the importance and use of saving student data to secure file servers.
6. Develop a plan to remotely back up decentralized server data for disaster recovery.
7. Develop a plan to implement virtual servers to consolidate decentralized file servers, increase efficiency and reduce costs.

Network Infrastructure

Network speed and reliability are the biggest concerns shared by support and instructional staff. Network bandwidth is not uniform among schools. For example, King Middle and Sierra Vista Elementary schools connect to the district office via a 100 Mbps fiber-optic link, while Dixieland and Berenda elementary schools connect to the district office via multiple T1 circuits totaling 6 Mbps. Historically, connection speeds at remote schools have been limited by services provided by the local Internet service provider (ISP). For remote sites, bonding multiple circuits together was the only way to achieve faster internet speeds. While this option is still available, progressing technologies have provided alternative services such as licensed wireless broadband. In addition, the Corporation for Education Network Initiatives in California (CENIC) and Vast Networks (previously known as the Central Valley Independent Network, CVIN) submitted the Central Valley Next-Generation Broadband Infrastructure Project (CVNGBIP) and were awarded funding under the American Recovery and Reinvestment Act (ARRA) to improve the availability of broadband networking infrastructure for 18 counties in California's Central Valley area, particularly in rural, underserved, and unserved areas. Madera County was one of 18 counties named in the project. Although the plan has already been developed and the project has begun, the district may want to contact the CVNGBIP to determine if new services will become available in communities served by its rural schools.

The quality of network equipment is inconsistent among schools. Although the district is standardized on Hewlett Packard networking equipment, it lacks a replacement schedule and networking equipment is outdated, with some equipment more than 12 years old. A modern switch infrastructure can support 10/100/1000 Mbps ports to network devices, 1 Gbps or 10 Gbps uplinks to switches in main distribution frames (MDFs) to reduce bottlenecks, spanning tree protocol to protect against detrimental loops in the network topology, power over Ethernet (PoE) and quality of service (QoS). PoE is a cost effective option that allows data and power to be provided over an Ethernet cable. A PoE-enabled switch infrastructure supports the ability to power enterprise wireless devices, modern phone systems that use voice over Internet protocol (VoIP), and video surveillance cameras. QoS is used to prioritize VoIP traffic, giving voice traffic precedence over other network traffic. QoS may also be used to separate non-VoIP network traffic into a tiered arrangement to allow specific traffic to be prioritized.

The district lacks standards and guidelines to configure and install new network equipment it purchases. School technicians configure and install equipment such as Ethernet switches independently based on their knowledge, resulting in a lack of conformity. Developing and maintaining standard configuration details and installation guidelines would increase efficiency and the quality of network service.

The school networks are flat, meaning that only one local area network (LAN) is configured. A LAN is a network that connects computers in a limited area such as in a building or at a site; devices on a single LAN share network resources such as bandwidth. Devices on a flat network may experience poor network performance because of the competition for limited network resources. In addition, although the district lacks a policy regarding allowing or disallowing personal electronic devices (PEDs) on its wireless network, students and community members are obtaining the password and connecting PEDs, especially middle school and high school students. One staff member indicated that a non-student community member living near the school approached the office to request the new wireless password because it had been changed and he was unable to connect to the school's wireless network.

Flat networks have little or no security because students and visitors who connect to the wireless network have access to file servers and networking equipment. A more secure switched network would contain multiple virtual local area networks (VLAN). Using VLANs helps identify groups and track network traffic to increase security and allocate network resources. Security is increased by limiting access to networking devices. Malicious users often seek access to the management console of a networking device to alter the network configuration to their advantage. Using VLANs allows a district to match resources with the appropriate users. For example, grouping instructional staff and file servers on a staff VLAN, and student workstations on a separate student VLAN, helps prevent student workstations from accessing staff files.

A proper VLAN design allows a district to segregate network traffic and apply network policies to select VLANs. In addition to staff and student VLANs, an equipment management VLAN can be used to secure, monitor and maintain networking equipment, including monitoring its health and mitigating virus outbreaks.

Allowing PEDs to connect to the district's network creates challenges in both network security and administration. If the district chooses to allow non-district devices to access its network, creating a separate guest VLAN will help to secure the network. The separate VLAN would enable the district to restrict the devices to the Internet, apply appropriate content filtering, and monitor usage.

The first step in setting up a VLAN network is to determine if existing equipment has the ability to support VLAN technology. The district does not have a complete inventory of network equipment or a replacement plan; therefore, developing an inventory and upgrade plan is advisable.

Recommendations

The district should:

1. Research, evaluate, and implement alternative connection types to provide faster connections to remote school locations.

2. Develop a network equipment inventory, upgrade plan and replacement schedule. Put priority on equipment that is incapable of supporting VLAN technology. Develop standard configurations and installation guidelines to assist technical staff in configuring and installing equipment.

3. Evaluate network traffic and develop a VLAN design that allows it to set priorities and secure network resources. At a minimum, create VLANs for staff, student workstations, and equipment management. If the district chooses to allow PEDs on the network, create a separate VLAN for these devices.

Environment

Physical security is the most basic protection for network equipment and systems. This includes limiting physical access and managing temperature and humidity. Technology equipment is costly to replace, and having to do so unexpectedly can result in extended downtime for vital network services.

The district's data center is located at the district office in a secure and environmentally controlled room. The data center contains all equipment vital to district operations, including servers and equipment that connects classrooms and the district office to the Internet.

The school sites each have a main wiring closet (known as a main distribution frame or MDF) to connect the school back to the data center at the district office. FCMAT visited Madera South High, Jefferson Middle and Madison Elementary schools. The MDFs at all three schools were not adequately secured or environmentally controlled. Further, the MDF at Madison Elementary School doubles as a storage room and custodial closet, creating a safety hazard because chemicals and other custodial supplies are stored near electrical equipment.

Proper standards and safeguards help ensure that a technology infrastructure operates in an optimal environment, thus increasing reliability. Standard and best industry practices include controlling and securing all entry points and limiting access to prevent theft and accidents that could incapacitate the network. This may be accomplished simply by securing doors and relocating stored items and custodial supplies. Normal operation of equipment generates heat that must be controlled to prevent equipment failure. The American Society of Heating, Refrigerating and Air-Conditioning Engineers' (ASHRAE's) 2008 *Thermal Guidelines for Data Processing Environments* white paper states that data communications equipment should be maintained between 68 and 77 degrees Fahrenheit, depending on altitude, humidity and other relevant factors.

Equipment and cabling in the MDFs at the schools FCMAT visited is not organized. Telecommunication and server equipment needs to be mounted to a suitable wall or rack and labeled correctly. It is best to organize components of the network such as patch panels, switches and fiber panels in standard positions to ensure that technicians can address problems efficiently as they occur.

Recommendations

The district should:

1. Provide clean, secure and monitored MDF closets or rooms for telecommunication and technology equipment at all school sites.
2. Properly mount and label telecommunication and server equipment in MDFs.

Documentation and Procedures

Technology Procurement Procedure

The historical collaboration between the district's Technology Services and Instructional Technology departments is apparent, though currently only the coordinator of instructional technology approves software and instructional hardware purchases. Without evaluation by the Technology Services department, there is a risk that otherwise preventable issues will cause instructional technology purchases to exceed planned timelines and budgets. Educational technology projects have a greater chance of being implemented successfully, staying within budget, being on time, and meeting the desired educational objectives when administrators, Technology Services and Instructional Technology departments collaborate during planning. Input from the technology department can provide information on how well the software or hardware will function with current technology; the costs associated with improvements needed to support the additional technology; the cost of professional development for technical staff; and the cost of ongoing support and maintenances for replacement equipment. In addition, including facilities and/or maintenance and operations department staff can provide information regarding the cost of upgrading cabling and electrical service.

School sites have invested in updating hardware only to find that the existing infrastructure and core networking equipment or cabling is not capable of supporting the technology or the level of use anticipated. The technology director does not review the school site technology purchases and has not been included in advising sites on appropriate technology selections. School administrators rely on district-assigned school technicians to provide guidance and to help prioritize what needs to be replaced or upgraded. As a result, school sites have purchased equipment that does not meet district's standards or that lacks capacity. Industry best practice is for technology management to review all technology purchases and projects to help ensure that equipment, software and other items selected meet a district's current standards and will function within the infrastructure's capabilities.

Recommendation

The district should:

1. Develop a procurement procedure that includes technology director review and approval of all technology purchases, software and hardware.

Workstation Installation and Setup Standards

In addition to the lack of configuration and installation standards for new network equipment purchases (discussed in the Network Infrastructure section of this report), the district lacks standards and procedures for configuring and setting up workstations. Workstations are configured inconsistently, increasing the time and skill it takes to resolve help desk requests.

Many school districts use a centralized workstation imaging system that has image files for the various types of office and classroom workstations. Sample imaging systems include Ghost, Altiris, Acronis, Microsoft tools Sysprep and ImageX, and Apple tool System Image Utility. It is a best practice to maintain workstation images on a central file server that school technicians can access and use when installing workstations. Training staff to create, update and use standard workstation images will increase the reliability of workstations, shorten workstation refresh and new workstation setup times, and create consistency to aid in troubleshooting workstations.

Recommendation

The district should:

1. Train staff on the use and benefits of imaging systems. Develop a procedure for imaging new and refreshed workstations.

Inventory & Network Documentation

The district does not maintain an inventory of its software licenses. A software inventory tracks all licensed software including operating systems and word processing, spreadsheet, database and educational applications. An accurate inventory increases licensing compliance, improves the accuracy of budget forecasting and reduces legal risks. In addition, the software inventory can be used to make decisions about future software use.

The district does not maintain an inventory of computers and peripheral hardware. This type of inventory typically tracks computers, iPads, iPods, printers, scanners, servers, document cameras, interactive whiteboards, digital cameras and other such equipment, and includes computer specifications such as processor speed, memory and disk space. These records allow a district to assess its operational capability, including classroom equipment's capability to operate multimedia applications. An accurate hardware inventory also helps a district plan for technology replacement and installation.

The district does not keep track of or inventory its networking equipment. This type of inventory includes all equipment required to provide network services such as wireless access points, switches, routers and firewalls. Like a hardware inventory, a network inventory is integral to equipment replacement planning. An effective networking equipment inventory will include information such as the equipment's make, model, vendor and location, and its network configuration information such as the Internet Protocol (IP) address and applicable VLAN information. It will also include the availability of spare equipment that can be used for emergency replacement in case of equipment failure.

The district also lacks a network diagram that documents the layout of its network and equipment. A network diagram allows technology staff to identify at a glance which equipment to evaluate when a problem arises. With the networking equipment inventory, it helps technicians determine and resolve network issues faster, increasing efficiency and decreasing downtime. The network diagram can also help non-technical staff and users understand the network design to aid in decisions and in planning for 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.

Equipment Replacement Plan

The district does not have a structured plan to replace equipment. An equipment replacement plan helps ensure that computer, telecommunication, network and classroom technology equipment meets acceptable standards, and that sufficient computing resources are available in computer labs, classrooms and offices. Failing to plan for aging technology leaves a district vulnerable to equipment failure and excessive maintenance costs. Regularly replacing equipment can increase staff collaboration and efficiency. For example, the district's fiscal staff use a variety of different computers, and these differences drive software choices and make it difficult for the staff to collaborate, share documents and communicate. If the workstations were updated regularly, the equipment would be more compatible.

In difficult economic times, a district can benefit from developing alternative funding sources; creating a financial reserve for equipment replacement; and researching ways to replace aging technology with new and lower cost technologies, including consolidating devices and transitioning to mobile technologies.

A typical plan might specify replacement of desktop computers every five years and laptop computers every four years. The director of technology services and business office staff can help provide the information needed to set reasonable replacement schedules.

Recommendations

The district should:

1. Develop a technology replacement plan to ensure that sufficient computing resources are available throughout the district.
2. Replace aging technology with cost-effective new technology.

Disaster Recovery Plan

The district backs up critical data with a remote backup service using a Barracuda system. This is vital to protecting the district's data in the event of a natural or manmade disaster or other emergency that causes downtime. As discussed in the server administration section of this report, the district's decentralized servers are not backed up and are at risk in the event of a disaster.

In addition to ensuring that data is recoverable, an effective disaster recovery plan helps a technology department maintain, resume and recover systems to continue district and school operations. To develop a disaster recovery plan, it is necessary to determine which systems are vital and develop a list that prioritizes recovery efforts in case of disaster.

Effective disaster recovery plans will identify the following items:

- Potential tangible threats that could jeopardize and threaten the daily operation of school sites and the district.
- An outline of current technology infrastructure and crucial data storage.
- Support level expectations and contingency policies. The plan should have clear expectations about which services and systems will have highest priority until normal operations resume.

- A disaster contingency plan that, taking into account support level 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 the procedures for restoring systems during an emergency and initial notification and periodic updates for district personnel regarding disaster recovery status and normal operations.
- A plan to test the disaster recovery plan. Best practice is to conduct both 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.

The amount of time required to recover from equipment or data loss is just as important as backup recovery. Regular testing and independent auditing of the disaster recovery plan is important.

Recommendations

The district should:

1. Develop a disaster recovery plan in case of data and/or equipment loss.
2. Perform functional and full-scale testing of the disaster recovery plan no less than once per year.

Staffing and Organization

The district has made significant investments in updating classroom technology districtwide, including providing projectors, computers, interactive whiteboards and document cameras in most classrooms. However, the Technology Services department does not have the resources or procedures in place to support and maintain the increasing amount of technology at the district's schools.

The Technology Services department supports 27 schools, the district office, and all other district operations. The department falls under the Business and Operations division; however, the director of technology services is reporting to the deputy superintendent while the associate superintendent of business and operations position is vacant. The district does not have a current organizational chart, but the Technology Services department consists of a recently hired director of technology services, two network administrators, three network specialist II positions, four network system specialists, two system information specialists, and one information technology specialist. Although the district's technology support is mostly decentralized, some network operations are centralized. Based on school technician estimates of devices maintained at each site, the district has approximately 1,063 computers and devices per technician. This is higher than the average ratio of 778 computers or devices per technician at comparable districts. Appendix B, Information Technology Staffing Comparisons, contains additional information regarding this comparison.

Comparable Districts	Enrollment	Count of Schools	Count of Computers	Computer to Technician Ratio
Pajaro Valley Unified School District	19,545	32	6,500	433 to 1
Oceanside Unified School District	21,081	23	5,500	539 to 1
Average				**778 to 1**
Antioch Unified School District	19,081	26	4,000	800 to 1
Ventura Unified School District	17,509	31	7,500	833 to 1
Simi Valley Unified School District	19,933	28	5,000	1,000 to 1
Madera Unified School District	**19,576**	**27**	**8,500**	**1,063 to 1**

Approved job descriptions do not match the working titles and duties of many Technology Services department positions, and no job description was provided for the information technology specialist position. Job descriptions provided were approved in the 2011-2012 fiscal year; however, the personnel commission office has not completed the update process, and staff were not aware of the new job titles and descriptions. A chart of equivalent titles used in this analysis has been included for reference in Appendix C, Job Title Equivalency. There is no major difference in duties and responsibilities of the network system specialist and network specialist II positions: both are assigned to support one, two or three schools. For the purpose of this report, these two positions will be referred to as school technicians.

The previous director of technology services spent much of his time supporting technical issues and integral systems such as the human resources and financial systems, allowing less time for high-level strategy or planning of system operations and procedures. As a result, aspects of the Technology Services department remain unmanageable. For example, the current director of technology services is unable to manage staff by setting schedules and prioritizing work assignments because the district lacks of an enforced centralized help desk operation. Instead, each

school technician works with the school administrators to develop a weekly schedule, and some schools receive more support than others. The amount of time each school technician spends on location is not driven by need or technical support requests in the help desk system, which creates disparity and inconsistency in service based on individual school technicians' skills. Some instructional staff and administrators expressed frustration that support requests take a long time to resolve, with some sites averaging a one-week response time. Support should be designed to prioritize requests based on complexity, with higher level requests given higher priority. Having the Technology Services department set assignments and priorities would establish uniformity, consistency and efficiency in resolving problems. Many districts identify one to four technicians to manage and operate a telephone and help desk for both district office and school support requests. Rotating school technicians between the help desk and school sites is a low-cost way to staff a centralized help desk.

The district's network administrators support core network and enterprise applications located in the data center at the district office, such as firewalls, wireless access points (WAP), network switches and routers, and e-mail. Support of these, complex, enterprise-level systems requires ongoing training and staff development to stay abreast on technological advancements. Much of the network and district-level application management and support has been outsourced to an information technology consulting company. As a result, the district's employees lack full understanding of the design of the infrastructure and the cost to run these outsourced services. Staff are wrestling with understanding what has been put in place and why. Outside vendors are commonly used to help design and implement systems; however, contracting with outside vendors for routine support is costly. District leaders are evaluating the contracts to gain a better understanding of their costs and to determine how internal network administrative staff can better support these systems. As a result of the consulting contracts, staff will need time and training to become proficient in maintaining and supporting essential applications such as the district's firewall and filtering.

The system information specialists and information technology specialist support all aspects of essential applications such as the Aeries SIS, the Smarte financial and human resources system, and the required state and federal reporting from those applications. One of the system information specialists responds to the district office's technical support requests, similar to a school technician, while also supporting the district's telephone system, managing state-required student attendance reporting using Aeries, running reports for school sites in Aeries, troubleshooting printer issues, and reimaging laptops. These responsibilities cross multiple job descriptions. Supporting core enterprise systems such as Aeries or Smarte, requires dedicated personnel to maintain and sustain an essential system to operations. Many districts have tiered levels of support, from basic operations of the system to higher level complex reporting and mandatory database administration.

The school technicians are assigned to various school sites and support approximately 8,500 computers and peripherals as well as various instructional applications. These staff members do not meet regularly, and the meetings offered for these employees who have similar jobs to one another are initiated and conducted by the Instructional Technology department rather than the Technology Services department. These meetings focus on instructional needs rather than on developing technical skill sets or developing standard practices and policies for support. This practice has led to a lack of separation of duties between the Instructional Technology and Technology Services departments, with instructional staff opinions weighing heavily on basic support decisions. This has created a more complex environment than necessary and stunted innovation and communication among the Technology Services staff. For example, at one

meeting, technology service staff broached the idea of updating all Apple Macintosh computers to the same operating system to better provide backup and imaging services, automated updates and end user training. Staff from the Instructional Technology department did not support the update and because the decision was not unanimously supported by both departments, the project did not move forward. Further, school technicians are asked to perform a variety of tasks, from training teachers on interactive whiteboards to maintaining the school website, to providing workshops on the report card system and printing report cards. Many of these assignments fall outside the general description of the job. Communicating with school staff regarding appropriate expectations for school technicians will help Technology Services department staff provide consistent and efficient support. Regular meetings of the director of technology services and school technicians to review projects and practices and discuss expectations of the position will help reinforce that support and practices are uniform and in alignment with district goals.

The administrative functions of managing the technical division's operations and work have been assumed by department's technical staff and director. Comparable districts, as described in Appendix B, Information Technology Staffing Comparisons, all have administrative support positions in their technical divisions. For example, the typical information technology administrative assistant manages items such as proofing employee work hours and staff attendance reporting, coordinating the director's appointments, preparing board materials, answering and routing incoming calls, and ordering department supplies. In the district, the director of technology and a system information specialist perform these duties. Because of the high demand for and the ever-changing landscape of technology, providing administrative support for the technology department is important. This would allow the director and technical staff to focus on technology support and vision. The district should examine the need to provide administrative support to the Technology Services department through either a dedicated staff member or through shared responsibility among divisions. Because this support can be achieved through a variety of position structures, multiple job descriptions for a technology administrative position are provided in Appendix D, Sample Job Descriptions.

Comparable Districts	Enrollment	Count of Schools	Count of Computers	Administrative Assistance (FTE)
Pajaro Valley Unified School District	19,545	32	6,500	1.00
Antioch Unified School District	19,081	26	4,000	1.00
Ventura Unified School District	17,509	31	7,500	1.00
Simi Valley Unified School District	19,933	28	5,000	1.00
Average				**0.72**
Oceanside Unified School District	21,081	23	5,500	0.33
Madera Unified School District	**19,576**	**27**	**8,500**	**0.00**

In addition to the Technology Services department, the district has an Instructional Technology department. This department employs one coordinator of instructional technology and three teachers on special assignment (TSAs). All comparable districts in Appendix B, Information Technology Staffing Comparisons, have fewer TSAs than the district. The district's coordinator of instructional technology reports to the associate superintendent of educational services in the educational services division. The certificated TSAs are fully released from the classroom. Although the district was unable to provide a job description for the TSA position, staff indicated that the TSAs are typically assigned to specific a school site, like a network specialist, rather than

supporting the entire district's instructional technology needs. Staff indicated that the work performed by TSAs is similar to that provided by network specialists, including desktop support and professional development. TSAs also provide summer workshops that are open to all staff.

Comparable Districts	Enrollment	Count of Schools	Count of Computers	TSA (FTE)
Madera Unified School District	**19,576**	**27**	**8,500**	**3.00**
Pajaro Valley Unified School District	19,545	32	6,500	1.00
Average				**0.67**
Oceanside Unified School District	21,081	23	5,500	0.00
Antioch Unified School District	17,509	31	7,500	0.00
Ventura Unified School District	17,509	31	7,500	0.00
Simi Valley Unified School District	19,933	28	5,000	0.00

During the school year, a TSA is paired with a school technician to provide professional development training for instructional staff, with the school technician as the primary trainer. The idea behind this is to give credence to classified staff. As discussed in the Professional Development section of this report, it would be more effective to have the TSA be the primary trainer and support district-wide instructional initiatives such as Successmaker, Plato and other electronic learning programs, classroom and school web site development, and Aeries report card and grade book. Although the creativity, dedication, and extra effort are commendable, the transfer of duties between employee groups can lead to difficulties with bargaining groups and employee unrest.

Developing and communicating a TSA job description would help create a clear delineation between certificated TSA and classified Technology Services department staff duties. It would also help the TSAs have a greater impact in furthering the district's educational goals. Appropriate duties for a TSA include staff development and instructional support for all district teachers on district-adopted software applications. A sample TSA job description is provided in Appendix D, Sample Job Descriptions.

Recommendations

The district should:

1. Develop an organizational chart of the Technology Services department to show current positions, and update it whenever changes are made in positions or reporting hierarchy.
2. Work with the personnel commission to review and revise the job descriptions and duties for Technology Services and Instructional Technology department staff.
    a. Develop information technology specialist and TSA job descriptions.
    b. Review and revise the network system specialist and network specialist II job descriptions to ensure proper separation of duties, or unify the description and assignments for these positions under one job title.

c. Update the system information specialist job description to include state and federal reporting responsibilities for student information.

3. Create a formal, centralized help desk procedure, and consider creating a new help desk position or assigning existing personnel to the help desk. Convert from a support structure that assigns personnel to specific locations to a tiered support hierarchy based on the priority of needs. Schedule regular meetings of the Technology Services department staff to discuss projects, practices and expectations.

4. Obtain ongoing professional development for network administrators to provide staff with the knowledge and tools to maintain and support essential applications such as the district's firewall and filtering solutions.

5. Review the administrative tasks and duties of the Technology Services department and determine if an administrative assistant position is needed. If needed, work with the personnel commission to develop an appropriate job description or modify the job description of a position shared with other divisions.

6. Restructure staff development for instructional staff so that it is provided by certificated TSAs rather than by classified technical staff.

Appendices

A. Study Agreement

B. Staffing Comparisons

C. Job Title Equivalency

D. Sample Job Descriptions

Appendix A: Study Agreement

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

FISCAL CRISIS & MANAGEMENT ASSISTANCE TEAM
STUDY AGREEMENT
June 11, 2012

The FISCAL CRISIS AND MANAGEMENT ASSISTANCE TEAM (FCMAT), hereinafter referred to as the Team, and the Madera Unified 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 provide for the assignment of professionals to study specific aspects of the Madera Unified School District 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 AB1200, 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 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:

Human Resources/Risk Management Component:

1. Provide a detailed report that demonstrates the current state of services and provide recommendations regarding the organizational structure, staffing, interaction and division of duties between the human resources, personnel commission and risk management (including the workers compensation and property/liability programs) departments to support the District's needs.

a. Review documentation, including policies and procedures, and interview staff from the human resources, personnel commission, business and risk management departments to gather data regarding current practices, procedures and separation of duties. Additionally, the FCMAT team may interview other staff to determine the efficiency and effectiveness of services delivered.

b. Analyze the following items:
   i. impact of responsibilities required as a merit system district
   ii. status of relevant board policies
   iii. status of relevant procedures, including those between the personnel commission and business office
   iv. status of position control
   v. separation of functions and distribution of workload between the departments
   vi. adequacy of department staffing, including a review of job descriptions and a staffing comparison with districts of similar size and structure
   vii. the relationship and division of duties between the District and the California Risk Management Authority Joint Powers Association
   viii. organizational placement of the risk management department within the District
   ix. efficiency and effectiveness of service to school sites, other departments and employees

Technology Component:

1. Provide a detailed report that demonstrates the District's current state of technology and use, including hardware, software, professional development, departmental staffing and the use of technology, and provide recommendations to support the district's needs
   a. Interview site principals, instructional staff, department directors and classified staff to gather data regarding the type of applications and hardware utilized at the district. Review and analyze the technology master plan and make recommendations, if any

b. Analyze the level of support for the following:
   i. Network administration
   ii. website development and support
   iii. email support for district and site level staff
   iv. student attendance system
   v. financial reporting system
   vi. hardware installation and setup
   vii. application software used at district and site levels
   viii. technology in the classrooms

c. Review the job descriptions and staffing of the technology department, including any site level support and its impact on the technology department
   i. review the district board policies on the use and integration of technology for district level and site based instructional strategies. Include any obstacles or barriers that prevent the use of effective technology
   ii. Based upon the support level required by the district's technology department, provide staffing comparisons of districts of similar size and structure

d. Review the network design regarding safeguards of the data residing on the systems in the event of a catastrophic event or security breach. Review the network design for sufficiency to meet district's short term and long term plans, including the district and instructional action plan (DIAP)

B. Services and Products to be Provided

Orientation Meeting - The Team will conduct an orientation session at the District to brief District management and supervisory personnel on the procedures of the Team and on the purpose and schedule of the study.

On-site Review - The Team will conduct an on-site review at the District office and at school sites if necessary.

1. 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.
2. Exit Letter - The Team will issue an exit letter approximately 10 days after the exit meeting detailing significant findings and recommendations to date and memorializing the topics discussed in the exit meeting.

3. Draft Reports - Electronic copies of a preliminary draft report will be delivered to the District administration for review and comment.
4. Final Report - Electronic copies of the final study report will be delivered to the District administration following completion of the review. Written copies are available by contacting the FCMAT office.
5. Follow-Up Support – Six months after the completion of the study, FCMAT will return to the District, if requested, to confirm the District's progress in implementing the recommendations included in the report, at no cost. Status of 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.	***To be determined***	***FCMAT Consultant***
C.	***To be determined***	***FCMAT Consultant***
D.	***To be determined***	***FCMAT Consultant***
E.	***To be determined***	***FCMAT Consultant***
F.	***To be determined***	***FCMAT Consultant***

Other equally qualified consultants will be substituted in the event one of the above noted 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:

A. $500.00 per day for each Team Member while on site, conducting fieldwork at other locations, preparing and presenting reports, or participating in meetings.

B. All out-of-pocket expenses, including travel, meals, lodging, etc. 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 acceptance of the final report by the District.

Based on the elements noted in section 2 A, the total cost of the study is estimated at $30,900.

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

Payments for FCMAT 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 while on-site reviews are in progress.

B. The District will provide the following (if requested):

1. A map of the local area
2. Existing policies, regulations and prior reports addressing the study request
3. Current or proposed organizational charts
4. Current and two (2) prior years' audit reports
5. Any documents requested on a supplemental listing
6. Any documents requested on the supplemental listing should be provided to FCMAT in electronic format when possible.
7. Documents that are only available in hard copy should be scanned by the district and sent to FCMAT in an electronic format.
8. All documents should be provided in advance of field work and any delay in the receipt of the requested documentation may affect the start date of the project.

C. The District Administration will review a preliminary draft copy of 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 key study milestones:

Human Resources/Risk Management Component:

Orientation:	***to be determined***
Staff Interviews:	***to be determined***
Exit Interviews:	***to be determined***
Preliminary Report Submitted:	***to be determined***
Final Report Submitted:	***to be determined***
Board Presentation:	***to be determined***
Follow-Up Support:	***if requested***

Technology Component:

Orientation:	***to be determined***
Staff Interviews:	***to be determined***
Exit Interviews:	***to be determined***
Preliminary Report Submitted:	***to be determined***
Final Report Submitted:	***to be determined***
Board Presentation:	***to be determined***
Follow-Up Support:	***if requested***

7. CONTACT PERSON

Name of contact person: Kelly Porterfield, Associate Superintendent

Telephone: (559) 675-4500 x269 FAX: (559) 674-7810

E-Mail: Porterfield_k@madera.k12.ca.us

6/26/2012

Gustavo Balderas, Ed.D, Superintendent — Date
Madera Unified School District

June 11, 2012

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

Appendix B: Staffing Comparisons

Note: Many information technology divisions support technologies and services beyond basic computers and servers. The comparison districts may support applications that are more difficult to quantify in regards to support ratios, support hours, and impact on overall operation efficiency and adequate staffing. For example, some information technology divisions support phone systems, printers, copiers, projectors, interactive boards, radios, network cabling and other outliers that impact how district staff their divisions.

Information Technology Staffing Comparisons

Data	Madera Unified School District	Ventura Unified School District	Antioch Unified School District	Oceanside Unified School District	Simi Valley Unified School District	Pajaro Valley Unified School District	Average
Enrollment (2011-12, Ed Data)	19,576	17,509	19,081	21,081	19,933	19,545	19,454
Total # of Schools	27	31	26	23	28	32	27.83
Total Computers	8,500	7,500	4,000	5,500	5,000	6,500	6,166.67
Estimated - Computer:Technician Ratio (ratio factored by the FTE desk-top/computer repair/helpdesk support)	1,063 to 1	833 to 1	800 to 1	539 to 1	1,000 to 1	433 to 1	778 to 1
Director level	1	1	1	1	1	1	1.00
Assistant Director level	0	0	0	0	0	1	0.17
Manager level	0	1	0	0	1	0	0.33
Administrative Assistance/Dept Secretary	0	1	1	0.33	1	1	0.72
FTE Information System Support / Applications Analyst	3	1	4	2	3	2	2.50
FTE Network/Systems/ Administrative/Engineer support	2	1	1	1	1	1	1.17
FTE Site Technical/desktop/ Computer repair support	8	9	4	10.2*	4	15**	8.37
FTE helpdesk/user support	0	0	1	0	1	0	0.33
Teachers on Special Assignment (fully released from classroom)	3	0	0	0	0	1	0.67
Ed Tech or Instructional Technology coordinator/director	1	1	0	0	1	0	0.50
Division that IT reports to	Business Services	Ed & Business Divisions	Business Services	Education Services	Business Services	Business Services	

** Oceanside: 3 staff at 1 FTE, 8 staff at .9 FTE*

*** Pajaro: 5 staff at 260 days, 10 staff at 191 days*

Appendix C: Job Title Equivalency

Working Job Title	Approved Job Description Title
Director of Technology Services	Director – Information and Technology Support
Network Administrator	Network Administrator
System Information Specialist	Information Technology Specialist – Network
Network System Specialist	Information Systems Specialist
Network Specialist II	Network Specialist
Information Technology Specialist	N/A
N/A	Database Administrator

Appendix D: Sample Job Descriptions

CAPISTRANO UNIFIED SCHOOL DISTRICT **Range 37**
San Juan Capistrano, California

SENIOR STAFF SECRETARY

DEFINITION

Under supervision, to perform specialized and responsible clerical and secretarial functions; to relieve administration of clerical and office detail; and to provide information and assistance requiring a thorough knowledge of the assigned department.

DISTINGUISHING CHARACTERISTICS

This is the advanced journey level class in the secretarial series. Positions at this level are distinguished from the Staff Secretary classification by the level of responsibility assumed, the complexity of duties assigned and the independence in which duties and responsibilities are carried out. Employees perform difficult and responsible types of duties assigned to classes at this level including providing responsible secretarial and administrative support to assigned management staff. Positions assigned to the Senior Staff Secretary classification are further distinguished from the Staff Secretary classification in that the latter provides office support to an assigned department or defined program area whereas the Senior Staff Secretary directly supports an assigned manager.

EXAMPLES OF DUTIES

The following duties are typical for this classification. Incumbents may not perform all of the listed duties and/or may be required to perform additional or different duties from those set forth below to address business needs and changing business practices.

1. Plans, organizes, and performs a wide variety of specialized and responsible secretarial duties; schedules and coordinates various meetings and appointments.
2. Reviews and screens incoming correspondence and communications and prioritizes for assigned supervisor.
3. Receives telephone calls and office visitors, providing information involving interpretation of departmental procedures and policies.
4. Independently or from general instructions, composes correspondence and reports requiring a thorough knowledge of departmental policies and operational procedures; maintains confidentiality as necessary.
5. May attend meetings and transcribe minutes.
6. Maintains and updates a variety of complex records, files and databases.
7. Collects and compiles a variety of data for departmental records, budget or special projects; monitors budget expenditures.
8. Prepares a variety of forms including personnel requisitions, purchase orders, work orders, travel expenses, bid documents, contracts and evaluations.
9. Reviews records, reports, and data for accuracy, completeness, and compliance with standardized guidelines.
10. May assist with training of clerical support staff.
11. Operates a variety of office equipment including personal computer, typewriter, calculator, and copier; creates spreadsheets, charts, newsletters, brochures, flyers and various presentation materials as requested.
12. Maintains and orders office supplies, materials and equipment.
13. Performs other related duties as required.

QUALIFICATIONS

Knowledge of:

Organization and coordination of specialized and responsible clerical and secretarial support functions; modern office methods and procedures including receptionist and telephone techniques; methods and techniques of filing and record keeping; methods and techniques of public relations; office equipment

including personal computers and supporting software applications; correspondence and report writing; correct English usage, grammar, spelling, and punctuation.

Ability to:

Interpret, and apply policies, rules, and regulations, and operational procedures; perform responsible and difficult administrative support and secretarial duties involving the use of independent judgment and personal initiative; assume responsibility for administrative detail, including the organization and coordination of clerical functions; compose correspondence and reports independently; establish and maintain comprehensive and accurate files, databases and records; prepare complete and concise reports; operate office equipment including personal computer, typewriter, and calculator; type or enter data at a speed necessary for successful job performance; communicate effectively in oral and written format; have an understanding and appreciation of human diversity; understand and carry out oral and written instructions; establish and maintain cooperative working relationships; comply with the District's customer service standards, as outlined in Board policy.

Education/Experience:

Any combination equivalent to: Completion of the twelfth grade; and three years of responsible and varied secretarial and clerical experience, including utilization of personal computers.

License/Certificate Requirement:

Possession of a valid California Driver's License.

PHYSICAL DEMANDS AND WORKING ENVIRONMENT

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

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

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

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

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

4/99
Revised 9/03;4/06;7/07

MERCED COUNTY OFFICE OF EDUCATION (MCOE)

POSITION DESCRIPTION

POSITION TITLE:	Administrative Support Technician	DATE APPROVED:	03/15/05
DEPARTMENT:	Business Services Information & Technology Services		
SALARY RANGE:	CLS/36	_____ EMPLOYEE SIGNATURE	_____ DATE

MINIMUM QUALIFICATIONS:

Education and/or Training:
High school diploma plus two years of specialized training or coursework in Office/Computer Technology, Accounting, Business or closely related field obtained through a community college, trade/correspondence school or on-the-job training.

Experience:
Over three years of experience using personal computers, Microsoft Office Suite and publishing products. Must have accounting/bookkeeping experience, i.e., accounts payable, purchasing, customer service.

Credentials and/or Skills:
Extensive knowledge in the use of personal computers, including data entry/retrieval, Microsoft Excel, Access, FrontPage and Word. Working knowledge of IBM and IBM compatible software and hardware. Basic accounting skills. Strong organizational, written and oral communication skills. Skill in following oral and written instructions of a technical nature. Must possess good interpersonal skills. Valid CA Driver's License and minimum amount of liability insurance required by law. DMV printout required.

DESIRABLE QUALIFICATIONS:

Education and/or Training:
Bachelor's Degree in Computer Information Systems, Accounting, Business or closely related field.

Experience:
Experience working in a school district, county office of education or similar agency. Working knowledge of cellular and digital telephones and large scale phone PBX/Centrex systems.

Credentials and/or Skills :
Knowledge of Ed Code, E-Rate, public contracting rules. Basic knowledge of LAN/WAN operating systems.

SUMMARY OF POSITION:
Under general direction of the Information, Technology, and Communications Services Director, Business Services Department, provides general support to department staff performing a variety of complex administrative and technical tasks. This individual is the front-desk contact person to visitors to the department and will be the primary contact for any billing or purchasing questions, phone problems, and other administrative questions. This individual is responsible for operating the production tasks for MCOE's Financial and Personnel System generating accounts payable and payroll runs, providing user support, as well as formal and follow-up trainings on the use of the systems, software, and equipment supported by the ITS Division. This position is included in the classified bargaining unit and is subject to terms of the union agreement regarding membership, payment of like fee, or donation to recognized charity.

ESSENTIAL FUNCTIONS:
1. Greets visitors and callers to the department, assisting them with information requests, and/or guiding them to the appropriate person.
2. Manages assigned phone systems including ordering new service and phones, tracking the accounts, verifying bills, coordinating repairs, and establishing and maintaining contracts in compliance with funding requirements.
3. Designs, implements and maintains various Access databases for use by ITS and other departments.

4. Processes countywide payroll and accounts payable: extracts transactions for production run; prints notice of deposits; initiates and tracks transfer of warrant files to county government mainframe; creates files for automatic payroll deposits and reconciliations; performs electronic transfers; updates database and runs payroll and accounts payable reports.
5. Learns new and revised financial system processes, designs training materials, conducts trainings to the user community as well as coordinating with outside consultants for additional required trainings.
6. Provides basic support to MCOE mainframe users; acts as the liaison between the users and the technology staff and vendors in the use of the Financial and Personnel Systems; serves as liaison between users and the IP Team members, providing training and support.
7. Initiates, tracks and maintains service/support agreements and purchase orders; maintains and distributes pertinent staff, client and vendor contact information.
8. Develops and maintains pertinent documentation and calendars.
9. Assists Director with correspondence, desktop publishing, presentations, and other miscellaneous administrative tasks.
10. Performs a variety of duties in connection with the organization, update, storage, protection and retention requirements of data and document files.
11. Assists in the gathering and assimilation of information in the E-Rate process.
12. Compiles information for a variety of reports, i.e., computer usage, tracks and distributes communication line charges, Internet charges, LAN/WAN labor timesheets, department billing information, and other charges using spreadsheet applications.
13. Serves as software librarian: maintains license information and agreements for software and hardware; works with vendors to ensure contracts are accurate and up-to-date.
14. Creates manuals for various programs as required, i.e., data processing procedures and user training manuals for use with training on terminals and printers.
15. Prepares detailed documentation and operation instructions for full operational programs; documents daily activities, policies and procedures affecting operations staff.
16. Maintains internal inventory and control of required supplies.
17. Serves as backup to Department Webmaster as needed; identifies and provides preliminary troubleshooting assistance for the website; forwards emails to the Webmaster and/or appropriate staff; may provide FrontPage training to department web authors on an as needed basis.
18. Attends meetings, workshops and conferences as required.
19. Operates a personal computers, related computer equipment and standard office equipment.
20. Operates a motor vehicle.
21. Performs other related essential functions as assigned.

PHYSICAL REQUIREMENTS: Employees in this position must have the ability to:
1. Sit and repetitiously enter data into a personal computer for extended periods of time.
2. See and read a computer screen and printed matter with or without vision aides.
3. Hear and understand speech at normal levels and on the telephone with or without hearing aides.
4. Speak so that others may understand at normal levels and on the telephone.
5. Operate a personal computer, related computer equipment and standard office equipment.
6. Operate a motor vehicle.
7. Stand, walk, bend over, crouch, stoop, kneel, twist, grasp, reach overhead, push, pull, and move, lift and/or carry 0 to 50 pounds to waist height.

WORK ENVIRONMENT:
Employees in this position will be required to work indoors in an office environment; travel by motor vehicle outdoors in varying degrees of temperatures; and come in direct contact with MCOE/district staff and the public.

KERN COUNTY SUPERINTENDENT OF SCHOOLS
REVISED/APPROVED SEPTEMBER 2011
RANGE: 45.5
CLASSIFIED
CODE: NONE

TECHNOLOGY SUPPORT PLANNER

DEFINITION
Under the direction of the assigned administrator, the Technology Support Planner will organize functions within the technology department such as project management, tracking and control, monitoring performances and productivity of the projects undertaken by the technology staff.

Perform a variety of clerical and supportive activities for the technology division including direct customer support.

EXAMPLES OF DUTIES
Organizes the acquisition and tracking of hardware, maintenance agreements, license agreements, equipment and software purchases for the technology division;

tracks hardware and software purchases for all divisions of the Kern County Superintendent of Schools office;

assists the assigned administrator in preparation, delegation, monitoring, and follow through to completion of projects and project schedules within the division;

maintains and provides accurate project status reports to the assigned administrator.

review and process technology support tickets to ensure completion, proper billing and receipt of funds into technology accounts;

organize and maintain records for all office purchased software;

maintain Budget-Monitor and control expenditures;

maintain the office ID system;

assists district and office personnel to maintain e-mail and Internet accounts;

process e-mail and Internet request forms, maintain records, reports and billing;

provide monthly billing reports to the business office;

process division forms such as: Attendance, purchase cards, expense claims, requisitions, purchase orders, etc.;

provides direct phone support to Division of Technology internal and external customers.

QUALIFICATIONS
Knowledge of:
English usage, spelling, grammar, and punctuation;

modern office practices and equipment, including automated data management, storage, and retrieval systems;

communication techniques, strategies, and procedures;

must have current working knowledge of productivity software, web publishing, e-mail, database management and accessing the Internet on the microcomputer;

basic micro-computer and network access troubleshooting and triage techniques.

Ability to:
Abstract, compile, and prepare accurate and comprehensive reports and summaries;

communicate effectively in oral and written form;

establish and maintain a variety of complex, privileged, and sensitive data management, storage, and retrieval systems;

make arithmetical calculations with speed and accuracy;

understand and carry out oral and written directions;

establish and maintain cooperative working relationships with both internal and external customers and staff personnel;

Experience:
Four years of responsible or specialized clerical experience;

proficiency in Microsoft Word, Word Perfect, and Excel.

Education:
Equivalent to the completion of the twelfth grade, including coursework and training in basic Micro-Computer operation and current office productivity software.

Coursework or training in instructional technology, technology assistance, office management, or a closely related field desired.

Condition of employment:
Some positions may require proof of privately owned automobile insurance and possess a valid California Motor Vehicle operator's license.

Fingerprint clearance by both the Federal Bureau of Investigation and the California Department of Justice is a condition of appointment after all other required job conditions have been met.

This position has a probationary period of six months or 130 days, whichever is longer.

TS:ll
Approved 9/13/11
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CAPISTRANO UNIFIED SCHOOL DISTRICT
San Juan Capistrano, California

TEACHER ON SPECIAL ASSIGNMENT – EDUCATIONAL TECHNOLOGY

DEFINITION

Under the direction of the Director of Educational Technology, provide support and guidance in technology curriculum development and integration, teacher development and instructional program design to enhance student achievement.

EXAMPLES OF DUTIES

- Work to improve the overall quality of education received by students and teachers in the district; act as an educational change agent aware of technology curriculum integration theories
- Work with the Director of Educational Technology to do long and short range planning of curriculum technology integration
- Act as a liaison for the Education Division and TIS, attend instructional events and meetings with other district and site leaders
- Participate in development and implementation of departmental goals, objectives, policy priorities, standards, and procedures
- Coordinate and support the site technology coordinators to implement goals and integrate technology into instruction based on ongoing district-wide needs assessment and software technology implementation
- Review curriculum, develop training programs, identify best practices, and coordinate integration of technology into the learning process
- Help teachers to develop curriculum materials and specific lesson plans so that the teachers can carry out their part of the overall school's instructional plan.
- Work cooperatively with school and District personnel in globally assessing student needs, and learning deficiencies, and developing alternative, technology-based solutions to remediate pupil learning problems
- Serve as a resource to meet a wide range of needs including technical support, support for the integration of technology into curriculum; demonstrations, workshops, and facilitation of meetings in support of district technology goals
- Keep up in the computer educational field by studying and working with new pieces of hardware and software. Develop and follow plan for personal professional growth. Remain technically competent. Continue to grow as a professional computer educator, educational leader, and remain professionally active
- Work with school non-teaching and administrative personnel to help them learn to make effective use of computer technology in doing their jobs
- Manage and implement technology related grants

QUALIFICATIONS

Knowledge of:
Current K-12 instructional practices, theories and methods; principles and techniques of educational technology; principles and techniques for project planning; principals of adult learning and effective instruction; online course development and ongoing network building; broad knowledge emerging trends in instructional technology; educational curriculum and instructional goals and objectives, and the educational trends and research findings relative to effective use of technology for learning; behavior management strategies; socio-economic and cultural background differences of the general school population.

Ability to:
Plan, organize, develop and conduct a comprehensive teaching and instructional program to support the integration of technology to enhance learning. Coordinate and guide teachers, support staff, advisory groups and other stakeholder groups in developing programs to support learning; communicate clearly and concisely, orally and in writing; analyze problems and prepare written and oral reports; define specific goals and develop sound strategies to accomplish objectives; facilitate projects and programs in support of technology use and integration; demonstrate strong interpersonal skills to facilitate and lead change; comply with the District's customer service standards, as outlined in Board Policy.

Experience:
At least three years teaching experience, preferably including experience in coordinating technology integration into instruction and guiding other staff in technology integration.

Education:
Current California teaching credential; a minimum of three years teaching experience, experience in computer applications and teaching methodologies.
Masters degree in related area or postgraduate educational technology coursework preferred.

Certificate Requirement:
Possess a current California teaching credential, English learner authorization and No Child Left Behind (NCLB) certification as appropriate.

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